



ZXTP25060BFH

60V PNP MEDIUM POWER TRANSISTOR IN SOT23

Features and Benefits

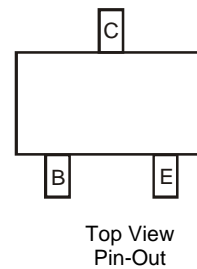
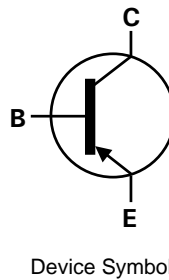
- $BV_{CEO} > -60V$ Breakdown Voltage
- 100V forward blocking voltage
- $I_C = -3A$ Continuous Collector Current,
- $I_{CM} = -9A$ Peak Pulse Current,
- Low saturation voltage, $V_{CE(sat)} < -85mV @ -1A$
- $R_{CE(sat)} = 58 m\Omega$ for a low equivalent on-resistance
- 1.25W power dissipation using SuperSOT package
- Complementary part number ZXTN25060BFH
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, Green Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

Applications

- MOSFET drivers
- Power switches
- Motor control

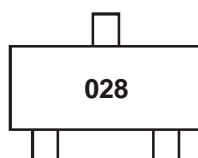


Ordering Information (Note 3)

| Product | Case | Reel size (inches) | Tape width (mm) | Quantity per reel |
|----------------|-------|--------------------|-----------------|-------------------|
| ZXTP25060BFHTA | SOT23 | 7 | 8mm | 3000 |

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" Policy can be found on our website at <http://www.diodes.com>
 3. For packaging details, go to our website at <http://www.diodes.com/>

Marking Information



028 = Product Type Marking Code

ZXTP25060BFH

Maximum Ratings @T_A = 25°C unless otherwise specified

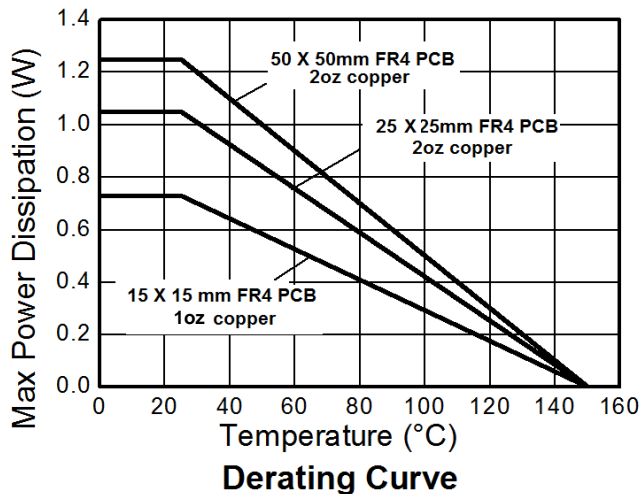
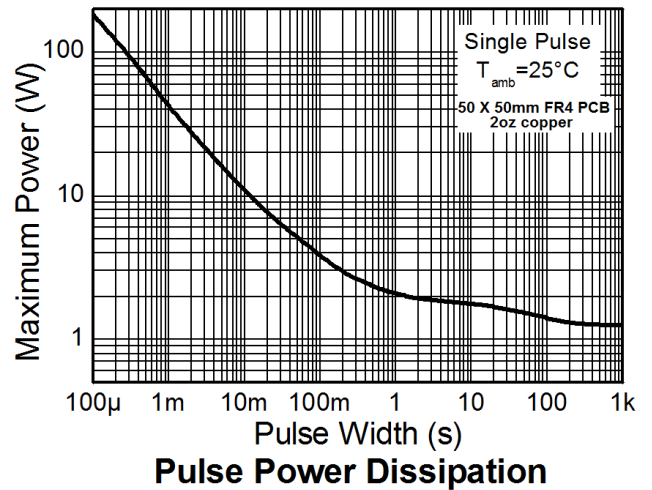
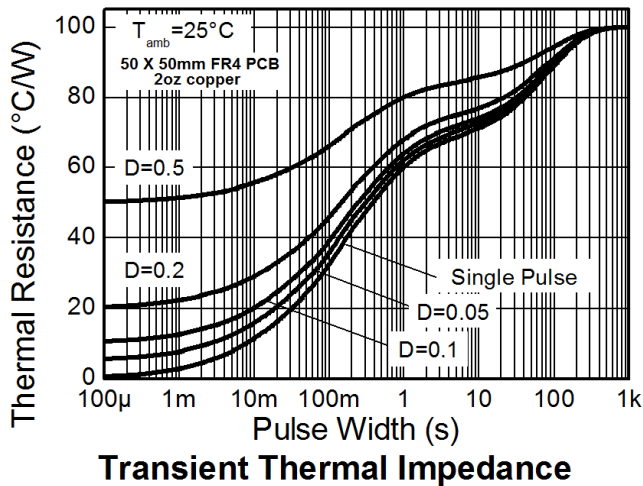
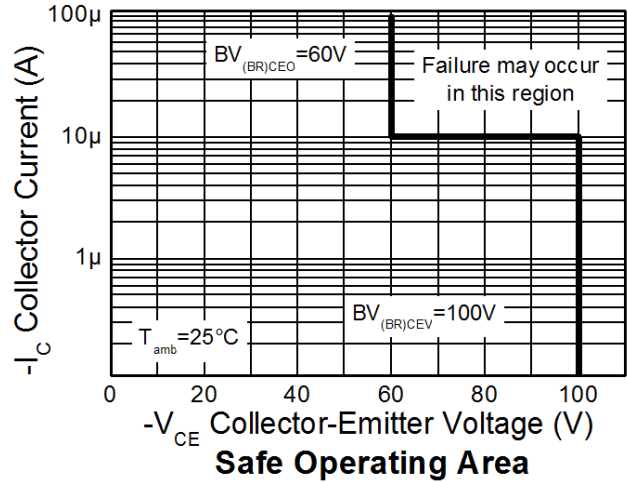
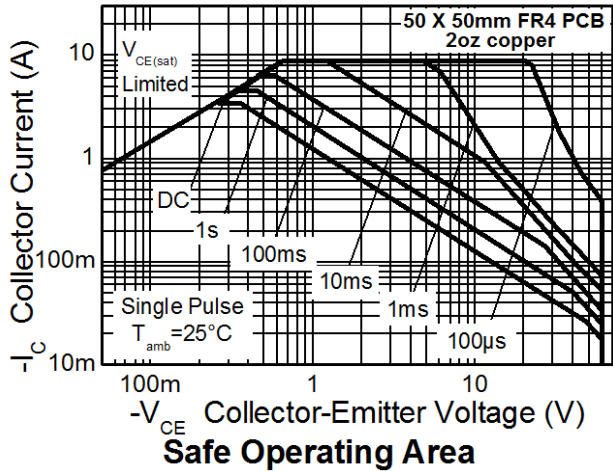
| Characteristic | Symbol | Value | Unit |
|--|------------------|-------|------|
| Collector-Base Voltage | V _{CB0} | -100 | V |
| Collector-Emitter Voltage (forward blocking) | V _{CEx} | -100 | V |
| Collector-Emitter Voltage | V _{CE0} | -60 | V |
| Emitter-Collector Voltage (reverse blocking) | V _{EC0} | -7 | V |
| Emitter-Base Voltage | V _{EBO} | -7 | V |
| Continuous Collector Current | I _C | -3 | A |
| Peak pulse Current | I _{CM} | -9 | A |

Thermal Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation Linear derating factor | P _D | 0.73 | W |
| | | 5.84 | |
| | | 1.05 | |
| | | 8.4 | |
| | | 1.25 | |
| Thermal Resistance, Junction to Ambient | R _{θJA} | 9.6 | °C/W |
| | | 1.81 | |
| | | 14.5 | |
| | | 171 | |
| Thermal Resistance, Junction to Ambient | R _{θJA} | 119 | °C/W |
| | | 100 | |
| | | 69 | |
| | | 74.95 | |
| Thermal Resistance, Junction to Lead | R _{θJL} | 74.95 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

- Notes:
4. For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 5. Same as note (4), except the device is surface mounted on 25mm x 25mm with 2 oz copper.
 6. Same as note (4), except the device is surface mounted on 50mm x 50mm with 2 oz copper.
 7. Same as note (6), except the device is measured at t<5secs.
 8. Thermal resistance from junction to solder-point (at the end of the collector lead).

Thermal Characteristics

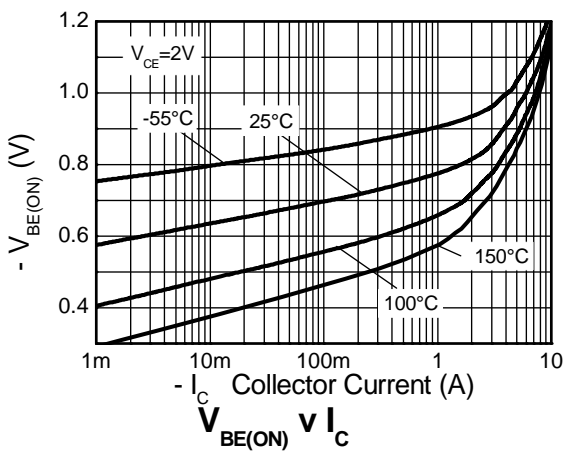
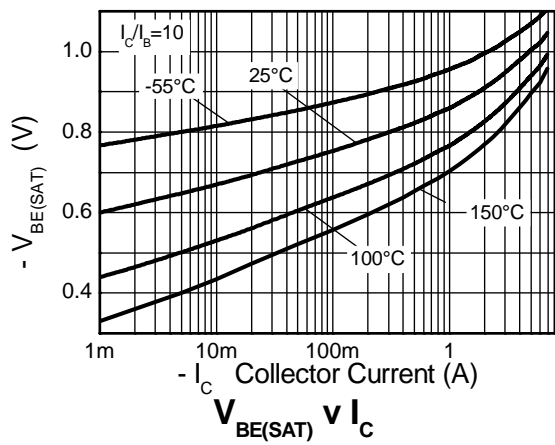
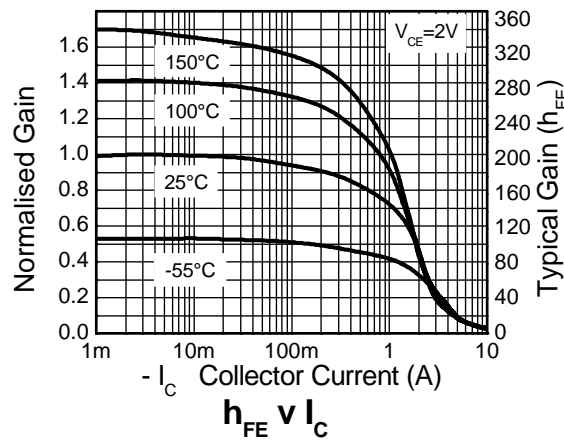
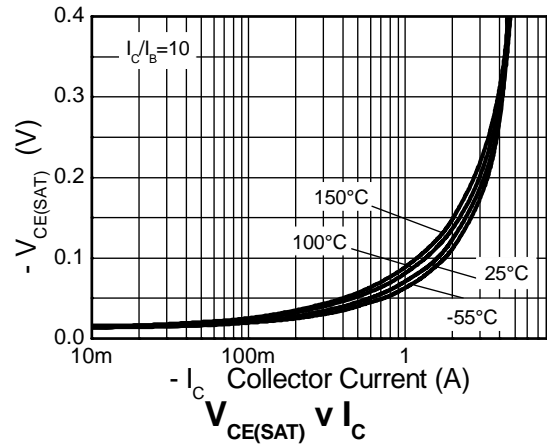
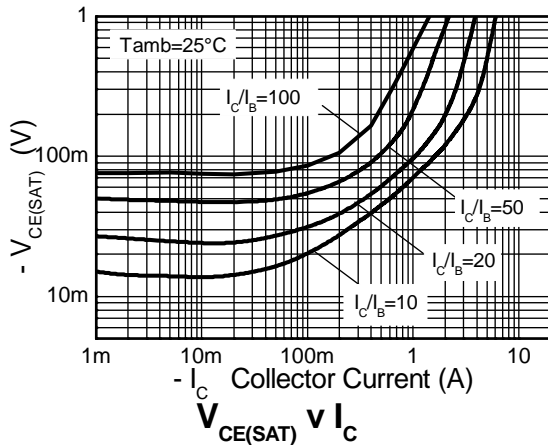


Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|----------------------|------|------|-------|------|---|
| Collector-Base Breakdown Voltage | BV _{CBO} | -100 | -120 | - | V | I _C = -100 μA |
| Collector-Emitter Breakdown Voltage (forward blocking) | BV _{CEX} | -100 | -120 | - | V | I _C = -100 μA, R _{BE} < 1kΩ or -0.25V < V _{BE} < 1V |
| Collector-Emitter Breakdown Voltage (base open) (Note 9) | BV _{CEO} | -60 | -80 | - | V | I _C = -10mA |
| Emitter- Collector Breakdown Voltage (Reverse blocking) (Note 9) | BV _{ECO} | -7 | -8.6 | - | V | I _E = -100μA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | -7 | -8.1 | - | V | I _E = -100μA |
| Collector Cutoff Current | I _{CBO} | - | < -1 | -50 | nA | V _{CB} = -80V |
| | | - | - | -20 | μA | V _{CB} = -80V, T _A = 100°C |
| Collector emitter Cutoff Current | I _{CEX} | - | - | -100 | nA | V _{CE} = -80V, R _{BE} < 1kΩ or -0.25V < V _{BE} < 1V |
| Emitter Cutoff Current | I _{EBO} | - | < -1 | -50 | nA | V _{EB} = -6V |
| Static Forward Current Transfer Ratio (Note 9) | h _{FE} | 100 | 200 | 300 | - | I _C = -10mA, V _{CE} = -2V |
| | | 75 | 150 | - | - | I _C = -1A, V _{CE} = -2V |
| | | 30 | 60 | - | - | I _C = -3A, V _{CE} = -2V |
| Base-Emitter Saturation Voltage (Note 9) | V _{BE(sat)} | - | -940 | -1040 | mV | I _C = -3A, I _B = -300mA |
| Base-Emitter turn-on Voltage (Note 9) | V _{BE(on)} | - | -830 | -930 | mV | I _C = -3A, V _{CE} = -2V |
| Collector-Emitter Saturation Voltage (Note 9) | V _{CE(sat)} | - | -45 | -55 | mV | I _C = -0.5A, I _B = -50mA |
| | | - | -100 | -135 | | I _C = -0.5A, I _B = -10mA |
| | | - | -70 | -85 | | I _C = -1A, I _B = -100mA |
| | | - | -175 | -235 | | I _C = -3A, I _B = -300mA |
| Transition Frequency | f _T | - | 250 | - | MHz | I _C = -100mA, V _{CE} = -5V, f = 100MHz |
| Collector Output Capacitance (Note 9) | C _{OBO} | - | 17.6 | 30 | pF | V _{CB} = -10V, f = 1MHz |
| Turn-on time | t _(on) | - | 26.5 | - | ns | V _{CC} = -10V, I _C = -500mA, |
| Turn-off time | t _(off) | - | 291 | - | ns | I _{B1} = I _{B2} = -50mA |

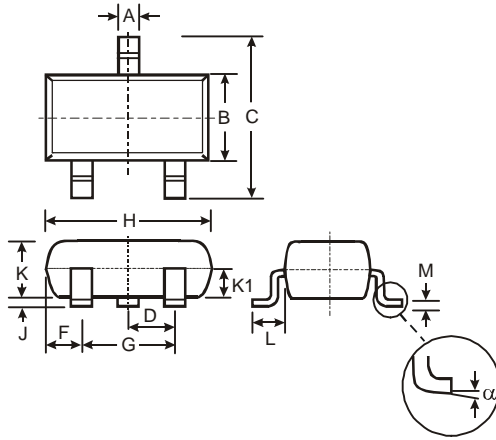
Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

Typical Characteristics



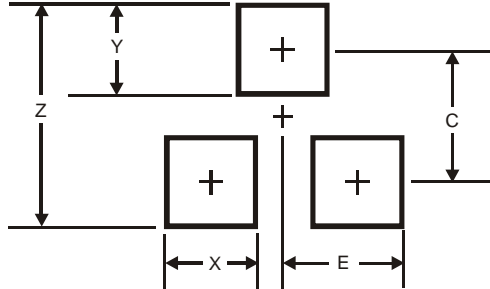
ZXTP25060BFH

Package Outline Dimensions



| 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



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

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