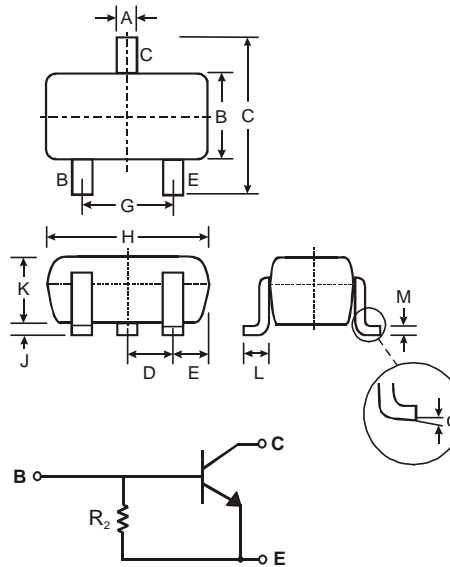


Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R2 only
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3 and 4)**

Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking: Date Code and Type Code, See Page 3
- Ordering Information: See Page 3
- Type Code: See Table Below
- Weight: 0.006 grams (approximate)



| 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 |
| α | 0° | 8° |
| All Dimensions in mm | | |

| P/N | R2 (NOM) | Type Code |
|------------|----------|-----------|
| DDTC114GUA | 10KΩ | N26 |
| DDTC124GUA | 22KΩ | N27 |
| DDTC144GUA | 47KΩ | N28 |
| DDTC115GUA | 100KΩ | N29 |

SCHEMATIC DIAGRAM

Maximum Ratings @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Collector-Base Voltage | V _{CB0} | 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 |

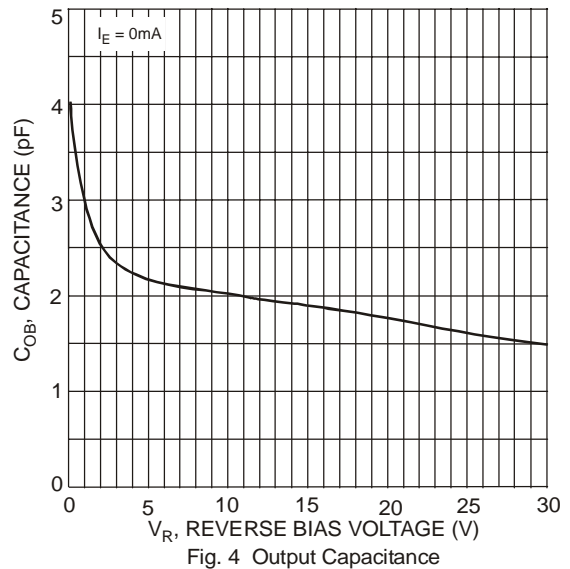
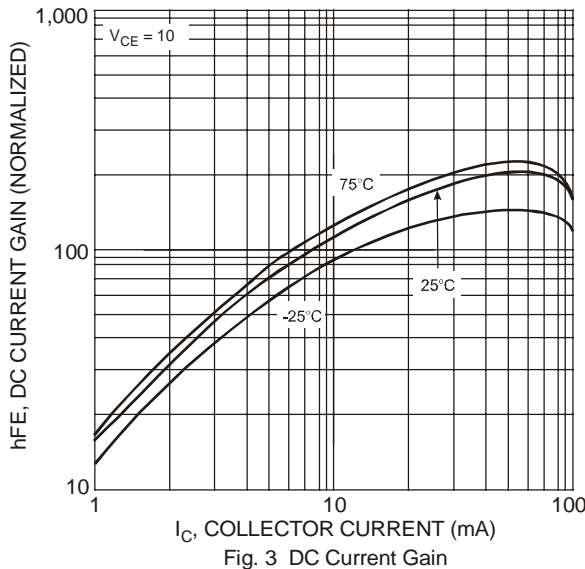
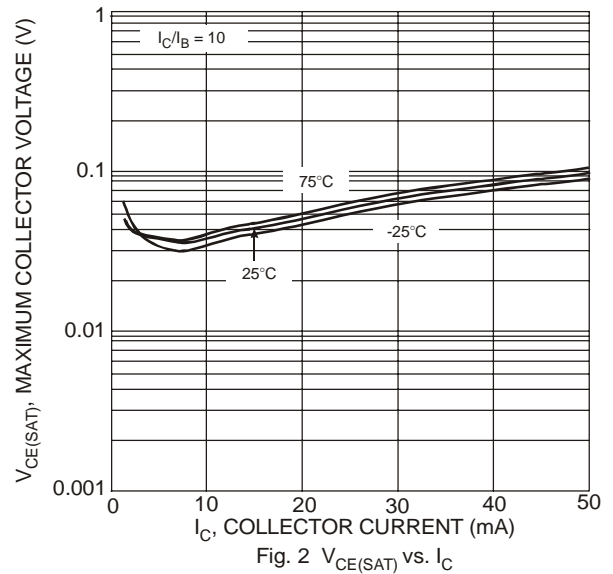
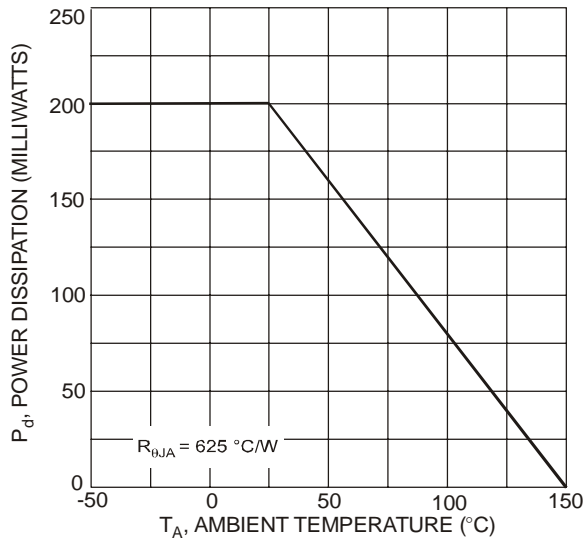
- Notes:
1. Mounted on FR4 PC Board with recommended pad layout as shown on Diodes Inc., suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" Policy can be found on our website 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 _{CBO} | 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 = 720μA, DDTC114GUA I _E = 330μA, DDTC124GUA I _E = 160μA, DDTC144GUA I _E = 72μA, DDTC115GUA |
| Collector Cutoff Current | I _{CBO} | — | — | 0.5 | μA | V _{CB} = 50V |
| Emitter Cutoff Current | I _{EBO} | 300 140 65 30 | — | 580 260 130 58 | μA | V _{EB} = 4V |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | — | 0.3 | V | I _C = 10mA, I _B = 0.5mA |
| DC Current Transfer Ratio | h _{FE} | 30 56 68 82 | — | — | — | I _C = 5mA, V _{CE} = 5V |
| Bleeder Resistor (R ₂) Tolerance | ΔR ₂ | -30 | — | +30 | % | — |
| Gain-Bandwidth Product* | f _T | — | 250 | — | MHz | V _{CE} = 10V, I _E = -5mA, f = 100MHz |

* Transistor - For Reference Only

Typical Characteristics – DDTC114GUA



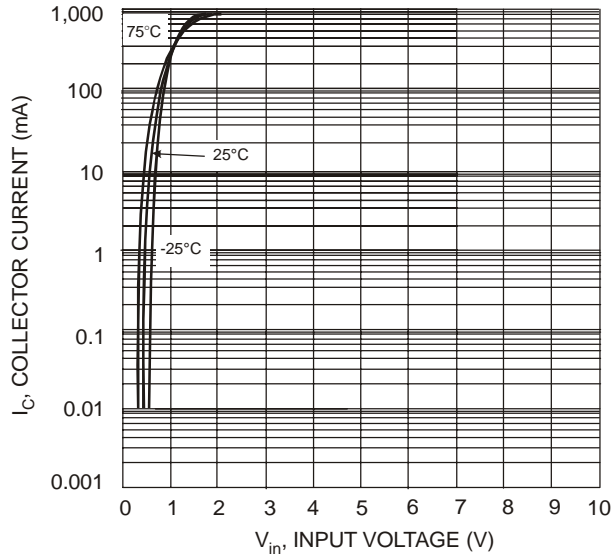


Fig. 5 Collector Current vs. Input Voltage

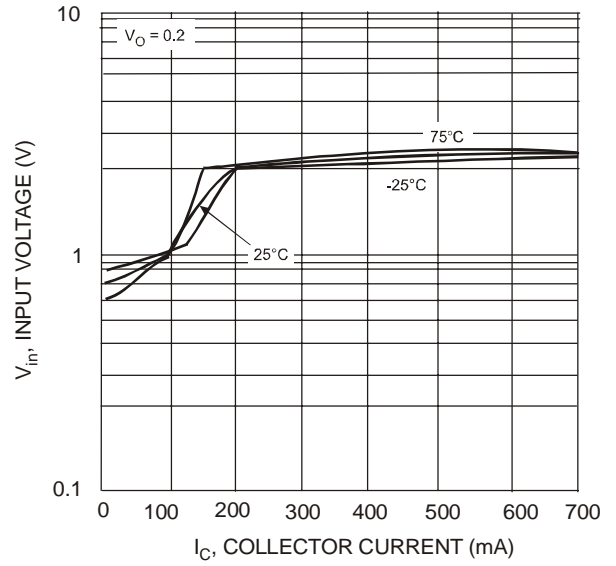


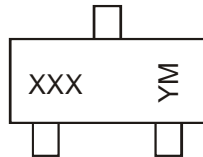
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 4 & 5)

| Device | Packaging | Shipping |
|----------------|-----------|------------------|
| DDTC114GUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTC124GUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTC144GUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTC115GUA-7-F | SOT-323 | 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 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|
| Code | 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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