



ZXTP4003Z

100V PNP LED DRIVING TRANSISTOR IN SOT89

Features

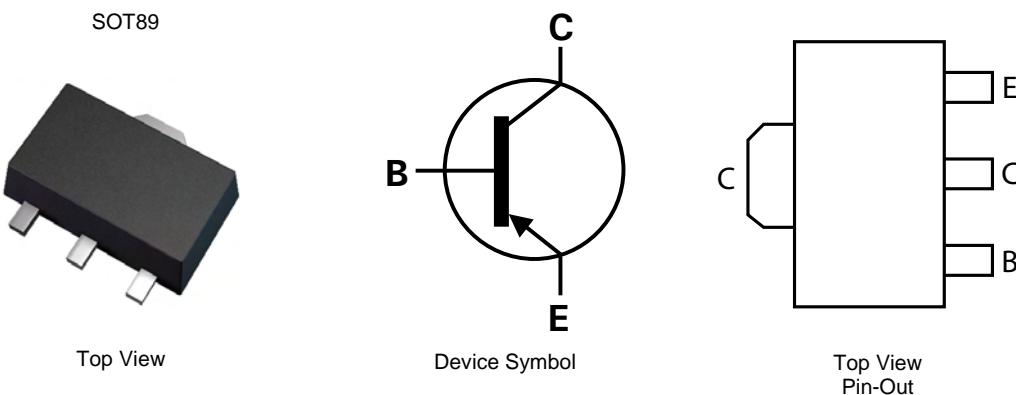
- $BV_{CEO} > -100V$
- Maximum continuous current $I_C = -1A$
- $h_{FE} > 100$ @ $I_C = -150mA$, $V_{CE} = -0.2V$
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: SOT89
- 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: 0.052 grams (Approximate)

Applications

- LED TV backlight



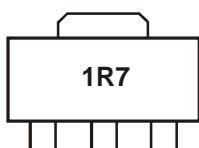
Ordering Information (Note 3)

| Product | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|-------------|---------|--------------------|-----------------|-------------------|
| ZXTP4003ZTA | 1R7 | 7 | 12 | 1000 units |

Notes:

1. No purposefully added lead.
2. "Green" devices, Halogen and Antimony Free, 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



1R7 = Product type Marking Code

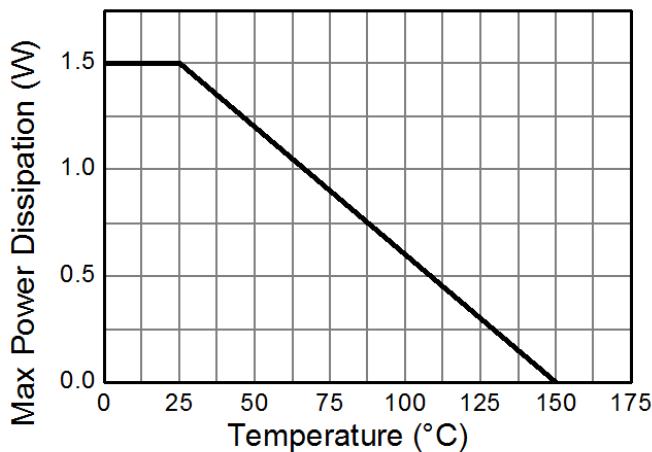
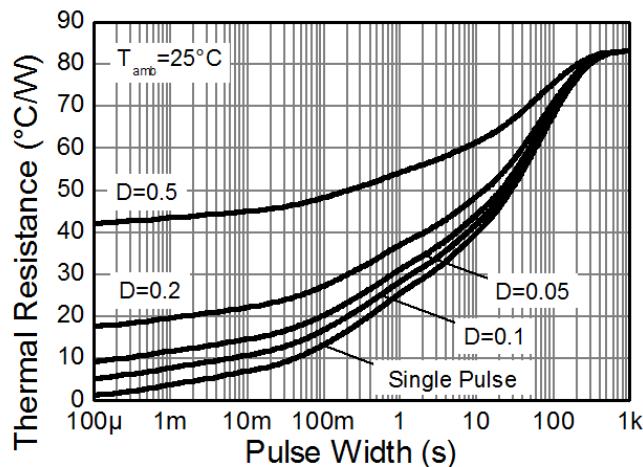
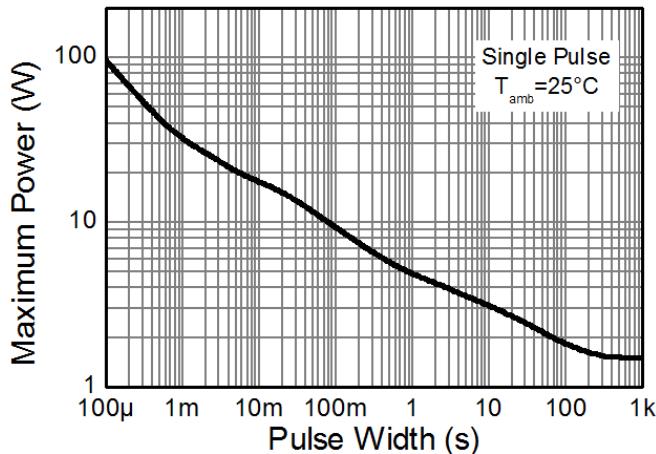
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|------------------------------|-----------|-------|------|
| Collector-Base Voltage | V_{CBO} | -100 | V |
| Collector-Emitter Voltage | V_{CEO} | -100 | V |
| Emitter-Base Voltage | V_{EBO} | -7 | V |
| Continuous Collector Current | I_C | -1 | A |
| Peak Pulse Current (Note 4) | I_{CM} | -3 | A |
| Base Current | I_B | -500 | mA |

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|------|
| Power Dissipation (Note 5) | P_D | 1.5 | W |
| Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 83 | °C/W |
| Thermal Resistance, Junction to Leads (Note 6) | $R_{\theta JL}$ | 17.46 | °C/W |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | °C |

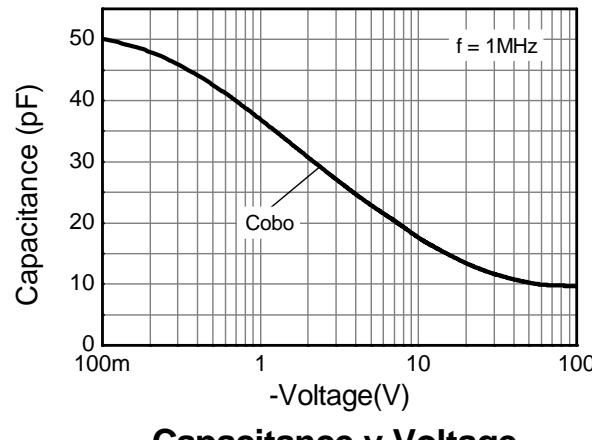
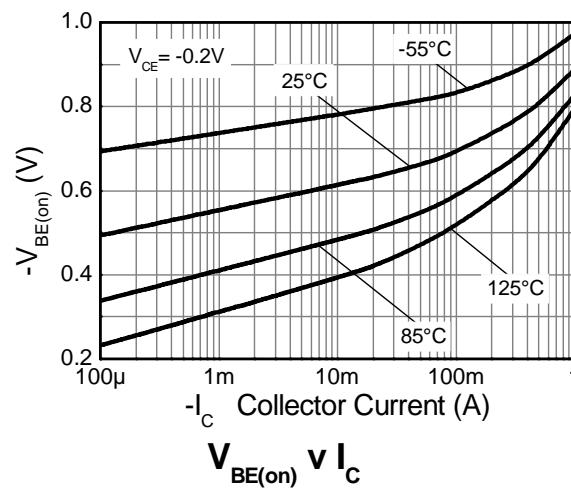
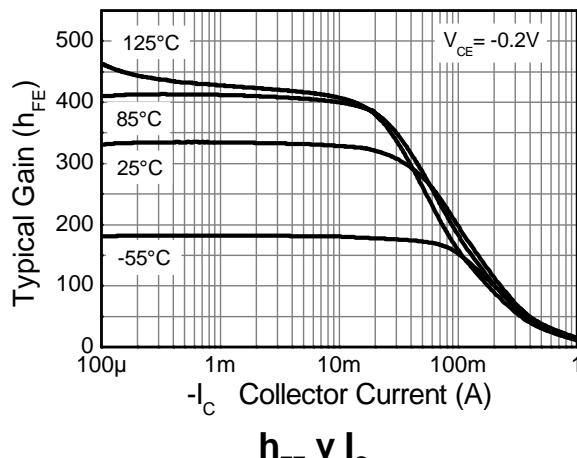
Notes: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle $\leq 2\%$.
 5. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
 6. Thermal resistance from junction to solder-point (on the exposed collector pad).

Thermal Characteristics and Derating Information

Derating Curve

Transient Thermal Impedance

Pulse Power Dissipation

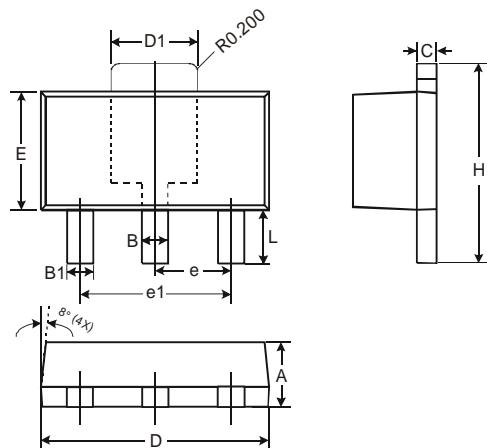
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|----------------------------|-----------|------------|-------|------|--|
| Collector-Emitter Breakdown Voltage (Note 7) | BV_{CEO} | -100 | -170 | - | V | $I_C = -10\text{mA}$ |
| Collector Cut-off Current | I_{CBO} | - | - | -50 | nA | $V_{\text{CB}} = -100\text{V}$ |
| Emitter Cut-off Current | I_{EBO} | - | - | -50 | nA | $V_{\text{EB}} = -7\text{V}$ |
| Static Forward Current Transfer Ratio (Note 7) | h_{FE} | 60 100 | 133 112 | - | - | $I_C = -85\text{mA}, V_{\text{CE}} = -0.15\text{V}$ $I_C = -150\text{mA}, V_{\text{CE}} = -0.2\text{V}$ |
| Base-Emitter Turn-On Voltage (Note 7) | $V_{\text{BE}(\text{on})}$ | - | -0.71 | -0.95 | V | $I_C = -150\text{mA}, V_{\text{CE}} = -0.2\text{V}$ |
| Delay Time | $t_{(\text{d})}$ | - | 378 | - | ns | $V_{\text{CC}} = -80\text{V}, I_C = -150\text{mA}, f_{\text{IB2}} = 1.5\text{mA}, V_{\text{CE}(\text{ON})} = -0.2\text{V}$ |
| Rise Time | $t_{(\text{r})}$ | - | 388 | - | ns | |
| Storage Time | $t_{(\text{s})}$ | - | 1348 | - | ns | |
| Fall Time | $t_{(\text{f})}$ | - | 382 | - | ns | |
| Storage Time | $t_{(\text{s})}$ | - | 75 | - | ns | |
| Fall Time | $t_{(\text{f})}$ | - | 363 | - | ns | $V_{\text{CC}} = -80\text{V}, I_C = -150\text{mA}, f_{\text{IB2}} = 1.5\text{mA}, V_{\text{CE}(\text{ON})} = -4\text{V}$ |

Notes: 7. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$

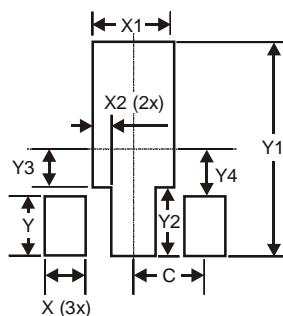
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified


Package Outline Dimensions



| SOT89 | | |
|----------------------|----------|------|
| Dim | Min | Max |
| A | 1.40 | 1.60 |
| B | 0.44 | 0.62 |
| B1 | 0.35 | 0.54 |
| C | 0.35 | 0.43 |
| D | 4.40 | 4.60 |
| D1 | 1.52 | 1.83 |
| E | 2.29 | 2.60 |
| e | 1.50 Typ | |
| e1 | 3.00 Typ | |
| H | 3.94 | 4.25 |
| L | 0.89 | 1.20 |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| X | 0.900 |
| X1 | 1.733 |
| X2 | 0.416 |
| Y | 1.300 |
| Y1 | 4.600 |
| Y2 | 1.475 |
| Y3 | 0.950 |
| Y4 | 1.125 |
| C | 1.500 |

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