

150V NPN MEDIUM POWER TRANSISTOR IN SOT223

Features

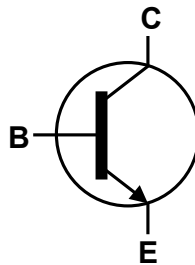
- $BV_{CEO} > 150V$
- $I_C = 5A$ high Continuous Collector Current
- $I_{CM} = 10A$ Peak Pulse Current
- Very Low Saturation Voltage $V_{CE(sat)} < 110mV @ 1A$
- $R_{CE(sat)} = 50m\Omega$ for a Low Equivalent On-Resistance
- h_{FE} Specified Up to 10A for a High Gain Hold Up
- Complementary PNP Type: FZT955
- **Lead-Free Finish; RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

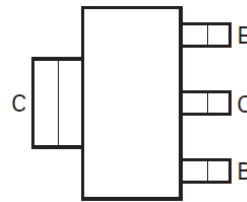
- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.112 grams (approximate)



Top View



Device Symbol



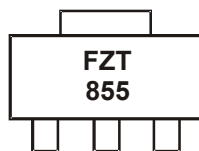
Top View
Pin-Out

Ordering Information (Note 4)

| Product | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|----------|---------|--------------------|-----------------|-------------------|
| FZT855TA | FZT855 | 7 | 12 | 1,000 |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

Marking Information



FZT855 = Product type Marking Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|------------------------------|------------------|-------|------|
| Collector-Base Voltage | V _{CBO} | 250 | V |
| Collector-Emitter Voltage | V _{CEO} | 150 | V |
| Emitter-Base Voltage | V _{EBO} | 7 | V |
| Continuous Collector Current | I _C | 5 | A |
| Peak Pulse Current | I _{CM} | 10 | A |
| Base Current | I _B | 1 | A |

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

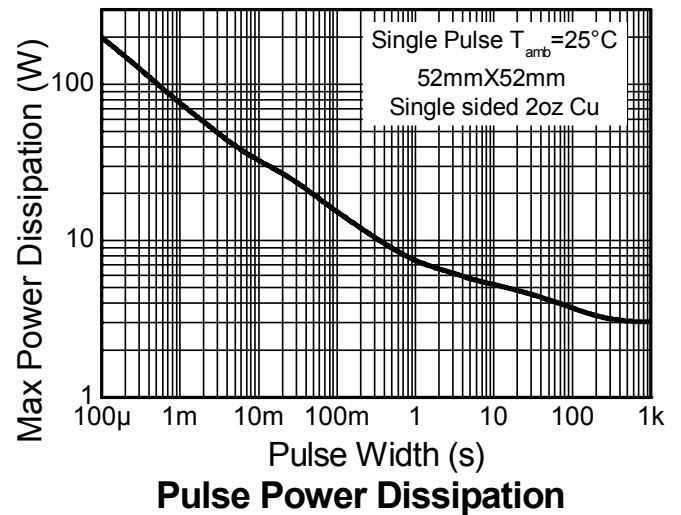
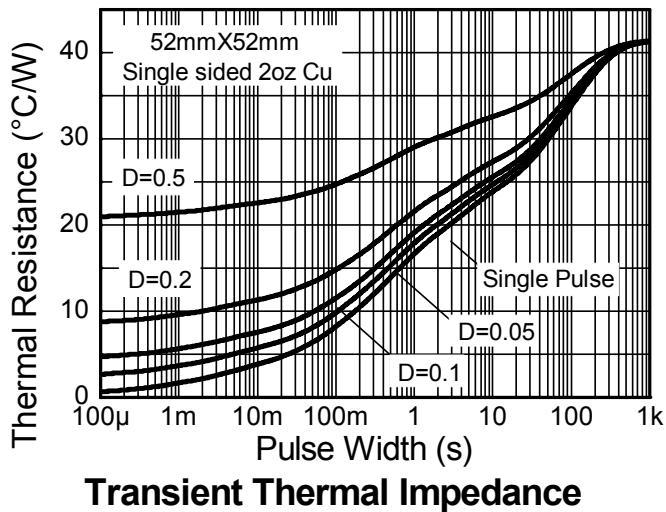
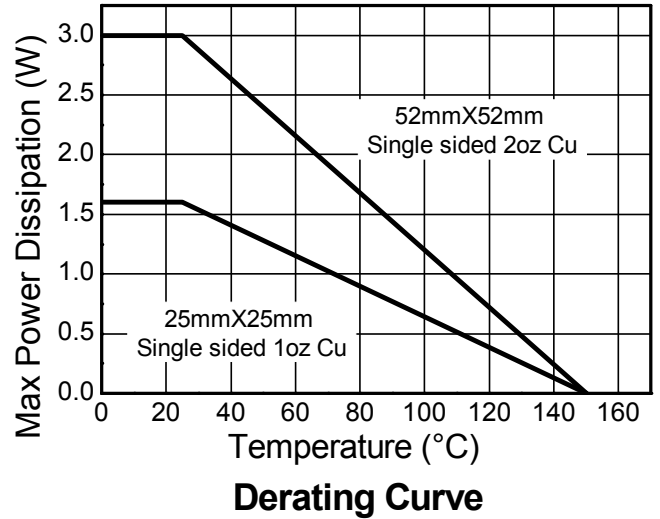
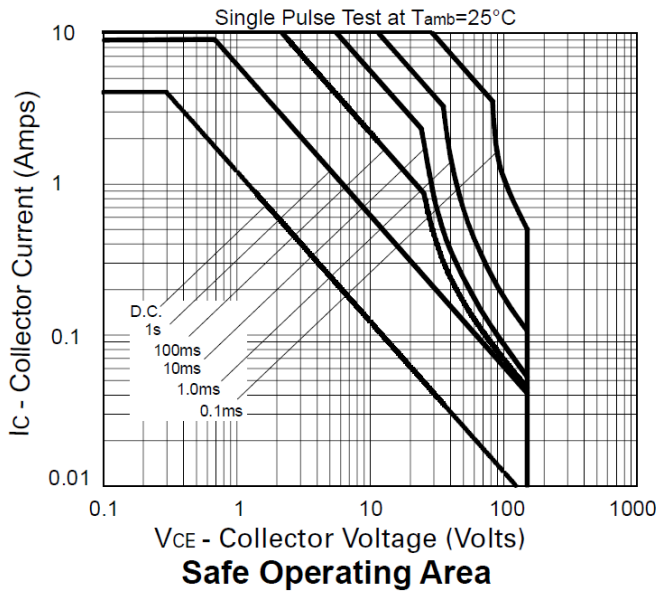
| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|-------|
| Power Dissipation Linear derating factor | P _D | 3.0 | W |
| | | 24 | |
| Thermal Resistance, Junction to Ambient | R _{θJA} | 1.6 | mW/°C |
| | | 12.8 | |
| Thermal Resistance, Junction to Ambient | R _{θJA} | 42 | °C/W |
| | | 78 | |
| Thermal Resistance Junction to Lead | R _{θJL} | 8.84 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

ESD Ratings (Note 8)

| Characteristic | Symbol | Value | Unit | JEDEC Class |
|--|---------|---------|------|-------------|
| Electrostatic Discharge - Human Body Model | ESD HBM | ≥ 8,000 | V | 3B |
| Electrostatic Discharge - Machine Model | ESD MM | ≥ 400 | V | C |

- Notes:
5. For a device surface mounted on 50mm X 50mm FR4 PCB with high coverage of single sided 2 oz copper, in still air conditions; device measured when operating in steady state condition.
 6. Same as note (5), except the device is mounted on 25mm X 25mm single sided 1oz weight copper.
 7. Thermal resistance from junction to solder-point (at the end of the collector lead).
 8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

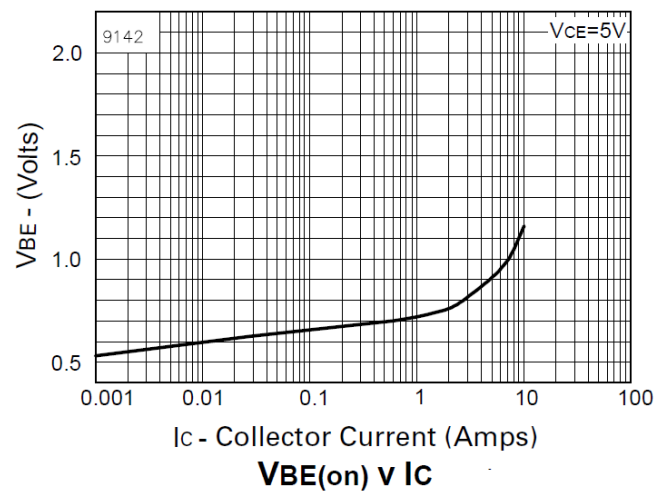
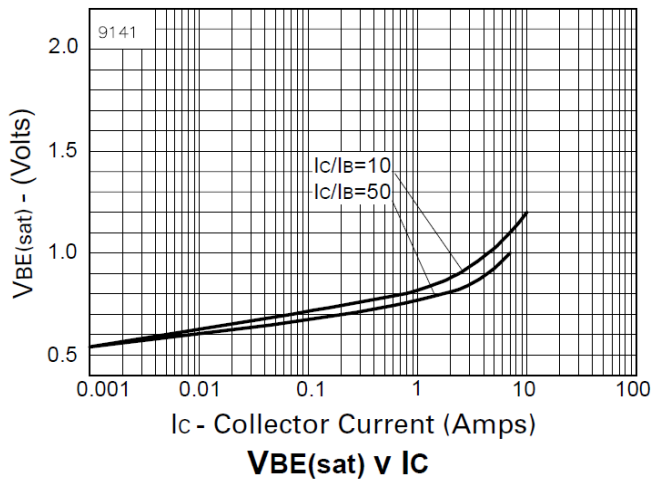
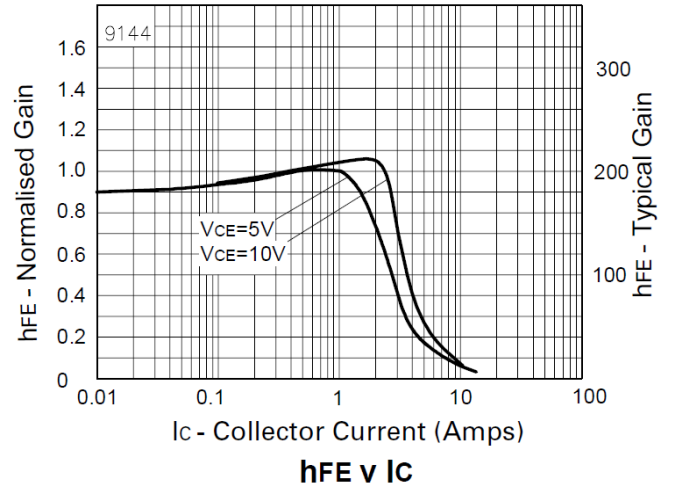
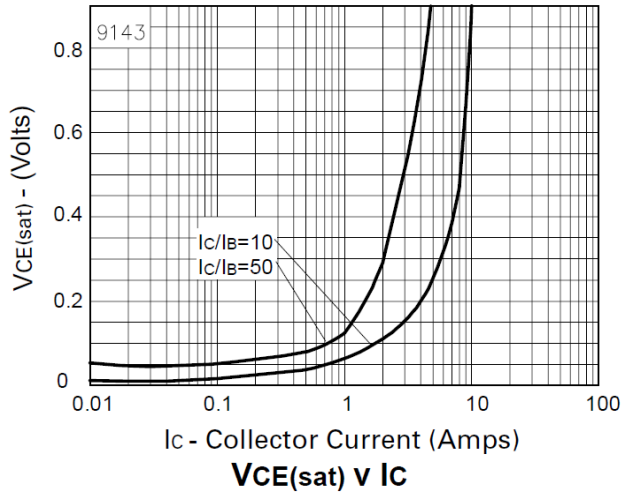


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|-------------------------------------|------------------|------------------------|------------------------|----------|---|
| Collector-Base Breakdown Voltage | BV _{CBO} | 250 | 375 | – | V | I _C = 100μA |
| Collector-Emitter Breakdown Voltage | BV _{CER} | 250 | 375 | – | V | I _C = 1μA, R _B ≤ 1kΩ |
| Collector-Emitter Breakdown Voltage (Note 9) | BV _{CEO} | 150 | 180 | – | V | I _C = 1mA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | 7 | 8 | – | V | I _E = 100μA |
| Collector Cut-off Current | I _{CBO} | – | – | 50 1 | nA μA | V _{CB} = 200V V _{CB} = 200V, @T _A = +100°C |
| Collector Cut-off Current | I _{CER} R ≤ 1kΩ | – | – | 50 1 | nA μA | V _{CB} = 200V V _{CB} = 200V, @T _A = +100°C |
| Emitter Cut-off Current | I _{EBO} | – | – | 10 | nA | V _{EB} = 6V |
| Collector-Emitter Saturation Voltage (Note 9) | V _{CE(sat)} | – | 20 35 60 260 | 40 65 110 355 | mV | I _C = 100mA, I _B = 5mA I _C = 500mA, I _B = 50mA I _C = 1A, I _B = 100mA I _C = 5A, I _B = 500mA |
| Base-Emitter Saturation Voltage (Note 9) | V _{BE(sat)} | – | – | 1250 | mV | I _C = 5A, I _B = 500mA |
| Base-Emitter Turn-On Voltage (Note 9) | V _{BE(on)} | – | – | 1100 | mV | I _C = 5A, V _{CE} = 5V |
| DC Current Gain (Note 9) | h _{FE} | 100 100 15 | 200 200 30 10 | – 300 – – | | I _C = 10mA, V _{CE} = 5V I _C = 1A, V _{CE} = 5V I _C = 5A, V _{CE} = 5V I _C = 10A, V _{CE} = 5V |
| Current Gain-Bandwidth Product (Note 9) | f _T | – | 90 | – | MHz | V _{CE} = 10V, I _C = 100mA f = 50MHz |
| Output Capacitance (Note 9) | C _{obo} | – | 22 | – | pF | V _{CB} = 10V, f = 1MHz |
| Switching Times | t _{on} t _{off} | – | 66 2130 | – | ns ns | I _C = 1A, V _{CC} = 50V I _{B1} = -I _{B2} = 100mA |

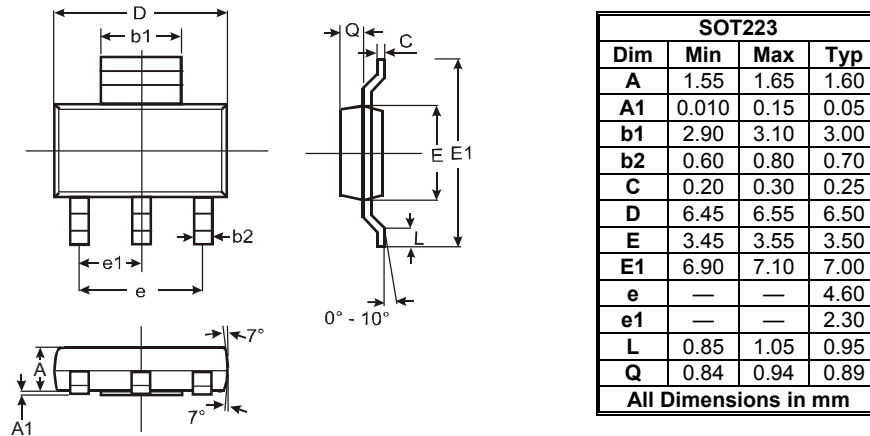
Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



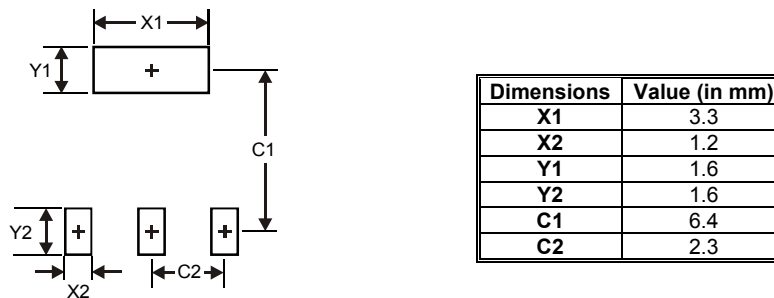
Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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