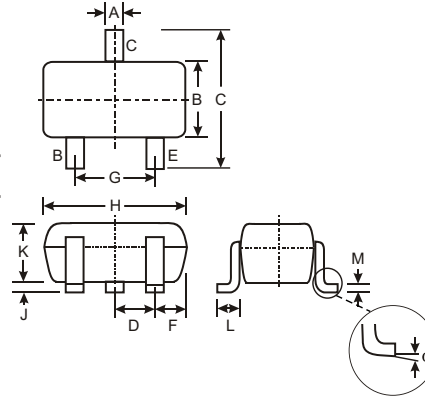


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only

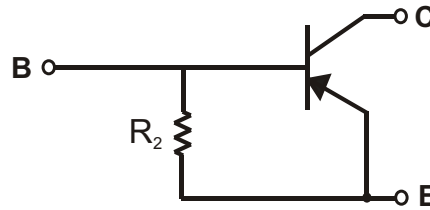
Mechanical Data

- Case: SOT-323, 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
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)



| SOT-323 | | |
|----------------------|--------------|------|
| Dim | Min | Max |
| A | 0.25 | 0.40 |
| B | 1.15 | 1.35 |
| C | 2.00 | 2.20 |
| D | 0.65 Nominal | |
| E | 0.30 | 0.40 |
| G | 1.20 | 1.40 |
| H | 1.80 | 2.20 |
| J | 0.0 | 0.10 |
| K | 0.90 | 1.00 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.18 |
| | 0 | 8 |
| All Dimensions in mm | | |

| P/N | R2 (NOM) | MARKING |
|------------|----------|---------|
| DDTA114GUA | 10K | P26 |
| DDTA124GUA | 22K | P27 |
| DDTA144GUA | 47K | P28 |
| DDTA115GUA | 100K | P29 |



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 _{JA} | 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>.

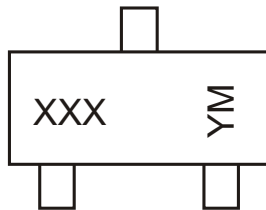
Electrical Characteristics @ $T_A = 25\text{ C}$ unless otherwise specified

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------------------|--|---------------|----------------------------|-----|-----------------------------|------|---|
| Collector-Base Breakdown Voltage | | BV_{CBO} | -50 | | | V | $I_C = -50\text{ A}$ |
| Collector-Emitter Breakdown Voltage | | BV_{CEO} | -50 | | | V | $I_C = -1\text{mA}$ |
| Emitter-Base Breakdown Voltage | | BV_{EBO} | 5 | | | V | $I_E = -720\text{ A}$, DDTA114GUA $I_E = -330\text{ A}$, DDTA124GUA $I_E = -160\text{ A}$, DDTA144GUA $I_E = -72\text{ A}$, DDTA115GUA |
| Collector Cutoff Current | | I_{CBO} | | | -0.5 | A | $V_{CB} = -50\text{V}$ |
| Emitter Cutoff Current | | I_{EBO} | -300 -140 -65 -30 | | -580 -260 -130 -58 | A | $V_{EB} = -4\text{V}$ |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)}$ | | | -0.3 | V | $I_C = -10\text{mA}$, $I_B = -0.5\text{mA}$ |
| DC Current Transfer Ratio | | h_{FE} | 30 56 68 82 | | | | $I_C = -5\text{mA}$, $V_{CE} = -5\text{V}$ |
| Bleeder Resistor (R_2) Tolerance | | DR_2 | -30 | | +30 | % | |
| Gain-Bandwidth Product* | | f_T | | 250 | | MHz | $V_{CE} = -10\text{V}$, $I_E = 5\text{mA}$, $f = 100\text{MHz}$ |

* Transistor - For Reference Only

Ordering Information (Note 2)

| Device | Packaging | Shipping |
|--------------|-----------|------------------|
| DDTA114GUA-7 | SOT-323 | 3000/Tape & Reel |
| DDTA124GUA-7 | SOT-323 | 3000/Tape & Reel |
| DDTA144GUA-7 | SOT-323 | 3000/Tape & Reel |
| DDTA115GUA-7 | SOT-323 | 3000/Tape & Reel |

Notes: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.**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 - DDTA114GUA

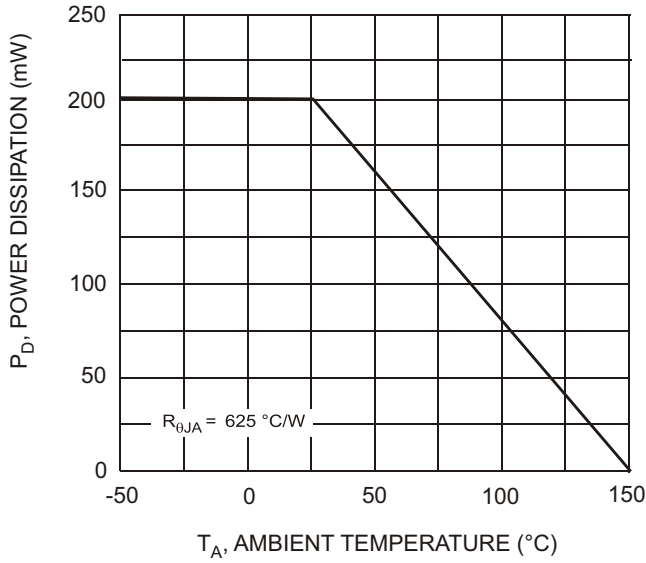


Fig. 1, Derating Curve

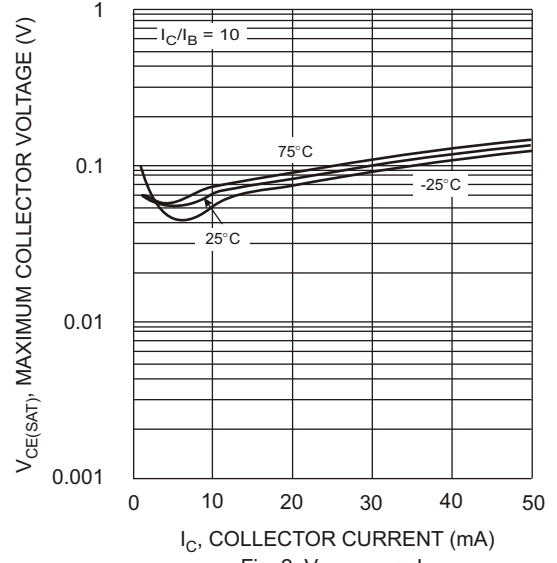


Fig. 2 $V_{CE(SAT)}$ vs. I_C

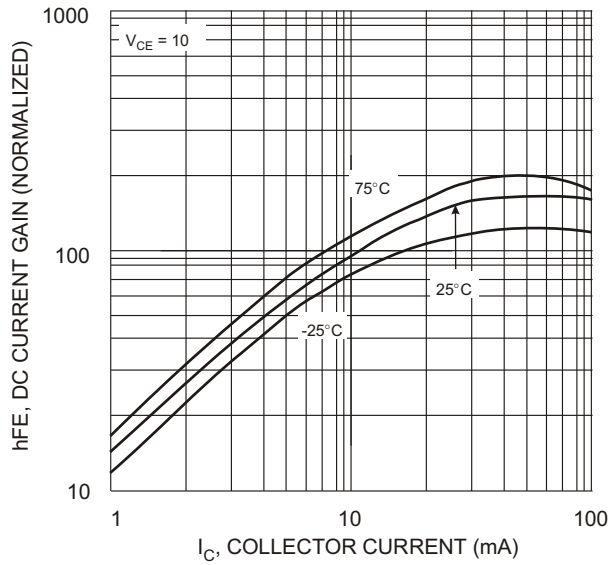


Fig. 3 DC CURRENT GAIN

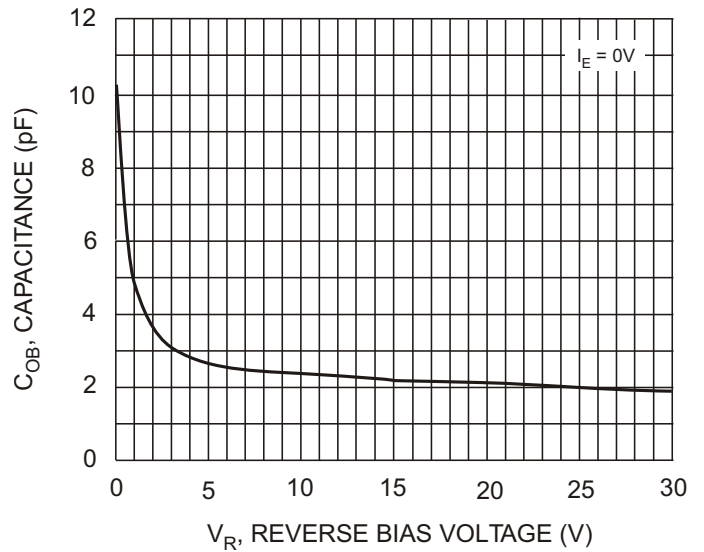


Fig. 4 Output Capacitance

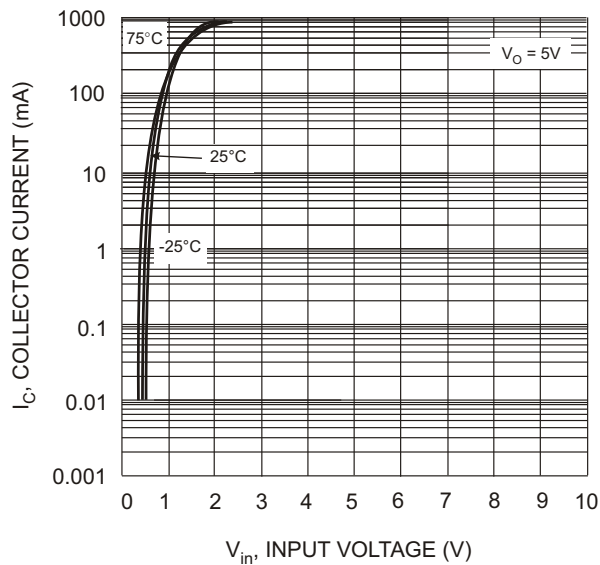


Fig. 5 Collector Current Vs. Input Voltage

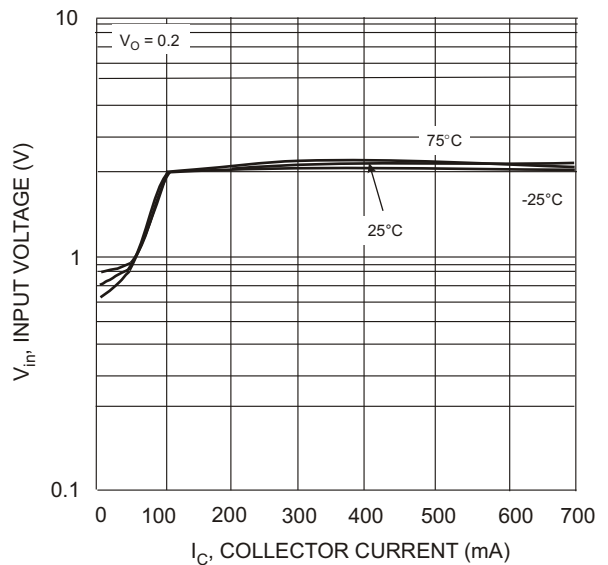


Fig. 6 Input Voltage vs. Collector Current