

**ZXTP4003G**

**100V PNP LED DRIVING TRANSISTOR IN SOT223**

**Features**

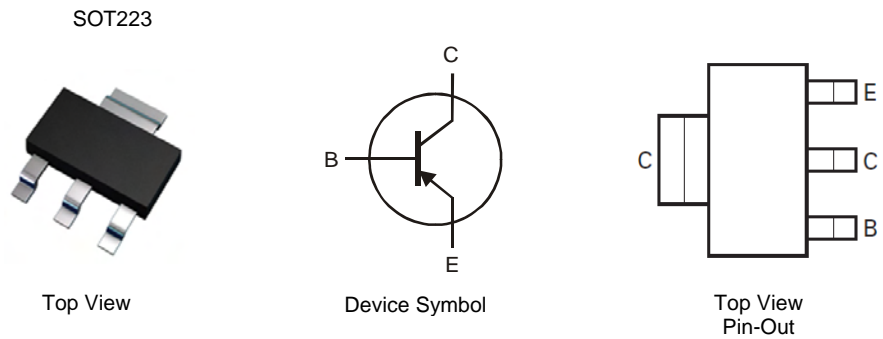
- $BV_{CEO} > -100V$
- Maximum continuous current  $I_C = -1A$
- $h_{FE} > 100 @ I_C = -150mA, V_{CE} = -0.2V$
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Applications**

- LED TV backlight

**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: Matte Tin Finish
- Weight: 0.112 grams (Approximate)

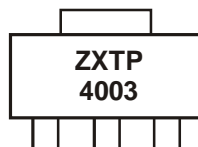


**Ordering Information**

| Product     | Marking  | Reel size (inches) | Tape width (mm) | Quantity per reel |
|-------------|----------|--------------------|-----------------|-------------------|
| ZXTP4003GTA | ZXTP4003 | 7                  | 12              | 1,000             |

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>

**Marking Information**



ZXTP4003 = Product type Marking Code

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

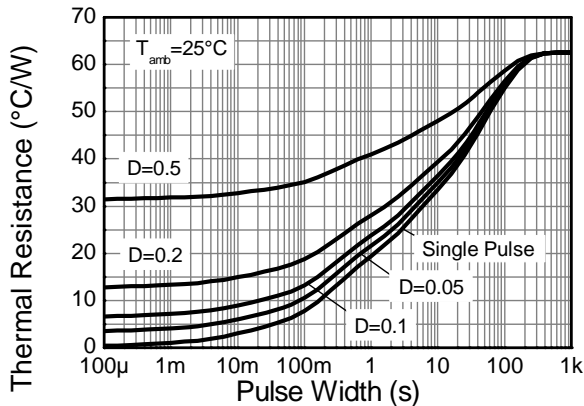
| Characteristic               | Symbol           | Value | Unit |
|------------------------------|------------------|-------|------|
| Collector-Base Voltage       | V <sub>CB0</sub> | -100  | V    |
| Collector-Emitter Voltage    | V <sub>CEO</sub> | -100  | V    |
| Emitter-Base Voltage         | V <sub>EBO</sub> | -7    | V    |
| Continuous Collector Current | I <sub>C</sub>   | -1    | A    |
| Peak Pulse Current (Note 4)  | I <sub>CM</sub>  | -3    | A    |
| Base Current                 | I <sub>B</sub>   | -500  | mA   |

**Thermal Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

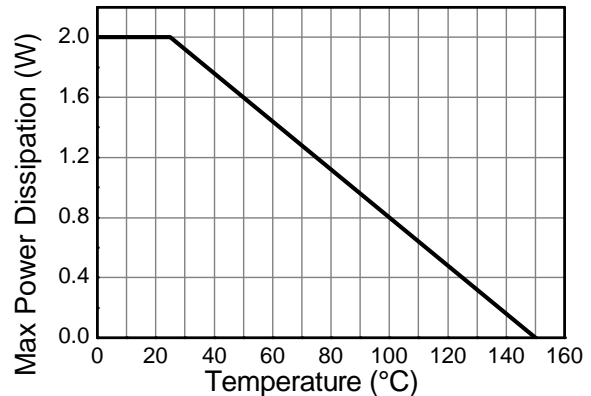
| Characteristic                                   | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 3)                       | P <sub>D</sub>                    | 2           | W    |
| Thermal Resistance, Junction to Ambient (Note 3) | R <sub>θJA</sub>                  | 62.5        | °C/W |
| Thermal Resistance, Junction to Leads (Note 5)   | R <sub>θJL</sub>                  | 28.75       | °C/W |
| Operating and Storage Temperature Range          | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

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

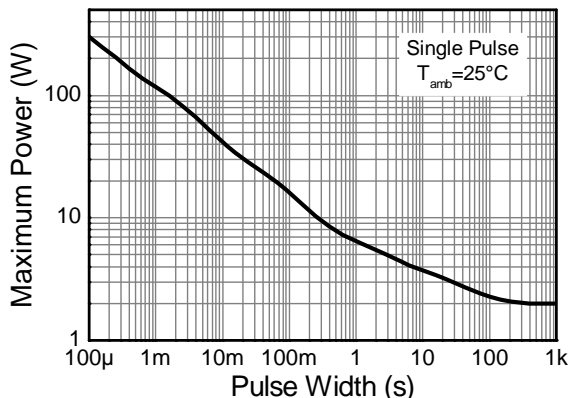
**Thermal Characteristics and Derating Information**



**Transient Thermal Impedance**



**Derating Curve**



**Pulse Power Dissipation**

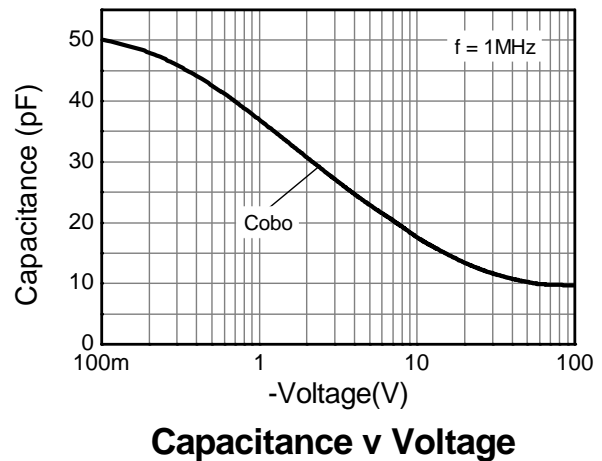
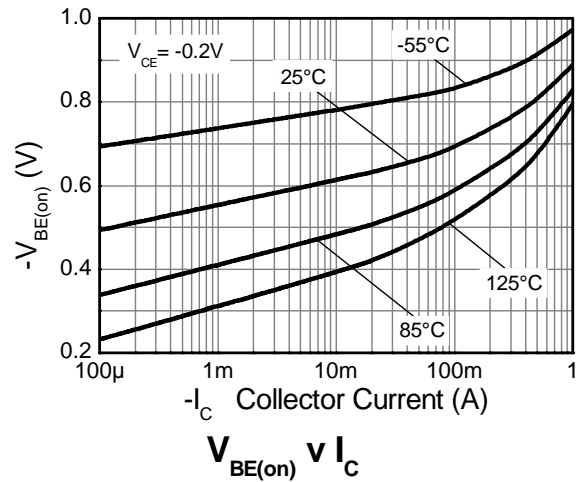
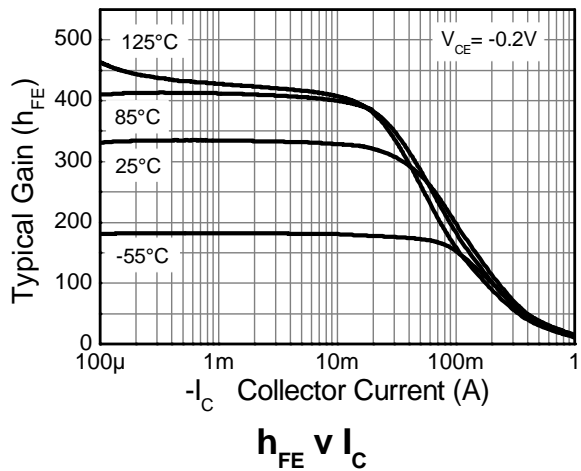
**ZXTP4003G**

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                 | Symbol              | Min       | Typ        | Max    | Unit | Test Condition  |
|--|---------------------|-----------|------------|--------|------|---|
| Collector-Emitter Breakdown Voltage (Note 6)   | BV <sub>CEO</sub>   | -100      | -170       | -      | V    | I <sub>C</sub> = -10mA  |
| Collector Cut-off Current                      | I <sub>CBO</sub>    | -         | -          | -50    | nA   | V <sub>CB</sub> = -100V   |
| Emitter Cut-off Current                        | I <sub>EBO</sub>    | -         | -          | -50    | nA   | V <sub>EB</sub> = -7V   |
| Static Forward Current Transfer Ratio (Note 6) | h <sub>FE</sub>     | 60<br>100 | 133<br>112 | -<br>- | -    | I <sub>C</sub> = -85mA, V <sub>CE</sub> = -0.15V<br>I <sub>C</sub> = -150mA, V <sub>CE</sub> = -0.2V      |
| Base-Emitter Turn-On Voltage (Note 6)          | V <sub>BE(on)</sub> | -         | -0.71      | -0.95  | V    | I <sub>C</sub> = -150mA, V <sub>CE</sub> = -0.2V  |
| Delay Time                                     | t <sub>(d)</sub>    | -         | 378        | -      | ns   | V <sub>CC</sub> = -80V, I <sub>C</sub> = -150mA,<br>-I <sub>B2</sub> = 1.5mA, V <sub>CE(ON)</sub> = -0.2V |
| Rise Time                                      | t <sub>(r)</sub>    | -         | 388        | -      | ns   |   |
| Storage Time                                   | t <sub>(s)</sub>    | -         | 1348       | -      | ns   |   |
| Fall Time                                      | t <sub>(f)</sub>    | -         | 382        | -      | ns   | V <sub>CC</sub> = -80V, I <sub>C</sub> = -150mA,<br>-I <sub>B2</sub> = 1.5mA, V <sub>CE(ON)</sub> = -4V   |
| Storage Time                                   | t <sub>(s)</sub>    | -         | 75         | -      | ns   |   |
| Fall Time                                      | t <sub>(f)</sub>    | -         | 363        | -      | ns   |   |

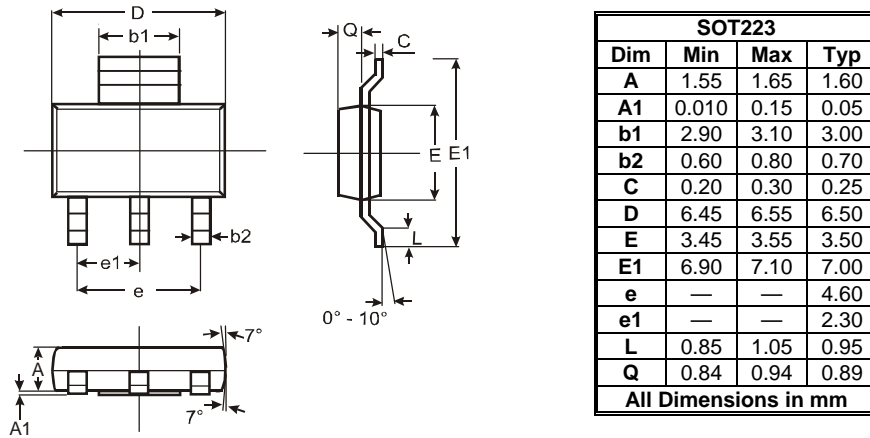
Notes: 6. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

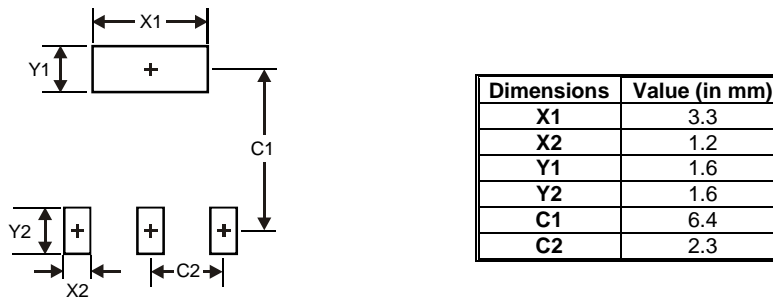


**ZXTP4003G**

**Package Outline Dimensions**



**Suggested Pad Layout**



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