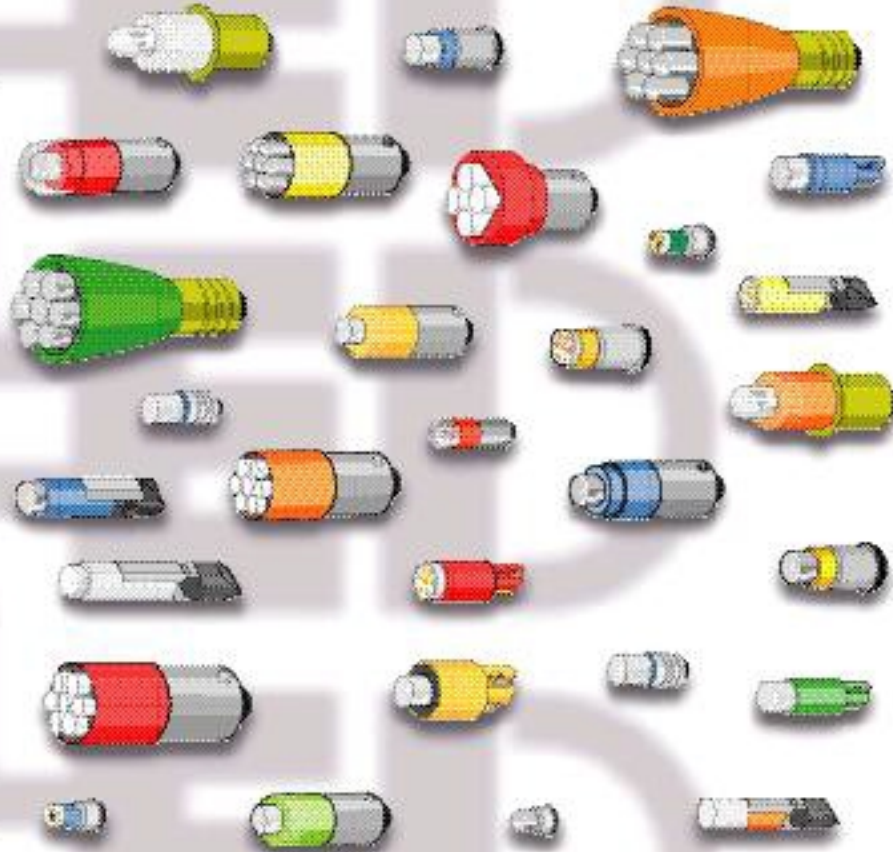


# miniature based

*Miniature Based LED Lamps*



**LED**<sup>®</sup>  
**LEDTRONICS, INC.**  
**THE FUTURE OF LIGHT**

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Once limited to simple status indicators, Light Emitting Diodes (LEDs) now play prominent roles in back lighting, panel indication, decorative illumination, emergency lighting, animated signage, etc.... The emergence of LEDs as a viable alternative to incandescent lighting can be attributed to new manufacturing technologies, packaging innovations and an increasing number of colors. These factors along with the growing awareness of the advantages of LEDs (e.g., a life span measured in years not hours, vivid sunlight-visible colors and low power requirements) have engineers, product designers, purchasing agents and component vendors viewing LEDs in a whole new light.

For many applications LED lamps are superior to incandescent lighting. So why is it that in tens of millions of switches, indicators, control panels, signs, annunciators, displays, decor lights and dozens of other applications, design engineers still specify incandescent technology? It might be that they're just a few years behind what's really happening in LED illumination.

Although advances made in LED technology in the past few years have dramatically broadened the applications for these rugged little light sources, it wasn't that long ago that red was the only "daylight-visible" colored LED. And that wasn't the only thing limiting their use!

Unlike incandescent bulbs that give off the full spectrum of light in a spherical pattern, LEDs emit a focused beam of a single wavelength (color) in only one direction, in a variety of angles. For many applications, such as indicators or switch illuminators, this is not a problem, but it took the development of multi-chip arrays and high-flux LED chips to begin to achieve the effect of an incandescent filament.

Major advancements in LED technology have taken place in recent years such as development of new "doping" technologies that increase LED light output by as much as 20 times over earlier generations, and allow the production of daylight-visible LEDs in virtually any color of the spectrum. In addition to red, yellow, and amber/orange, LEDs are now available in many colors from leaf green to ultra blue. Even white light, long thought to be an impossibility, is now available in three different shades as a light-emitting diode.

The efficiency of LEDs is most apparent in applications requiring color. Light from a typical incandescent bulb must be filtered so that only light from a particular part of the spectrum (e.g., red, amber or green, etc...) for example—is visible. While LEDs deliver 100 percent of their energy as colored light, incandescent bulbs waste 90 percent or more of their energy in light blocked by the colored lens or filter. Incandescent bulbs also waste 80 percent to 90 percent of their energy on heat generation to reach the temperature for which (Kelvin scale) they are designed.

The point is that what was once a fairly marginal light source isn't marginal any more. In many applications, LEDs exceed the energy available from incandescent bulbs and offer significant additional benefits making LED clusters and lamps as friendly to the environment as they are to the operating budget.

## Table of Contents

| Description   | Page  |
|---|-------|
| Application Notes. . . . .                          | 4     |
| Questionnaire. . . . .                              | 5     |
| T1 (3mm) Sub-Midget Based LEDs. . . . .             | 6     |
| T1 (3mm) Sub-Midget Bi-Pin Based LEDs. . . . .      | 7     |
| T1-1/2 (4.5mm) Midget Wedge Based LEDs. . . . .     | 8     |
| T1-3/4 (5mm) Midget Wedge Based LEDs. . . . .       | 9     |
| T1-3/4 (5mm) Midget Flange Based LEDs. . . . .      | 10    |
| T1-3/4 (5mm) Midget Groove Based LEDs. . . . .      | 11    |
| T1-3/4 (5mm) Midget Screw Based LEDs. . . . .       | 12    |
| T1-3/4 (5mm) Midget Bi-Pin Based LEDs. . . . .      | 13    |
| T3-1/4 (9mm) Miniature Based LED Lamps. . . . .     | 14–17 |
| T3-1/4 (9mm) Miniature Wedge Based LEDs. . . . .    | 18–19 |
| T3-1/4 (9mm) Miniature Scew Based LEDs. . . . .     | 20    |
| S6 Candelabra Screw Based LEDs. . . . .             | 21–22 |
| T5.5K European Telephone Slide Based LEDs. . . . .  | 23    |
| T6.8 European Telephone Slide Based LEDs. . . . .   | 24    |
| T2 ANSI #5 Telephone Slide Based LEDs. . . . .      | 25    |
| T2 ANSI #2 & #3 Telephone Slide Based LEDs. . . . . | 26    |
| T2 #1 Telephone Slide Based LEDs. . . . .           | 27    |
| LED Color Chart. . . . .                            | 28    |

## Series Number – Page Number

| Series    | Page        | Series  | Page | Series | Page  |
|-----------|-------------|---------|------|--------|-------|
| 1SB200    | 27          | BP121   | 7    | S200   | 12    |
| 1SBF200   | 27          | BP122   | 7    | S206   | 12    |
| 2SB200    | 26          | BP124   | 7    | S321   | 20    |
| 2SB206    | 26          | BP200   | 13   | SF200  | 12    |
| 2SBF200   | 26          | BP203   | 13   | SF321  | 20    |
| 5SB200    | 25          | BPF120  | 7    | SF464  | 21,22 |
| 5SB206    | 25          | BPF200  | 13   | SL424  | 22    |
| 5SBF200   | 25          | BSD1174 | 27   | SL464  | 22    |
| 55KSB200  | 23          | F120    | 6    | SL467  | 22    |
| 55KSB206  | 23          | F121    | 6    | SLF461 | 21,22 |
| 55KSBF200 | 23          | F122    | 6    | SLF464 | 21,22 |
| 68SB200   | 24          | F124    | 6    | SLF467 | 21,22 |
| 68SB206   | 24          | F200    | 10   | WF150  | 8     |
| 68SBF200  | 24          | F206    | 10   | WF200  | 9     |
| B3127     | 17          | FF120   | 6    | WF3126 | 18,19 |
| B3206     | 17          | FF200   | 10   | WF3127 | 18,19 |
| B321      | 17          | FFL200  | 10   | WF321  | 18,19 |
| BF304     | 14,15,16,17 | FL206   | 10   |        |       |
| BF3126    | 14,15,16,17 | G200    | 11   |        |       |
| BF3127    | 14,15,16,17 | G206    | 11   |        |       |
| BF321     | 14,15,16,17 | GF200   | 11   |        |       |
| BM326     | 17          | HL230   | 6    |        |       |
| BN306     | 17          | HLC2020 | 6    |        |       |
| BN307     | 17          | HLC310  | 6    |        |       |
| BN309     | 17          | HLD310  | 6    |        |       |
| BP120     | 7           | RFI EMI | 6    |        |       |



# Application Notes

Will the Panel LED replace another manufacturers parts? Dialight, Data Display Products, Industrial Devices Inc., etc...  
If so, what is the part number?

Mounting Type? Snap-in, Snap-in with mount clip, Bolt-on, Relampable, etc...

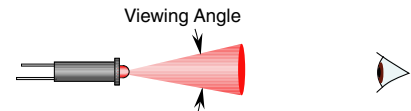
Mounting Diameter & Panel Thickness? What is the hole diameter into which the lamp assembly must fit? How thick is the wall of the panel?

Operating Voltage and Polarity? Actual open line voltage? AC or DC? Does it fluctuate?  
Indicate the Minimum/Maximum values?

Terminal Type? Are solid wire (0.02 sq.), pigtail flexible wire lead (24AWG), quick disconnect (3/16 rectangular), solder lug, turret, or screw-on type terminals preferred?

Viewing Distance? How far is the operator / technician when the indicator must be visible? 5 to 10 feet, 20 to 50 feet, 100 to 200 feet, 500 to 1000 feet?

Viewing Angle? 0 to 12 degrees – Narrow Beam  
30 to 60 degrees – Medium Beam  
100 to 160 degrees – Wide Beam



LED Color? Ultra Red, Hi-Efficiency Red, Standard Red, Orange, Yellow, Cool white, Ultra Green, Aqua Green, Blue

Lens Type? Diffused lenses are used in applications where direct viewing or indication is needed. Clear lenses are used in application where illumination is needed. Is the lens fluted?

Ambient Lighting? Standard office lighting. High ceiling factory lighting.  
Indirect sunlight. Direct sunlight

Potential Quality and Target Price? How many pieces are required within a given time frame?  
How much budgetary funding is allowed for this item or project?



# Based LED Questionnaire

Date \_\_\_\_\_

## About you

The following information assists LEDtronics in determining the most appropriate FREE LED product SAMPLE. Fax to (310) 534-1424 for fast response.






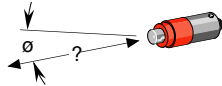
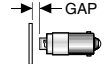
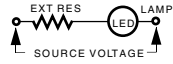
Name: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_  
 Company: \_\_\_\_\_ Fax: (\_\_\_\_) \_\_\_\_\_  
 Address: \_\_\_\_\_ M/S: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 E-Mail: \_\_\_\_\_

## About your company

What does your company manufacture \_\_\_\_\_  
 Is your company  Govt/Military  Govt Contractor  OEM  Distributor  Utility  MRO  
 Requirement is for  R&D  Replacement  New Application  Other \_\_\_\_\_  
 Total annual quantity \_\_\_\_\_  
 Target price \_\_\_\_\_ Time frame  Immediate  3 months  6 months

For internal use only  
 SIC code: \_\_\_\_\_  
 Originator: \_\_\_\_\_  
 Rep: \_\_\_\_\_  
 Current Customer  Yes  No

## About your application

 Incandescent/LED No. \_\_\_\_\_ mAmps \_\_\_\_\_ Design Volts \_\_\_\_\_ MSCD \_\_\_\_\_  
 Base size  T1  T2  T1<sup>3/4</sup>  T3<sup>1/4</sup>  S6  15mm  Other \_\_\_\_\_  
 Base type  Flange  Bayonet  Wedge  Bi-pin  Screw  Groove  Other \_\_\_\_\_  
 Operating voltage (max)  5V  12V  24V  28V  120VAC  Other \_\_\_\_\_  
 Center contact  
 Voltage (type)  AC  DC  Bipolar Polarity of center contact  +  -  
 Lens color  Red  Orange  Amber  Yellow  White  Green  Blue  Other \_\_\_\_\_  
 Lens type  Clear  Diffused Lens size  16mm  22mm  30mm  Other \_\_\_\_\_  
 Lens shape  Circular  Square  Rectangular  
 Jelly-jar  Other \_\_\_\_\_  
 Ambient lighting conditions  Indirect sunlight  Direct sun  Office  Lowlight  Darkroom  
 Maximum viewing distance desired  1 ft  5 ft  10 ft  20 ft  50 ft  Other \_\_\_\_\_  
 Maximum viewing angle desired  Straight on  30;  60;  90;  Other \_\_\_\_\_  
 Distance between top of lamp and lens/filter  1/8"  1/4"  1/2"  Other \_\_\_\_\_  
 Is an external resistor in series with the lamp  Yes  No If yes, Ohms \_\_\_\_\_ Watts \_\_\_\_\_  
 What is the source voltage if higher than the operating voltage of the lamp \_\_\_\_\_  
 Would like updated literature  Yes  No More info on:  Based  Panel  PCB  Discrete  Other \_\_\_\_\_  
 Applicable statutory and regulatory requirements  Yes  No Doc. No. \_\_\_\_\_

## Additional Notes/Sketches



# T1(3mm) Sub-Midget Based LEDs

| Subminiature Packages   | Replaces Incandescent | Part Number    | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|-----------------------|----------------|--|----------------|---------------|-----------------------|--|
|   |                       |                | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>F121 Ceramic Base FF120<br> | 682,685,714,718       | FF120-0UR-005P | 5V   | 20             | 100           | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Standard (65°) Beam Intensity 180 mcd/30 Ft.Cd      |
|   | 7241                  | FF120-0UR-018P | 18V  | 15             | 50            |                       |  |
|   | 6839                  | FF120-0UR-024P | 24V  | 12             | 33            |                       |  |
|   | 6839                  | FF120-0UR-028P | 28V  | 12             | 33            |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br>F121 Ceramic Base FF120<br>    | 682,685,714,718       | FF120-0UO-005P | 5V   | 20             | 85            | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Medium (50°) Beam Intensity 350 mcd                 |
|   | 7241                  | FF120-0UO-018P | 18V  | 15             | 64            |                       |  |
|   | 6839                  | FF120-0UO-024P | 24V  | 12             | 51            |                       |  |
|   | 6839                  | FF120-0UO-028P | 28V  | 12             | 51            |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br>F121 Ceramic Base FF120<br>    | 682,685,714,718       | FF120-0UY-005P | 5V   | 20             | 32            | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Medium (50°) Beam Intensity 1K mcd                  |
|   | 7241                  | FF120-0UY-018P | 18V  | 15             | 21            |                       |  |
|   | 6839                  | FF120-0UY-024P | 24V  | 12             | 15            |                       |  |
|   | 6839                  | FF120-0UY-028P | 28V  | 12             | 15            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br>F121 Ceramic Base FF120<br>      | 682,685,714,718       | FF120-0CW-005P | 5V   | 15             | 150           | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Std. (50°) Beam Intensity 650 mcd/75 Ft. cd         |
|   | 7241                  | FF120-0CW-018P | 18V  | 15             | 150           |                       |  |
|   | 6839                  | FF120-0CW-024P | 24V  | 10             | 100           |                       |  |
|   | 6839                  | FF120-0CW-028P | 28V  | 10             | 100           |                       |  |
| <b>570nm Lime Green InGaAlP</b><br><br>F121 Ceramic Base FF120<br>      | 682,685,714,718       | FF120-0UG-005P | 5V   | 20             | 36            | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Medium (50°) Beam Intensity 165 mcd @ 20 mA         |
|   | 7241                  | FF120-0UG-018P | 18V  | 15             | 27            |                       |  |
|   | 6839                  | FF120-0UG-024P | 24V  | 12             | 22            |                       |  |
|   | 6839                  | FF120-0UG-028P | 28V  | 12             | 22            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>F121 Ceramic Base FF120<br>      | 682,685,714,718       | FF120-0AG-005P | 5V   | 15             | 200           | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Narrow (15°) Beam Intensity 5K mcd/145 Ft.Cd        |
|   | 7241                  | FF120-0AG-018P | 18V  | 15             | 200           |                       |  |
|   | 6839                  | FF120-0AG-024P | 24V  | 10             | 150           |                       |  |
|   | 6839                  | FF120-0AG-028P | 28V  | 10             | 150           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>F121 Ceramic Base FF120<br>      | 682,685,714,718       | FF120-0PB-005P | 5V   | 15             | 60            | 120°                  | Center Contact Polarity<br>P = Positive<br>N = Negative<br><br>Replace FF120 With F120 Std. (15°) Beam Intensity 1.5K mcd/32 Ft.Cd @ 15 mA |
|   | 7241                  | FF120-0PB-018P | 18V  | 15             | 60            |                       |  |
|   | 6839                  | FF120-0PB-024P | 24V  | 10             | 45            |                       |  |
|   | 6839                  | FF120-0PB-028P | 28V  | 10             | 45            |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

## Options

Series: F120 (No Resistor)  
 PN Example: F120-0UR-002F

Series: F121 (1 Chip, 160°)  
 PN Example: F121-0UY-005P

Series: F122 (2 Chip, 160°)  
 PN Example: F122-0UO-005P

Series: F124 (4 Chip, 160°)  
 PN Example: F124-0UR-028P

Series: HLD310 (Rear Mount)  
 PN Example: HLD310CW900-5V-P

Series: HLC310 (Front Mount)  
 PN Example: HLC310CB1K-5V-P

RFI EMI Shield

Holder: HLC2020

Series: HL230  
 Lens: HL230

See Data Sheet Log #119 for Complete Information on Panel Mount LEDs

Log # 122A Rev 09-2000



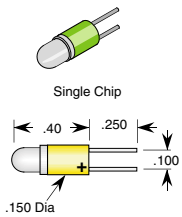


# T1(3mm) Sub-Midget Bi-Pin Based LEDs

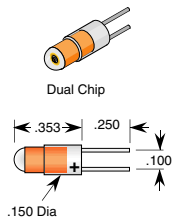
| Subminiature Packages                    | Replaces Incandescent | Part Number     | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|-----------------------|-----------------|--|----------------|---------------|-----------------------|--|
|  |                       |                 | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br> | 7265,7680,7714        | BPF120-0UR-005V | 5V   | 20             | 100           | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0UR-014V | 12/14V   | 15             | 50            |                       | Replace BPF120 With BP120 Standard (65°) Beam Intensity 180 mcd/30 Ft.Cd @ 20 mA |
|  | 7839                  | BPF120-0UR-024V | 24V  | 12             | 33            |                       |  |
|  | 7839                  | BPF120-0UR-028V | 28V  | 12             | 33            |                       |  |
| <b>612nm Super Orange InGaAlP</b><br>    | 7265,7680,7714        | BPF120-0UO-005V | 5V   | 20             | 85            | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0UO-014V | 12/14V   | 15             | 64            |                       | Replace BPF120 With BP120 Medium (50°) Beam Intensity 350 mcd@20 mA              |
|  | 7839                  | BPF120-0UO-024V | 24V  | 12             | 51            |                       |  |
|  | 7839                  | BPF120-0UO-028V | 28V  | 12             | 51            |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br>    | 7265,7680,7714        | BPF120-0UY-005V | 5V   | 20             | 32            | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0UY-014V | 12/14V   | 15             | 21            |                       | Replace BPF120 With BP120 Medium (50°) Beam Intensity 1K mcd @ 20 mA             |
|  | 7839                  | BPF120-0UY-024V | 24V  | 12             | 15            |                       |  |
|  | 7839                  | BPF120-0UY-028V | 28V  | 12             | 15            |                       |  |
| <b>800K Cool White SiC/GaN</b><br>       | 7265,7680,7714        | BPF120-0CW-005V | 5V   | 15             | 150           | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0CW-014V | 12/14V   | 15             | 150           |                       | Replace BPF120 With BP120 Std (50°) Beam Intensity 650 mcd/75 Ft. cd @ 15 mA     |
|  | 7839                  | BPF120-0CW-024V | 24V  | 10             | 100           |                       |  |
|  | 7839                  | BPF120-0CW-028V | 28V  | 10             | 100           |                       |  |
| <b>570nm Lime Green InGaAlP</b><br>      | 7265,7680,7714        | BPF120-0UG-005V | 5V   | 20             | 36            | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0UG-014V | 12/14V   | 15             | 27            |                       | Replace BPF120 With BP120 Medium (50°) Beam Intensity 165 mcd @ 20 mA            |
|  | 7839                  | BPF120-0UG-024V | 24V  | 12             | 22            |                       |  |
|  | 7839                  | BPF120-0UG-028V | 28V  | 12             | 22            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br>      | 7265,7680,7714        | BPF120-0AG-005V | 5V   | 15             | 200           | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0AG-014V | 12/14V   | 15             | 200           |                       | Replace BPF120 With BP120 Narrow (15°) Beam Intensity 5K mcd/145 Ft.Cd @ 15 mA   |
|  | 7839                  | BPF120-0AG-024V | 24V  | 10             | 150           |                       |  |
|  | 7839                  | BPF120-0AG-028V | 28V  | 10             | 150           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br>      | 7265,7680,7714        | BPF120-0PB-005V | 5V   | 15             | 60            | 120°                  | Contact Polarity<br>V = DC only  |
|  |                       | BPF120-0PB-014V | 12/14V   | 15             | 60            |                       | Replace BPF120 With BP120 Std (15°) Beam Intensity 1.5K mcd/32 Ft.Cd @ 15 mA     |
|  | 7839                  | BPF120-0PB-024V | 24V  | 10             | 45            |                       |  |
|  | 7839                  | BPF120-0PB-028V | 28V  | 10             | 45            |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

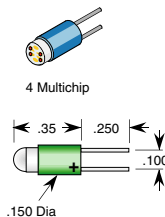
## Options



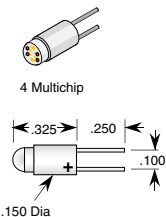
Series: BP120 (No Resistor)  
PN Example: BP120-0UY-005B



Series: BP122 (2Chip 160°)  
PN Example: BP122-0CO-005B



Series: BP124 (4 Chip 160°)  
PN Example: BP124-0UG-005B








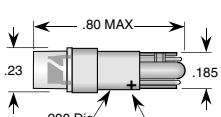

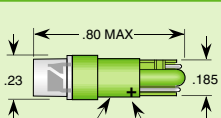

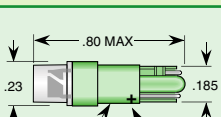

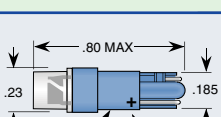


Series: BP124 (4 Chip 160°)  
PN Example: BP124-0CW-005B

Log # 122B Rev 09-2000

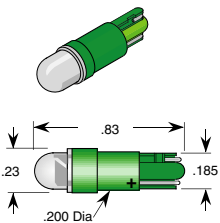


# T1-1/2 (4.5mm) Midget Wedge Based LEDs

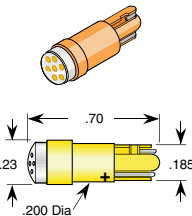
| Subminiature Packages   | Replaces Incandescent | Part Number    | Electrical-Optical Characteristics (Ta = 25jC) |                |               | Angle of Illumination | Special Features   |
|---|-----------------------|----------------|--|----------------|---------------|-----------------------|--|
|   |                       |                | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>WF150<br> | 56,79,84,86           | WF150-OUR-005V | 5V   | 20             | 115           | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-OUR-014V | 12/14V   | 20             | 115           |                       | Replace WF150 With W150<br>Narrow Beam (15j)<br>Intensity 1.6K mcd/52 Ft.Cd @20 mA |
|   | 17, 85                | WF150-OUR-024V | 24V  | 15             | 85            |                       |  |
|   | 17, 85                | WF150-OUR-028V | 28V  | 15             | 85            |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br>WF150<br>    | 56,79,84,86           | WF150-UOU-005V | 5V   | 20             | 130           | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-UOU-014V | 12/14V   | 20             | 130           |                       | Replace WF150 With W150<br>Narrow Beam (15j)<br>Intensity 3.5K mcd@20 mA           |
|   | 17, 85                | WF150-UOU-024V | 24V  | 15             | 98            |                       |  |
|   | 17, 85                | WF150-UOU-028V | 28V  | 15             | 98            |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br>WF150<br>    | 56,79,84,86           | WF150-UUY-005V | 5V   | 20             | 116           | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-UUY-014V | 12/14V   | 20             | 116           |                       | Replace WF150 With W150<br>Narrow Beam (15j)<br>Intensity 3.2K mcd@20 mA           |
|   | 17, 85                | WF150-UUY-024V | 24V  | 15             | 75            |                       |  |
|   | 17, 85                | WF150-UUY-028V | 28V  | 15             | 75            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br>WF150<br>      | 56,79,84,86           | WF150-OCW-005V | 5V   | 15             | 160           | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-OCW-014V | 12/14V   | 15             | 160           |                       | Replace WF150 With W150<br>Std. Beam (50j) Intensity<br>750 mcd/75 Ft. cd @ 15 mA  |
|   | 17, 85                | WF150-OCW-024V | 24V  | 15             | 160           |                       |  |
|   | 17, 85                | WF150-OCW-028V | 28V  | 15             | 160           |                       |  |
| <b>570nm Lime Green InGaAlP</b><br><br>WF150<br>    | 56,79,84,86           | WF150-UUG-005V | 5V   | 20             | 58            | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-UUG-014V | 12/14V   | 20             | 58            |                       | Replace WF150 With W150<br>Narrow Beam (12-15j)<br>Intensity 1K mcd @ 20 mA        |
|   | 17, 85                | WF150-UUG-024V | 24V  | 15             | 44            |                       |  |
|   | 17, 85                | WF150-UUG-028V | 28V  | 15             | 44            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>WF150<br>  | 56,79,84,86           | WF150-OAG-005V | 5V   | 15             | 400           | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-OAG-014V | 12/14V   | 15             | 400           |                       | Replace WF150 With W150<br>Narrow Beam (15j)<br>Intensity 7K mcd/250 Ft.Cd @ 15 mA |
|   | 17, 85                | WF150-OAG-024V | 24V  | 15             | 400           |                       |  |
|   | 17, 85                | WF150-OAG-028V | 28V  | 15             | 400           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>WF150<br>  | 56,79,84,86           | WF150-OPB-005V | 5V   | 15             | 125           | 120j                  | Contact Polarity<br>V = DC only  |
|   | 18,37,73,74           | WF150-OPB-014V | 12/14V   | 15             | 125           |                       | Replace WF150 With W150<br>Std. Beam (15j) Intensity<br>2K mcd/60 Ft.Cd @ 15 mA    |
|   | 17, 85                | WF150-OPB-024V | 24V  | 15             | 125           |                       |  |
|   | 17, 85                | WF150-OPB-028V | 28V  | 15             | 125           |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

## Options



Series: W150  
PN Example: W150-OAG-005B

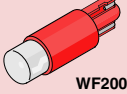
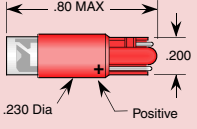

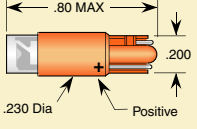

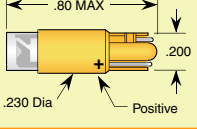
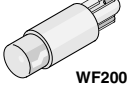
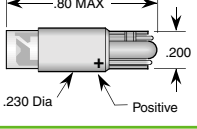

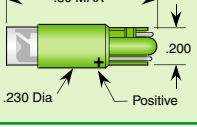

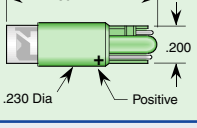

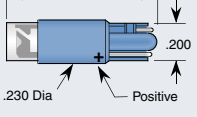


Series: W156  
PN Example: W156-UUY-005B



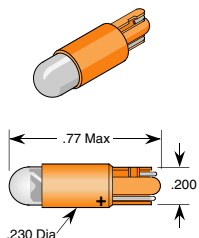


# T1-3/4 (5mm) Midget Wedge Based LEDs

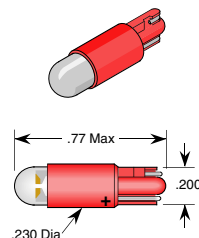
| Subminiature Packages  | Replaces Incandescent   | Part Number | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|---|-------------|--|----------------|---------------|-----------------------|--|
|  |   |             | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>WF200 |    | 56,79,84,86 | WF200-0UR-005V                                 | 5V             | 20            | 115                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @20 mA |
|  |   | 18,37,73,74 | WF200-0UR-014V                                 | 12/14V         | 20            | 115                   |  |
|  |   | 17, 85      | WF200-0UR-024V                                 | 24V            | 15            | 85                    |  |
|  |   | 17, 85      | WF200-0UR-028V                                 | 28V            | 15            | 85                    |  |
| <b>612nm Super Orange InGaAlP</b><br><br>WF200    |    | 56,79,84,86 | WF200-0UO-005V                                 | 5V             | 20            | 130                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Narrow Beam (15°)<br>Intensity 3.5K mcd @ 20 mA         |
|  |   | 18,37,73,74 | WF200-0UO-014V                                 | 12/14V         | 20            | 130                   |  |
|  |   | 17, 85      | WF200-0UO-024V                                 | 24V            | 15            | 98                    |  |
|  |   | 17, 85      | WF200-0UO-028V                                 | 28V            | 15            | 98                    |  |
| <b>595nm Super Yellow InGaAlP</b><br><br>WF200    |    | 56,79,84,86 | WF200-0UY-005V                                 | 5V             | 20            | 116                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Narrow Beam (15°)<br>Intensity 3.2K mcd @ 20 mA         |
|  |   | 18,37,73,74 | WF200-0UY-014V                                 | 12/14V         | 20            | 116                   |  |
|  |   | 17, 85      | WF200-0UY-024V                                 | 24V            | 15            | 75                    |  |
|  |   | 17, 85      | WF200-0UY-028V                                 | 28V            | 15            | 75                    |  |
| <b>8000K Cool White SiC/GaN</b><br><br>WF200      |    | 56,79,84,86 | WF200-0CW-005V                                 | 5V             | 15            | 160                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Std. Beam (50°) Intensity 750 mcd/75 Ft. cd @ 15 mA     |
|  |   | 18,37,73,74 | WF200-0CW-014V                                 | 12/14V         | 15            | 160                   |  |
|  |   | 17, 85      | WF200-0CW-024V                                 | 24V            | 15            | 160                   |  |
|  |   | 17, 85      | WF200-0CW-028V                                 | 28V            | 15            | 160                   |  |
| <b>570nm Lime Green InGaAlP</b><br><br>WF200    |   | 56,79,84,86 | WF200-0UG-005V                                 | 5V             | 20            | 58                    | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Narrow Beam (12-15°)<br>Intensity 1K mcd @ 20 mA        |
|  |   | 18,37,73,74 | WF200-0UG-014V                                 | 12/14V         | 20            | 58                    |  |
|  |   | 17, 85      | WF200-0UG-024V                                 | 24V            | 15            | 44                    |  |
|  |   | 17, 85      | WF200-0UG-028V                                 | 28V            | 15            | 44                    |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>WF200    |  | 56,79,84,86 | WF200-0AG-005V                                 | 5V             | 15            | 400                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Narrow Beam (15°)<br>Intensity 7K mcd/250 Ft.Cd @ 15 mA |
|  |   | 18,37,73,74 | WF200-0AG-014V                                 | 12/14V         | 15            | 400                   |  |
|  |   | 17, 85      | WF200-0AG-024V                                 | 24V            | 15            | 400                   |  |
|  |   | 17, 85      | WF200-0AG-028V                                 | 28V            | 15            | 400                   |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>WF200    |  | 56,79,84,86 | WF200-0PB-005V                                 | 5V             | 15            | 125                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace WF200 With W200 Std. Beam (15°) Intensity 2K mcd/60 Ft.Cd @ 15 mA       |
|  |   | 18,37,73,74 | WF200-0PB-014V                                 | 12/14V         | 15            | 125                   |  |
|  |   | 17, 85      | WF200-0PB-024V                                 | 24V            | 15            | 125                   |  |
|  |   | 17, 85      | WF200-0PB-028V                                 | 28V            | 15            | 125                   |  |

All dimensions in inches. For millimeters multiply by 25.4

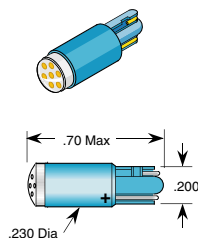
## Options



Series: W200  
PN Example: W200-0UO-005B



Series: W202  
PN Example: W202-0UR-005B


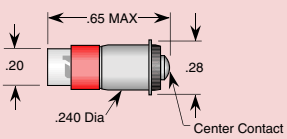

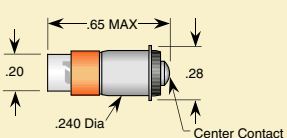

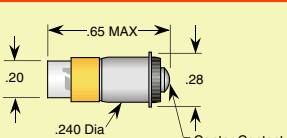

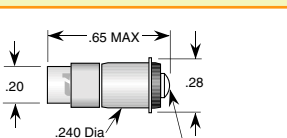

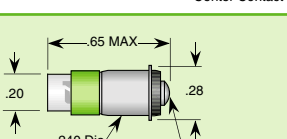

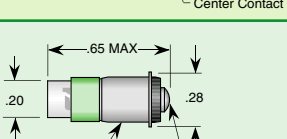

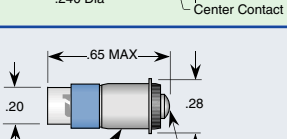


Series: W206  
PN Example: W206-0PB-005B

Log # 122D Rev 08-2000

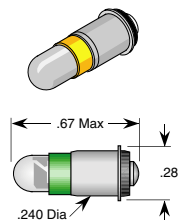


# T1-3/4 (5mm) Midget Flange Based LEDs

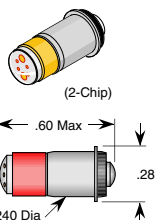
| Subminiature Packages   | Replaces Incandescent   | Part Number | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|---|-------------|--|----------------|---------------|-----------------------|--|
|   |   |             | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br><b>FF200</b> |    | 328,345,350 | FF200-0UR-006B                                 | 5/6V           | 20            | 115                   | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Narrow Beam (15°) Intensity 1.6K mcd/52 Ft.Cd @20 mA |
|   |   | 330,382,394 | FF200-0UR-014B                                 | 12/14V         | 20            | 115                   |  |
|   |   | 327,376,387 | FF200-0UR-024B                                 | 24V            | 15            | 85                    |  |
|   |   | 327,376,387 | FF200-0UR-028B                                 | 28V            | 15            | 85                    |  |
| <b>612nm Super Orange InGaAlP</b><br><br><b>FF200</b>    |    | 328,345,350 | FF200-0UO-006B                                 | 5/6V           | 20            | 130                   | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Narrow (15°) Beam Intensity 3.5K mcd @ 20 mA         |
|   |   | 330,382,394 | FF200-0UO-014B                                 | 12/14V         | 20            | 130                   |  |
|   |   | 327,376,387 | FF200-0UO-024B                                 | 24V            | 15            | 98                    |  |
|   |   | 327,376,387 | FF200-0UO-028B                                 | 28V            | 15            | 98                    |  |
| <b>595nm Super Yellow InGaAlP</b><br><br><b>FF200</b>    |    | 328,345,350 | FF200-0UY-006B                                 | 5/6V           | 20            | 116                   | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Narrow (15°) Beam Intensity 3.2K mcd @ 20 mA         |
|   |   | 330,382,394 | FF200-0UY-014B                                 | 12/14V         | 20            | 116                   |  |
|   |   | 327,376,387 | FF200-0UY-024B                                 | 24V            | 15            | 75                    |  |
|   |   | 327,376,387 | FF200-0UY-028B                                 | 28V            | 15            | 75                    |  |
| <b>8000K Cool White SiC/GaN</b><br><br><b>FF200</b>      |    | 328,345,350 | FF200-0CW-006B                                 | 5V             | 15            | 160                   | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Std. (50°) Beam Intensity 750 mcd/75 Ft. Cd          |
|   |   | 330,382,394 | FF200-0CW-014B                                 | 12/14V         | 15            | 160                   |  |
|   |   | 327,376,387 | FF200-0CW-024B                                 | 24V            | 15            | 160                   |  |
|   |   | 327,376,387 | FF200-0CW-028B                                 | 28V            | 15            | 160                   |  |
| <b>570nm Lime Green InGaAlP</b><br><br><b>FF200</b>     |   | 328,345,350 | FF200-0UG-006B                                 | 5/6V           | 20            | 58                    | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Narrow (12-15°) Beam Intensity 1K mcd @ 20 mA        |
|   |   | 330,382,394 | FF200-0UG-014B                                 | 12/14V         | 20            | 58                    |  |
|   |   | 327,376,387 | FF200-0UG-024B                                 | 24V            | 15            | 44                    |  |
|   |   | 327,376,387 | FF200-0UG-028B                                 | 28V            | 15            | 44                    |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br><b>FF200</b>    |  | 328,345,350 | FF200-0AG-006B                                 | 5/6V           | 15            | 400                   | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Narrow (15°) Beam Intensity 7K mcd/250 Ft.Cd         |
|   |   | 330,382,394 | FF200-0AG-014B                                 | 12/14V         | 15            | 400                   |  |
|   |   | 327,376,387 | FF200-0AG-024B                                 | 24V            | 15            | 400                   |  |
|   |   | 327,376,387 | FF200-0AG-028B                                 | 28V            | 15            | 400                   |  |
| <b>470nm Super Blue SiC/GaN</b><br><br><b>FF200</b>    |  | 328,345,350 | FF200-0PB-006B                                 | 5/6V           | 15            | 125                   | 120°<br>Center Contact Polarity<br>B = BiPolar AC/DC<br>Replace FF200 With F200 Std. (15°) Beam Intensity 2K mcd/60 Ft.Cd            |
|   |   | 330,382,394 | FF200-0PB-014B                                 | 12/14V         | 15            | 125                   |  |
|   |   | 327,376,387 | FF200-0PB-024B                                 | 24V            | 15            | 125                   |  |
|   |   | 327,376,387 | FF200-0PB-028B                                 | 28V            | 15            | 125                   |  |

All dimensions in inches. For millimeters multiply by 25.4

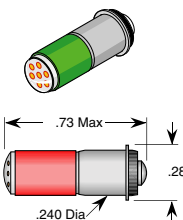
## Options



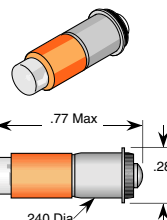
Series: F200  
PN Example: F200-0AG-006B



Series: F206  
PN Example: F206-0UR-006B



Series: FL206  
PN Example: FL206-0UR-006B




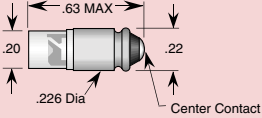

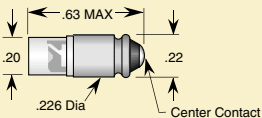

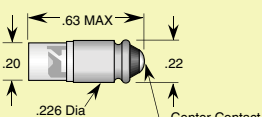

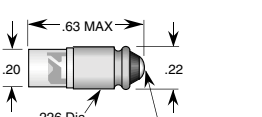

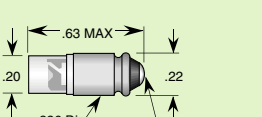

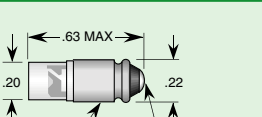

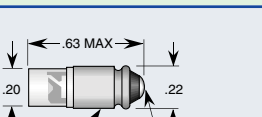
Series: FFL200  
PN Example: FFL200-0UO-006B



Log # 122Dd Rev 09-2000

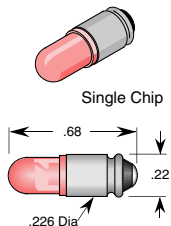


# T1-3/4 (5mm) Midget Groove Based LEDs

| Subminiature Packages  | Replaces Incandescent | Part Number    | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|-----------------------|----------------|--|----------------|---------------|-----------------------|--|
|  |                       |                | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br> GF200<br> | 337,379,398           | GF200-0UR-006B | 5/6V   | 20             | 115           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0UR-014B | 12/14V   | 20             | 115           |                       | Replace GF200 With G200<br>Narrow (15°) Beam<br>Intensity 1.6K mcd/52 Ft.Cd<br>@ 20 mA |
|  | 334,388               | GF200-0UR-024B | 24V  | 15             | 85            |                       |  |
|  | 334,388               | GF200-0UR-028B | 28V  | 15             | 85            |                       |  |
| <b>612nm Super Orange InGaAlP</b><br> GF200<br>    | 337,379,398           | GF200-0UO-006B | 5/6V   | 20             | 130           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0UO-014B | 12/14V   | 20             | 130           |                       | Replace GF200 With G200<br>Narrow (15°) Beam<br>Intensity 3.5K mcd@ 20 mA              |
|  | 334,388               | GF200-0UO-024B | 24V  | 15             | 98            |                       |  |
|  | 334,388               | GF200-0UO-028B | 28V  | 15             | 98            |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br> GF200<br>    | 337,379,398           | GF200-0UY-006B | 5/6V   | 20             | 116           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0UY-014B | 12/14V   | 20             | 116           |                       | Replace GF200 With G200<br>Narrow (15°) Beam<br>Intensity 3.2K mcd@ 20 mA              |
|  | 334,388               | GF200-0UY-024B | 24V  | 15             | 75            |                       |  |
|  | 334,388               | GF200-0UY-028B | 28V  | 15             | 75            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br> GF200<br>      | 337,379,398           | GF200-0CW-006B | 5/6V   | 15             | 160           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0CW-014B | 12/14V   | 15             | 160           |                       | Replace GF200 With G200<br>Std. (50°) Beam Intensity<br>750 mcd/75 Ft. cd              |
|  | 334,388               | GF200-0CW-024B | 24V  | 15             | 160           |                       |  |
|  | 334,388               | GF200-0CW-028B | 28V  | 15             | 160           |                       |  |
| <b>570nm Lime Green InGaAlP</b><br> GF200<br>   | 337,379,398           | GF200-0UG-006B | 5/6V   | 20             | 58            | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0UG-014B | 12/14V   | 20             | 58            |                       | Replace GF200 With G200<br>Narrow (12-15°) Beam<br>Intensity 1K mcd@ 20 mA             |
|  | 334,388               | GF200-0UG-024B | 24V  | 15             | 44            |                       |  |
|  | 334,388               | GF200-0UG-028B | 28V  | 15             | 44            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br> GF200<br>  | 337,379,398           | GF200-0AG-006B | 5/6V   | 15             | 400           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0AG-014B | 12/14V   | 15             | 400           |                       | Replace GF200 With G200<br>Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd             |
|  | 334,388               | GF200-0AG-024B | 24V  | 15             | 400           |                       |  |
|  | 334,388               | GF200-0AG-028B | 28V  | 15             | 400           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br> GF200<br>  | 337,379,398           | GF200-0PB-006B | 5/6V   | 15             | 125           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC   |
|  | 386                   | GF200-0PB-014B | 12/14V   | 15             | 125           |                       | Replace GF200 With G200<br>Std. (15°) Beam Intensity<br>2K mcd/60 Ft.Cd                |
|  | 334,388               | GF200-0PB-024B | 24V  | 15             | 125           |                       |  |
|  | 334,388               | GF200-0PB-028B | 28V  | 15             | 125           |                       |  |

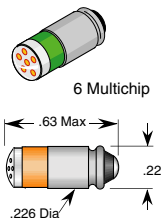
All dimensions in inches. For millimeters multiply by 25.4

## Options



Single Chip

Series: G200  
PN Example: G200-0UR-028B




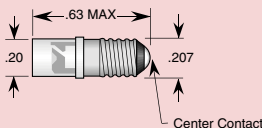

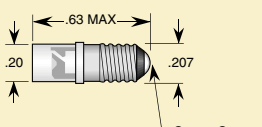

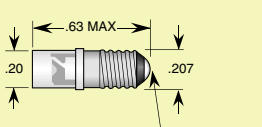

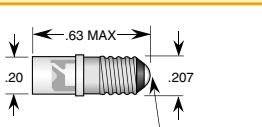

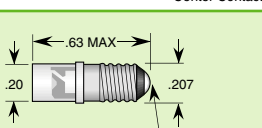

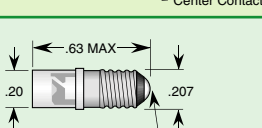

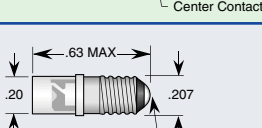
6 Multichip

Series: G206  
PN Example: G206-0UO-028B

Log # 122E Rev 09-2000

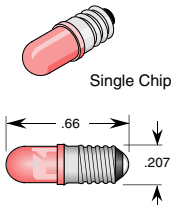


# T1-3/4 (5mm) Midget Screw Based LEDs

| Subminiature Packages   | Replaces Incandescent | Part Number    | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|-----------------------|----------------|--|----------------|---------------|-----------------------|--|
|   |                       |                | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>SF200<br> | 378,1768,1775         | SF200-0UR-005P | 5V   | 20             | 115           | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Narrow (15°) Beam<br>Intensity 1.6K mcd/52 Ft.Cd @ 20 mA |
|   | 336,383               | SF200-0UR-014P | 12/14V   | 20             | 115           |                       |  |
|   | 342                   | SF200-0UR-024P | 24V  | 15             | 85            |                       |  |
|   | 335,342,369,399       | SF200-0UR-028P | 28V  | 15             | 85            |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br>SF200<br>    | 378,1768,1775         | SF200-0UO-005P | 5V   | 20             | 130           | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Narrow (15°) Beam<br>Intensity 3.5K mcd @ 20 mA          |
|   | 336,383               | SF200-0UO-014P | 12/14V   | 20             | 130           |                       |  |
|   | 342                   | SF200-0UO-024P | 24V  | 15             | 98            |                       |  |
|   | 335,342,369,399       | SF200-0UO-028P | 28V  | 15             | 98            |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br>SF200<br>    | 378,1768,1775         | SF200-0UY-005P | 5V   | 20             | 116           | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Narrow (15°) Beam<br>Intensity 3.2K mcd @ 20 mA          |
|   | 336,383               | SF200-0UY-014P | 12/14V   | 20             | 116           |                       |  |
|   | 342                   | SF200-0UY-024P | 24V  | 15             | 75            |                       |  |
|   | 335,342,369,399       | SF200-0UY-028P | 28V  | 15             | 75            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br>SF200<br>      | 378,1768,1775         | SF200-0CW-005P | 5/6V   | 15             | 160           | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Std. (50°) Beam Intensity 750 mcd/75 Ft. cd              |
|   | 336,383               | SF200-0CW-014P | 12/14V   | 15             | 160           |                       |  |
|   | 342                   | SF200-0CW-024P | 24V  | 15             | 160           |                       |  |
|   | 335,342,369,399       | SF200-0CW-028P | 28V  | 15             | 160           |                       |  |
| <b>570nm Lime Green InGaAlP</b><br><br>SF200<br>    | 378,1768,1775         | SF200-0UG-005P | 5V   | 20             | 58            | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Narrow (12-15°) Beam<br>Intensity 1K mcd @ 20 mA         |
|   | 336,383               | SF200-0UG-014P | 12/14V   | 20             | 58            |                       |  |
|   | 342                   | SF200-0UG-024P | 24V  | 15             | 44            |                       |  |
|   | 335,342,369,399       | SF200-0UG-028P | 28V  | 15             | 44            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>SF200<br>  | 378,1768,1775         | SF200-0AG-005P | 5V   | 15             | 400           | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd          |
|   | 336,383               | SF200-0AG-014P | 12/14V   | 15             | 400           |                       |  |
|   | 342                   | SF200-0AG-024P | 24V  | 15             | 400           |                       |  |
|   | 335,342,369,399       | SF200-0AG-028P | 28V  | 15             | 400           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>SF200<br>  | 378,1768,1775         | SF200-0PB-005P | 5V   | 15             | 125           | 120°                  | Center Contact Polarity<br>P = Positive N = Negative<br><br>Replace SF200 With S200 Std. (15°) Beam Intensity 2K mcd/60 Ft.Cd                |
|   | 336,383               | SF200-0PB-014P | 12/14V   | 15             | 125           |                       |  |
|   | 342                   | SF200-0PB-024P | 24V  | 15             | 125           |                       |  |
|   | 335,342,369,399       | SF200-0PB-028P | 28V  | 15             | 125           |                       |  |

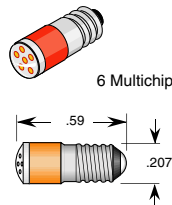
All dimensions in inches. For millimeters multiply by 25.4

## Options



Single Chip

Series: S200  
PN Example: S200-0UR-024P



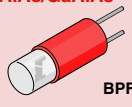
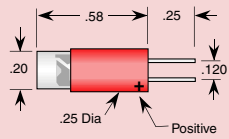
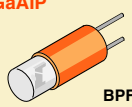
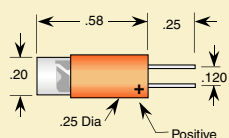
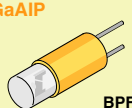
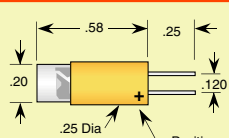

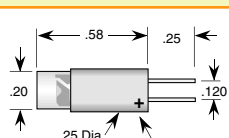

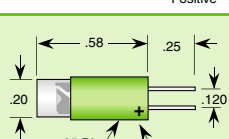

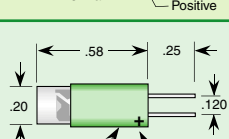

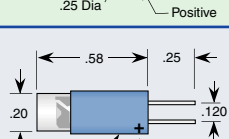
6 Multichip

Series: S206  
PN Example: S206-0UY-024B

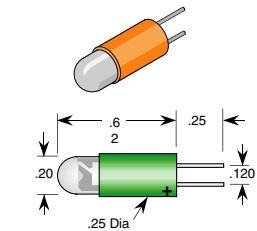
Log # 122F Rev 09-2000



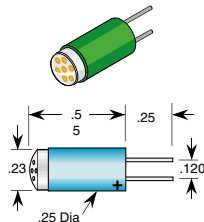
# T1-3/4 (5mm) Midget Bi-Pin Based LEDs

| Subminiature Packages  | Replaces Incandescent   | Part Number | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|---|-------------|--|----------------|---------------|-----------------------|--|
|  |   |             | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br><b>BPF200</b> |    | 7328        | BPF200-0UR-005V                                | 5V             | 20            | 115                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Narrow (15°) Beam Intensity 1.6K mcd/52 Ft.Cd @ 20 mA |
|  |   | 7371        | BPF200-0UR-012V                                | 12V            | 20            | 115                   |  |
|  |   | 7330,7382   | BPF200-0UR-014V                                | 12/14V         | 20            | 115                   |  |
|  |   | 7327,7387   | BPF200-0UR-024V                                | 24V            | 15            | 85                    |  |
|  |   | 7327,7387   | BPF200-0UR-028V                                | 28V            | 15            | 85                    |  |
| <b>612nm Super Orange InGaAlP</b><br><br><b>BPF200</b>    |    | 7328        | BPF200-0UO-005V                                | 5V             | 20            | 130                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Narrow (15°) Beam Intensity 3.5K mcd @ 20 mA          |
|  |   | 7371        | BPF200-0UO-012V                                | 12V            | 20            | 130                   |  |
|  |   | 7330,7382   | BPF200-0UO-014V                                | 12/14V         | 20            | 130                   |  |
|  |   | 7327,7387   | BPF200-0UO-024V                                | 24V            | 15            | 98                    |  |
|  |   | 7327,7387   | BPF200-0UO-028V                                | 28V            | 15            | 98                    |  |
| <b>595nm Super Yellow InGaAlP</b><br><br><b>BPF200</b>    |    | 7328        | BPF200-0UY-005V                                | 5V             | 20            | 116                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Narrow (15°) Beam Intensity 3.2K mcd @ 20 mA          |
|  |   | 7371        | BPF200-0UY-012V                                | 12V            | 20            | 116                   |  |
|  |   | 7330,7382   | BPF200-0UY-014V                                | 12/14V         | 20            | 116                   |  |
|  |   | 7327,7387   | BPF200-0UY-024V                                | 24V            | 15            | 75                    |  |
|  |   | 7327,7387   | BPF200-0UY-028V                                | 28V            | 15            | 75                    |  |
| <b>8000K Cool White SiC/GaN</b><br><br><b>BPF200</b>      |    | 7328        | BPF200-0CW-005V                                | 5V             | 15            | 160                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Std. (50°) Beam Intensity 750 mcd/75 Ft. cd           |
|  |   | 7371        | BPF200-0CW-012V                                | 12V            | 15            | 160                   |  |
|  |   | 7330,7382   | BPF200-0CW-014V                                | 12/14V         | 15            | 160                   |  |
|  |   | 7327,7387   | BPF200-0CW-024V                                | 24V            | 15            | 160                   |  |
|  |   | 7327,7387   | BPF200-0CW-028V                                | 28V            | 15            | 160                   |  |
| <b>570nm Lime Green InGaAlP</b><br><br><b>BPF200</b>     |   | 7328        | BPF200-0UG-005V                                | 5V             | 20            | 58                    | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Narrow (12-15°) Beam Intensity 1K mcd @ 20 mA         |
|  |   | 7371        | BPF200-0UG-012V                                | 12V            | 20            | 58                    |  |
|  |   | 7330,7382   | BPF200-0UG-014V                                | 12/14V         | 20            | 58                    |  |
|  |   | 7327,7387   | BPF200-0UG-024V                                | 24V            | 15            | 44                    |  |
|  |   | 7327,7387   | BPF200-0UG-028V                                | 28V            | 15            | 44                    |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br><b>BPF200</b>    |  | 7328        | BPF200-0AG-005V                                | 5V             | 15            | 400                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Narrow (15°) Beam Intensity 7K mcd/250 Ft. Cd         |
|  |   | 7371        | BPF200-0AG-012V                                | 12V            | 15            | 400                   |  |
|  |   | 7330,7382   | BPF200-0AG-014V                                | 12/14V         | 15            | 400                   |  |
|  |   | 7327,7387   | BPF200-0AG-024V                                | 24V            | 15            | 400                   |  |
|  |   | 7327,7387   | BPF200-0AG-028V                                | 28V            | 15            | 400                   |  |
| <b>470nm Super Blue SiC/GaN</b><br><br><b>BPF200</b>    |  | 7328        | BPF200-0PB-005V                                | 5V             | 15            | 125                   | 120°<br>Contact Polarity<br>V = DC only<br>Replace BPF200 With BP200 Std. (15°) Beam Intensity 2K mcd/60 Ft. Cd            |
|  |   | 7371        | BPF200-0PB-012V                                | 12V            | 15            | 125                   |  |
|  |   | 7330,7382   | BPF200-0PB-014V                                | 12/14V         | 15            | 125                   |  |
|  |   | 7327,7387   | BPF200-0PB-024V                                | 24V            | 15            | 125                   |  |
|  |   | 7327,7387   | BPF200-0PB-028V                                | 28V            | 15            | 125                   |  |

All dimensions in inches. For millimeters multiply by 25.4



Series: BP200  
PN Example: BP200-0AG-014V



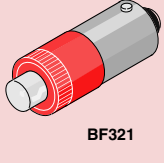
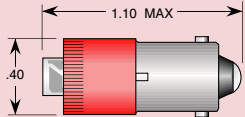
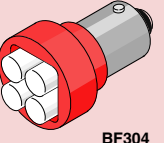
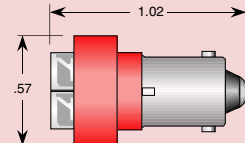
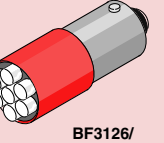
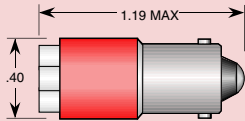
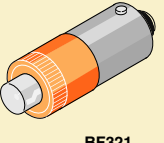
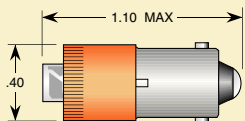
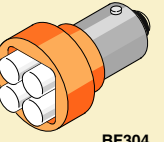
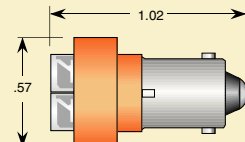
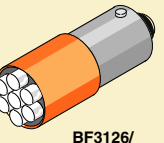
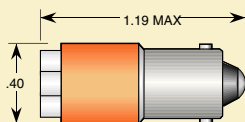
Series: BP203  
PN Example: BP203-1UB-014V

Log # 122G Rev 08-2000





# T3-1/4 (9mm) Miniature Based LED Lamps

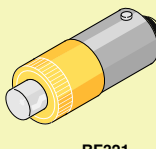
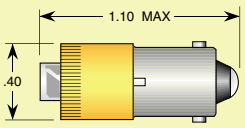
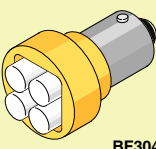
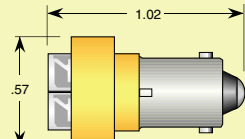
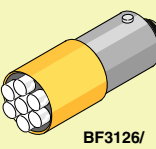
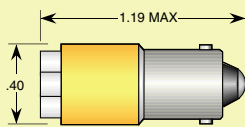
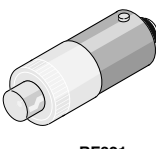
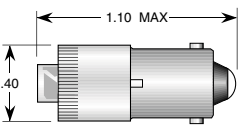
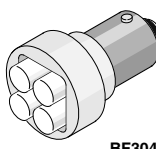
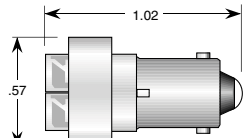
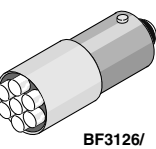
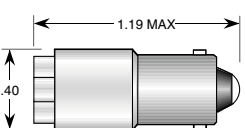
| Miniature Packages   | Replaces Incandescent                             | Part Number       | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|---|-------------------|--|----------------|---------------|-----------------------|--|
|  |   |                   | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAs</b><br><br><b>BF321</b><br>             | <b>T3-1/4 (9mm) Miniature Bayonet</b>             | 6MB, 44, 47, 755  | BF321-0UR-006B                                 | 5/6V           | 20            | 115                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Narrow Beam (15°) 1.6K mcd/52 Ft.Cd @ 20mA              |
|  |   | 12MB, 756         | BF321-0UR-014B                                 | 12/14V         | 20            | 115                   |  |
|  |   | 24MB,             | BF321-0UR-024B                                 | 24V            | 20            | 115                   |  |
|  |   | 313,757,1819,1829 | BF321-0UR-028B                                 | 28V            | 20            | 115                   |  |
|  |   | 48MB              | BF321-0UR-048B                                 | 48V            | 12            | 65                    |  |
|  |   | 60MB,1835         | BF321-0UR-060B                                 | 60V            | 12            | 65                    |  |
|  |   | 120MB, NE51H      | BF321-0UR-120A                                 | 120VAC         | 10            | 50                    |  |
|  | BF321-0UR-130B                                    | 130V              | 8  | 40             |               |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAs</b><br><br><b>BF304</b><br>             | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF304-0UR-006B                                 | 5/6V           | 80            | 460                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Narrow Beam (15°) 6.4K mcd/208 Ft.Cd @ 20mA             |
|  |   | 12MB, 756         | BF304-0UR-014B                                 | 12/14V         | 40            | 460                   |  |
|  |   | 24MB,             | BF304-0UR-024B                                 | 24V            | 20            | 460                   |  |
|  |   | 313,757,1819,1829 | BF304-0UR-028B                                 | 28V            | 20            | 460                   |  |
|  |   | 48MB              | BF304-0UR-048B                                 | 48V            | 12            | 260                   |  |
|  |   | 60MB,1835         | BF304-0UR-060B                                 | 60V            | 12            | 260                   |  |
|  |   | 120MB, NE51H      | BF304-0UR-120A                                 | 120VAC         | 10            | 200                   |  |
|  | BF304-0UR-130B                                    | 130V              | 8  | 160            |               |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAs</b><br><br><b>BF3126/ BF3127</b><br>  | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF3126-0UR-006B                                | 5/6V           | 120           | 600                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Narrow Beam (65°) 1.3K mcd/210 Ft.Cd @ 20mA |
|  |   | 12MB, 756         | BF3126-0UR-014B                                | 12/14V         | 40            | 600                   |  |
|  |   | 24MB,             | BF3127-0UR-024B                                | 24V            | 20            | 700                   |  |
|  |   | 313,757,1819,1829 | BF3127-0UR-028B                                | 28V            | 20            | 700                   |  |
|  |   | 48MB              | BF3127-0UR-048B                                | 48V            | 12            | 230                   |  |
|  |   | 60MB,1835         | BF3127-0UR-060B                                | 60V            | 12            | 230                   |  |
|  |   | 120MB, NE51H      | BF3127-0UR-120A                                | 120VAC         | 10            | 160                   |  |
|  | BF3127-0UR-130B                                   | 130V              | 8  | 140            |               |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br><b>BF321</b><br>          | <b>T3-1/4 (9mm) Miniature Bayonet</b>             | 6MB, 44, 47, 755  | BF321-0UO-006B                                 | 5/6V           | 20            | 130                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Narrow Beam (15°) 3.5 K mcd @ 20mA                      |
|  |   | 12MB, 756         | BF321-0UO-014B                                 | 12/14V         | 20            | 130                   |  |
|  |   | 24MB,             | BF321-0UO-024B                                 | 24V            | 20            | 130                   |  |
|  |   | 313,757,1819,1829 | BF321-0UO-028B                                 | 28V            | 20            | 130                   |  |
|  |   | 48MB              | BF321-0UO-048B                                 | 48V            | 12            | 78                    |  |
|  |   | 60MB,1835         | BF321-0UO-060B                                 | 60V            | 12            | 78                    |  |
|  |   | 120MB, NE51H      | BF321-0UO-120A                                 | 120VAC         | 10            | 65                    |  |
|  | BF321-0UO-130B                                    | 130V              | 8  | 52             |               |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br><b>BF304</b><br>          | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF304-0UO-006B                                 | 5/6V           | 80            | 520                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Narrow Beam (15°) 14 K mcd @ 20mA                       |
|  |   | 12MB, 756         | BF304-0UO-014B                                 | 12/14V         | 40            | 520                   |  |
|  |   | 24MB,             | BF304-0UO-024B                                 | 24V            | 20            | 520                   |  |
|  |   | 313,757,1819,1829 | BF304-0UO-028B                                 | 28V            | 20            | 520                   |  |
|  |   | 48MB              | BF304-0UO-048B                                 | 48V            | 12            | 312                   |  |
|  |   | 60MB,1835         | BF304-0UO-060B                                 | 60V            | 12            | 312                   |  |
|  |   | 120MB, NE51H      | BF304-0UO-120A                                 | 120VAC         | 10            | 260                   |  |
|  | BF304-0UO-130B                                    | 130V              | 8  | 208            |               |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br><b>BF3126/ BF3127</b><br> | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF3126-0UO-006B                                | 5/6V           | 120           | 510                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Medium Beam (50°) 2.45 K mcd @ 20mA         |
|  |   | 12MB, 756         | BF3126-0UO-014B                                | 12/14V         | 40            | 510                   |  |
|  |   | 24MB,             | BF3127-0UO-024B                                | 24V            | 20            | 595                   |  |
|  |   | 313,757,1819,1829 | BF3127-0UO-028B                                | 28V            | 20            | 595                   |  |
|  |   | 48MB              | BF3127-0UO-048B                                | 48V            | 12            | 357                   |  |
|  |   | 60MB,1835         | BF3127-0UO-060B                                | 60V            | 12            | 357                   |  |
|  |   | 120MB, NE51H      | BF3127-0UO-120A                                | 120VAC         | 10            | 298                   |  |
|  | BF3127-0UO-130B                                   | 130V              | 8  | 238            |               |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

Log # 12ZH Rev 10-2000



# T3-1/4 (9mm) Miniature Based LED Lamps

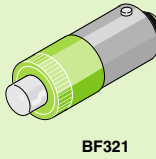
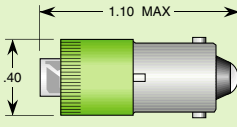
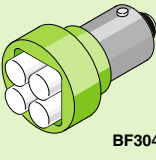
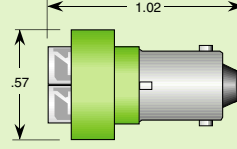
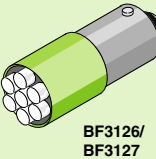
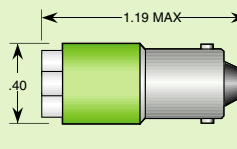
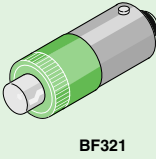
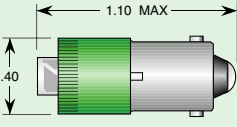
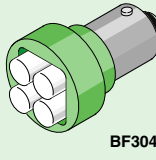
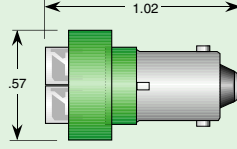
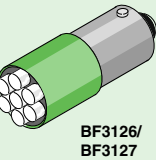
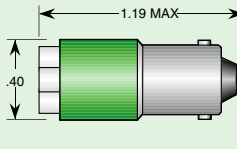
| Miniature Packages  | Replaces Incandescent                             | Part Number       | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|---|-------------------|--|----------------|---------------|-----------------------|--|
|   |   |                   | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br><b>BF321</b><br>           | <b>T3-1/4 (9mm) Miniature Bayonet</b>             | 6MB, 44, 47, 755  | BF321-0UY-006B                                 | 5/6V           | 20            | 116                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Narrow Beam (15°) 3.2K mcd @ 20mA           |
|   |   | 12MB, 756         | BF321-0UY-014B                                 | 12/14V         | 20            | 116                   |  |
|   |   | 24MB,             | BF321-0UY-024B                                 | 24V            | 20            | 116                   |  |
|   |   | 313,757,1819,1829 | BF321-0UY-028B                                 | 28V            | 20            | 116                   |  |
|   |   | 48MB              | BF321-0UY-048B                                 | 48V            | 12            | 54                    |  |
|   |   | 60MB,1835         | BF321-0UY-060B                                 | 60V            | 12            | 54                    |  |
|   |   | 120MB, NE51H      | BF321-0UY-120A                                 | 120VAC         | 10            | 39                    |  |
|   | BF321-0UY-130B                                    | 130V              | 8  | 24             |               |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br><b>BF304</b><br>            | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF304-0UY-006B                                 | 5/6V           | 80            | 464                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Narrow Beam (15°) 12.8K mcd @ 20mA          |
|   |   | 12MB, 756         | BF304-0UY-014B                                 | 12/14V         | 40            | 464                   |  |
|   |   | 24MB,             | BF304-0UY-024B                                 | 24V            | 20            | 464                   |  |
|   |   | 313,757,1819,1829 | BF304-0UY-028B                                 | 28V            | 20            | 464                   |  |
|   |   | 48MB              | BF304-0UY-048B                                 | 48V            | 12            | 216                   |  |
|   |   | 60MB,1835         | BF304-0UY-060B                                 | 60V            | 12            | 216                   |  |
|   |   | 120MB, NE51H      | BF304-0UY-120A                                 | 120VAC         | 10            | 156                   |  |
|   | BF304-0UY-130B                                    | 130V              | 8  | 96             |               |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br><b>BF3126/ BF3127</b><br> | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF3126-0UY-006B                                | 5/6V           | 120           | 192                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Medium Beam (50°) 7K mcd @ 20mA |
|   |   | 12MB, 756         | BF3126-0UY-014B                                | 12/14V         | 40            | 192                   |  |
|   |   | 24MB,             | BF3127-0UY-024B                                | 24V            | 20            | 224                   |  |
|   |   | 313,757,1819,1829 | BF3127-0UY-028B                                | 28V            | 20            | 224                   |  |
|   |   | 48MB              | BF3127-0UY-048B                                | 48V            | 12            | 105                   |  |
|   |   | 60MB,1835         | BF3127-0UY-060B                                | 60V            | 12            | 105                   |  |
|   |   | 120MB, NE51H      | BF3127-0UY-120A                                | 120VAC         | 10            | 87                    |  |
|   | BF3127-0UY-130B                                   | 130V              | 8  | 70             |               |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br><b>BF321</b><br>         | <b>T3-1/4 (9mm) Miniature Bayonet</b>             | 6MB, 44, 47, 755  | BF321-0CW-006B                                 | 5/6V           | 15            | 160                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Std. Beam (50°)                             |
|   |   | 12MB, 756         | BF321-0CW-014B                                 | 12/14V         | 15            | 160                   |  |
|   |   | 24MB,             | BF321-0CW-024B                                 | 24V            | 15            | 160                   |  |
|   |   | 313,757,1819,1829 | BF321-0CW-028B                                 | 28V            | 15            | 160                   |  |
|   |   | 48MB              | BF321-0CW-048B                                 | 48V            | 12            | 128                   |  |
|   |   | 60MB,1835         | BF321-0CW-060B                                 | 60V            | 12            | 128                   |  |
|   |   | 120MB, NE51H      | BF321-0CW-120A                                 | 120VAC         | 10            | 106                   |  |
|   | BF321-0CW-130B                                    | 130V              | 8  | 85             |               |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br><b>BF304</b><br>          | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF304-0CW-006B                                 | 5/6V           | 60            | 640                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Std. Beam (50°)                             |
|   |   | 12MB, 756         | BF304-0CW-014B                                 | 12/14V         | 30            | 640                   |  |
|   |   | 24MB,             | BF304-0CW-024B                                 | 24V            | 15            | 640                   |  |
|   |   | 313,757,1819,1829 | BF304-0CW-028B                                 | 28V            | 15            | 640                   |  |
|   |   | 48MB              | BF304-0CW-48B                                  | 48V            | 12            | 512                   |  |
|   |   | 60MB,1835         | BF304-0CW-60B                                  | 60V            | 12            | 512                   |  |
|   |   | 120MB, NE51H      | BF304-0CW-120A                                 | 120VAC         | 10            | 424                   |  |
|   | BF304-0CW-130B                                    | 130V              | 8  | 340            |               |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br><b>BF3126/ BF3127</b><br> | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF3126-0CW-006B                                | 5/6V           | 90            | 900                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Std. Beam (50°)                 |
|   |   | 12MB, 756         | BF3126-0CW-014B                                | 12/14V         | 30            | 900                   |  |
|   |   | 24MB,             | BF3126-0CW-024B                                | 24V            | 15            | 900                   |  |
|   |   | 313,757,1819,1829 | BF3127-0CW-028B                                | 28V            | 15            | 1050                  |  |
|   |   | 48MB              | BF3127-0CW-048B                                | 48V            | 12            | 840                   |  |
|   |   | 60MB,1835         | BF3127-0CW-060B                                | 60V            | 12            | 840                   |  |
|   |   | 120MB, NE51H      | BF3127-0CW-120A                                | 120VAC         | 10            | 700                   |  |
|   | BF3127-0CW-130B                                   | 130V              | 8  | 560            |               |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

Log # 122J Rev 10-2000



# T3-1/4 (9mm) Miniature Based LED Lamps

| Miniature Packages  | Replaces Incandescent                             | Part Number       | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features  |
|---|---|-------------------|--|----------------|---------------|-----------------------|---|
|   |   |                   | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |   |
| <b>570nm Lime Green InGaAlP</b><br><br><b>BF321</b><br>             | <b>T3-1/4 (9mm) Miniature Bayonet</b>             | 6MB, 44, 47, 755  | BF321-0UG-006B                                 | 5/6V           | 20            | 58                    | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Narrow Beam (12-15°) 1K mcd @ 20mA                     |
|   |   | 12MB, 756         | BF321-0UG-014B                                 | 12/14V         | 20            | 58                    |   |
|   |   | 24MB,             | BF321-0UG-024B                                 | 24V            | 20            | 58                    |   |
|   |   | 313,757,1819,1829 | BF321-0UG-028B                                 | 28V            | 20            | 58                    |   |
|   |   | 48MB              | BF321-0UG-048B                                 | 48V            | 12            | 35                    |   |
|   |   | 60MB,1835         | BF321-0UG-060B                                 | 60V            | 12            | 35                    |   |
|   |   | 120MB, NE51H      | BF321-0UG-120A                                 | 120VAC         | 10            | 29                    |   |
|   | BF321-0UG-130B                                    | 130V              | 8  | 23             |               |                       |   |
| <b>570nm Lime Green InGaAlP</b><br><br><b>BF304</b><br>              | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF304-0UG-006B                                 | 5/6V           | 80            | 232                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Narrow Beam (12-15°) 4K mcd @ 20mA                     |
|   |   | 12MB, 756         | BF304-0UG-014B                                 | 12/14V         | 40            | 232                   |   |
|   |   | 24MB,             | BF304-0UG-024B                                 | 24V            | 20            | 232                   |   |
|   |   | 313,757,1819,1829 | BF304-0UG-028B                                 | 28V            | 20            | 232                   |   |
|   |   | 48MB              | BF304-0UG-048B                                 | 48V            | 12            | 140                   |   |
|   |   | 60MB,1835         | BF304-0UG-060B                                 | 60V            | 12            | 140                   |   |
|   |   | 120MB, NE51H      | BF304-0UG-120A                                 | 120VAC         | 10            | 116                   |   |
|   | BF304-0UG-130B                                    | 130V              | 8  | 92             |               |                       |   |
| <b>570nm Lime Green InGaAlP</b><br><br><b>BF3126/ BF3127</b><br>   | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF3126-0UG-006B                                | 5/6V           | 120           | 216                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Medium Beam (50°) 1.2K mcd @ 20mA          |
|   |   | 12MB, 756         | BF3126-0UG-014B                                | 12/14V         | 40            | 216                   |   |
|   |   | 24MB,             | BF3127-0UG-024B                                | 24V            | 20            | 252                   |   |
|   |   | 313,757,1819,1829 | BF3127-0UG-028B                                | 28V            | 20            | 252                   |   |
|   |   | 48MB              | BF3127-0UG-048B                                | 48V            | 12            | 154                   |   |
|   |   | 60MB,1835         | BF3127-0UG-060B                                | 60V            | 12            | 154                   |   |
|   |   | 120MB, NE51H      | BF3127-0UG-120A                                | 120VAC         | 10            | 126                   |   |
|   | BF3127-0UG-130B                                   | 130V              | 8  | 100            |               |                       |   |
| <b>525nm Aqua Green SiC/GaN</b><br><br><b>BF321</b><br>         | <b>T3-1/4 (9mm) Miniature Bayonet</b>             | 6MB, 44, 47, 755  | BF321-0AG-006B                                 | 5/6V           | 15            | 400                   | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Narrow Beam (15°) 7K mcd/250 Ft.Cd @ 15mA              |
|   |   | 12MB, 756         | BF321-0AG-014B                                 | 12/14V         | 15            | 400                   |   |
|   |   | 24MB,             | BF321-0AG-024B                                 | 24V            | 15            | 400                   |   |
|   |   | 313,757,1819,1829 | BF321-0AG-028B                                 | 28V            | 15            | 400                   |   |
|   |   | 48MB              | BF321-0AG-048B                                 | 48V            | 12            | 320                   |   |
|   |   | 60MB,1835         | BF321-0AG-060B                                 | 60V            | 12            | 320                   |   |
|   |   | 120MB, NE51H      | BF321-0AG-120A                                 | 120VAC         | 10            | 275                   |   |
|   | BF321-0AG-130B                                    | 130V              | 8  | 230            |               |                       |   |
| <b>525nm Aqua Green SiC/GaN</b><br><br><b>BF304</b><br>          | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF304-0AG-006B                                 | 5/6V           | 60            | 1600                  | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Narrow Beam (15°) 28K mcd/1000 Ft.Cd @ 15mA            |
|   |   | 12MB, 756         | BF304-0AG-014B                                 | 12/14V         | 30            | 1600                  |   |
|   |   | 24MB,             | BF304-0AG-024B                                 | 24V            | 15            | 1600                  |   |
|   |   | 313,757,1819,1829 | BF304-0AG-028B                                 | 28V            | 15            | 1600                  |   |
|   |   | 48MB              | BF304-0AG-048B                                 | 48V            | 12            | 1280                  |   |
|   |   | 60MB,1835         | BF304-0AG-060B                                 | 60V            | 12            | 1280                  |   |
|   |   | 120MB, NE51H      | BF304-0AG-120A                                 | 120VAC         | 10            | 1100                  |   |
|   | BF304-0AG-130B                                    | 130V              | 8  | 920            |               |                       |   |
| <b>525nm Aqua Green SiC/GaN</b><br><br><b>BF3126/ BF3127</b><br> | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b> | 6MB, 44, 47, 755  | BF3126-0AG-006B                                | 5/6V           | 90            | 1200                  | 120°<br><br>Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Narrow Beam (15°) 30K mcd/800 Ft.Cd @ 15mA |
|   |   | 12MB, 756         | BF3126-0AG-014B                                | 12/14V         | 30            | 1200                  |   |
|   |   | 24MB,             | BF3126-0AG-024B                                | 24V            | 15            | 1200                  |   |
|   |   | 313,757,1819,1829 | BF3127-0AG-028B                                | 28V            | 15            | 1400                  |   |
|   |   | 48MB              | BF3127-0AG-048B                                | 48V            | 12            | 1190                  |   |
|   |   | 60MB,1835         | BF3127-0AG-060B                                | 60V            | 12            | 1190                  |   |
|   |   | 120MB, NE51H      | BF3127-0AG-120A                                | 120VAC         | 10            | 1050                  |   |
|   | BF3127-0AG-130B                                   | 130V              | 8  | 910            |               |                       |   |

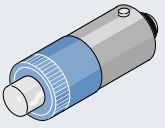
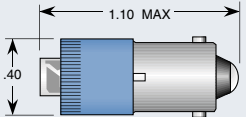
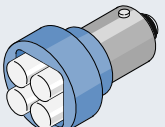
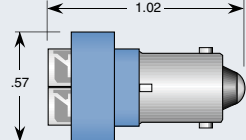
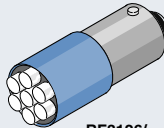
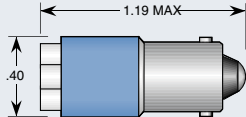
All dimensions in inches. For millimeters multiply by 25.4

Log # 122K Rev 10-2000



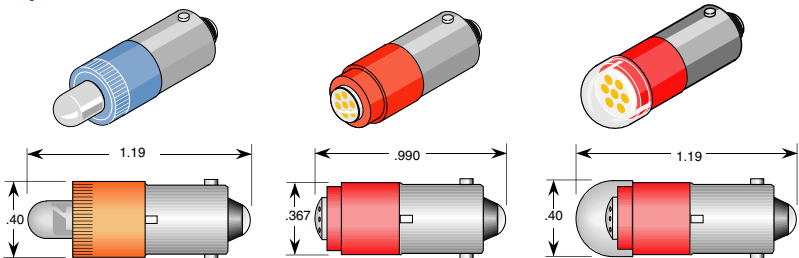


# T3-1/4 (9mm) Miniature Based LED Lamps

| Miniature Packages   |   | Replaces Incandescent | Part Number     | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|---|-----------------------|-----------------|--|----------------|---------------|-----------------------|--|
|  |   |                       |                 | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br><b>BF321</b>           | <b>T3-1/4 (9mm) Miniature Bayonet</b><br>              | 6MB, 44, 47, 755      | BF321-0PB-006B  | 5/6V   | 15             | 116           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Std. Beam (15°)             |
|  |   | 12MB, 756             | BF321-0PB-014B  | 12/14V   | 15             | 116           |                       |  |
|  |   | 24MB,                 | BF321-0PB-024B  | 24V  | 15             | 116           |                       |  |
|  |   | 313,757,1819,1829     | BF321-0PB-028B  | 28V  | 15             | 116           |                       |  |
|  |   | 48MB                  | BF321-0PB-048B  | 48V  | 12             | 84            |                       |  |
|  |   | 60MB,1835             | BF321-0PB-060B  | 60V  | 12             | 84            |                       |  |
|  |   | 120MB, NE51H          | BF321-0PB-120A  | 120VAC   | 10             | 74            |                       |  |
|  | BF321-0PB-130B  | 130V                  | 8               | 53   |                |               |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br><b>BF304</b>           | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b><br>  | 6MB, 44, 47, 755      | BF304-0PB-006B  | 5/6V   | 60             | 464           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF304 With B304 for Std. Beam (15°)             |
|  |   | 12MB, 756             | BF304-0PB-014B  | 12/14V   | 30             | 464           |                       |  |
|  |   | 24MB,                 | BF304-0PB-024B  | 24V  | 15             | 464           |                       |  |
|  |   | 313,757,1819,1829     | BF304-0PB-028B  | 28V  | 15             | 464           |                       |  |
|  |   | 48MB                  | BF304-0PB-048B  | 48V  | 12             | 336           |                       |  |
|  |   | 60MB,1835             | BF304-0PB-060B  | 60V  | 12             | 336           |                       |  |
|  |   | 120MB, NE51H          | BF304-0PB-120A  | 120VAC   | 10             | 296           |                       |  |
|  | BF304-0PB-130B  | 130V                  | 8               | 212  |                |               |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br><b>BF3126/ BF3127</b> | <b>T3-1/4 (9mm) Miniature Bayonet LED Cluster</b><br> | 6MB, 44, 47, 755      | BF3126-0PB-006B | 5/6V   | 90             | 360           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF3126/3127 With B3126/3127 for Std. Beam (15°) |
|  |   | 12MB, 756             | BF3126-0PB-014B | 12/14V   | 30             | 360           |                       |  |
|  |   | 24MB,                 | BF3127-0PB-024B | 24V  | 15             | 420           |                       |  |
|  |   | 313,757,1819,1829     | BF3127-0PB-028B | 28V  | 15             | 420           |                       |  |
|  |   | 48MB                  | BF3127-0PB-048B | 48V  | 12             | 336           |                       |  |
|  |   | 60MB,1835             | BF3127-0PB-060B | 60V  | 12             | 336           |                       |  |
|  |   | 120MB, NE51H          | BF3127-0PB-120A | 120VAC   | 10             | 315           |                       |  |
|  | BF3127-0PB-130B   | 130V                  | 8               | 252  |                |               |                       |  |

## Options

All dimensions in inches. For millimeters multiply by 25.4



Series: B321

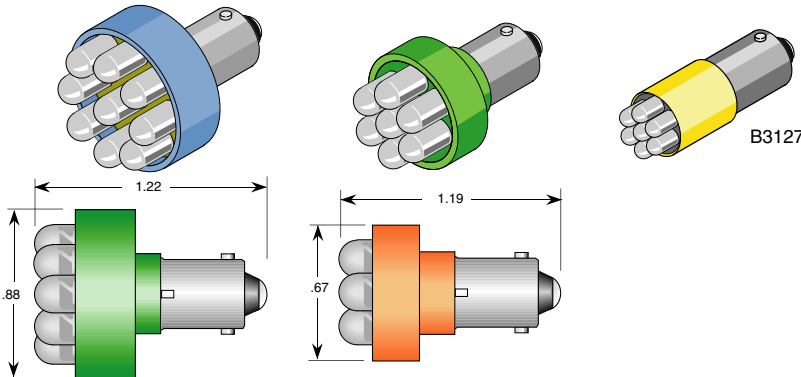
PN Example: B321-0UO-006B

Series: BM326

PN Example: BM326-0UR-006B

Series: B3206

PN Example: B3206-0UR-120A



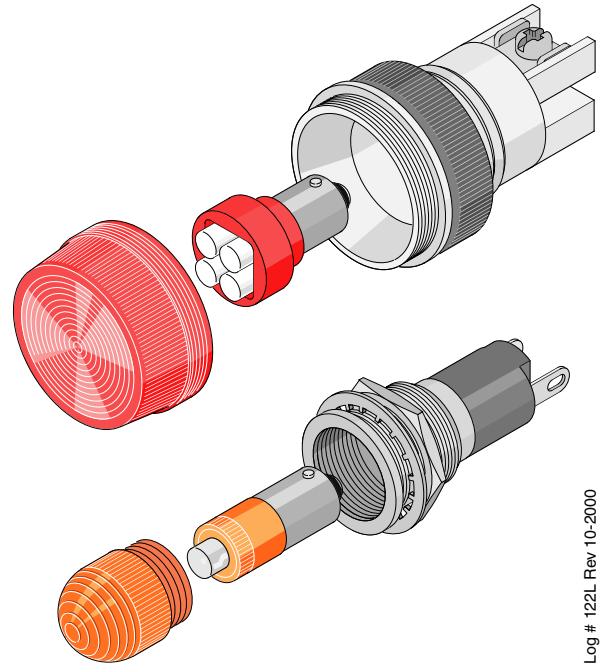
Series: BN309

PN Example: BN309-0AG-024B

Series: BN306/BN307

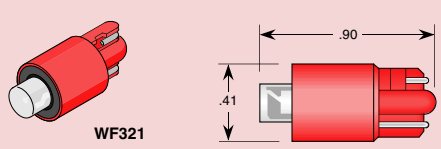
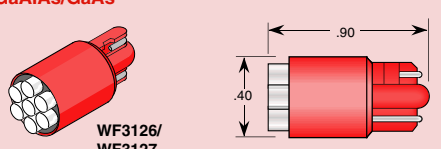
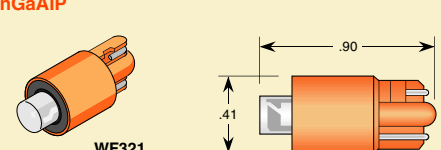
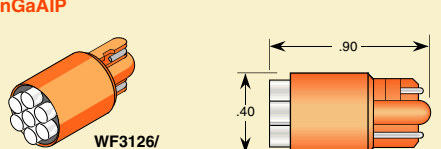
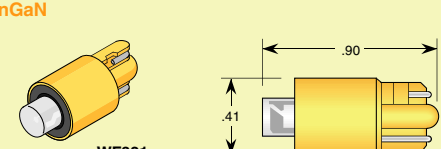
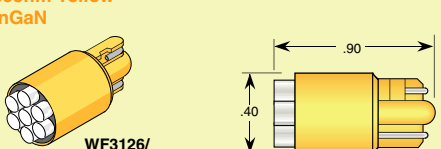
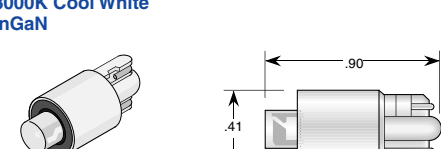
PN Example: BN306-0UO-006B

B3127



Log # 122L Rev 10-2000

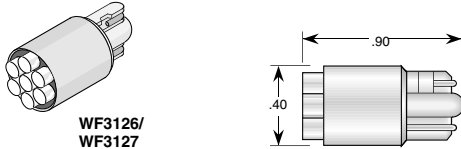
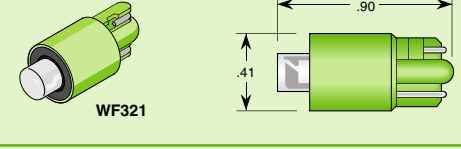
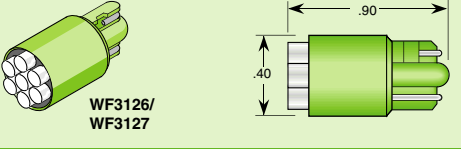
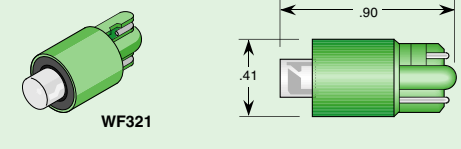
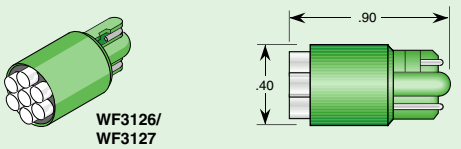
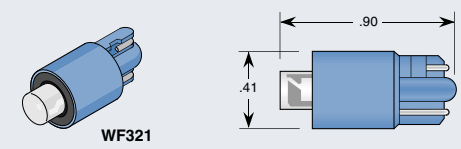
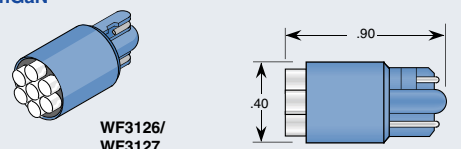
# LED<sup>®</sup> T3-1/4 (9mm) Miniature Wedge Based LEDs

| Miniature Packages  | Replaces Incandescent | Part Number     | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|-----------------------|-----------------|--|----------------|---------------|-----------------------|--|
|   |                       |                 | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
|  <p>660nm Ultra Red GaAlAs/GaAs</p> | 159,259,555,1995-7    | WF321-OUR-006B  | 5/6V   | 20             | 115           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br><br>Replace WF321 With W321 for Narrow Beam (15°) 1.6K mcd/52Ft.Cd @ 20mA |
|   | 124,658,2080,936      | WF321-OUR-014B  | 12/14V   | 20             | 115           |                       |  |
|   | 656,657,400,464,655   | WF321-OUR-024B  | 24V  | 20             | 115           |                       |  |
|   | 656,657,400,464,655   | WF321-OUR-028B  | 28V  | 20             | 115           |                       |  |
|   |                       | WF321-OUR-048B  | 48V  | 12             | 65            |                       |  |
|   |                       | WF321-OUR-120A  | 120VAC   | 10             | 50            |                       |  |
|  <p>660nm Ultra Red GaAlAs/GaAs</p> | 159,259,555,1995-7    | WF3126-OUR-006B | 5/6V   | 120            | 600           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only  |
|   | 124,658,2080,936      | WF3126-OUR-014B | 12/14V   | 40             | 600           |                       |  |
|   | 656,657,400,464,655   | WF3127-OUR-024B | 24V  | 20             | 700           |                       |  |
|   | 656,657,400,464,655   | WF3127-OUR-028B | 28V  | 20             | 700           |                       |  |
|   |                       | WF3127-OUR-048B | 48V  | 12             | 230           |                       |  |
|   |                       | WF3127-OUR-120A | 120VAC   | 10             | 160           |                       |  |
|  <p>612nm Orange InGaAlP</p>        | 159,259,555,1995-7    | WF321-UOU-006B  | 5/6V   | 20             | 130           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br><br>Replace WF321 With W321 for Narrow Beam (15°) 3.5 K mcd @ 20mA        |
|   | 124,658,2080,936      | WF321-UOU-014B  | 12/14V   | 20             | 130           |                       |  |
|   | 656,657,400,464,655   | WF321-UOU-024B  | 24V  | 20             | 130           |                       |  |
|   | 656,657,400,464,655   | WF321-UOU-028B  | 28V  | 20             | 130           |                       |  |
|   |                       | WF321-UOU-048B  | 48V  | 12             | 78            |                       |  |
|   |                       | WF321-UOU-120A  | 120VAC   | 10             | 65            |                       |  |
|  <p>612nm Orange InGaAlP</p>      | 159,259,555,1995-7    | WF3126-UOU-006B | 5/6V   | 120            | 510           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only  |
|   | 124,658,2080,936      | WF3126-UOU-014B | 12/14V   | 40             | 510           |                       |  |
|   | 656,657,400,464,655   | WF3127-UOU-024B | 24V  | 20             | 595           |                       |  |
|   | 656,657,400,464,655   | WF3127-UOU-028B | 28V  | 20             | 595           |                       |  |
|   |                       | WF3127-UOU-048B | 48V  | 12             | 357           |                       |  |
|   |                       | WF3127-UOU-120A | 120VAC   | 10             | 298           |                       |  |
|  <p>595nm Yellow InGaN</p>        | 159,259,555,1995-7    | WF321-UUY-006B  | 5/6V   | 20             | 116           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br><br>Replace WF321 With W321 for Narrow Beam (15°) 3.2K mcd @ 20mA         |
|   | 124,658,2080,936      | WF321-UUY-014B  | 12/14V   | 20             | 116           |                       |  |
|   | 656,657,400,464,655   | WF321-UUY-024B  | 24V  | 20             | 116           |                       |  |
|   | 656,657,400,464,655   | WF321-UUY-028B  | 28V  | 20             | 116           |                       |  |
|   |                       | WF321-UUY-048B  | 48V  | 12             | 54            |                       |  |
|   |                       | WF321-UUY-120A  | 120VAC   | 10             | 39            |                       |  |
|  <p>595nm Yellow InGaN</p>        | 159,259,555,1995-7    | WF3126-UUY-006B | 5/6V   | 120            | 192           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only  |
|   | 124,658,2080,936      | WF3126-UUY-014B | 12/14V   | 40             | 192           |                       |  |
|   | 656,657,400,464,655   | WF3127-UUY-024B | 24V  | 20             | 224           |                       |  |
|   | 656,657,400,464,655   | WF3127-UUY-028B | 28V  | 20             | 224           |                       |  |
|   |                       | WF3127-UUY-048B | 48V  | 12             | 105           |                       |  |
|   |                       | WF3127-UUY-120A | 120VAC   | 10             | 87            |                       |  |
|  <p>8000K Cool White InGaN</p>    | 159,259,555,1995-7    | WF321-OCW-006B  | 5/6V   | 15             | 160           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br><br>Replace WF321 With W321 for Std. Beam (50°)                           |
|   | 124,658,2080,936      | WF321-OCW-014B  | 12/14V   | 15             | 160           |                       |  |
|   | 656,657,400,464,655   | WF321-OCW-024B  | 24V  | 15             | 160           |                       |  |
|   | 656,657,400,464,655   | WF321-OCW-028B  | 28V  | 15             | 160           |                       |  |
|   |                       | WF321-OCW-048B  | 48V  | 12             | 128           |                       |  |
|   |                       | WF321-OCW-120A  | 120VAC   | 10             | 106           |                       |  |
|   | WF321-OCW-130V        | 130V            | 8  | 85             |               |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

Log # 122LL Rev 10-2000

# LED<sup>®</sup> T3-1/4 (9mm) Miniature Wedge Based LEDs

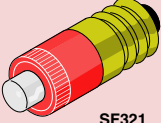
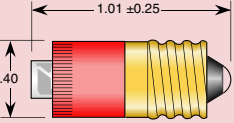
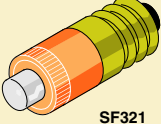
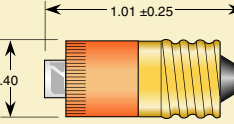
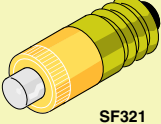
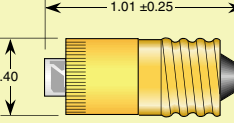
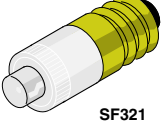
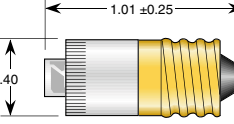
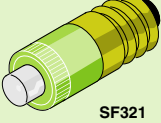
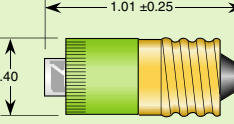
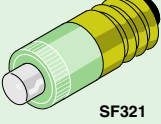
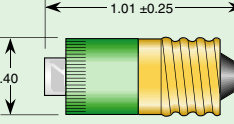
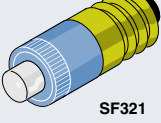
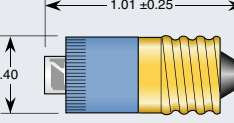
| Miniature Packages   | Replaces Incandescent | Part Number     | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features  |
|--|-----------------------|-----------------|--|----------------|---------------|-----------------------|---|
|  |                       |                 | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |   |
|  <p>WF3126/<br/>WF3127</p>   | 159,259,555,1995-7    | WF3126-0CW-006B | 5/6V   | 90             | 900           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only   |
|  | 124,658,2080,936      | WF3126-0CW-014B | 12/14V   | 30             | 900           |                       |   |
|  | 656,657,400,464,655   | WF3126-0CW-024B | 24V  | 15             | 900           |                       |   |
|  | 656,657,400,464,655   | WF3127-0CW-028B | 28V  | 15             | 1050          |                       |   |
|  |                       | WF3127-0CW-048B | 48V  | 12             | 840           |                       |   |
|  |                       | WF3127-0CW-120A | 120VAC   | 10             | 700           |                       |   |
|  | WF3127-0CW-130V       | 130V            | 8  | 560            |               |                       |   |
|  <p>WF321</p>                | 159,259,555,1995-7    | WF321-0UG-006B  | 5/6V   | 20             | 58            | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br>Replace WF321 With<br>W321 for Narrow Beam<br>(12-15°) 1K mcd@<br>20mA         |
|  | 124,658,2080,936      | WF321-0UG-014B  | 12/14V   | 20             | 58            |                       |   |
|  | 656,657,400,464,655   | WF321-0UG-024B  | 24V  | 20             | 58            |                       |   |
|  | 656,657,400,464,655   | WF321-0UG-028B  | 28V  | 20             | 58            |                       |   |
|  |                       | WF321-0UG-048B  | 48V  | 12             | 35            |                       |   |
|  |                       | WF321-0UG-120A  | 120VAC   | 10             | 29            |                       |   |
|  | WF321-0UG-130V        | 130V            | 8  | 23             |               |                       |   |
|  <p>WF3126/<br/>WF3127</p>   | 159,259,555,1995-7    | WF3126-0UG-006B | 5/6V   | 120            | 216           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only   |
|  | 124,658,2080,936      | WF3126-0UG-104B | 12/14V   | 40             | 216           |                       |   |
|  | 656,657,400,464,655   | WF3127-0UG-024B | 24V  | 20             | 252           |                       |   |
|  | 656,657,400,464,655   | WF3127-0UG-28B  | 28V  | 20             | 252           |                       |   |
|  |                       | WF3127-0UG-48B  | 48V  | 12             | 154           |                       |   |
|  |                       | WF3127-0UG-120A | 120VAC   | 10             | 126           |                       |   |
|  | WF3127-0UG-130V       | 130V            | 8  | 100            |               |                       |   |
|  <p>WF321</p>              | 159,259,555,1995-7    | WF321-0AG-006B  | 5/6V   | 15             | 400           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br>Replace WF321 With<br>W321 for Narrow Beam<br>(15°) 7K mcd/250 Ft.Cd<br>@ 15mA |
|  | 124,658,2080,936      | WF321-0AG-014B  | 12/14V   | 15             | 400           |                       |   |
|  | 656,657,400,464,655   | WF321-0AG-024B  | 24V  | 15             | 400           |                       |   |
|  | 656,657,400,464,655   | WF321-0AG-028B  | 28V  | 15             | 400           |                       |   |
|  |                       | WF321-0AG-048B  | 48V  | 12             | 320           |                       |   |
|  |                       | WF321-0AG-120A  | 120VAC   | 10             | 275           |                       |   |
|  | WF321-0AG-130V        | 130V            | 8  | 230            |               |                       |   |
|  <p>WF3126/<br/>WF3127</p> | 159,259,555,1995-7    | WF3126-0AG-006B | 5/6V   | 90             | 1200          | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only   |
|  | 124,658,2080,936      | WF3126-0AG-014B | 12/14V   | 30             | 1200          |                       |   |
|  | 656,657,400,464,655   | WF3126-0AG-024B | 24V  | 15             | 1200          |                       |   |
|  | 656,657,400,464,655   | WF3127-0AG-028B | 28V  | 15             | 1400          |                       |   |
|  |                       | WF3127-0AG-048B | 48V  | 12             | 1190          |                       |   |
|  |                       | WF3127-0AG-120A | 120VAC   | 10             | 1050          |                       |   |
|  | WF3127-0AG-130V       | 130V            | 8  | 910            |               |                       |   |
|  <p>WF321</p>              | 159,259,555,1995-7    | WF321-0PB-006B  | 5/6V   | 15             | 116           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only<br>Replace WF321 With<br>W321 for Std. Beam<br>(15°)                              |
|  | 124,658,2080,936      | WF321-0PB-014B  | 12/14V   | 15             | 116           |                       |   |
|  | 656,657,400,464,655   | WF321-0PB-024B  | 24V  | 15             | 116           |                       |   |
|  | 656,657,400,464,655   | WF321-0PB-028B  | 28V  | 15             | 116           |                       |   |
|  |                       | WF321-0PB-048B  | 48V  | 12             | 84            |                       |   |
|  |                       | WF321-0PB-120A  | 120VAC   | 10             | 106           |                       |   |
|  | WF321-0PB-130V        | 130V            | 8  | 53             |               |                       |   |
|  <p>WF3126/<br/>WF3127</p> | 159,259,555,1995-7    | WF3126-0PB-006B | 5/6V   | 90             | 360           | 120°                  | Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br>V = DC only   |
|  | 124,658,2080,936      | WF3126-0PB-014B | 12/14V   | 30             | 360           |                       |   |
|  | 656,657,400,464,655   | WF3127-0PB-024B | 24V  | 15             | 420           |                       |   |
|  | 656,657,400,464,655   | WF3127-0PB-028B | 28V  | 15             | 420           |                       |   |
|  |                       | WF3127-0PB-048B | 48V  | 12             | 336           |                       |   |
|  |                       | WF3127-0PB-120A | 120VAC   | 10             | 315           |                       |   |
|  | WF3127-0PB-130V       | 130V            | 8  | 252            |               |                       |   |

All dimensions in inches. For millimeters multiply by 25.4

Log # 122LLL Rev 08-2000

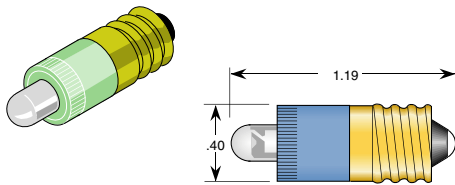


# T3-1/4 (9mm) Miniature Screw Based LEDs

| Miniature Packages  | Replaces Incandescent | Part Number    | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|-----------------------|----------------|--|----------------|---------------|-----------------------|--|
|   |                       |                | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>SF321<br> | 407,502,3708          | SF321-OUR-006B | 5/6V   | 20             | 115           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @20 mA |
|   | 3724,1446             | SF321-OUR-014B | 12/14V   | 20             | 115           |                       |  |
|   | 1449,52               | SF321-OUR-024B | 24V  | 15             | 85            |                       |  |
|   |                       | SF321-OUR-028B | 28V  | 15             | 85            |                       |  |
|   |                       | SF321-OUR-120A | 120VAC   | 10             | 50            |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br>SF321<br>    | 407,502,3708          | SF321-UOU-006B | 5/6V   | 20             | 130           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Narrow (15°) Beam<br>Intensity 3.5K mcd@20 mA           |
|   | 3724,1446             | SF321-UOU-014B | 12/14V   | 20             | 130           |                       |  |
|   | 1449,52               | SF321-UOU-024B | 24V  | 15             | 98            |                       |  |
|   |                       | SF321-UOU-028B | 28V  | 15             | 98            |                       |  |
|   |                       | SF321-UOU-120A | 120VAC   | 10             | 65            |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br>SF321<br>    | 407,502,3708          | SF321-UUY-006B | 5/6V   | 20             | 116           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Narrow (15°) Beam<br>Intensity 3.2K mcd@20 mA           |
|   | 3724,1446             | SF321-UUY-014B | 12/14V   | 20             | 116           |                       |  |
|   | 1449,52               | SF321-UUY-024B | 24V  | 15             | 75            |                       |  |
|   |                       | SF321-UUY-028B | 28V  | 15             | 75            |                       |  |
|   |                       | SF321-UUY-120A | 120VAC   | 10             | 39            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br>SF321<br>    | 407,502,3708          | SF321-OCW-006B | 5V   | 15             | 160           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Std. (50°) Beam Intensity<br>750 mcd/75 Ft. Cd          |
|   | 3724,1446             | SF321-OCW-014B | 12/14V   | 15             | 160           |                       |  |
|   | 1449,52               | SF321-OCW-024B | 24V  | 15             | 160           |                       |  |
|   |                       | SF321-OCW-028B | 28V  | 15             | 160           |                       |  |
|   |                       | SF321-OCW-120A | 120VAC   | 10             | 106           |                       |  |
| <b>570nm Lime Green InGaAlP</b><br><br>SF321<br>  | 407,502,3708          | SF321-UG-006B  | 5/6V   | 20             | 58            | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Narrow (12-15°) Beam<br>Intensity 1K mcd@20 mA          |
|   | 3724,1446             | SF321-UG-014B  | 12/14V   | 20             | 58            |                       |  |
|   | 1449,52               | SF321-UG-024B  | 24V  | 15             | 44            |                       |  |
|   |                       | SF321-UG-028B  | 28V  | 15             | 44            |                       |  |
|   |                       | SF321-UG-120A  | 120VAC   | 10             | 29            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>SF321<br>  | 407,502,3708          | SF321-OAG-006B | 5/6V   | 15             | 400           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd         |
|   | 3724,1446             | SF321-OAG-014B | 12/14V   | 15             | 400           |                       |  |
|   | 1449,52               | SF321-OAG-024B | 24V  | 15             | 400           |                       |  |
|   |                       | SF321-OAG-028B | 28V  | 15             | 400           |                       |  |
|   |                       | SF321-OAG-120A | 120VAC   | 10             | 275           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>SF321<br>  | 407,502,3708          | SF321-OPB-006B | 5/6V   | 15             | 125           | 120°                  | Center Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace SF321 With S321 Std. (15°) Beam Intensity<br>2K mcd/60 Ft.Cd            |
|   | 3724,1446             | SF321-OPB-014B | 12/14V   | 15             | 125           |                       |  |
|   | 1449,52               | SF321-OPB-024B | 24V  | 15             | 125           |                       |  |
|   |                       | SF321-OPB-028B | 28V  | 15             | 125           |                       |  |
|   |                       | SF321-OPB-120A | 120VAC   | 10             | 74            |                       |  |

## Options

All dimensions in inches. For millimeters multiply by 25.4



Series: S321CB1K (15° Illumination)  
PN Example: S321-OPB-024B



# S6 Candelabra Screw Based LEDs

| Miniature Packages                       | Part Number     | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|-----------------|--|----------------|---------------|-----------------------|--|
|  |                 | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br> | SLF461-0UR-024B | 24V  | 20             | 115           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace SLF461 With SL461 for Narrow Beam (15°) 1.6K mcd/52Ft.Cd @ 20mA |
|  | SLF461-0UR-120A | 120VAC   | 10             | 50            |                       |  |
|  | SLF461-0UR-130B | 130V   | 8              | 40            |                       |  |
|  | SLF461-0UR-220A | 220VAC   | 4              | 15            |                       |  |
|  | SLF464-0UR-024B | 24V  | 20             | 460           |                       |  |
|  | SLF464-0UR-120A | 120VAC   | 10             | 200           |                       |  |
|  | SLF464-0UR-130B | 130V   | 8              | 160           |                       |  |
|  | SLF464-0UR-220A | 220VAC   | 4              | 60            |                       |  |
|  | SLF467-0UR-024B | 24V  | 20             | 800           |                       |  |
|  | SLF467-0UR-120A | 120VAC   | 10             | 350           |                       |  |
|  | SLF467-0UR-130B | 130V   | 8              | 280           |                       |  |
|  | SLF467-0UR-220A | 220VAC   | 4              | 105           |                       |  |
| <b>612nm Super Orange InGaAlP</b><br>    | SLF461-0UO-024B | 24V  | 20             | 130           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace SLF461 With SL461 for Narrow Beam (15°) 3.5 K mcd @ 20mA        |
|  | SLF461-0UO-120A | 120VAC   | 10             | 65            |                       |  |
|  | SLF461-0UO-130B | 130V   | 8              | 52            |                       |  |
|  | SLF461-0UO-220A | 220VAC   | 4              | 26            |                       |  |
|  | SLF464-0UO-024B | 24V  | 20             | 520           |                       |  |
|  | SLF464-0UO-120A | 120VAC   | 10             | 260           |                       |  |
|  | SLF464-0UO-130B | 130V   | 8              | 208           |                       |  |
|  | SLF464-0UO-220A | 220VAC   | 4              | 104           |                       |  |
|  | SLF467-0UO-024B | 24V  | 20             | 910           |                       |  |
|  | SLF467-0UO-120A | 120VAC   | 10             | 455           |                       |  |
|  | SLF467-0UO-130B | 130V   | 8              | 364           |                       |  |
|  | SLF467-0UO-220A | 220VAC   | 4              | 182           |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br>    | SLF461-0UY-024B | 24V  | 20             | 116           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace SLF461 With SL461 for Narrow Beam (15°) 3.2K mcd @ 20mA         |
|  | SLF461-0UY-120A | 120VAC   | 10             | 39            |                       |  |
|  | SLF461-0UY-130B | 130V   | 8              | 24            |                       |  |
|  | SLF461-0UY-220A | 220VAC   | 4              | 4             |                       |  |
|  | SLF464-0UY-024B | 24V  | 20             | 464           |                       |  |
|  | SLF464-0UY-120A | 120VAC   | 10             | 156           |                       |  |
|  | SLF464-0UY-130B | 130V   | 8              | 96            |                       |  |
|  | SLF464-0UY-220A | 220VAC   | 4              | 16            |                       |  |
|  | SLF467-0UY-024B | 24V  | 20             | 812           |                       |  |
|  | SLF467-0UY-120A | 120VAC   | 10             | 273           |                       |  |
|  | SLF467-0UY-130B | 130V   | 8              | 168           |                       |  |
|  | SLF467-0UY-220A | 220VAC   | 4              | 28            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br>      | SLF461-0CW-024B | 24V  | 15             | 160           | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace BF321 With B321 for Std. Beam (50°)                             |
|  | SLF461-0CW-120A | 120VAC   | 10             | 106           |                       |  |
|  | SLF461-0CW-130B | 130V   | 8              | 85            |                       |  |
|  | SLF461-0CW-220A | 220VAC   | 4              | 42            |                       |  |
|  | SLF464-0CW-024B | 24V  | 15             | 640           |                       |  |
|  | SLF464-0CW-120A | 120VAC   | 10             | 424           |                       |  |
|  | SLF464-0CW-130B | 130V   | 8              | 340           |                       |  |
|  | SLF464-0CW-220A | 220VAC   | 4              | 168           |                       |  |
|  | SLF467-0CW-024B | 24V  | 15             | 960           |                       |  |
|  | SLF467-0CW-120A | 120VAC   | 10             | 742           |                       |  |
|  | SLF467-0CW-130B | 130V   | 8              | 595           |                       |  |
|  | SLF467-0CW-220A | 220VAC   | 4              | 294           |                       |  |

All dimensions in inches. For millimeters multiply by 25.4

Log # 122N Rev 09-2000

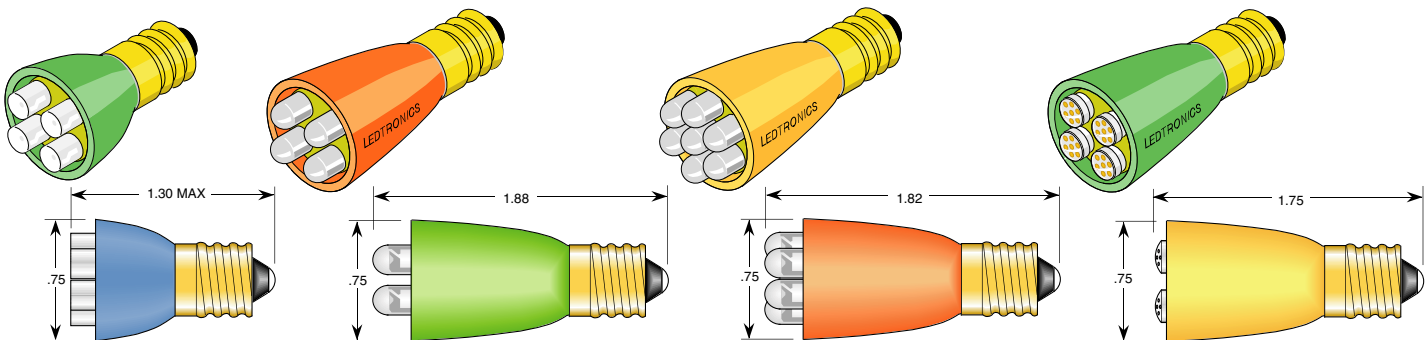


# S6 Candelabra Screw Based LEDs

| Miniature Packages                  | Part Number                         | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|-------------------------------------|-------------------------------------|--|----------------|---------------|-----------------------|--|
|                                     |                                     | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>570nm Lime Green InGaAlP</b><br> | SLF461-0UG-024B                     | 24V  | 20             | 58            | 120°                  | Center Contact Polarity<br>B = Bipolar AC/DC<br>A = AC only<br><br>Replace SLF461 With<br>SL461 for Narrow Beam<br>(12-15°) 1K mcd @<br>20mA |
|                                     | SLF461-0UG-120A                     | 120VAC   | 10             | 29            |                       |  |
|                                     | SLF461-0UG-130B                     | 130V   | 8              | 23            |                       |  |
|                                     | SLF461-0UG-220A                     | 220VAC   | 4              | 12            |                       |  |
|                                     | SLF464-0UG-024B                     | 24V  | 20             | 232           |                       |  |
|                                     | SLF464-0UG-120A                     | 120VAC   | 10             | 116           |                       |  |
|                                     | SLF464-0UG-130B                     | 130V   | 8              | 92            |                       |  |
|                                     | SLF464-0UG-220A                     | 220VAC   | 4              | 48            |                       |  |
|                                     | SLF467-0UG-024B                     | 24V  | 20             | 406           |                       |  |
|                                     | SLF467-0UG-120A                     | 120VAC   | 10             | 203           |                       |  |
|                                     | SLF467-0UG-130B                     | 130V   | 8              | 161           |                       |  |
|                                     | SLF467-0UG-220A                     | 220VAC   | 4              | 84            |                       |  |
|                                     | <b>525nm Aqua Green SiC/GaN</b><br> | SLF461-0AG-024B                                | 24V            | 15            |                       |  |
| SLF461-0AG-120A                     |                                     | 120VAC   | 10             | 275           |                       |  |
| SLF461-0AG-130B                     |                                     | 130V   | 8              | 230           |                       |  |
| SLF461-0AG-220A                     |                                     | 220VAC   | 4              | 140           |                       |  |
| SLF464-0AG-024B                     |                                     | 24V  | 15             | 1600          |                       |  |
| SLF464-0AG-120A                     |                                     | 120VAC   | 10             | 1100          |                       |  |
| SLF464-0AG-130B                     |                                     | 130V   | 8              | 920           |                       |  |
| SLF464-0AG-220A                     |                                     | 220VAC   | 4              | 560           |                       |  |
| SLF466-0AG-024B                     |                                     | 24V  | 15             | 2400          |                       |  |
| SLF467-0AG-120A                     |                                     | 120VAC   | 10             | 1900          |                       |  |
| SLF467-0AG-130B                     |                                     | 130V   | 8              | 1600          |                       |  |
| SLF467-0AG-220A                     |                                     | 220VAC   | 4              | 980           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br> |                                     | SLF461-0PB-024B                                | 24V            | 15            | 116                   | 120°   |
|                                     | SLF461-0PB-120A                     | 120VAC   | 10             | 74            |                       |  |
|                                     | SLF461-0PB-130B                     | 130V   | 8              | 53            |                       |  |
|                                     | SLF461-0PB-220A                     | 220VAC   | 4              | 7             |                       |  |
|                                     | SLF464-0PB-024B                     | 24V  | 15             | 464           |                       |  |
|                                     | SLF464-0PB-120A                     | 120VAC   | 10             | 296           |                       |  |
|                                     | SLF464-0PB-130B                     | 130V   | 8              | 212           |                       |  |
|                                     | SLF464-0PB-220A                     | 220VAC   | 4              | 28            |                       |  |
|                                     | SLF467-0PB-024B                     | 24V  | 15             | 812           |                       |  |
|                                     | SLF467-0PB-120A                     | 120VAC   | 10             | 518           |                       |  |
|                                     | SLF467-0PB-130B                     | 130V   | 8              | 370           |                       |  |
|                                     | SLF467-0PB-220A                     | 220VAC   | 4              | 49            |                       |  |

## Options

All dimensions in inches. For millimeters multiply by 25.4



Series: SF464  
PN Example: SF464-0PB-024B

Series: SL464 (15° Illumination)  
PN Example: SL464-0UG-024B

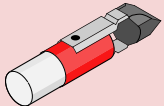
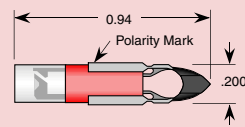
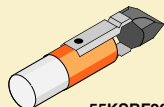
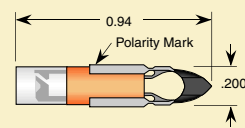
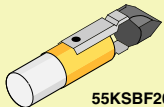
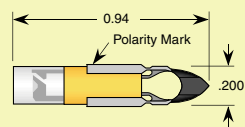
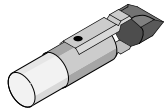
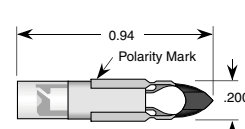
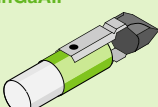
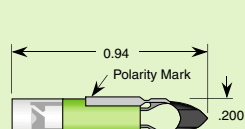

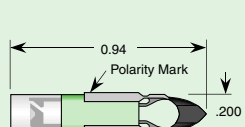
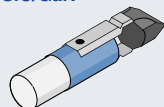
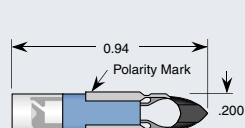
Series: SL467 (15° Illumination)  
PN Example: SL467-0UO-024B

Series: SL424  
PN Example: SL424-0UY-006B

Log # 122P Rev 10-2000

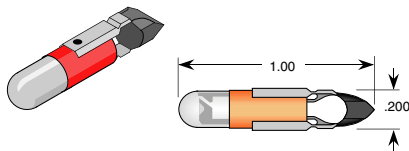


# T5.5K European Telephone Slide Based LEDs

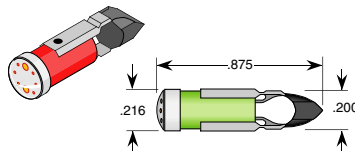
| Subminiature Packages  | Replaces Incandescent | Part Number        | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features  |
|--|-----------------------|--------------------|--|----------------|---------------|-----------------------|---|
|  |                       |                    | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |   |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>55KSBF200<br> |                       | 55KSBF200-0UR-006V | 5/6V   | 20             | 115           | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @ 20 mA |
|  |                       | 55KSBF200-0UR-014V | 12/14V   | 20             | 115           |                       |   |
|  |                       | 55KSBF200-0UR-024V | 24V  | 15             | 85            |                       |   |
|  |                       | 55KSBF200-0UR-028V | 28V  | 15             | 85            |                       |   |
|  |                       | 55KSBF200-0UR-048V | 48V  | 12             | 65            |                       |   |
|  |                       | 55KSBF200-0UR-120A | 120VAC   | 10             | 50            |                       |   |
| <b>612nm Super Orange InGaAlP</b><br><br>55KSBF200<br>    |                       | 55KSBF200-0UO-006V | 5/6V   | 20             | 130           | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Narrow Beam (15°) Beam<br>Intensity 3.5K mcd@ 20 mA      |
|  |                       | 55KSBF200-0UO-014V | 12/14V   | 20             | 130           |                       |   |
|  |                       | 55KSBF200-0UO-024V | 24V  | 15             | 98            |                       |   |
|  |                       | 55KSBF200-0UO-028V | 28V  | 15             | 98            |                       |   |
|  |                       | 55KSBF200-0UO-048V | 48V  | 12             | 78            |                       |   |
|  |                       | 55KSBF200-0UO-120A | 120VAC   | 10             | 65            |                       |   |
| <b>595nm Super Yellow InGaAlP</b><br><br>55KSBF200<br>    |                       | 55KSBF200-0UY-006V | 5/6V   | 20             | 116           | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Narrow (15°) Beam<br>Intensity 3.2K mcd@ 20 mA           |
|  |                       | 55KSBF200-0UY-014V | 12/14V   | 20             | 116           |                       |   |
|  |                       | 55KSBF200-0UY-024V | 24V  | 15             | 75            |                       |   |
|  |                       | 55KSBF200-0UY-028V | 28V  | 15             | 75            |                       |   |
|  |                       | 55KSBF200-0UY-048V | 48V  | 12             | 54            |                       |   |
|  |                       | 55KSBF200-0UY-120A | 120VAC   | 10             | 39            |                       |   |
| <b>8000K Cool White SiC/GaN</b><br><br>55KSBF200<br>    |                       | 55KSBF200-0CW-006V | 5V   | 15             | 160           | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Std. (50°) Beam Intensity<br>750 mcd/75 Ft. Cd           |
|  |                       | 55KSBF200-0CW-014V | 12/14V   | 15             | 160           |                       |   |
|  |                       | 55KSBF200-0CW-024V | 24V  | 15             | 160           |                       |   |
|  |                       | 55KSBF200-0CW-028V | 28V  | 15             | 160           |                       |   |
|  |                       | 55KSBF200-0CW-048V | 48V  | 12             | 128           |                       |   |
|  |                       | 55KSBF200-0CW-120A | 120VAC   | 10             | 106           |                       |   |
| <b>570nm Lime Green InGaAlP</b><br><br>55KSBF200<br>  |                       | 55KSBF200-0UG-006V | 5/6V   | 20             | 58            | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Narrow (12-15°) Beam<br>Intensity 1K mcd@ 20 mA          |
|  |                       | 55KSBF200-0UG-014V | 12/14V   | 20             | 58            |                       |   |
|  |                       | 55KSBF200-0UG-024V | 24V  | 15             | 44            |                       |   |
|  |                       | 55KSBF200-0UG-028V | 28V  | 15             | 44            |                       |   |
|  |                       | 55KSBF200-0UG-048V | 48V  | 12             | 35            |                       |   |
|  |                       | 55KSBF200-0UG-120A | 120VAC   | 10             | 29            |                       |   |
| <b>525nm Aqua Green SiC/GaN</b><br><br>55KSBF200<br>  |                       | 55KSBF200-0AG-006V | 5/6V   | 15             | 400           | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd          |
|  |                       | 55KSBF200-0AG-014V | 12/14V   | 15             | 400           |                       |   |
|  |                       | 55KSBF200-0AG-024V | 24V  | 15             | 400           |                       |   |
|  |                       | 55KSBF200-0AG-028V | 28V  | 15             | 400           |                       |   |
|  |                       | 55KSBF200-0AG-048V | 48V  | 12             | 320           |                       |   |
|  |                       | 55KSBF200-0AG-120A | 120VAC   | 10             | 275           |                       |   |
| <b>470nm Super Blue SiC/GaN</b><br><br>55KSBF200<br>  |                       | 55KSBF200-0PB-006V | 5/6V   | 15             | 125           | 120°                  | Contact Polarity<br>V = DC only<br>A = AC only<br><br>Replace 55KSBF200 With 55KSB200<br>Std. (15°) Beam Intensity<br>2K mcd/60 Ft.Cd             |
|  |                       | 55KSBF200-0PB-014V | 12/14V   | 15             | 125           |                       |   |
|  |                       | 55KSBF200-0PB-024V | 24V  | 15             | 125           |                       |   |
|  |                       | 55KSBF200-0PB-028V | 28V  | 15             | 125           |                       |   |
|  |                       | 55KSBF200-0PB-048V | 48V  | 12             | 84            |                       |   |
|  |                       | 55KSBF200-0PB-120A | 120VAC   | 10             | 74            |                       |   |

## Options

All dimensions in inches. For millimeters multiply by 25.4



Series: 55KSB200 (15° Illumination)  
 PN Example: 55KSB200-0UO-024V

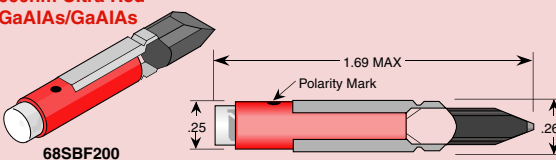
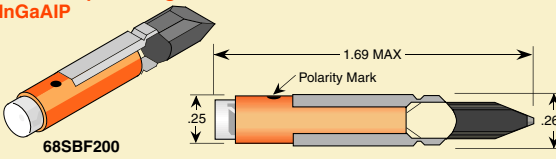
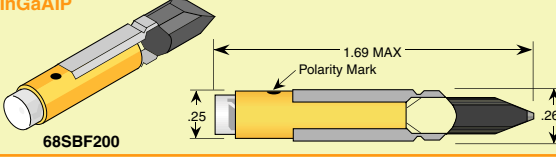
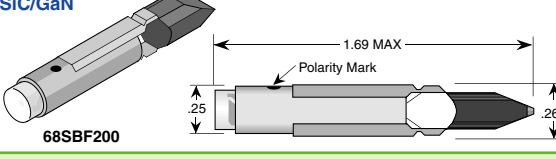
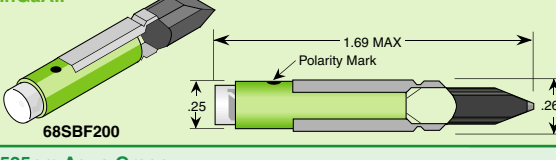
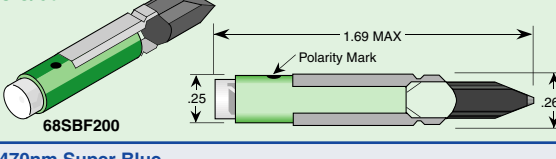
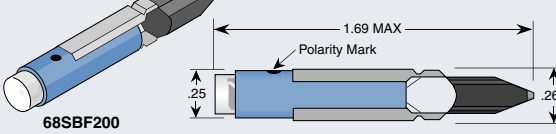


Series: 55KSB206 (160° Illumination)  
 PN Example: 55KSB206-0AG-024V



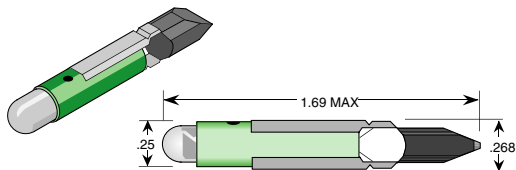


# T6.8 European Telephone Slide Based LEDs

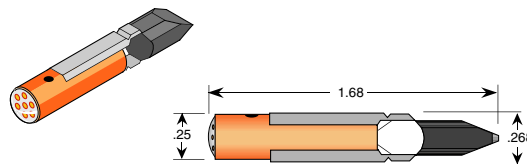
| Subminiature Packages  | Replaces Incandescent | Part Number       | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features  |
|--|-----------------------|-------------------|--|----------------|---------------|-----------------------|---|
|  |                       |                   | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |   |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br> |                       | 68SBF200-OUR-006B | 5/6V   | 20             | 115           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @ 20 mA |
|  |                       | 68SBF200-OUR-014B | 12/14V   | 20             | 115           |                       |   |
|  |                       | 68SBF200-OUR-024B | 24V  | 15             | 85            |                       |   |
|  |                       | 68SBF200-OUR-028B | 28V  | 15             | 85            |                       |   |
|  |                       | 68SBF200-OUR-048B | 48V  | 12             | 65            |                       |   |
|  |                       | 68SBF200-OUR-120A | 120VAC   | 10             | 50            |                       |   |
| <b>612nm Super Orange InGaAlP</b><br>    |                       | 68SBF200-UOU-006B | 5/6V   | 20             | 130           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Narrow (15°) Beam<br>Intensity 3.5K mcd@ 20 mA           |
|  |                       | 68SBF200-UOU-014B | 12/14V   | 20             | 130           |                       |   |
|  |                       | 68SBF200-UOU-024B | 24V  | 15             | 98            |                       |   |
|  |                       | 68SBF200-UOU-028B | 28V  | 15             | 98            |                       |   |
|  |                       | 68SBF200-UOU-048B | 48V  | 12             | 78            |                       |   |
|  |                       | 68SBF200-UOU-120A | 120VAC   | 10             | 65            |                       |   |
| <b>595nm Super Yellow InGaAlP</b><br>    |                       | 68SBF200-UUY-006B | 5/6V   | 20             | 116           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Narrow (15°) Beam<br>Intensity 3.2K mcd@ 20 mA           |
|  |                       | 68SBF200-UUY-014B | 12/14V   | 20             | 116           |                       |   |
|  |                       | 68SBF200-UUY-024B | 24V  | 15             | 75            |                       |   |
|  |                       | 68SBF200-UUY-028B | 28V  | 15             | 75            |                       |   |
|  |                       | 68SBF200-UUY-048B | 48V  | 12             | 54            |                       |   |
|  |                       | 68SBF200-UUY-120A | 120VAC   | 10             | 39            |                       |   |
| <b>8000K Cool White SiC/GaN</b><br>     |                       | 68SBF200-OCW-006B | 5V   | 15             | 160           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Std. (50°) Beam Intensity<br>750 mcd/75 Ft. Cd           |
|  |                       | 68SBF200-OCW-014B | 12/14V   | 15             | 160           |                       |   |
|  |                       | 68SBF200-OCW-024B | 24V  | 15             | 160           |                       |   |
|  |                       | 68SBF200-OCW-028B | 28V  | 15             | 160           |                       |   |
|  |                       | 68SBF200-OCW-048B | 48V  | 12             | 128           |                       |   |
|  |                       | 68SBF200-OCW-120A | 120VAC   | 10             | 106           |                       |   |
| <b>570nm Lime Green InGaAlP</b><br>    |                       | 68SBF200-UG-006B  | 5/6V   | 20             | 58            | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Narrow (12-15°) Beam<br>Intensity 1K mcd@ 20 mA          |
|  |                       | 68SBF200-UG-014B  | 12/14V   | 20             | 58            |                       |   |
|  |                       | 68SBF200-UG-024B  | 24V  | 15             | 44            |                       |   |
|  |                       | 68SBF200-UG-028B  | 28V  | 15             | 44            |                       |   |
|  |                       | 68SBF200-UG-048B  | 48V  | 12             | 35            |                       |   |
|  |                       | 68SBF200-UG-120A  | 120VAC   | 10             | 29            |                       |   |
| <b>525nm Aqua Green SiC/GaN</b><br>    |                       | 68SBF200-OAG-006B | 5/6V   | 15             | 400           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd          |
|  |                       | 68SBF200-OAG-014B | 12/14V   | 15             | 400           |                       |   |
|  |                       | 68SBF200-OAG-024B | 24V  | 15             | 400           |                       |   |
|  |                       | 68SBF200-OAG-028B | 28V  | 15             | 400           |                       |   |
|  |                       | 68SBF200-OAG-048B | 48V  | 12             | 320           |                       |   |
|  |                       | 68SBF200-OAG-120A | 120VAC   | 10             | 275           |                       |   |
| <b>470nm Super Blue SiC/GaN</b><br>    |                       | 68SBF200-OPB-006B | 5/6V   | 15             | 125           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 68SBF200 With 68SB200<br>Std. (15°) Beam Intensity<br>2K mcd/60 Ft.Cd             |
|  |                       | 68SBF200-OPB-014B | 12/14V   | 15             | 125           |                       |   |
|  |                       | 68SBF200-OPB-024B | 24V  | 15             | 125           |                       |   |
|  |                       | 68SBF200-OPB-028B | 28V  | 15             | 125           |                       |   |
|  |                       | 68SBF200-OPB-048B | 48V  | 12             | 84            |                       |   |
|  |                       | 68SBF200-OPB-120A | 120VAC   | 10             | 74            |                       |   |

## Options

All dimensions in inches. For millimeters multiply by 25.4



Series: 68SB200 (15° Illumination)  
 PN Example: 68SB200-OAG-024B



Series: 68SB206 (6 Chip 160° Illumination)  
 PN Example: 68SB206-UOU-120A


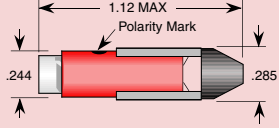

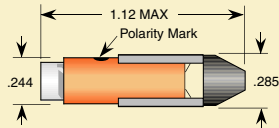
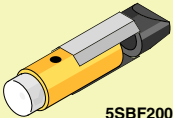
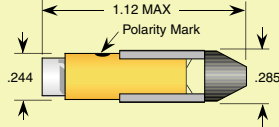

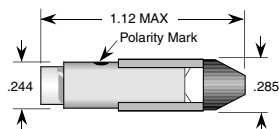

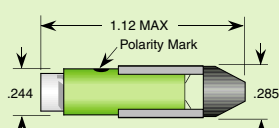
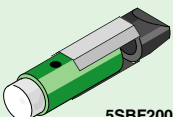
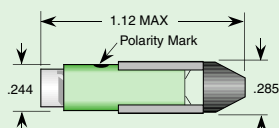
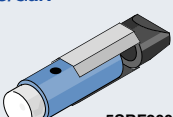
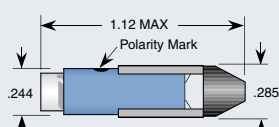
Log # 122T Rev 09-2000





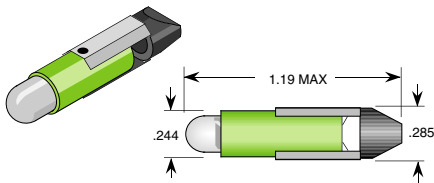


# T2 ANSI #5 Telephone Slide Based LEDs

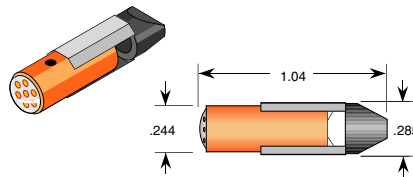
| Subminiature Packages   | Replaces Incandescent | Part Number      | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|---|-----------------------|------------------|--|----------------|---------------|-----------------------|--|
|   |                       |                  | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>5SBF200<br> | 6 PSB                 | 5SBF200-0UR-006B | 5/6V   | 20             | 115           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @20 mA |
|   | 12 PSB                | 5SBF200-0UR-014B | 12/14V   | 20             | 115           |                       |  |
|   | 24 PSB                | 5SBF200-0UR-024B | 24V  | 15             | 85            |                       |  |
|   | 28 PSB                | 5SBF200-0UR-028B | 28V  | 15             | 85            |                       |  |
|   |                       | 5SBF200-0UR-048B | 48V  | 12             | 65            |                       |  |
|   | 120 PSB               | 5SBF200-0UR-120A | 120VAC   | 10             | 50            |                       |  |
| <b>612nm Super Orange InGaIP</b><br><br>5SBF200<br>     | 6 PSB                 | 5SBF200-0UO-006B | 5/6V   | 20             | 130           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Narrow (15°) Beam<br>Intensity 3.5K mcd@20 mA           |
|   | 12 PSB                | 5SBF200-0UO-014B | 12/14V   | 20             | 130           |                       |  |
|   | 24 PSB                | 5SBF200-0UO-024B | 24V  | 15             | 98            |                       |  |
|   | 28 PSB                | 5SBF200-0UO-028B | 28V  | 15             | 98            |                       |  |
|   |                       | 5SBF200-0UO-048B | 48V  | 12             | 78            |                       |  |
|   | 120 PSB               | 5SBF200-0UO-120A | 120VAC   | 10             | 65            |                       |  |
| <b>595nm Super Yellow InGaIP</b><br><br>5SBF200<br>     | 6 PSB                 | 5SBF200-0UY-006B | 5/6V   | 20             | 116           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Narrow (15°) Beam<br>Intensity 3.2K mcd@20 mA           |
|   | 12 PSB                | 5SBF200-0UY-014B | 12/14V   | 20             | 116           |                       |  |
|   | 24 PSB                | 5SBF200-0UY-024B | 24V  | 15             | 75            |                       |  |
|   | 28 PSB                | 5SBF200-0UY-028B | 28V  | 15             | 75            |                       |  |
|   |                       | 5SBF200-0UY-048B | 48V  | 12             | 54            |                       |  |
|   | 120 PSB               | 5SBF200-0UY-120A | 120VAC   | 10             | 39            |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br>5SBF200<br>    | 6 PSB                 | 5SBF200-0CW-006B | 5V   | 15             | 160           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Std. (50°) Beam Intensity<br>750 mcd/75 Ft. Cd          |
|   | 12 PSB                | 5SBF200-0CW-014B | 12/14V   | 15             | 160           |                       |  |
|   | 24 PSB                | 5SBF200-0CW-024B | 24V  | 15             | 160           |                       |  |
|   | 28 PSB                | 5SBF200-0CW-028B | 28V  | 15             | 160           |                       |  |
|   |                       | 5SBF200-0CW-048B | 48V  | 12             | 128           |                       |  |
|   | 120 PSB               | 5SBF200-0CW-120A | 120VAC   | 10             | 106           |                       |  |
| <b>570nm Lime Green InGaIP</b><br><br>5SBF200<br>   | 6 PSB                 | 5SBF200-0UG-006B | 5/6V   | 20             | 58            | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Narrow (12-15°) Beam<br>Intensity 1K mcd@ 20 mA         |
|   | 12 PSB                | 5SBF200-0UG-014B | 12/14V   | 20             | 58            |                       |  |
|   | 24 PSB                | 5SBF200-0UG-024B | 24V  | 15             | 44            |                       |  |
|   | 28 PSB                | 5SBF200-0UG-028B | 28V  | 15             | 44            |                       |  |
|   |                       | 5SBF200-0UG-048B | 48V  | 12             | 35            |                       |  |
|   | 120 PSB               | 5SBF200-0UG-120A | 120VAC   | 10             | 29            |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>5SBF200<br>  | 6 PSB                 | 5SBF200-0AG-006B | 5/6V   | 15             | 400           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd         |
|   | 12 PSB                | 5SBF200-0AG-014B | 12/14V   | 15             | 400           |                       |  |
|   | 24 PSB                | 5SBF200-0AG-024B | 24V  | 15             | 400           |                       |  |
|   | 28 PSB                | 5SBF200-0AG-028B | 28V  | 15             | 400           |                       |  |
|   |                       | 5SBF200-0AG-048B | 48V  | 12             | 320           |                       |  |
|   | 120 PSB               | 5SBF200-0AG-120A | 120VAC   | 10             | 275           |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>5SBF200<br>  | 6 PSB                 | 5SBF200-0PB-006B | 5/6V   | 15             | 125           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 5SBF200 With 5SB200<br>Std. (15°) Beam Intensity<br>2K mcd/60 Ft.Cd            |
|   | 12 PSB                | 5SBF200-0PB-014B | 12/14V   | 15             | 125           |                       |  |
|   | 24 PSB                | 5SBF200-0PB-024B | 24V  | 15             | 125           |                       |  |
|   | 28 PSB                | 5SBF200-0PB-028B | 28V  | 15             | 125           |                       |  |
|   |                       | 5SBF200-0PB-048B | 48V  | 12             | 84            |                       |  |
|   | 120 PSB               | 5SBF200-0PB-120A | 120VAC   | 10             | 74            |                       |  |

## Options

All dimensions in inches. For millimeters multiply by 25.4



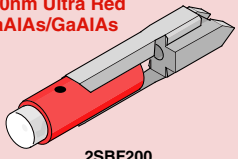
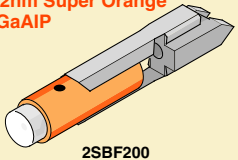
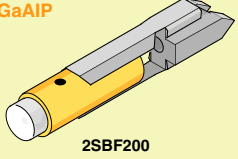
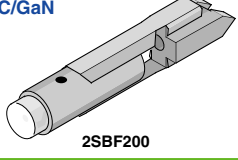
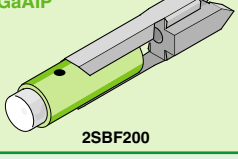
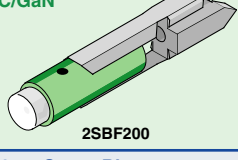
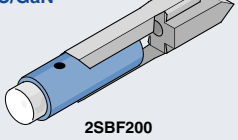
Series: 5SB200 (15° Illumination)  
 PN Example: 5SB200-0UG-024B



Series: 5SB206 (160° Illumination)  
 PN Example: 5SB206-0UO-028B

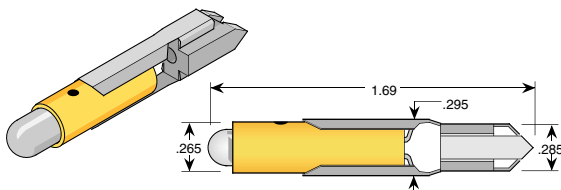


# T2 ANSI #2 & #3 Telephone Slide Based LEDs

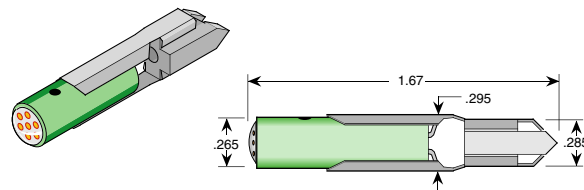
| Miniature Packages   | Replaces Incandescent | Part Number      | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features   |
|--|-----------------------|------------------|--|----------------|---------------|-----------------------|--|
|  |                       |                  | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |  |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>2SBF200 |                       | 2SBF200-0UR-006B | 5/6V   | 20             | 115           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @20 mA |
|  |                       | 2SBF200-0UR-014B | 12/14V   | 20             | 115           |                       |  |
|  | 24E,24X               | 2SBF200-0UR-024B | 24V  | 15             | 85            |                       |  |
|  |                       | 2SBF200-0UR-028B | 28V  | 15             | 85            |                       |  |
|  | 48A,D,C               | 2SBF200-0UR-048B | 48V  | 12             | 65            |                       |  |
|  | 2SBF200-0UR-120A      | 120VAC           | 10   | 50             |               |                       |  |
| <b>612nm Super Orange InGaAlP</b><br><br>2SBF200    |                       | 2SBF200-0UO-006B | 5/6V   | 20             | 130           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Narrow (15°) Beam<br>Intensity 3.5K mcd@20 mA           |
|  |                       | 2SBF200-0UO-014B | 12/14V   | 20             | 130           |                       |  |
|  | 24E,24X               | 2SBF200-0UO-024B | 24V  | 15             | 98            |                       |  |
|  |                       | 2SBF200-0UO-028B | 28V  | 15             | 98            |                       |  |
|  | 48A,D,C               | 2SBF200-0UO-048B | 48V  | 12             | 78            |                       |  |
|  | 2SBF200-0UO-120A      | 120VAC           | 10   | 65             |               |                       |  |
| <b>595nm Super Yellow InGaAlP</b><br><br>2SBF200    |                       | 2SBF200-0UY-006B | 5/6V   | 20             | 116           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Narrow (15°) Beam<br>Intensity 3.2K mcd@20 mA           |
|  |                       | 2SBF200-0UY-014B | 12/14V   | 20             | 116           |                       |  |
|  | 24E,24X               | 2SBF200-0UY-024B | 24V  | 15             | 75            |                       |  |
|  |                       | 2SBF200-0UY-028B | 28V  | 15             | 75            |                       |  |
|  | 48A,D,C               | 2SBF200-0UY-048B | 48V  | 12             | 54            |                       |  |
|  | 2SBF200-0UY-120A      | 120VAC           | 10   | 39             |               |                       |  |
| <b>8000K Cool White SiC/GaN</b><br><br>2SBF200     |                       | 2SBF200-0CW-006B | 5V   | 15             | 160           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Std. (50°) Beam<br>Intensity 750 mcd/75 Ft. cd          |
|  |                       | 2SBF200-0CW-014B | 12/14V   | 15             | 160           |                       |  |
|  | 24E,24X               | 2SBF200-0CW-024B | 24V  | 15             | 160           |                       |  |
|  |                       | 2SBF200-0CW-028B | 28V  | 15             | 160           |                       |  |
|  | 48A,D,C               | 2SBF200-0CW-048B | 48V  | 12             | 128           |                       |  |
|  | 2SBF200-0CW-120A      | 120VAC           | 10   | 106            |               |                       |  |
| <b>570nm Lime Green InGaAlP</b><br><br>2SBF200    |                       | 2SBF200-0UG-006B | 5/6V   | 20             | 58            | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Narrow (12-15°) Beam<br>Intensity 1K mcd @ 20 mA        |
|  |                       | 2SBF200-0UG-014B | 12/14V   | 20             | 58            |                       |  |
|  | 24E,24X               | 2SBF200-0UG-024B | 24V  | 15             | 44            |                       |  |
|  |                       | 2SBF200-0UG-028B | 28V  | 15             | 44            |                       |  |
|  | 48A,D,C               | 2SBF200-0UG-048B | 48V  | 12             | 35            |                       |  |
|  | 2SBF200-0UG-120A      | 120VAC           | 10   | 29             |               |                       |  |
| <b>525nm Aqua Green SiC/GaN</b><br><br>2SBF200    |                       | 2SBF200-0AG-006B | 5/6V   | 15             | 400           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd         |
|  |                       | 2SBF200-0AG-014B | 12/14V   | 15             | 400           |                       |  |
|  | 24E,24X               | 2SBF200-0AG-024B | 24V  | 15             | 400           |                       |  |
|  |                       | 2SBF200-0AG-028B | 28V  | 15             | 400           |                       |  |
|  | 48A,D,C               | 2SBF200-0AG-048B | 48V  | 12             | 320           |                       |  |
|  | 2SBF200-0AG-120A      | 120VAC           | 10   | 275            |               |                       |  |
| <b>470nm Super Blue SiC/GaN</b><br><br>2SBF200    |                       | 2SBF200-0PB-006B | 5/6V   | 15             | 125           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br>Replace 2SBF200 With 2SB200<br>Std. (15°) Beam<br>Intensity 2K mcd/60 Ft.Cd            |
|  |                       | 2SBF200-0PB-014B | 12/14V   | 15             | 125           |                       |  |
|  | 24E,24X               | 2SBF200-0PB-024B | 24V  | 15             | 125           |                       |  |
|  |                       | 2SBF200-0PB-028B | 28V  | 15             | 125           |                       |  |
|  | 48A,D,C               | 2SBF200-0PB-048B | 48V  | 12             | 84            |                       |  |
|  | 2SBF200-0PB-120A      | 120VAC           | 10   | 74             |               |                       |  |

## Options

All dimensions in inches. For millimeters multiply by 25.4



Series: 2SB200 (15° Illumination)  
 PN Example: 2SB200-0UY-024B



Series: 2SB206 (160° Illumination)  
 PN Example: 2SB206-0AG-028B

Log # 122U Rev 09-2000

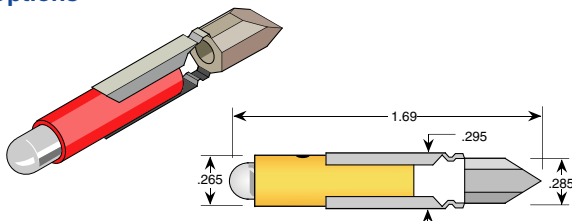




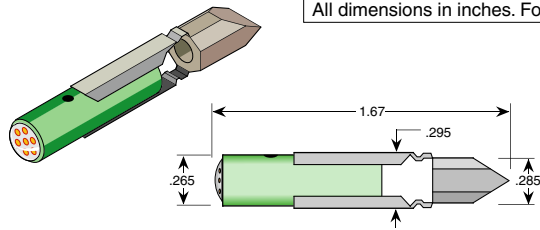
# T2 #1 Telephone Slide Based LEDs

| Miniature Packages                                  | Replaces Incandescent | Part Number      | Electrical-Optical Characteristics (Ta = 25°C) |                |               | Angle of Illumination | Special Features  |
|---|-----------------------|------------------|--|----------------|---------------|-----------------------|---|
|   |                       |                  | Voltage V typ                                  | Current mA typ | Intensity mcd |                       |   |
| <b>660nm Ultra Red GaAlAs/GaAlAs</b><br><br>1SBF200 |                       | 1SBF200-0UR-006B | 5/6V   | 20             | 115           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Narrow Beam (15°)<br>Intensity 1.6K mcd/52 Ft.Cd @ 20 mA |
|   |                       | 1SBF200-0UR-014B | 12/14V   | 20             | 115           |                       |   |
|   |                       | 1SBF200-0UR-024B | 24V  | 15             | 85            |                       |   |
|   |                       | 1SBF200-0UR-028B | 28V  | 15             | 85            |                       |   |
|   |                       | 1SBF200-0UR-048B | 48V  | 12             | 65            |                       |   |
|   |                       | 1SBF200-0UR-120A | 120VAC   | 10             | 50            |                       |   |
| <b>612nm Super Orange InGaAlP</b><br><br>1SBF200    |                       | 1SBF200-0UO-006B | 5/6V   | 20             | 130           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Narrow (15°) Beam<br>Intensity 3.5K mcd@20 mA            |
|   |                       | 1SBF200-0UO-014B | 12/14V   | 20             | 130           |                       |   |
|   |                       | 1SBF200-0UO-024B | 24V  | 15             | 98            |                       |   |
|   |                       | 1SBF200-0UO-028B | 28V  | 15             | 98            |                       |   |
|   |                       | 1SBF200-0UO-048B | 48V  | 12             | 78            |                       |   |
|   |                       | 1SBF200-0UO-120A | 120VAC   | 10             | 65            |                       |   |
| <b>595nm Super Yellow InGaAlP</b><br><br>1SBF200    |                       | 1SBF200-0UY-006B | 5/6V   | 20             | 116           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Narrow (15°) Beam<br>Intensity 3.2K mcd@20 mA            |
|   |                       | 1SBF200-0UY-014B | 12/14V   | 20             | 116           |                       |   |
|   |                       | 1SBF200-0UY-024B | 24V  | 15             | 75            |                       |   |
|   |                       | 1SBF200-0UY-028B | 28V  | 15             | 75            |                       |   |
|   |                       | 1SBF200-0UY-048B | 48V  | 12             | 54            |                       |   |
|   |                       | 1SBF200-0UY-120A | 120VAC   | 10             | 39            |                       |   |
| <b>8000K Cool White SiC/GaN</b><br><br>1SBF200      |                       | 1SBF200-0CW-006B | 5V   | 15             | 160           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Std. (50°) Beam<br>Intensity 750 mcd/75 Ft. cd           |
|   |                       | 1SBF200-0CW-014B | 12/14V   | 15             | 160           |                       |   |
|   |                       | 1SBF200-0CW-024B | 24V  | 15             | 160           |                       |   |
|   |                       | 1SBF200-0CW-028B | 28V  | 15             | 160           |                       |   |
|   |                       | 1SBF200-0CW-048B | 48V  | 12             | 128           |                       |   |
|   |                       | 1SBF200-0CW-120A | 120VAC   | 10             | 106           |                       |   |
| <b>570nm Lime Green InGaAlP</b><br><br>1SBF200      |                       | 1SBF200-0UG-006B | 5/6V   | 20             | 58            | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Narrow (12-15°) Beam<br>Intensity 1K mcd@ 20 mA          |
|   |                       | 1SBF200-0UG-014B | 12/14V   | 20             | 58            |                       |   |
|   |                       | 1SBF200-0UG-024B | 24V  | 15             | 44            |                       |   |
|   |                       | 1SBF200-0UG-028B | 28V  | 15             | 44            |                       |   |
|   |                       | 1SBF200-0UG-048B | 48V  | 12             | 35            |                       |   |
|   |                       | 1SBF200-0UG-120A | 120VAC   | 10             | 29            |                       |   |
| <b>525nm Aqua Green SiC/GaN</b><br><br>1SBF200      |                       | 1SBF200-0AG-006B | 5/6V   | 15             | 400           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Narrow (15°) Beam<br>Intensity 7K mcd/250 Ft.Cd          |
|   |                       | 1SBF200-0AG-014B | 12/14V   | 15             | 400           |                       |   |
|   |                       | 1SBF200-0AG-024B | 24V  | 15             | 400           |                       |   |
|   |                       | 1SBF200-0AG-028B | 28V  | 15             | 400           |                       |   |
|   |                       | 1SBF200-0AG-048B | 48V  | 12             | 320           |                       |   |
|   |                       | 1SBF200-0AG-120A | 120VAC   | 10             | 275           |                       |   |
| <b>470nm Super Blue SiC/GaN</b><br><br>1SBF200      |                       | 1SBF200-0PB-006B | 5/6V   | 15             | 125           | 120°                  | Contact Polarity<br>B = BiPolar AC/DC<br>A = AC only<br><br>Replace 2SBF200 With 2SB200<br>Std. (15°) Beam<br>Intensity 2K mcd/60 Ft.Cd             |
|   |                       | 1SBF200-0PB-014B | 12/14V   | 15             | 125           |                       |   |
|   |                       | 1SBF200-0PB-024B | 24V  | 15             | 125           |                       |   |
|   |                       | 1SBF200-0PB-028B | 28V  | 15             | 125           |                       |   |
|   |                       | 1SBF200-0PB-048B | 48V  | 12             | 84            |                       |   |
|   |                       | 1SBF200-0PB-120A | 120VAC   | 10             | 74            |                       |   |

## Options



Series: 1SB200 (15° Illumination)  
 PN Example: 1SB200-0UY-024B



Series: BSD-1174 (160° Illumination)  
 PN Example: BSD-1174-0AG-028B

All dimensions in inches. For millimeters multiply by 25.4





# LED Color Chart

| LEDtronics Code | LED Chip Code | Wavelength nm | Color Name        | Fwd Voltage Vf @ 20mA | Intensity 5mm LEDs | Viewing Angle | LED Dye Material  |
|-----------------|---------------|---------------|-------------------|-----------------------|--------------------|---------------|---|
| 941             | IR941         | 940           | Infrared          | 1.5                   | 16mW @ 50mA        | 15°           | GaAlAs/GaAs - Gallium Aluminum Arsenide/<br>Gallium Arsenide            |
| 881             | IR881         | 880           | Infrared          | 1.7                   | 18mW @ 50mA        | 15°           | GaAlAs/GaAs - Gallium Aluminum Arsenide/<br>Gallium Arsenide            |
| 851             | IR851         | 850           | Infrared          | 1.7                   | 26mW @ 50mA        | 15°           | GaAlAs/GaAlAs - Gallium Aluminum Arsenide/<br>Gallium Aluminum Arsenide |
| 0UR             | R3KF          | 660           | Ultra Red         | 1.8                   | 2000mcd @ 20mA     | 15°           | GaAlAs/GaAlAs - Gallium Aluminum Arsenide/<br>Gallium Aluminum Arsenide |
| 00R             | R3/R4/R5      | 635           | High Eff. Red     | 2.0                   | 200mcd @ 20mA      | 15°           | GaAsP/GaP - Gallium Arsenic Phosphide<br>/Gallium Phosphide             |
| 0ER             | E3K           | 633           | Super Red         | 2.2                   | 3500mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 0UO             | O3K/O6K       | 620           | Super Orange      | 2.2                   | 4500mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 0UO             | O3KF          | 612           | Super Orange      | 2.2                   | 6500mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 00O             | O4/O5         | 605           | Orange            | 2.1                   | 160mcd @ 20mA      | 15°           | GaAsP/GaP - Gallium Arsenic Phosphide<br>/Gallium Phosphide             |
| 0UY             | Y3KF          | 595           | Super Yellow      | 2.2                   | 5500mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 0PY             | Y3KH          | 592           | Super Pure Yellow | 2.1                   | 7000mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 00Y             | Y3/Y4/Y5      | 585           | Yellow            | 2.1                   | 100mcd @ 20mA      | 15°           | GaAsP/GaP - Gallium Arsenic Phosphide<br>/Gallium Phosphide             |
| 0IW             | IW2K          | 4500K         | Incand White      | 3.6                   | 2000mcd @ 20mA     | 20°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |
| 0PW             | PW4K          | 6500K         | Pale White        | 3.6                   | 4000mcd @ 20mA     | 20°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |
| 0CW             | CW6K          | 8000K         | Cool White        | 3.6                   | 6000mcd @ 20mA     | 20°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |
| 0LY             | LY1K          | 574           | Super Lime Yellow | 2.4                   | 1000mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 0UG             | G1K           | 570           | Super Lime Green  | 2.0                   | 1000mcd @ 20mA     | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 00G             | G3/G4/G5      | 565           | High Eff. Green   | 2.1                   | 200mcd @ 20mA      | 15°           | GaP/GaP - Gallium Phosphide/Gallium Phosphide                           |
| UPG             | PG350         | 560           | Super Pure Green  | 2.1                   | 350mcd @ 20mA      | 15°           | InGaAlP - Indium Gallium Aluminum Phosphide                             |
| 0PG             | PG5           | 555           | Pure Green        | 2.1                   | 80mcd @ 20mA       | 15°           | GaP/GaP - Gallium Phosphide/Gallium Phosphide                           |
| 0AG             | AG10K         | 525           | Aqua Green        | 3.5                   | 10,000mcd @ 20mA   | 15°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |
| 0BG             | BG2K          | 505           | Blue Green        | 3.5                   | 2000mcd @ 20mA     | 45°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |
| 0PB             | PB3K          | 470           | Super Blue        | 3.6                   | 3000mcd @ 20mA     | 15°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |
| 00B             | UB500         | 430           | Ultra Blue        | 3.8                   | 100mcd @ 20mA      | 15°           | SiC/GaN - Silicon Carbide/Gallium Nitride                               |