

### **Lamp Type LED - 5mm Round**

Synonymous with function and performance, the 5mm Round LED has superior performance in outdoor applications due to its well-defined radiation pattern and wide viewing angle. These lamps are made with an advanced optical grade epoxy, offering superior high temperature and high moisture resistance performance in outdoor signal and sign applications

### **Features:**

- > High brightness LED lamp.
- > Narrow viewing angle; 15°, 30° and 60°
- > Superior resistance to moisture.
- > Suitable for TTW soldering.

### **Applications:**

- > Full color signs
- > Outdoor displays/signs



**Optical Characteristics at Tj=25°C**

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ IF = 20mA IV (mcd)		
			Min.	Typ.	Max.
L5S-R1500-ZAB-1	Super red, 632nm	15	4500.0	7150.0	11250.0
L5S-R3000-XY2-1	Super red, 632nm	30	1800.0	2850.0	4500.0
L5S-R60E0-UV2-1	Super red, 632nm	60	450.0	715.0	1125.0
L5R-R1500-AAD-1	Red, 625nm	15	7150.0	11250.0	18000.0
L5R-R3000-W2Y1-1	Red, 625nm	30	1400.0	2240.0	3550.0
L5R-R3000-YZ2-1	Red, 625nm	30	2850.0	4500.0	7150.0
L5R-R3000-ZAA-1	Red, 625nm	30	4500.0	7150.0	9000.0
L5R-R60E0-VW2-1	Red, 625nm	60	715.0	1125.0	1800.0
L5A-R1500-AAD-1	Amber, 615nm	15	7150.0	1125.0	18000.0
L5A-R3000-YZ2-1	Amber, 615nm	30	2850.0	4500.0	7150.0
L5O-R1500-AAD-1	Orange, 605nm	15	7150.0	11250.0	18000.0
L5O-R3000-Y2AA-1	Orange, 605nm	30	3550.0	7150.0	9000.0
L5O-R60E0-U2W1-1	Orange, 605nm	60	560.0	900.0	1400.0
L5Y-R1500-AAD-1	Yellow, 588nm	15	7150.0	11250.0	18000.0
● L5Y-R3000-WX2-1	Yellow, 588nm	30	1125.0	1800.0	2850.0
L5Y-R3000-YZ2-1	Yellow, 588nm	30	2850.0	4500.0	7150.0
L5Y-R3000-ZAA-1	Yellow, 588nm	30	4500.0	7150.0	9000.0
L5Y-R60E0-U2W1-1	Yellow, 588nm	60	560.0	900.0	1400.0

● Not for new design

NOTE

1. Luminous intensity is measured with an accuracy of ± 15%.
2. Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each pack.

**Electrical Characteristics at Tj=25°C**

Part Number	Vf @ If = 20mA			Vr @ Ir = 10uA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
L5x-R1500, L5x-R3000, L5x-R60E0	1.8	2.1	2.6	12

Forward voltages are measure using a current pulse of 1 ms and with an accuracy of ± 0.1V.

**Absolute Maximum Ratings**

	Maximum Value	Unit
DC forward current	50	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.10)	200	mA
Reverse voltage ; Ir (max) = 10µA.	12	V
ESD threshold (HBM)	2000	V
LED junction temperature	120	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	130	mW
Thermal resistance junction to solder, Rth JS	240	K/W

**Characteristics**

	Symbol		Value	Unit
Temperature coefficient of λ <sub>dom</sub> (typ) If = 20mA; 0 °C ≤ T ≤ 100 °C	TC <sub>λ<sub>dom</sub></sub> (typ)	L5R-Rxxxx	0.03	nm / K
		L5A-Rxxxx	0.04	nm / K
		L5Y-Rxxxx	0.05	nm / K
Temperature coefficient of VF (typ) If = 20mA; 0 °C ≤ T ≤ 100 °C	TC <sub>V</sub>	L5R-Rxxxx	-2.5	mV / K
		L5A-Rxxxx	-1.9	mV / K
		L5Y-Rxxxx	-2.1	mV / K
Temperature coefficient of IV (typ) If = 20mA; 0 °C ≤ T ≤ 100 °C	TC <sub>IV</sub>	L5R-Rxxxx	-0.44	% / K
		L5A-Rxxxx	-0.55	% / K
		L5Y-Rxxxx	-0.79	% / K

**Wavelength Grouping at Tj=25°C**

Color	Group	Wavelength distribution (nm)
L5S; Super red	Full	625 - 640
L5R; Red	Full	620 - 630
L5A; Amber	Full	610 - 621
	W	610 - 615
	X	615 - 621
L5O; Orange	Full	600 - 612
	W	600 - 603
	X	603 - 606
	Y	606 - 609
	Z	609 - 612
L5Y; Yellow	Full	582 - 594
	W	582 - 585
	X	585 - 588
	Y	588 - 591
	Z	591 - 594

Dominant wavelength is measured with an accuracy of ± 1 nm.

**Luminous Intensity Group at Tj=25°C**

Brightness Group	Luminous Intensity @ IV (mcd)
U1	450.0...560.0
U2	560.0...715.0
V1	715.0...900.0
V2	900.0...1125.0
W1	1125.0...1400.0
W2	1400.0...1800.0
X1	1800.0...2240.0
X2	2240.0...2850.0
Y1	2850.0...3550.0
Y2	3550.0...4500.0
Z1	4500.0...5600.0
Z2	5600.0...7150.0
AA	7150.0...9000.0
AB	9000.0...11250.0
AC	11250.0...14000.0
AD	14000.0...18000.0

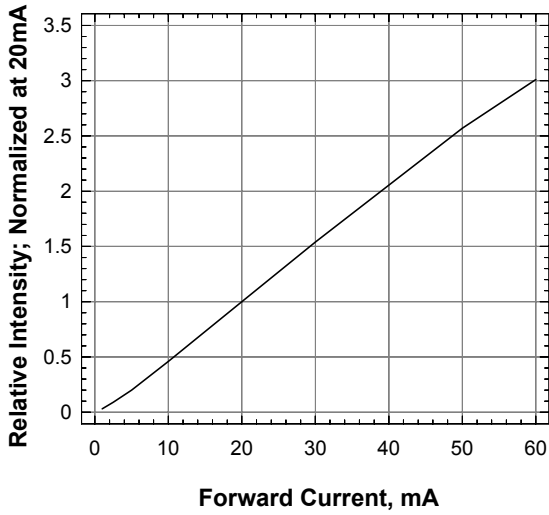
Luminous intensity is measured with an accuracy of ± 15%.

**Vf Binning (Optional)**

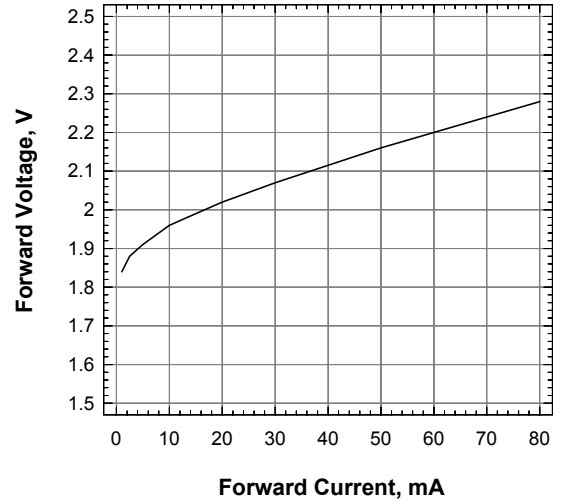
Vf Bin @ 20mA	Forward Voltage (V)
V2	1.80 ... 2.00
V3	2.00 ... 2.20
V4	2.20 ... 2.40
V5	2.40 ... 2.60

Forward voltage, Vf is measured with an accuracy of  $\pm 0.1$  V. Parts with the Vf binning option will be defined as L5x-Rxxx-xxx-x-Vx. Please consult sales and marketing for special part number to incorporate Vf binning.

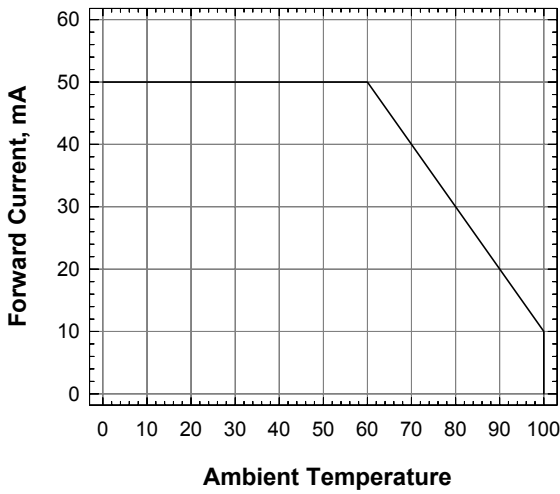
**Relative Luminous Intensity Vs Forward Current**



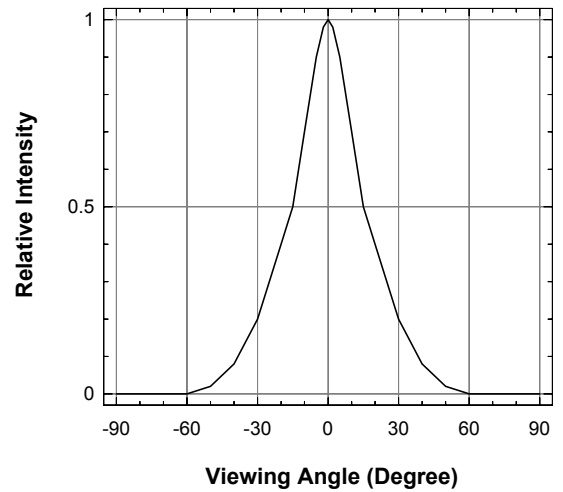
**Forward Current Vs Forward Voltage**



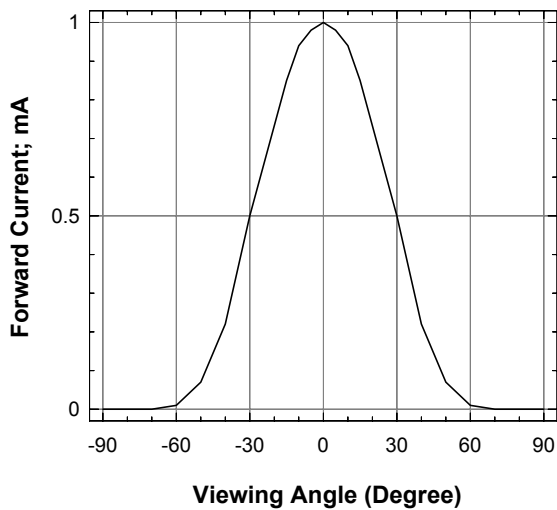
**Maximum Current Vs Temperature**



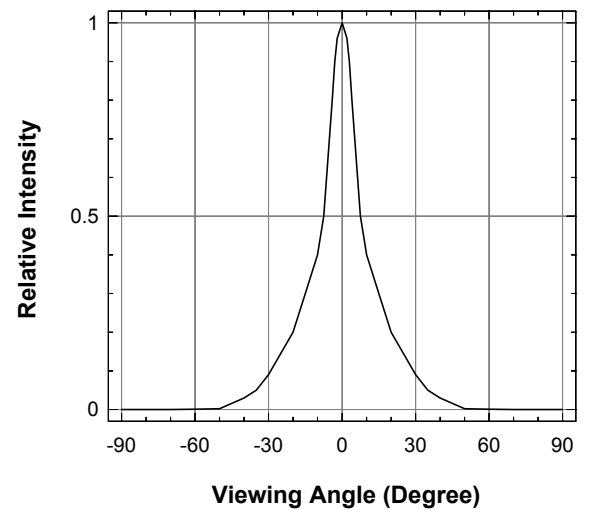
**Radiation Pattern (2θ=30°)**



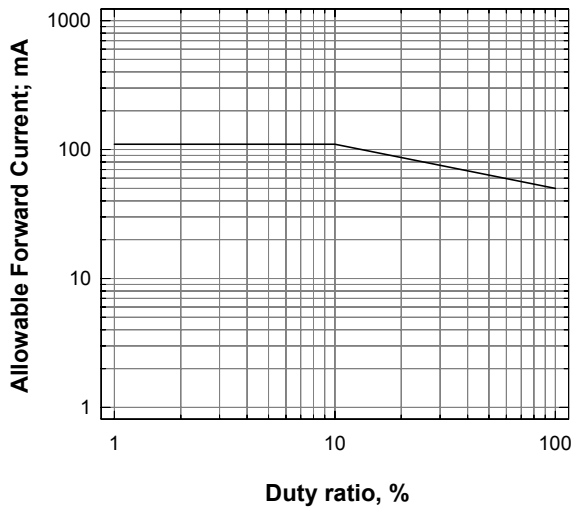
**Radiation Pattern (2θ=60°)**



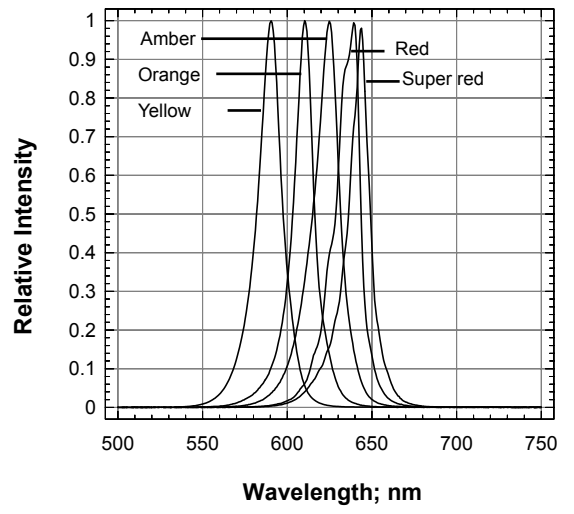
**Radiation Pattern (2θ=15°)**



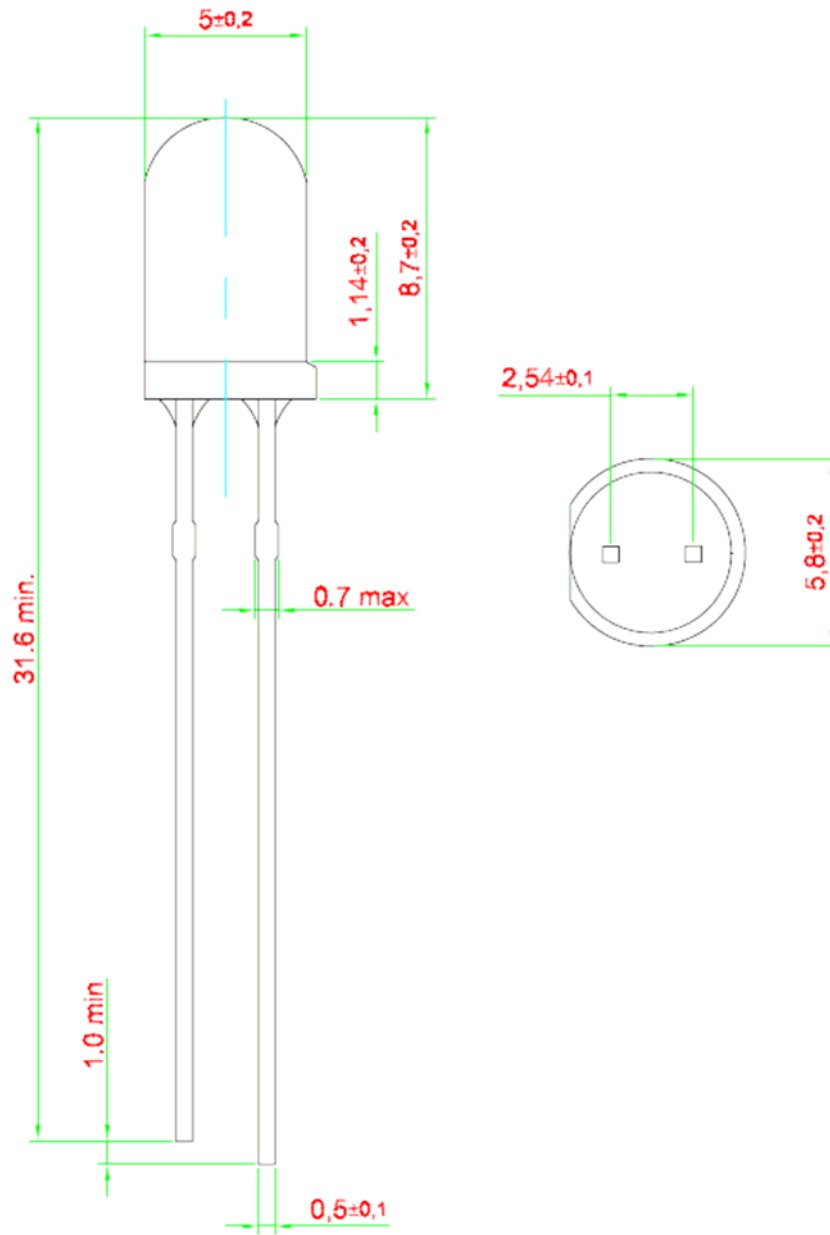
**Allowable Forward Current VS Duty Ratio**  
 ( Ta=25 Deg C, tp<10uS)



**Relative Intensity Vs Wavelength**



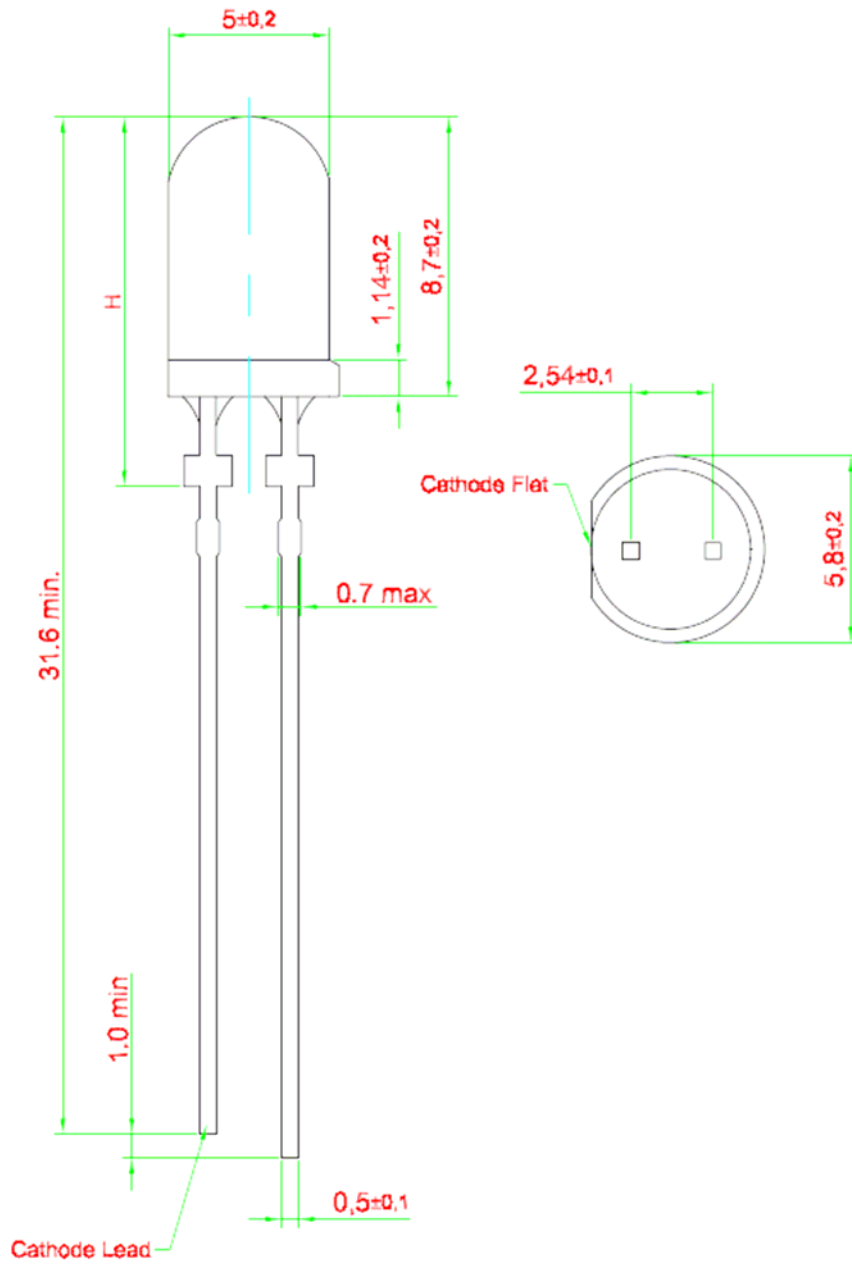
**5mm Lamp • AllnGaP : High Brightness Package Outlines**



Epoxy meniscus may extend 1.5mm max. down the LED



**5mm Lamp • AllnGaP : High Brightness Package Outlines**



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Parts with the stand-off option will be defined as L5x-RxxxS-xxxx-1

Option with stand-off - Parts with 15° viewing angle; H = 12.6mm ± 0.5mm

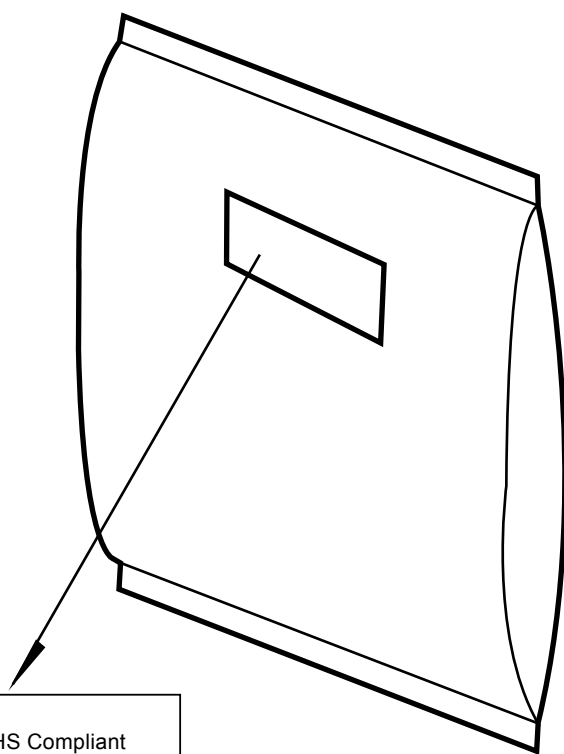
Parts with 30° viewing angle; H = 12.0mm ± 0.5mm

Parts with 60° viewing angle; H = 12.5mm ± 0.5mm




**Packaging Specification**

**1. Loose pack of 500pcs/pack: L5x-Rxxxx-xxxx-x-x-0**

	Average 1pc 5mm Lamp	1 completed pack (500pcs)
Weight (gram)	0.29	155 ± 10

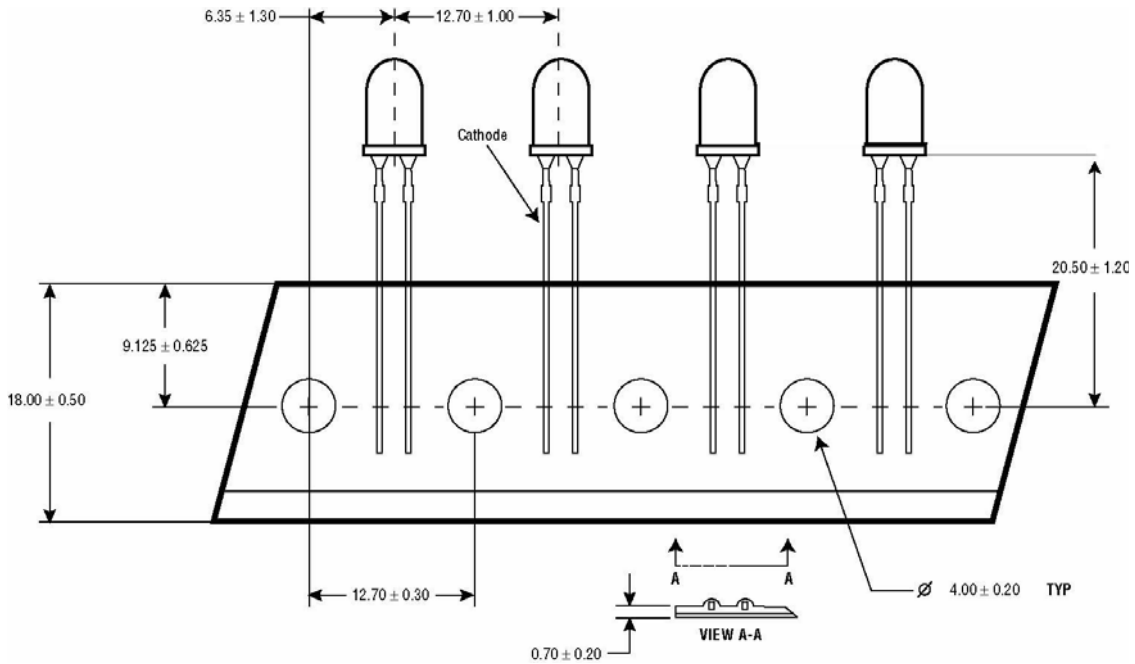


Barcode label

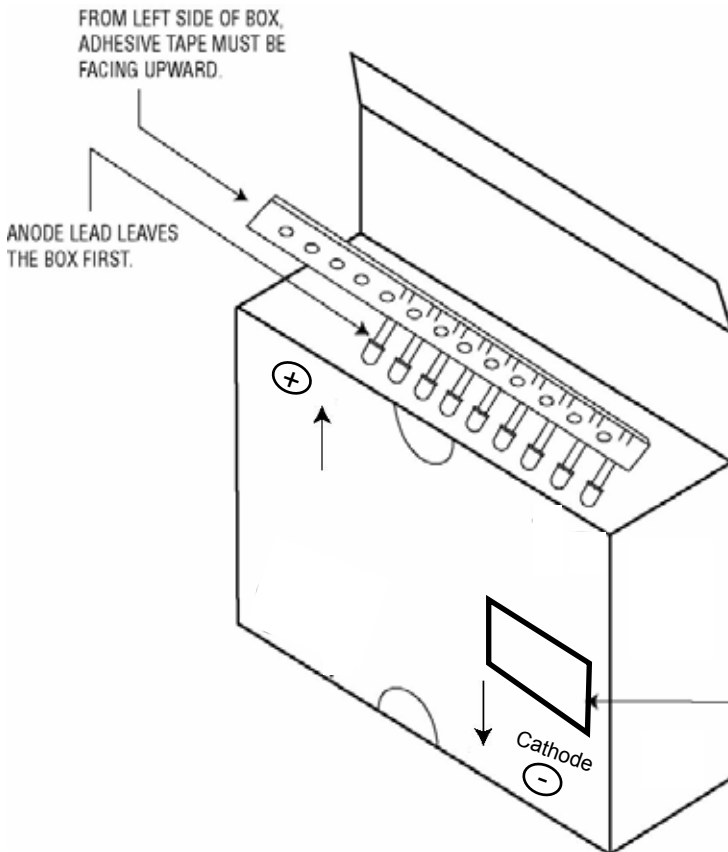
<b>DOMINANT</b>	ROHS Compliant
LOT NO : lotno	
	
PART NO : partno	PB Free
QTY : product quantity per reel    S/N : serial no    D/C: date code	
GROUP : group	
	

**Packaging Specification**




**2. Ammopack: L5x-Rxxxx-xxxx-x-x-A**



Average 1pc 5mm Lamp (g)	Box Dimensions (mm)	Empty Box Weight (kg)	Quantity / Box (pcs)	1 Completed Box With Units (kg)
0.29	335 x 235 x 48	0.14	2,000	0.95 ± 10



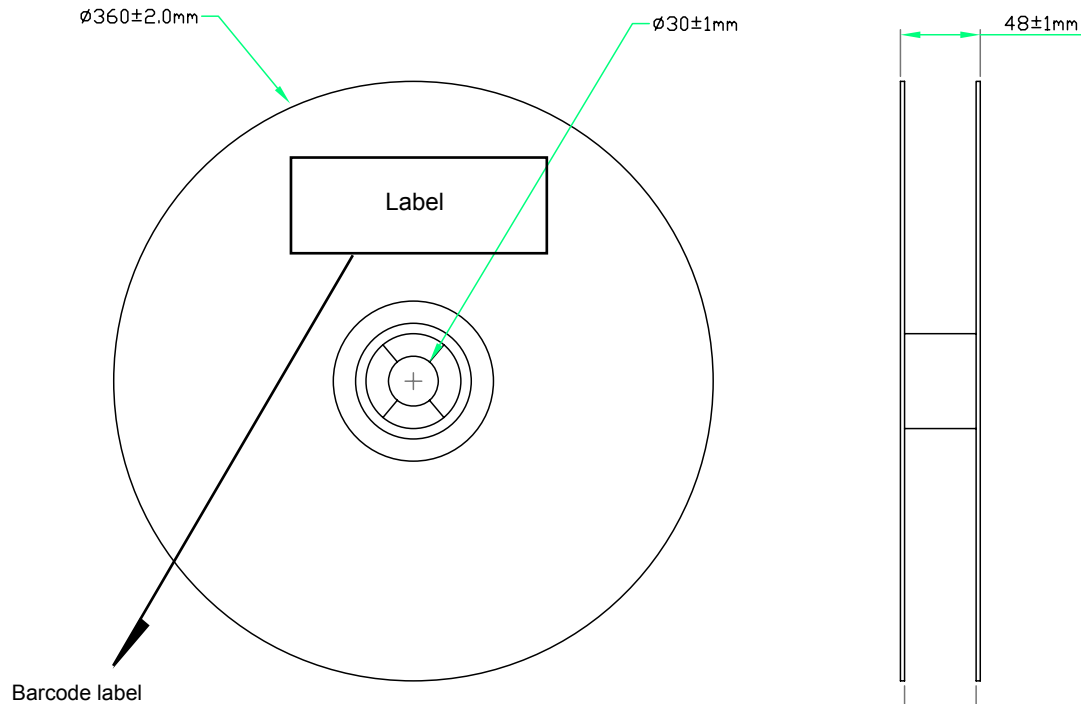
Barcode label

<b>DOMINANT</b>		ROHS Compliant
LOT NO : lotno		
		
PART NO : partno		PB Free
QTY : product quantity per reel	S/N : serial no	D/C: date code
GROUP : group		
		

LABEL ON THIS SIDE OF BOX

**Packaging Specification**

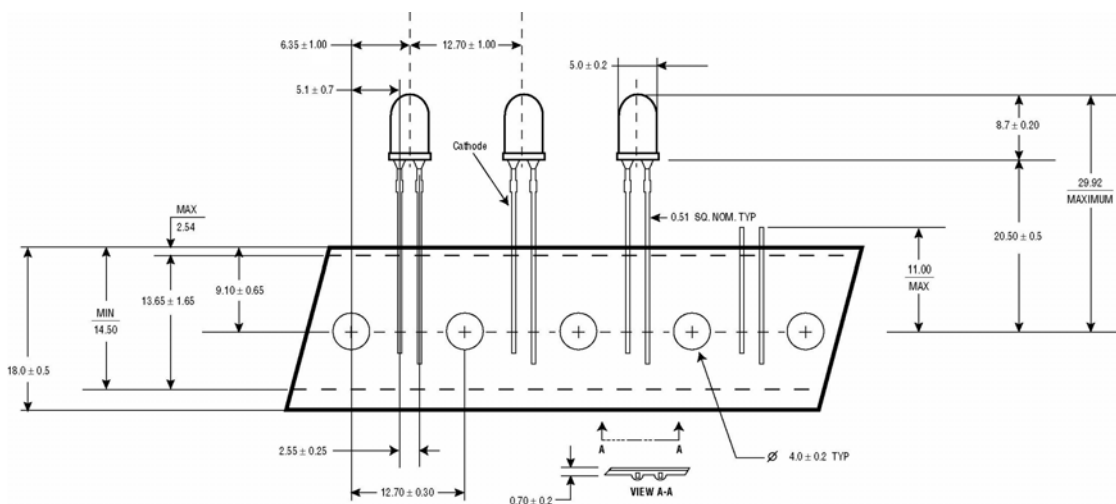
**3. Reel: L5x-Rxxxx-xxxx-x-x-T**



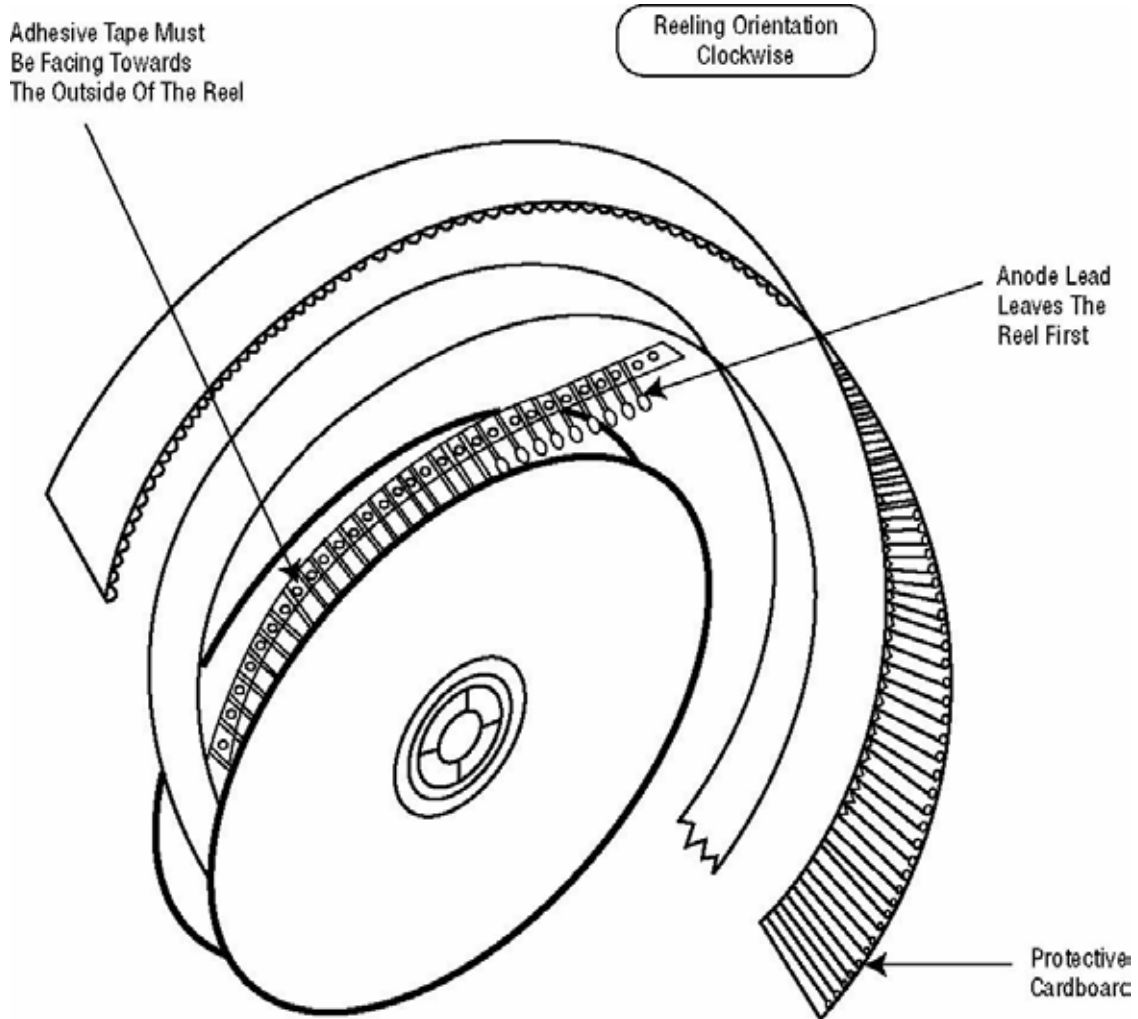
Barcode label

<b>DOMINANT</b>		ROHS Compliant
LOT NO : lotno		
PART NO : partno		PB Free
QTY : product quantity per reel	S/N : serial no	D/C: date code
GROUP : group		

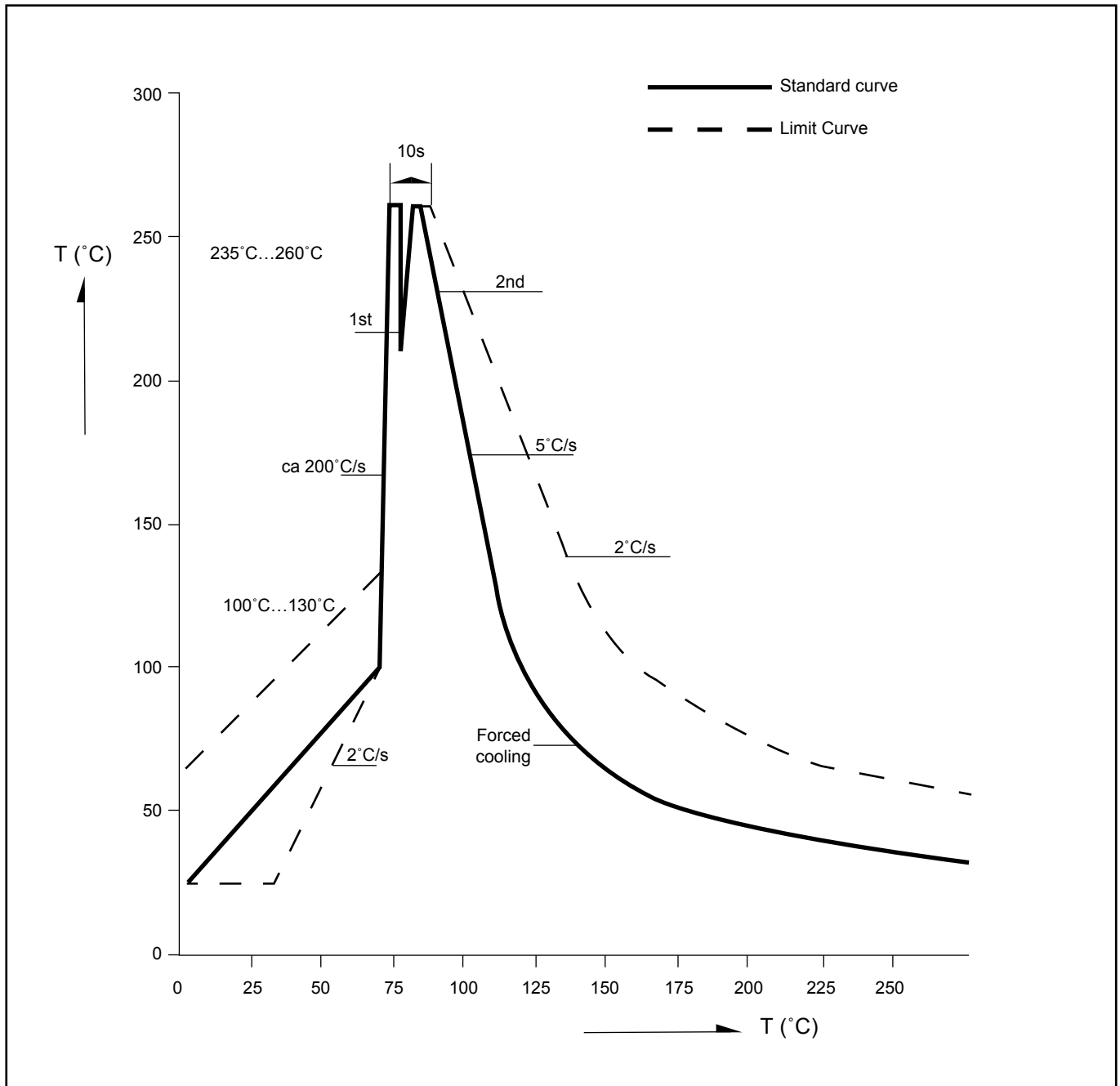
Average 1pc 5mm Lamp (g)	Empty Reel Weight (kg)	Quantity / Reel (pcs)	1 Completed Reel (kg)
0.29	0.39	1,300	0.95 ± 10



**Packaging Specification**



**Recommended TTW Soldering Profile (acc. to CECC 00802)**



**Revision History**

<b>Page</b>	<b>Subjects</b>	<b>Date of Modification</b>
4	Add Vf binning option	05 Aug 2008
2	Add new partno: L5O-R3000-YZ2-1	16 Sep 2008
3	Correction on partno: L5O-R3000-Y2AA-1	21 Nov 2008
3	Add new partno: L5O-R60E0-U2W1	16 Jan 2009
2	Not for new design: L5Y-R3000-WX2-1	02 Sep 2009
2	Add new partno: L5Y-R3000-ZAA-1	07 Oct 2009
2	Add new partno: L5S-R1500-ZAB-1 L5S-R3000-XY2-1 L5S-R60E0-UV2-1	30 Oct 2009
-	Update new company name	18 Jun 2010
2	Add new partno: L5R-R3000-ZAA-1	05 Oct 2010

**NOTE**

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## About Us

DOMINANT Opto Technologies is a dynamic Malaysian Corporation that is among the world's leading SMT LED Manufacturers. An excellence – driven organization, it offers a comprehensive product range for diverse industries and applications. Featuring an internationally certified quality assurance acclaim, DOMINANT's extra bright LEDs are perfectly suited for various lighting applications in the automotive, consumer and communications as well as industrial sectors. With extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing, research and testing capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies can be found on the Internet at <http://www.dominant-semi.com>.

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