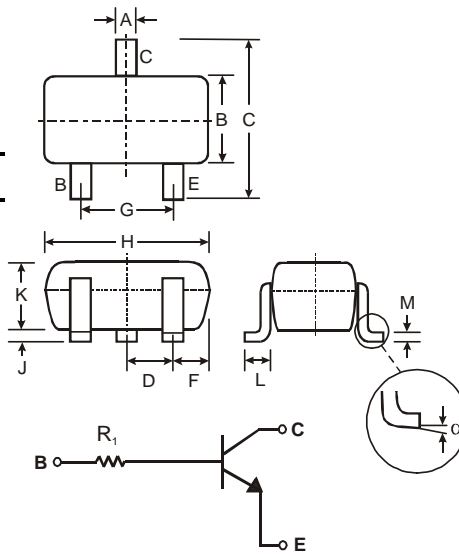


Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R1 only
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device, Note 3 and 4**

Mechanical Data

- Case: SC-59
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Diagrams & Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)



| 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 | | |

| P/N | R1 (NOM) | Type Code |
|------------|---------------|-----------|
| DDTC113TKA | 1K Ω | N01 |
| DDTC123TKA | 2.2K Ω | N03 |
| DDTC143TKA | 4.7K Ω | N07 |
| DDTC114TKA | 10K Ω | N12 |
| DDTC124TKA | 22K Ω | N16 |
| DDTC144TKA | 47K Ω | N19 |
| DDTC115TKA | 100K Ω | N23 |
| DDTC125TKA | 200K Ω | N25 |

SCHEMATIC DIAGRAM

Maximum Ratings @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Collector-Base Voltage | V _{CBO} | 50 | V |
| Collector-Emitter Voltage | V _{CEO} | 50 | V |
| Emitter-Base Voltage | V _{EBO} | 5 | V |
| Collector 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 Temperature Range | T _j , T _{STG} | -55 to +150 | °C |

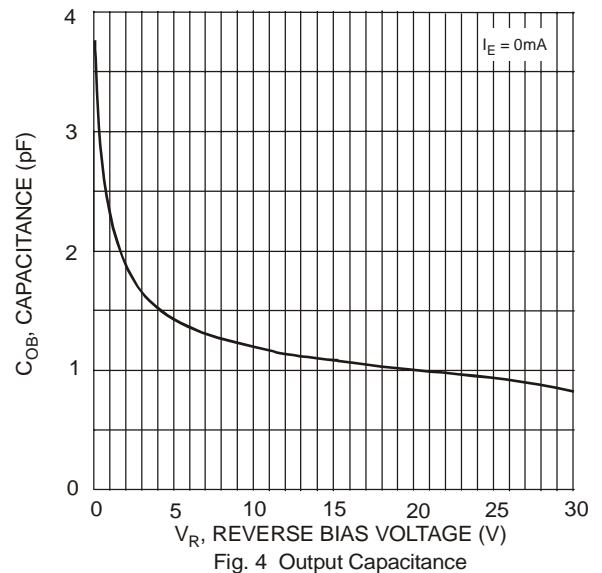
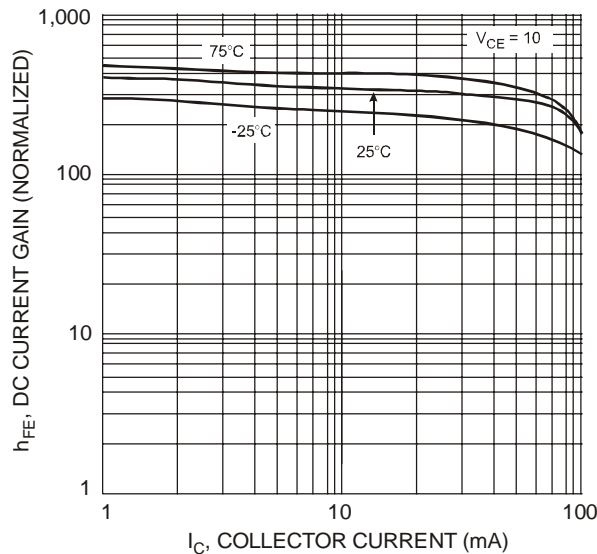
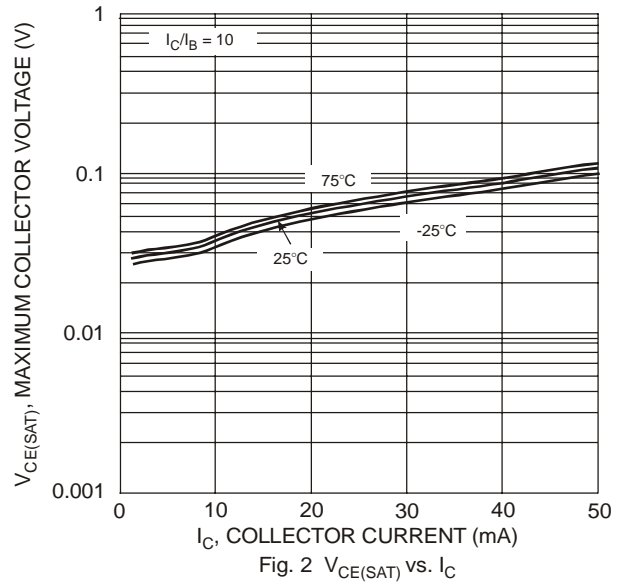
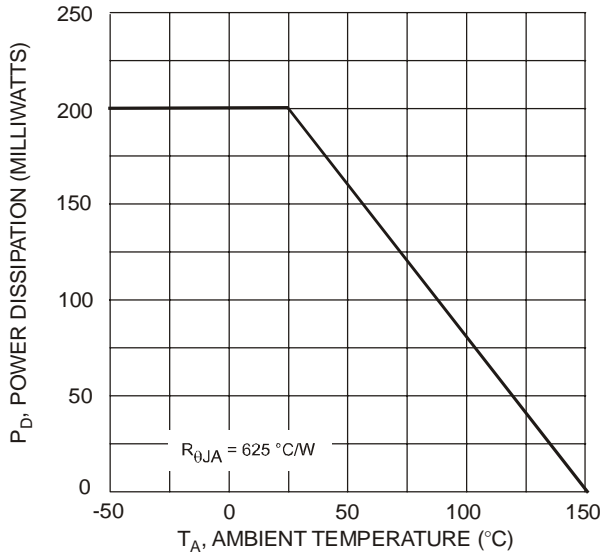
- Notes:
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 4. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|----------------------|-----|-----|-----|------|---|
| Collector-Base Breakdown Voltage | BV _{CB0} | 50 | — | — | V | I _C = 50μA |
| Collector-Emitter Breakdown Voltage | BV _{CEO} | 50 | — | — | V | I _C = 1mA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | 5 | — | — | V | I _E = 50μA |
| Collector Cutoff Current | I _{CB0} | — | — | 0.5 | μA | V _{CB} = 50V |
| Emitter Cutoff Current | I _{EBO} | — | — | 0.5 | μA | V _{EB} = 4V |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | — | 0.3 | V | I _C /I _B = 10mA/1mA DDTTC113TKA I _C /I _B = 5mA/0.5mA DDTTC123TKA I _C /I _B = 2.5mA/.25mA DDTTC143TKA I _C /I _B = 1mA/.1mA DDTTC114TKA I _C /I _B = 5mA/0.5mA DDTTC124TKA I _C /I _B = 2.5mA/.25mA DDTTC144TKA I _C /I _B = 1mA/0.1mA DDTTC115TKA I _C /I _B = .5mA/.05mA DDTTC125TKA |
| DC Current Transfer Ratio | h _{FE} | 100 | 250 | 600 | — | I _C = 1mA, V _{CE} = 5V |
| Input Resistor (R ₁) Tolerance | ΔR ₁ | -30 | — | +30 | % | — |
| Gain-Bandwidth Product* | f _T | — | 250 | — | MHz | V _{CE} = 10V, I _E = -5mA, f = 100MHz |

* Transistor - For Reference Only

Typical Curves – DDTTC114TKA



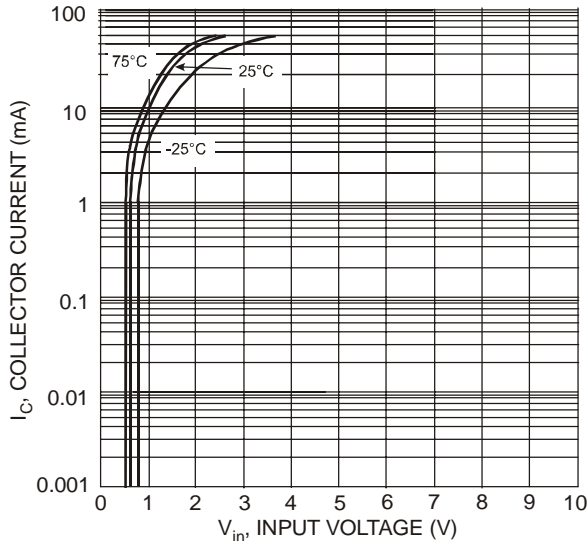


Fig. 5 Collector Current vs. Input Voltage

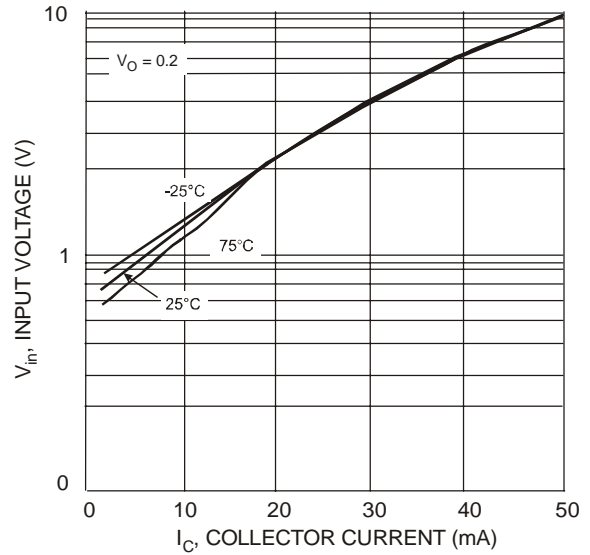


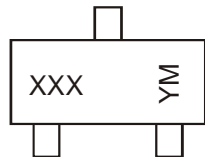
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 4 & 5)

| Device | Packaging | Shipping |
|----------------|-----------|------------------|
| DDTC113TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC123TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC143TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC114TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC124TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC144TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC115TKA-7-F | SC-59 | 3000/Tape & Reel |
| DDTC125TKA-7-F | SC-59 | 3000/Tape & Reel |

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



XXX = Product Type Marking Code, See Table on Page 1
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | N | P | R | S | T | U | V | W | X | Y | Z |

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

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