

DDTA (R2-ONLY SERIES) CA

PNP PRE-BIASED SMALL SIGNAL SOT-23
SURFACE MOUNT TRANSISTOR

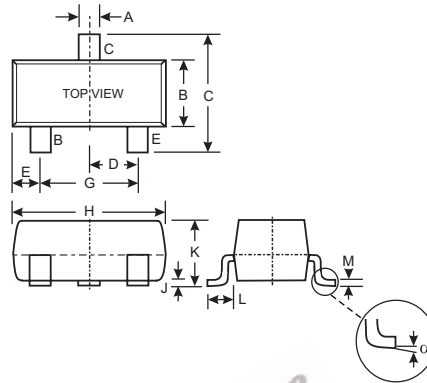
NEW PRODUCT

Features

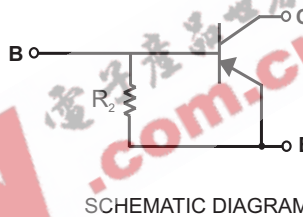
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only
- **Lead Free/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-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 Table Below & Page 2)
- Ordering Information (See Page 2)
- Weight: 0.008 grams (approximate)



| 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 | | |



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

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 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>.
2. 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 = -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 | DDTA114GCA DDTA124GCA DDTA144GCA DDTA115GCA | 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 | DDTA114GCA DDTA124GCA DDTA144GCA DDTA115GCA | 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 |

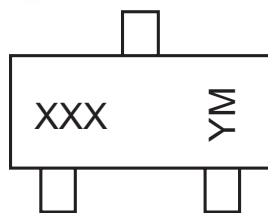
* Transistor - For Reference Only

Ordering Information (Note 3)

| 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: 3. 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: 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 - DDTA114GCA

NEW PRODUCT

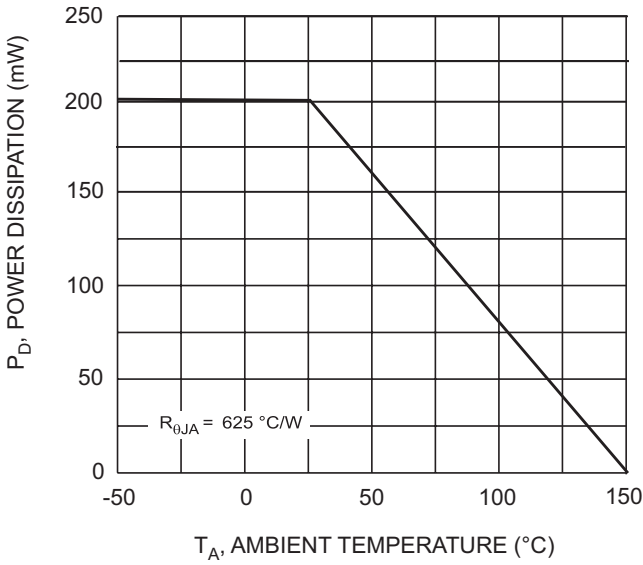


Fig. 1, Derating Curve

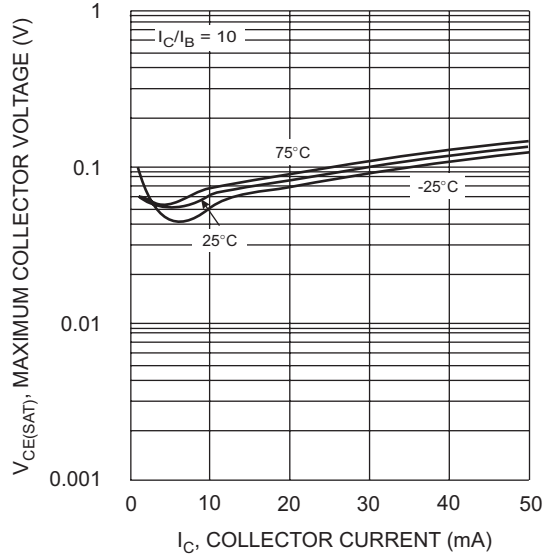


Fig. 2 $V_{CE(SAT)}$ vs. I_C

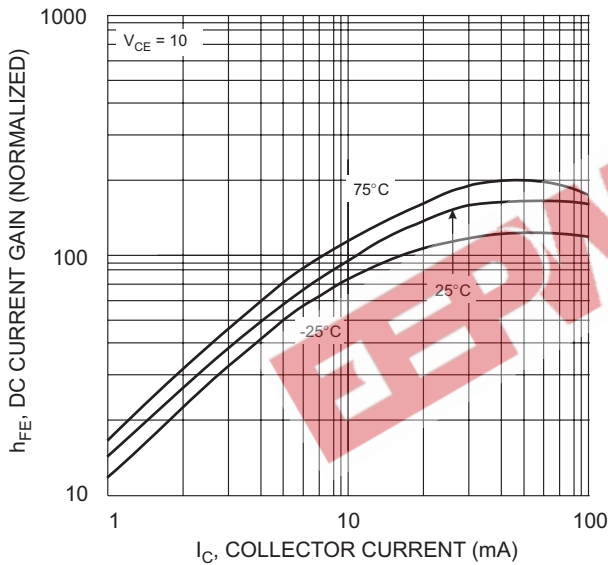


Fig. 3 DC CURRENT GAIN

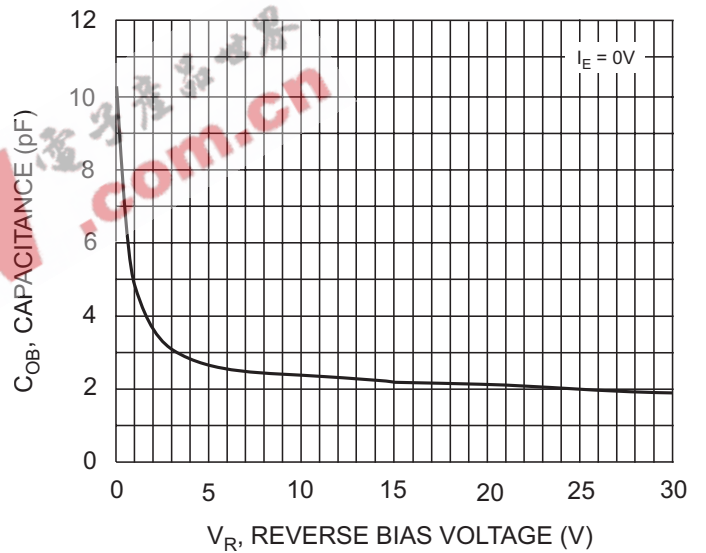


Fig. 4 Output Capacitance

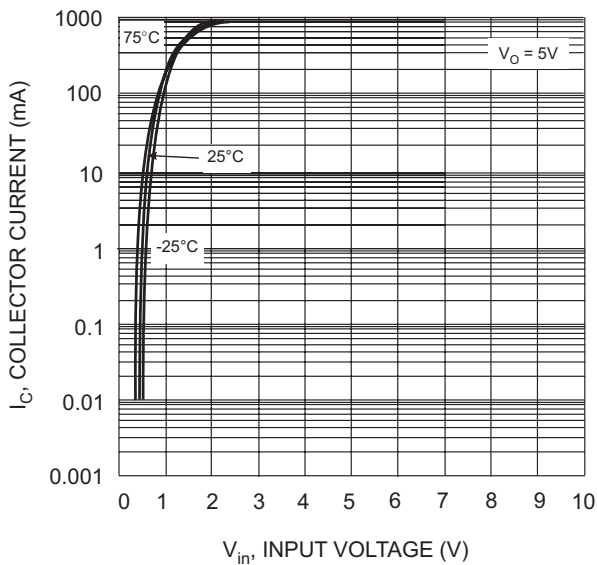


Fig. 5 Collector Current Vs. Input Voltage

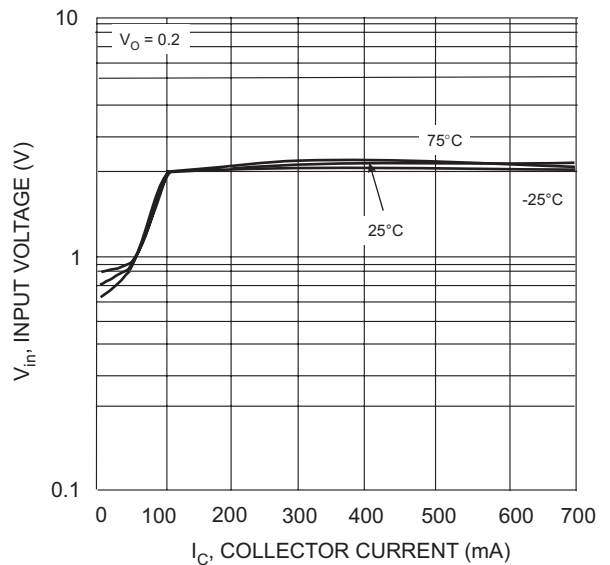


Fig. 6 Input Voltage vs. Collector Current

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