

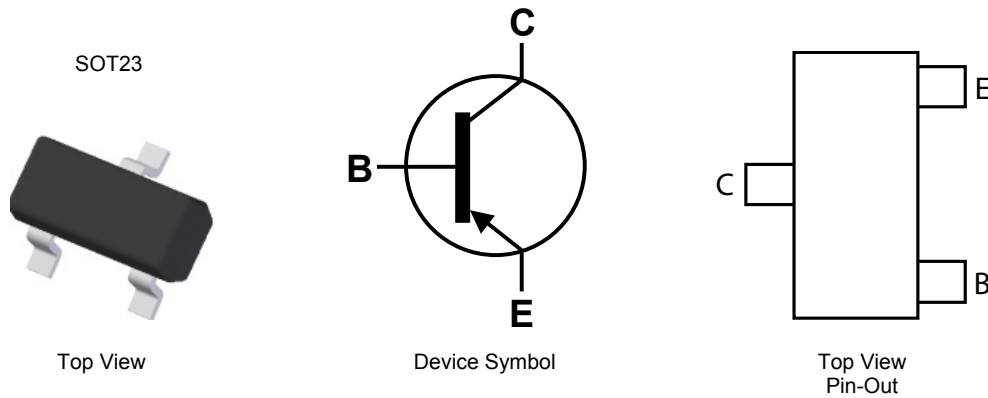
400V PNP HIGH VOLTAGE TRANSISTOR IN SOT23

Features

- $BV_{CEO} > -400V$
- $I_C = -150mA$ high Continuous Collector Current
- $I_{CM} = -500mA$ Peak Pulse Current
- 500mW Power Dissipation
- Excellent h_{FE} Characteristics Up To -100mA
- Complementary NPN Type: FMMT458
- **Totally Lead-Free & Fully RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

Mechanical Data

- Case: SOT23
- 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: 0.008 grams (Approximate)

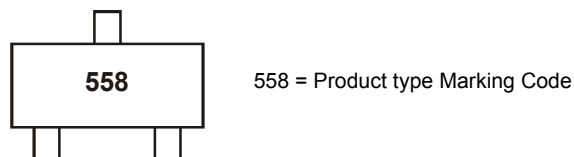


Ordering Information (Notes 4 & 5)

| Product | Compliance | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|------------|------------|---------|--------------------|-----------------|-------------------|
| FMMT558TA | AEC-Q101 | 558 | 7 | 8 | 3,000 |
| FMMT558QTA | Automotive | 558 | 7 | 8 | 3,000 |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified.
 5. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



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

| Characteristic | Symbol | Value | Unit |
|------------------------------|------------------|-------|------|
| Collector-Base Voltage | V _{CB0} | -400 | V |
| Collector-Emitter Voltage | V _{CEO} | -400 | V |
| Emitter-Base Voltage | V _{EBO} | -7 | V |
| Continuous Collector Current | I _C | -150 | mA |
| Peak Pulse Current | I _{CM} | -500 | mA |
| Base Current | I _B | -200 | mA |

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

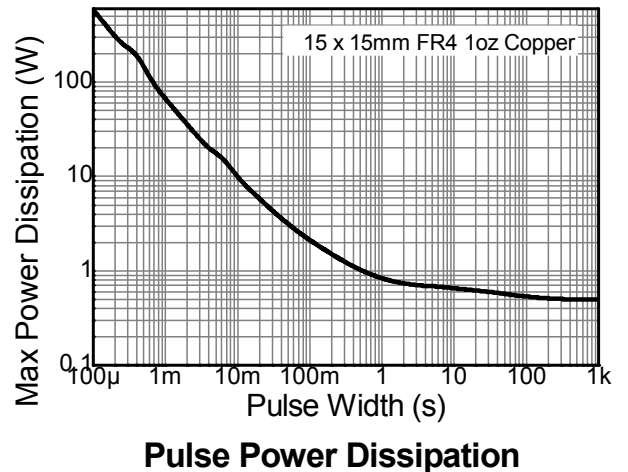
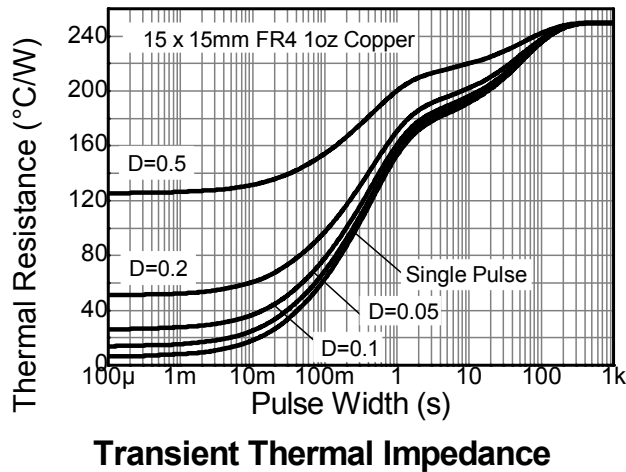
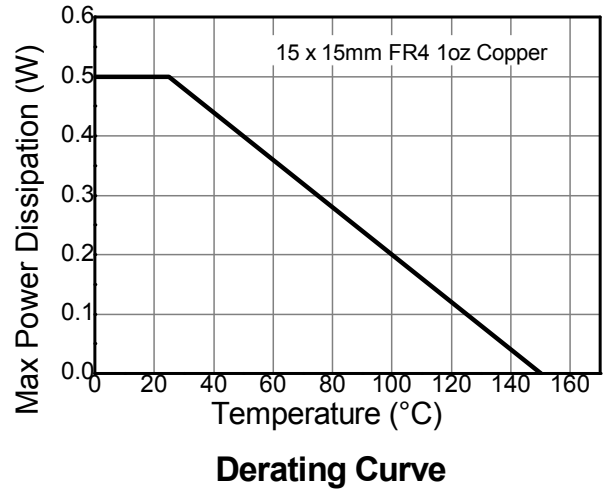
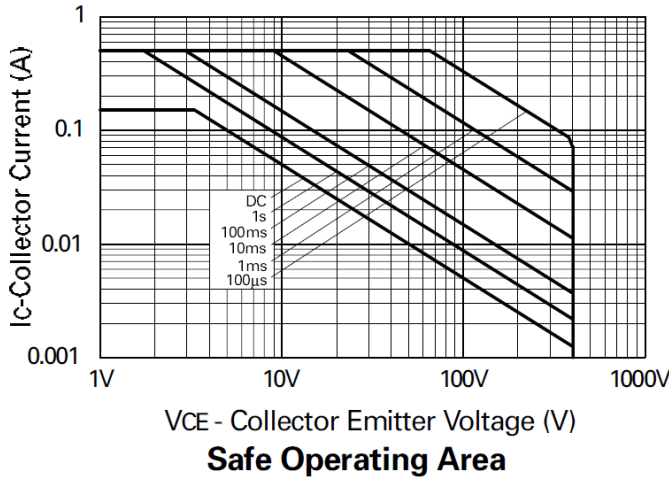
| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 6) | P _D | 500 | mW |
| Thermal Resistance, Junction to Ambient (Note 6) | R _{θJA} | 250 | °C/W |
| Thermal Resistance, Junction to Lead (Note 7) | R _{θJL} | 197 | °C/W |
| 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:
- 6. For a device surface mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
 - 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

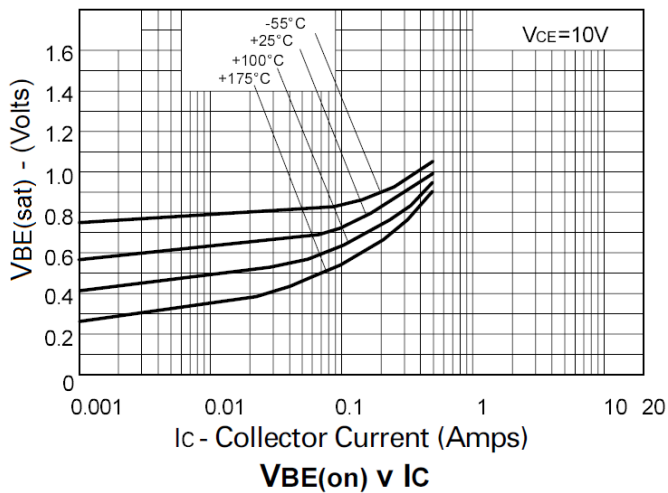
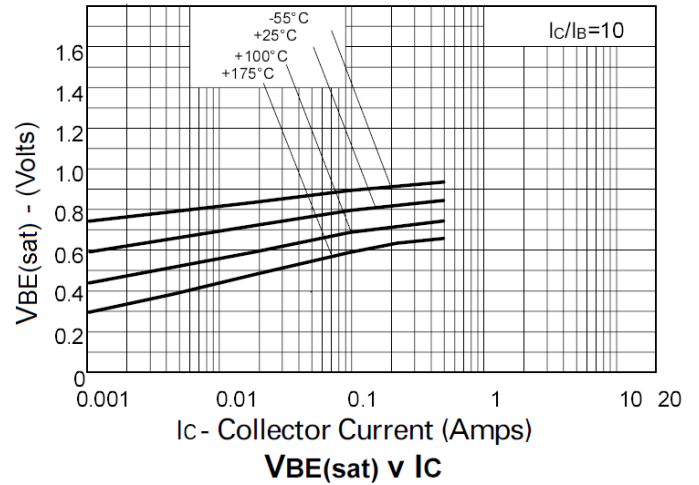
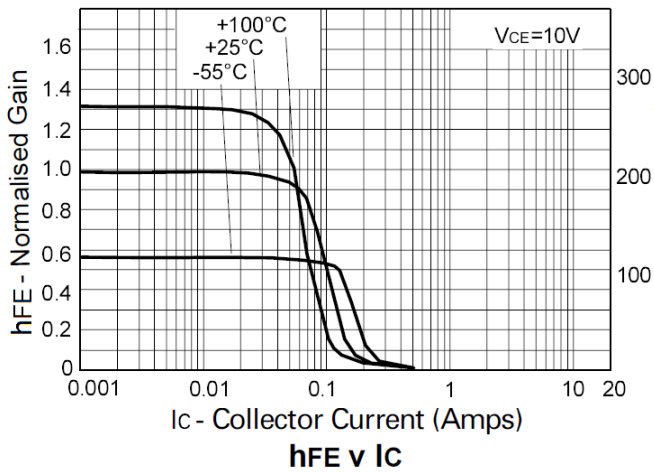
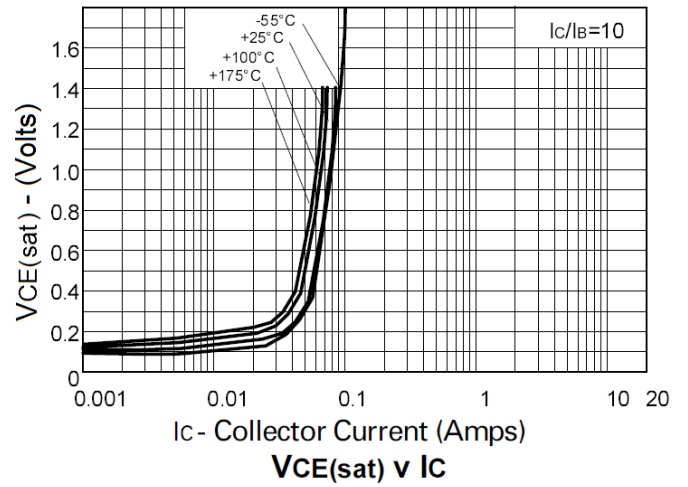
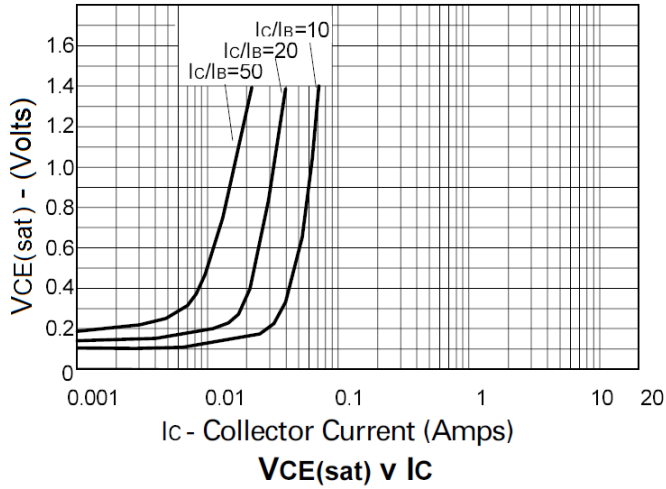


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|----------------------|------------------|-------------|---------------|----------|--|
| Collector-Base Breakdown Voltage | BV _{CBO} | -400 | - | - | V | I _C = -100μA |
| Collector-Emitter Breakdown Voltage (Note 9) | BV _{CEO} | -400 | - | - | V | I _C = -1mA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | -7 | - | - | V | I _E = -100μA |
| Collector Cutoff Current | I _{CBO} | - | - | -100 | nA | V _{CB} = -320V |
| Emitter Cutoff Current | I _{EBO} | - | - | -100 | nA | V _{EB} = -5.6V |
| Collector Emitter Cutoff Current | I _{CES} | - | - | -100 | nA | V _{CE} = -320V |
| Static Forward Current Transfer Ratio (Note 9) | h _{FE} | 100 100 15 | - - - | - 300 - | - | I _C = -1mA, V _{CE} = -10V I _C = -50mA, V _{CE} = -10V I _C = -100mA, V _{CE} = -10V |
| Collector-Emitter Saturation Voltage (Note 9) | V _{CE(sat)} | - - | - - | -200 -500 | mV mV | I _C = -20mA, I _B = -2mA I _C = -50mA, I _B = -6mA |
| Base-Emitter Turn-On Voltage (Note 9) | V _{BE(on)} | - | - | -0.9 | V | I _C = -50mA, V _{CE} = -10V |
| Base-Emitter Saturation Voltage (Note 9) | V _{BE(sat)} | - | - | -0.9 | V | I _C = -50mA, I _B = -5mA |
| Output Capacitance | C _{obo} | - | - | 5 | pF | V _{CB} = -20V, f = 1MHz |
| Transition Frequency | f _T | 50 | - | - | MHz | V _{CE} = -20V, I _C = -10mA, f = 20MHz |
| Turn-On Time | t _{on} | - | 95 | - | ns | V _{CE} = -100V, I _C = -50mA |
| Turn-Off Time | t _{off} | - | 1600 | - | ns | I _{B1} = 5mA, I _{B2} = -10mA |

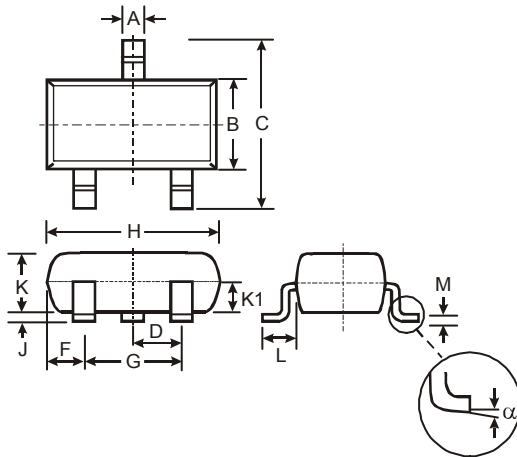
Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

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



Package Outline Dimensions

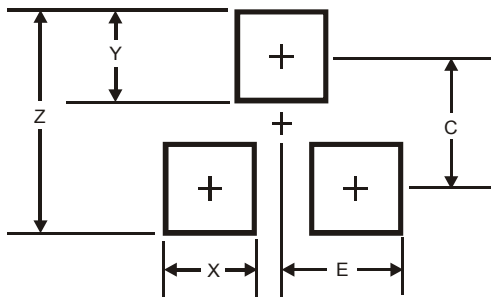
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| SOT23 | | | |
|----------------------|-------|------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.903 | 1.10 | 1.00 |
| K1 | - | - | 0.400 |
| L | 0.45 | 0.61 | 0.55 |
| M | 0.085 | 0.18 | 0.11 |
| α | 0° | 8° | - |
| All Dimensions in mm | | | |

Suggested Pad Layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.9 |
| X | 0.8 |
| Y | 0.9 |
| C | 2.0 |
| E | 1.35 |

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to voltage spacing between terminals.

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