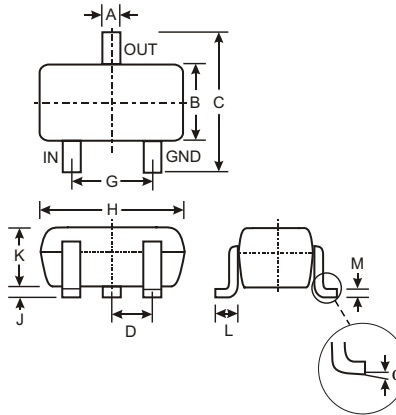


Features

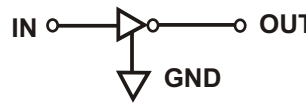
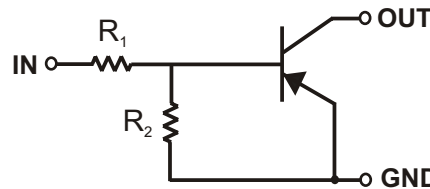
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1 = R2
- Also Available in Lead Free Version

Mechanical Data

- Case: SC-59, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 3, on Page 2
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.008 grams (approx.)
- Ordering Information (See Page 2)



| SC-59 | | |
|----------------------|-------|------|
| Dim | Min | Max |
| A | 0.35 | 0.50 |
| B | 1.50 | 1.70 |
| C | 2.70 | 3.00 |
| D | 0.95 | |
| G | 1.90 | |
| H | 2.90 | 3.10 |
| J | 0.013 | 0.10 |
| K | 1.00 | 1.30 |
| L | 0.35 | 0.55 |
| M | 0.10 | 0.20 |
| α | 0° | 8° |
| All Dimensions in mm | | |



SCHEMATIC DIAGRAM

| P/N | R1, R2 (NOM) | MARKING |
|------------|---------------|---------|
| DDTA123EKA | 2.2K Ω | P04 |
| DDTA143EKA | 4.7K Ω | P08 |
| DDTA114EKA | 10K Ω | P13 |
| DDTA124EKA | 22K Ω | P17 |
| DDTA144EKA | 47K Ω | P20 |
| DDTA115EKA | 100K Ω | P24 |

Maximum Ratings @ T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|--|------|
| Supply Voltage, (3) to (1) | V _{CC} | -50 | V |
| Input Voltage, (2) to (1) | V _{IN} | +10 to -12 +10 to -30 +10 to -40 +10 to -40 +10 to -40 +10 to -40 | V |
| Output Current | I _O | -100 -100 -50 -30 -100 -20 | mA |
| Output Current | I _C (Max) | -100 | mA |
| Power Dissipation | P _d | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R _{θJA} | 625 | °C/W |
| Operating and Storage and Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

Note: 1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|--|--------------------------------|----------------------------------|------|--|------|---|
| Input Voltage | | V _{I(off)} | -0.5 | -1.1 | — | V | V _{CC} = -5V, I _O = -100μA |
| | | V _{I(on)} | — | -1.9 | -3 | | V _O = -0.3V, I _O = -20mA, DDTA123EKA V _O = -0.3V, I _O = -20mA, DDTA143EKA V _O = -0.3V, I _O = -10mA, DDTA114EKA V _O = -0.3V, I _O = -5mA, DDTA124EKA V _O = -0.3V, I _O = -2mA, DDTA144EKA V _O = -0.3V, I _O = -1mA, DDTA115EKA |
| Output Voltage | | V _{O(on)} | — | -0.1 | -0.3 | V | I _O /I _I = -10mA/-0.5mA, DDTA123EKA I _O /I _I = -10mA/-0.5mA, DDTA143EKA I _O /I _I = -10mA/-0.5mA, DDTA114EKA I _O /I _I = -10mA/-0.5mA, DDTA124EKA I _O /I _I = -10mA/-0.5mA, DDTA144EKA I _O /I _I = -5mA/-0.25mA, DDTA115EKA |
| Input Current | DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA | I _I | — | — | -3.8 -1.8 -0.88 -0.36 -0.18 -0.15 | mA | V _I = -5V |
| Output Current | | I _{O(off)} | — | — | -0.5 | μA | V _{CC} = -50V, V _I = 0V |
| DC Current Gain | DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA | G _I | 20 20 30 56 68 82 | — | — | — | V _O = -5V, I _O = -20mA V _O = -5V, I _O = -10mA V _O = -5V, I _O = -5mA V _O = -5V, I _O = -5mA V _O = -5V, I _O = -5mA V _O = -5V, I _O = -5mA |
| Input Resistor (R ₁) Tolerance | | DR ₁ | -30 | — | +30 | % | — |
| Resistance Ratio | | R ₂ /R ₁ | 0.8 | 1 | 1.2 | — | — |
| Gain-Bandwidth Product* | | f _T | — | 250 | — | MHz | V _{CE} = -10V, I _E = 5mA, f = 100MHz |

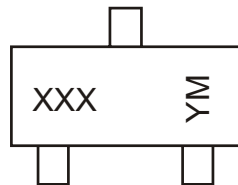
* Transistor - For Reference Only

Ordering Information (Note 2)

| Device | Packaging | Shipping |
|--------------|-----------|------------------|
| DDTA123EKA-7 | SC-59 | 3000/Tape & Reel |
| DDTA143EKA-7 | SC-59 | 3000/Tape & Reel |
| DDTA114EKA-7 | SC-59 | 3000/Tape & Reel |
| DDTA124EKA-7 | SC-59 | 3000/Tape & Reel |
| DDTA144EKA-7 | SC-59 | 3000/Tape & Reel |
| DDTA115EKA-7 | SC-59 | 3000/Tape & Reel |

- Notes: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 3. For Lead Free version (with Lead Free terminal finish) part number, please add "-F" suffix to part number above.
 Example: DDTA115EKA-7-F.

Marking Information



XXX = Product Type Marking Code
 See Sheet 1 Diagrams
 YM = Date Code Marking
 Y = Year ex: N = 2002
 M = Month ex: 9 = September

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|
| Code | N | P | R | S | T | U | V | W |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

TYPICAL CURVES - DDTA143EKA

NEW PRODUCT

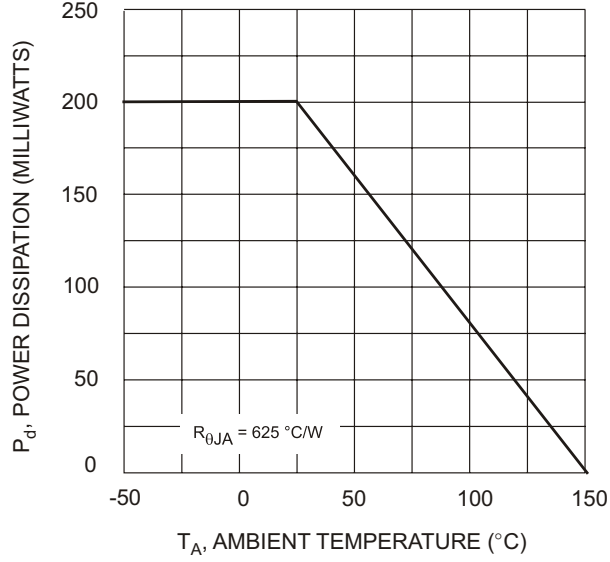


Fig. 1 Derating Curve

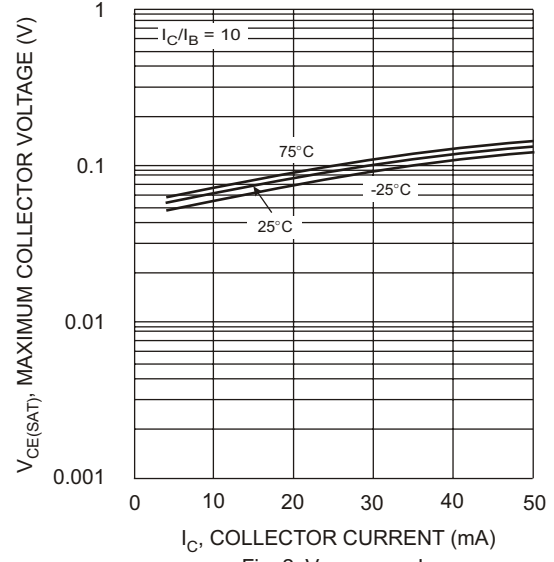


Fig. 2 $V_{CE(SAT)}$ vs. I_C

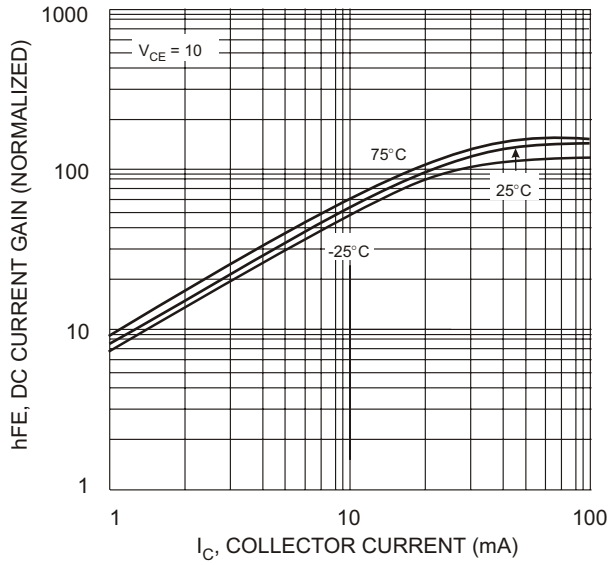


Fig. 3 DC CURRENT GAIN

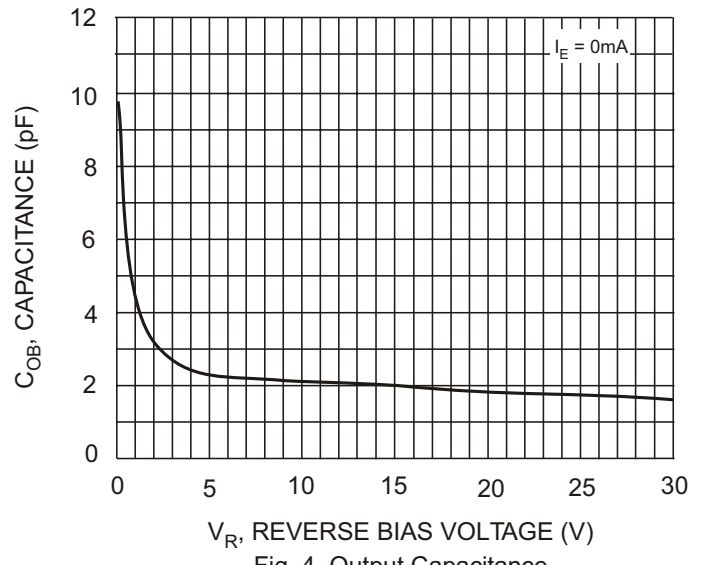


Fig. 4 Output Capacitance

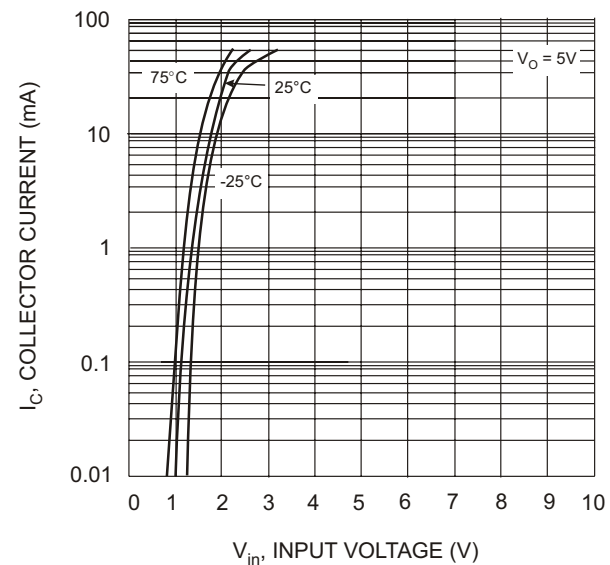


Fig. 5 Collector Current Vs. Input Voltage

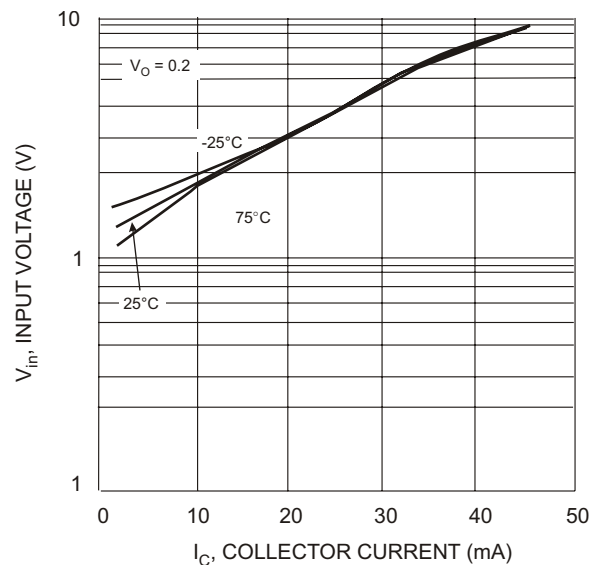


Fig. 6 Input Voltage vs. Collector Current