



**THE DATASHEET OF
DDTA114TUA-7-F**

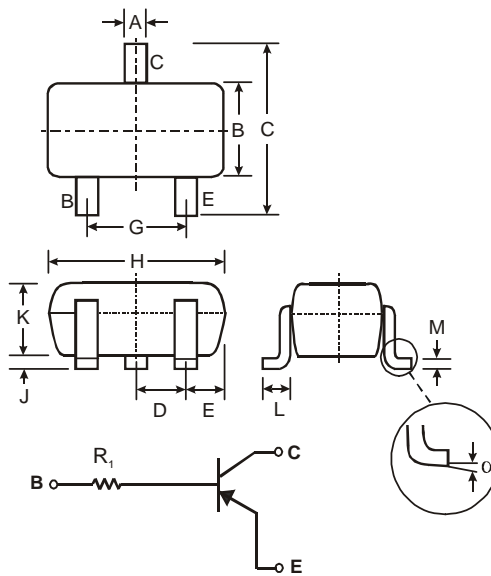


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R1 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 Information: See Page 3
- Type Code: See Table Below
- Ordering Information: See Page 3
- 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

SCHEMATIC DIAGRAM

| P/N | R1 (NOM) | Type Code |
|------------|---------------|-----------|
| DDTA113TUA | 1K Ω | P01 |
| DDTA123TUA | 2.2K Ω | P03 |
| DDTA143TUA | 4.7K Ω | P07 |
| DDTA114TUA | 10K Ω | P12 |
| DDTA124TUA | 22K Ω | P16 |
| DDTA144TUA | 47K Ω | P19 |
| DDTA115TUA | 100K Ω | P23 |
| DDTA125TUA | 200K Ω | P25 |

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 Temperature Range | T _j , T _{STG} | -55 to +150 | °C |

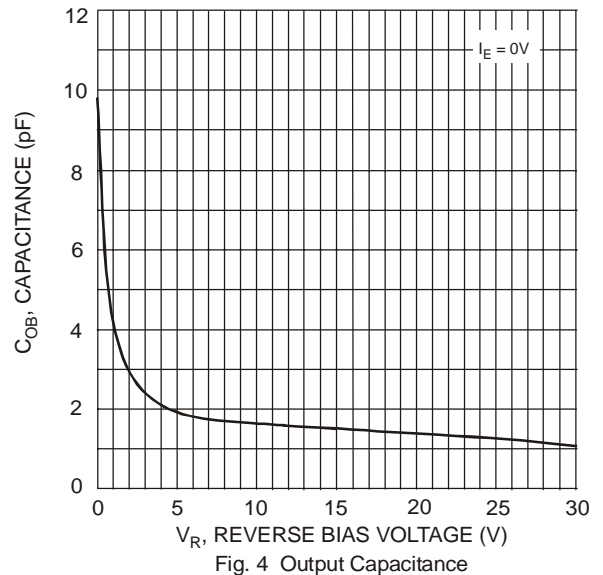
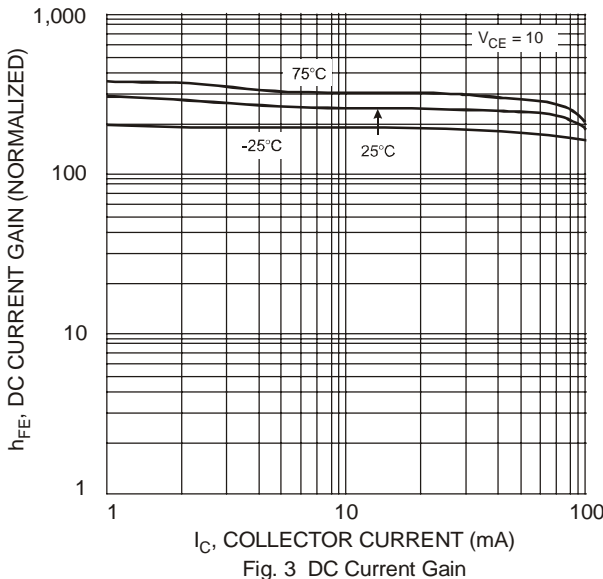
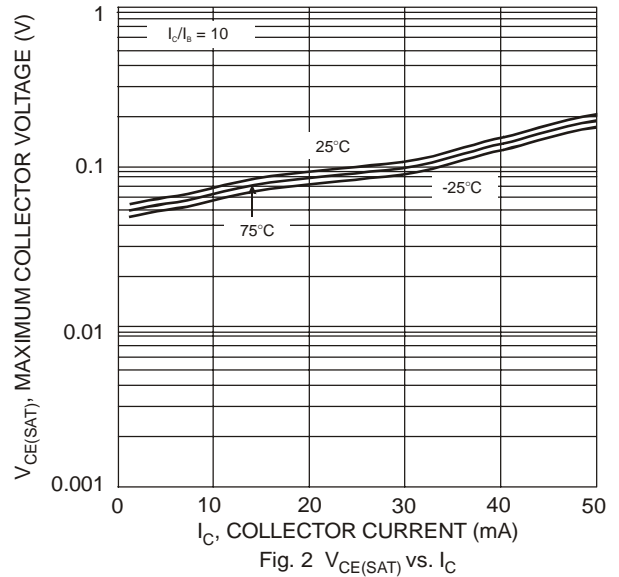
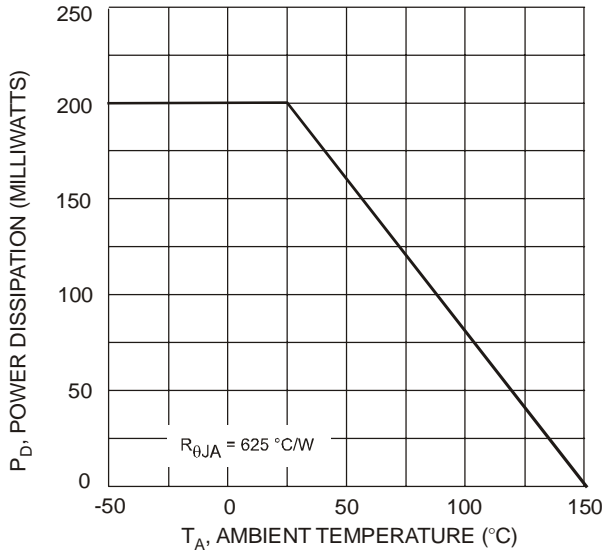
- Notes:
1. Mounted on FR4 PC Board with recommended pad layout as shown on Diodes Inc., suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" Policy can be found on our website 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 = -50μA |
| Collector Cutoff Current | I _{CBO} | — | — | -0.5 | μA | V _{CB} = -50V |
| Emitter Cutoff Current | I _{EBO} | — | — | -0.5 | μA | V _{EB} = -4V |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | — | -0.3 | V | I _C /I _B = -10mA/-1mA DDTA113TUA I _C /I _B = -5mA/-0.5mA DDTA123TUA I _C /I _B = -2.5mA/-0.25mA DDTA143TUA I _C /I _B = -1mA/-0.1mA DDTA114TUA I _C /I _B = -5mA/-0.5mA DDTA124TUA I _C /I _B = -2.5mA/-0.25mA DDTA144TUA I _C /I _B = -1mA/-0.1mA DDTA115TUA I _C /I _B = -5mA/-0.05mA DDTA125TUA |
| DC Current Transfer Ratio | h _{FE} | 100 | 250 | 600 | — | I _C = -1mA, V _{CE} = -5V |
| Input Resistor (R ₁) Tolerance | ΔR ₁ | -30 | — | +30 | % | — |
| Gain-Bandwidth Product* | f _T | — | 250 | — | MHz | V _{CE} = -10V, I _E = 5mA, f = 100MHz |

* Transistor - For Reference Only

Typical Curves – DDTA114TUA



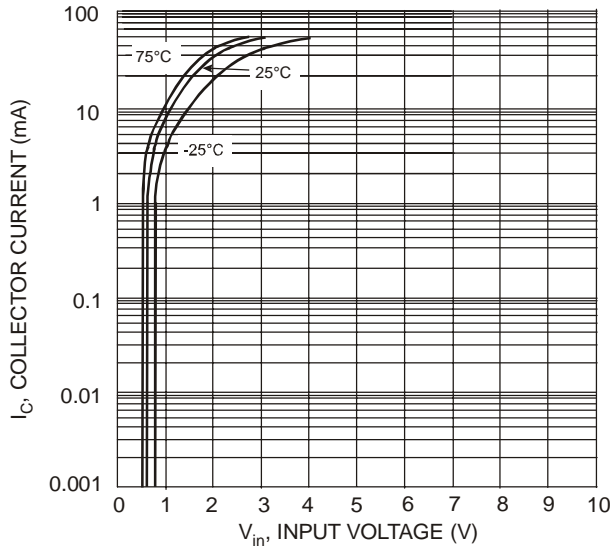


Fig. 5 Collector Current vs. Input Voltage

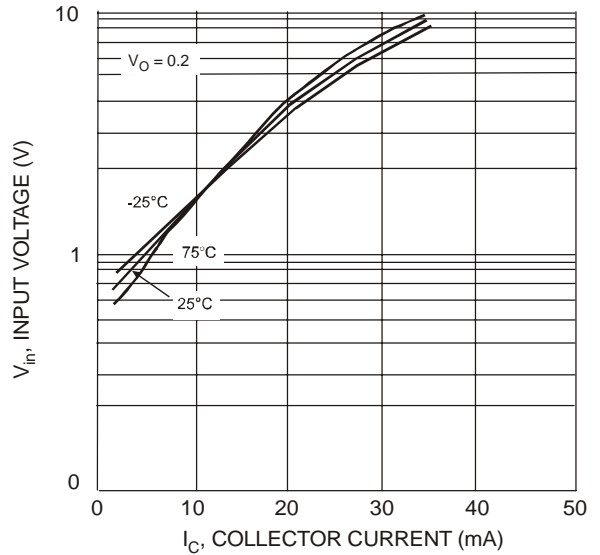


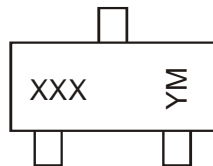
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 4 & 5)

| Device | Packaging | Shipping |
|----------------|-----------|------------------|
| DDTA113TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA123TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA143TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA114TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA124TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA144TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA115TUA-7-F | SOT-323 | 3000/Tape & Reel |
| DDTA125TUA-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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