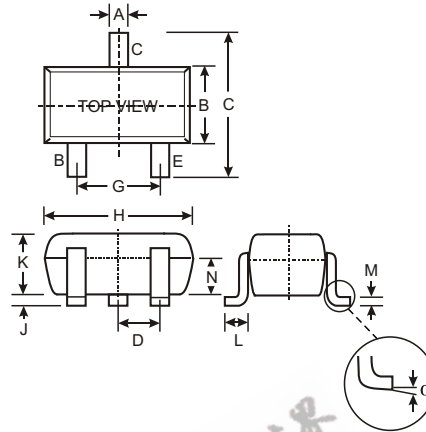


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R1 only
- Lead Free/RoHS Compliant (Note 2)

Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic. 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 Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.002 grams (approx.)
- Ordering Information (See Page 2)



| SOT-523 | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.15 | 0.30 | 0.22 |
| B | 0.75 | 0.85 | 0.80 |
| C | 1.45 | 1.75 | 1.60 |
| D | | | 0.50 |
| G | 0.90 | 1.10 | 1.00 |
| H | 1.50 | 1.70 | 1.60 |
| J | 0.00 | 0.10 | 0.05 |
| K | 0.60 | 0.80 | 0.75 |
| L | 0.10 | 0.30 | 0.22 |
| M | 0.10 | 0.20 | 0.12 |
| N | 0.45 | 0.65 | 0.50 |
| | 0 | 8 | |
| All Dimensions in mm | | | |



SCHMATIC DIAGRAM

| P/N | R1 (NOM) | MARKING |
|-----------|----------|---------|
| DDTA113TE | 1K | P01 |
| DDTA123TE | 2.2K | P03 |
| DDTA143TE | 4.7K | P07 |
| DDTA114TE | 10K | P12 |
| DDTA124TE | 22K | P16 |
| DDTA144TE | 47K | P19 |
| DDTA115TE | 100K | P23 |
| DDTA125TE | 200K | P25 |

Maximum Ratings @ T_A = 25 C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Collector-Base Voltage | V _{CB0} | -50 | V |
| Collector-Emitter Voltage | V _{CE0} | -50 | V |
| Emitter-Base Voltage | V _{EB0} | -5 | V |
| Collector Current | I _C (Max) | -100 | mA |
| Power Dissipation | P _d | 150 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R _{JA} | 833 | C/W |
| Operating and Storage and Temperature Range | T _j , T _{STG} | -55 to +150 | C |

- Note:
- Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
 - No purposefully added lead.

Electrical Characteristics @ T_A = 25 C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------------------|----------------------|-----|-----|------|------|---|
| Collector-Base Breakdown Voltage | BV _{CBO} | -50 | | | V | I _C = -50 A |
| Collector-Emitter Breakdown Voltage | BV _{CEO} | -50 | | | V | I _C = -1mA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | -5 | | | V | I _E = -50 A |
| Collector Cutoff Current | I _{CBO} | | | -0.5 | A | V _{CB} = -50V |
| Emitter Cutoff Current | I _{EBO} | | | -0.5 | A | V _{EB} = -4V |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | | | -0.3 | V | I _C /I _B = -10mA/-1mA DDTA113TE I _C /I _B = -5mA/-0.5mA DDTA123TE I _C /I _B = -2.5mA/-0.25mA DDTA143TE I _C /I _B = -1mA/-0.1mA DDTA114TE I _C /I _B = -5mA/-0.5mA DDTA124TE I _C /I _B = -2.5mA/-0.25mA DDTA144TE I _C /I _B = -1mA/-0.1mA DDTA115TE I _C /I _B = -5mA/-0.5mA DDTA125TE |
| DC Current Transfer Ratio | h _{FE} | 100 | 250 | 600 | | I _C = -1mA, V _{CE} = -5V |
| Gain-Bandwidth Product* | f _T | | 250 | | MHz | V _{CE} = -10V, I _E = 5mA, f = 100MHz |

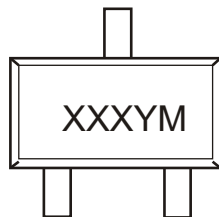
* Transistor - For Reference Only

Ordering Information (Note 3)

| Device | Packaging | Shipping |
|---------------|-----------|------------------|
| DDTA113TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA123TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA143TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA114TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA124TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA144TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA115TE-7-F | SOT-523 | 3000/Tape & Reel |
| DDTA125TE-7-F | SOT-523 | 3000/Tape & Reel |

Notes: 3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



XXX = Product Type Marking Code (See Page 1, e.g. P01 = DDTA113TE)
 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 - DDTA114TE

NEW PRODUCT

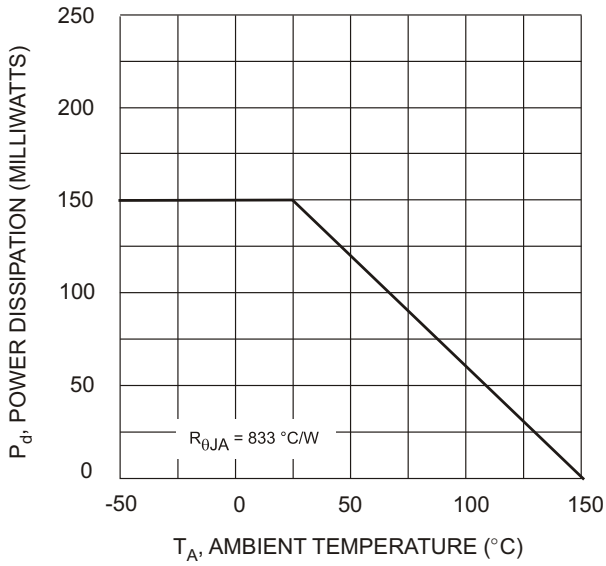


Fig. 1 Derating Curve

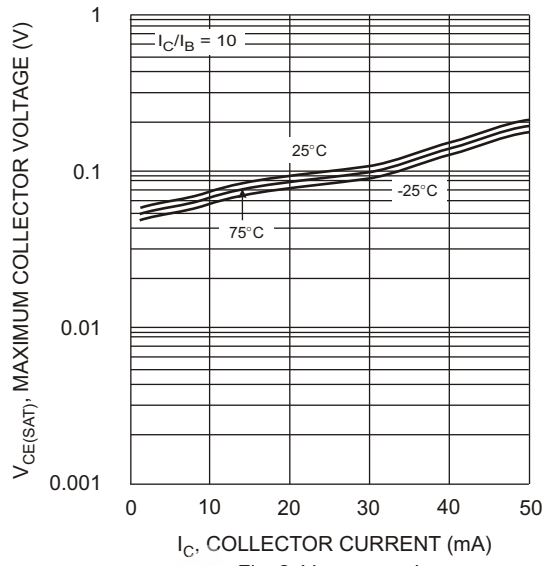


Fig. 2 $V_{CE(SAT)}$ vs. I_C

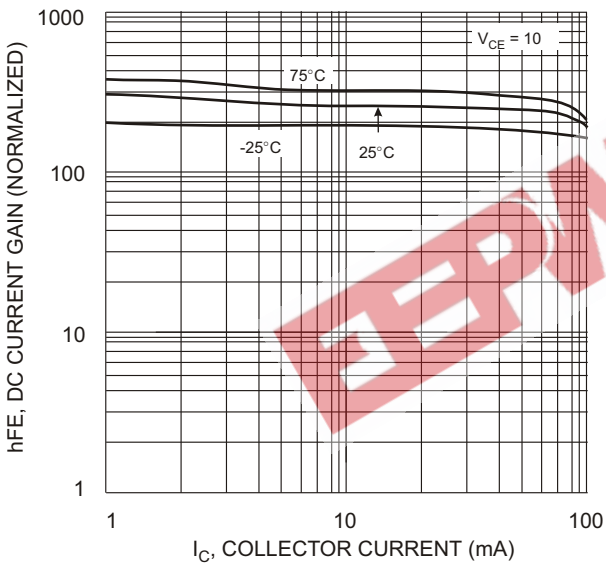


Fig. 3 DC Current Gain

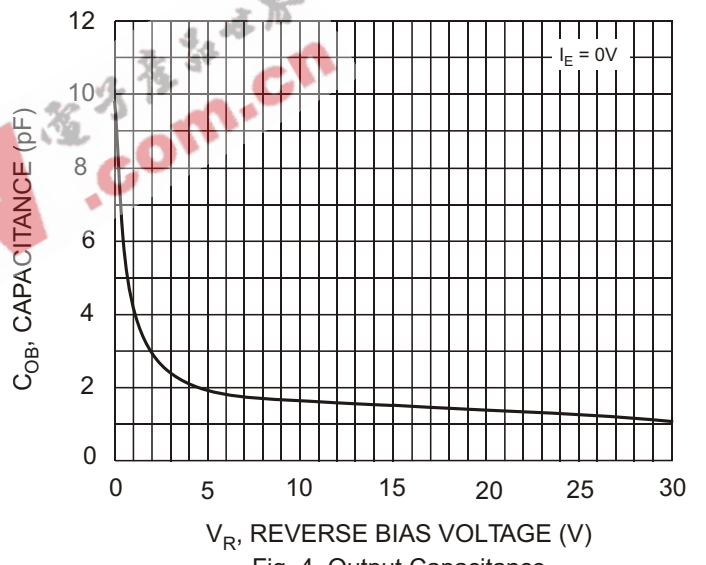


Fig. 4 Output Capacitance

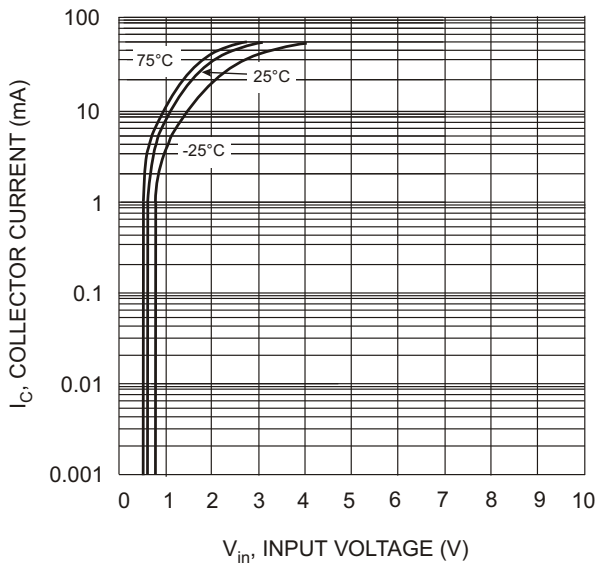


Fig. 5 Collector Current Vs. Input Voltage

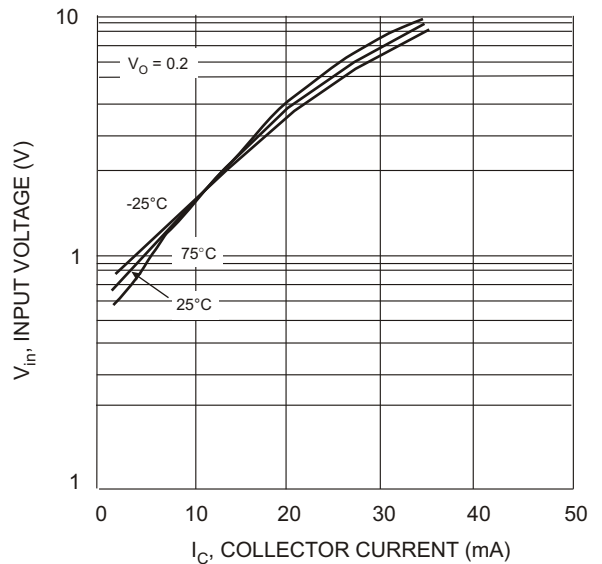


Fig. 6 Input Voltage vs. Collector Current

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