

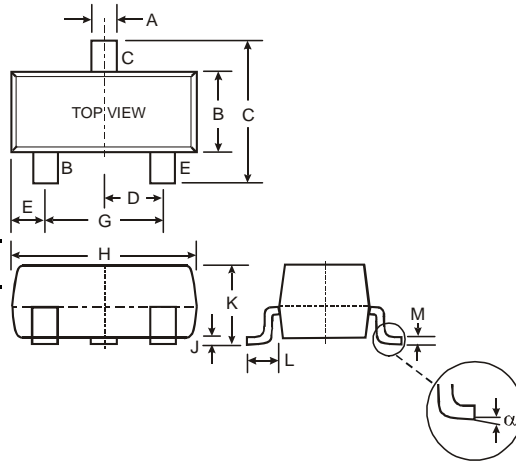
Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2 and 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

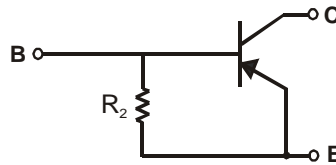
- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking: Date Code and Type Code: See Table Below & Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)

| P/N | R2 (NOM) | Type Code |
|------------|---------------|-----------|
| DDTA114GCA | 10K Ω | P26 |
| DDTA124GCA | 22K Ω | P27 |
| DDTA144GCA | 47K Ω | P28 |
| DDTA115GCA | 100K Ω | P29 |



| SOT-23 | | |
|----------|-------|-------|
| Dim | Min | Max |
| A | 0.37 | 0.51 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.50 |
| D | 0.89 | 1.03 |
| E | 0.45 | 0.60 |
| G | 1.78 | 2.05 |
| H | 2.80 | 3.00 |
| J | 0.013 | 0.10 |
| K | 0.903 | 1.10 |
| L | 0.45 | 0.61 |
| M | 0.085 | 0.180 |
| α | 0° | 8° |

All Dimensions in mm



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 and 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. Halogen and Antimony Free.
 3. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 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, DDTA114GCA I _E = -330μA, DDTA124GCA I _E = -160μA, DDTA144GCA I _E = -72μA, DDTA115GCA |
| 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 Curves – DDTA114GCA

NEW PRODUCT

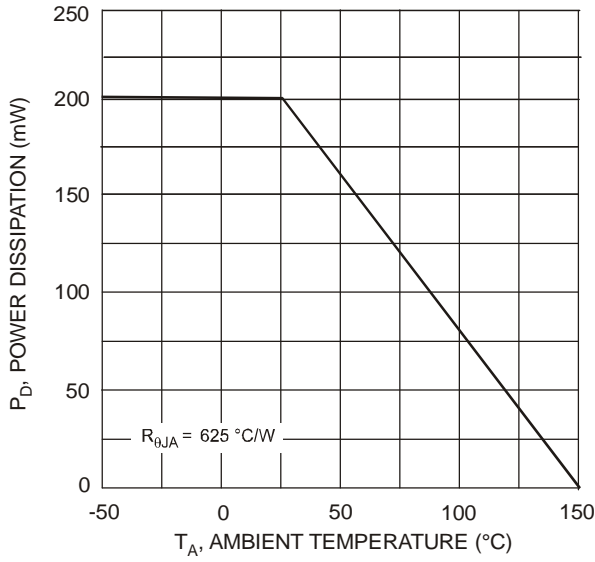


Fig. 1 Derating Curve

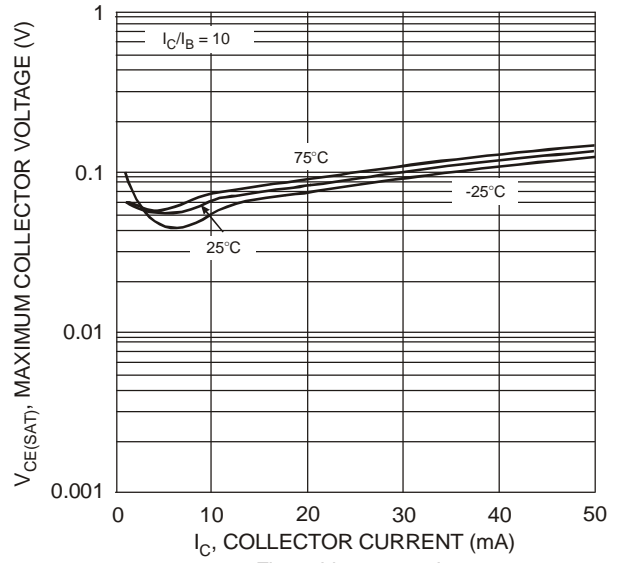


Fig. 2 $V_{CE(SAT)}$ vs. I_C

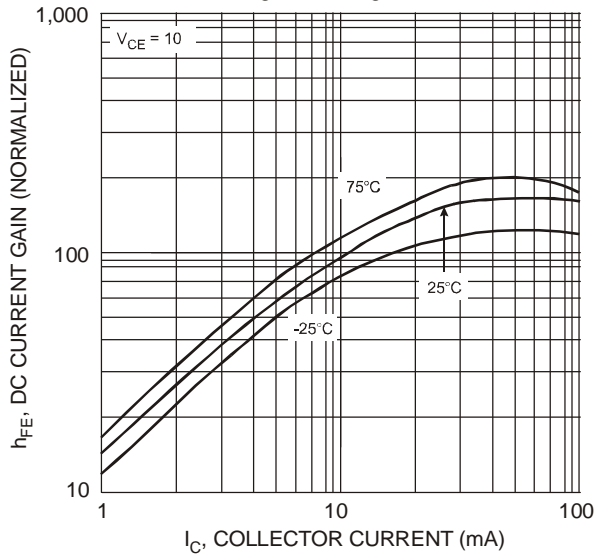


Fig. 3 DC Current Gain

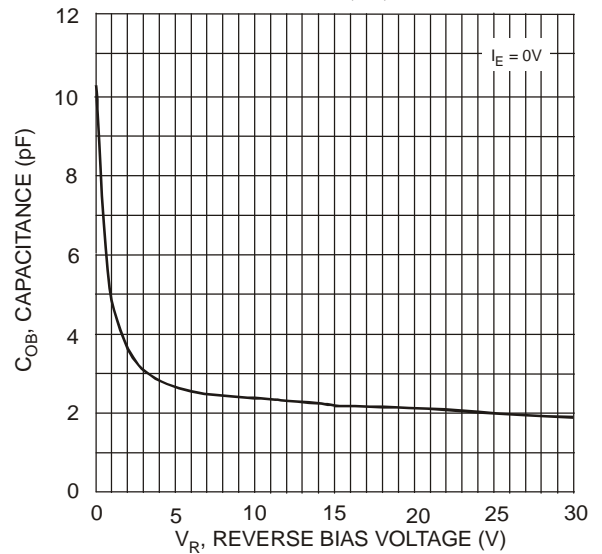


Fig. 4 Output Capacitance

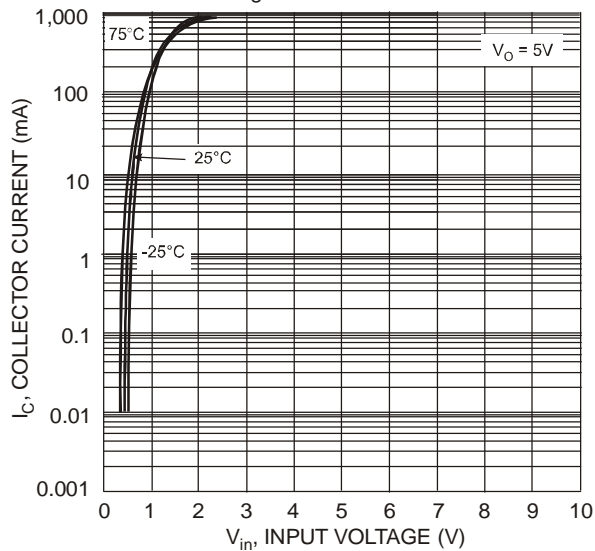


Fig. 5 Collector Current vs. Input Voltage

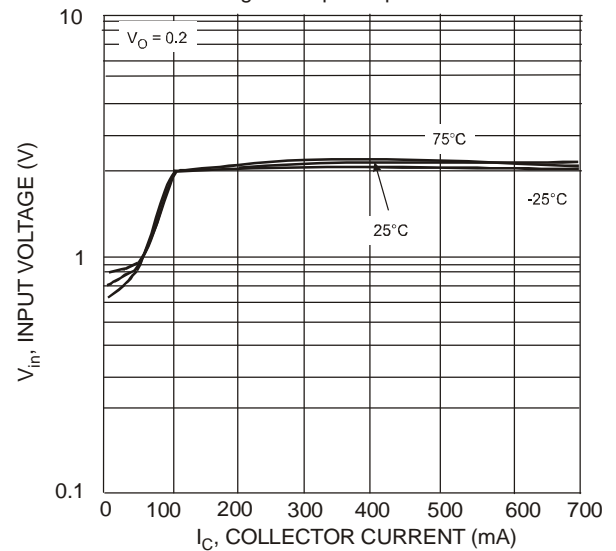


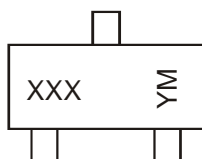
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 4)

| Device | Packaging | Shipping |
|----------------|-----------|------------------|
| DDTA114GCA-7-F | SOT-23 | 3000/Tape & Reel |
| DDTA124GCA-7-F | SOT-23 | 3000/Tape & Reel |
| DDTA144GCA-7-F | SOT-23 | 3000/Tape & Reel |
| DDTA115GCA-7-F | SOT-23 | 3000/Tape & Reel |

Notes: 4. 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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