

**ZXTP4003G**

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

**Features**

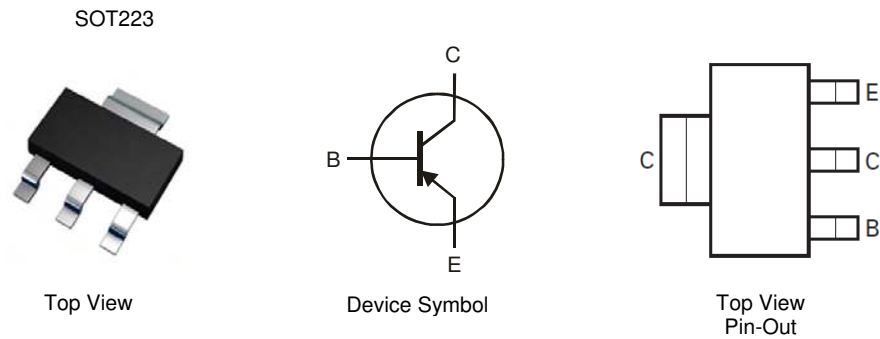
- $BV_{CEO} > -100V$
- Maximum continuous current  $I_C = -1A$
- $h_{FE} > 100 @ I_C = -150mA, V_{CE} = -0.2V$
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**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)

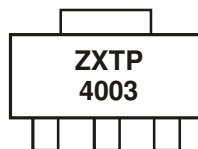


**Ordering Information**

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

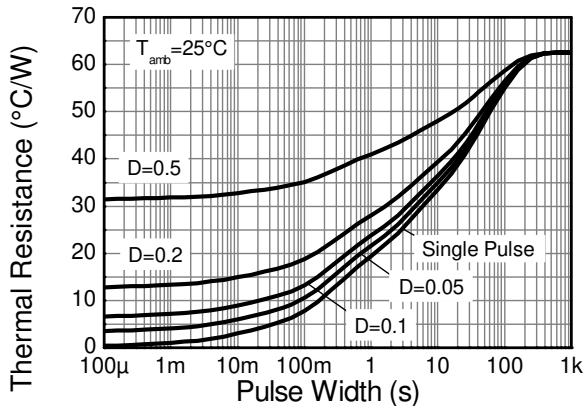
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-100	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-1	A
Peak Pulse Current (Note 4)	I <sub>CM</sub>	-3	A
Base Current	I <sub>B</sub>	-500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

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

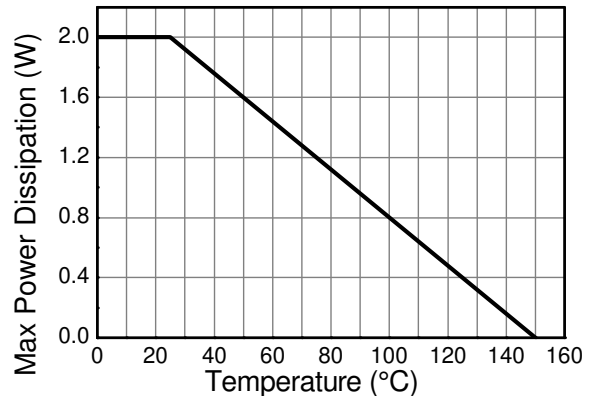
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P <sub>D</sub>	2	W
Thermal Resistance, Junction to Ambient (Note 3)	R <sub>θJA</sub>	62.5	°C/W
Thermal Resistance, Junction to Leads (Note 5)	R <sub>θJL</sub>	28.75	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>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

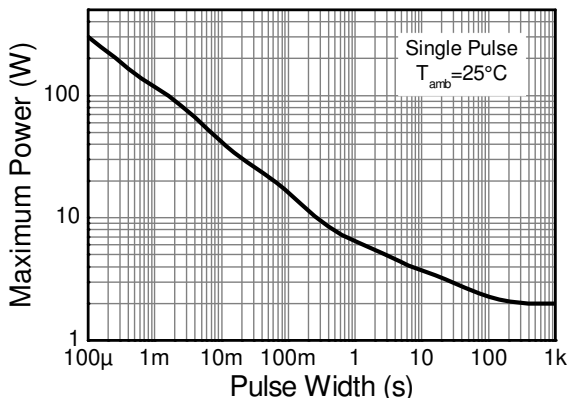
**Thermal Characteristics and Derating Information**



**Transient Thermal Impedance**



**Derating Curve**



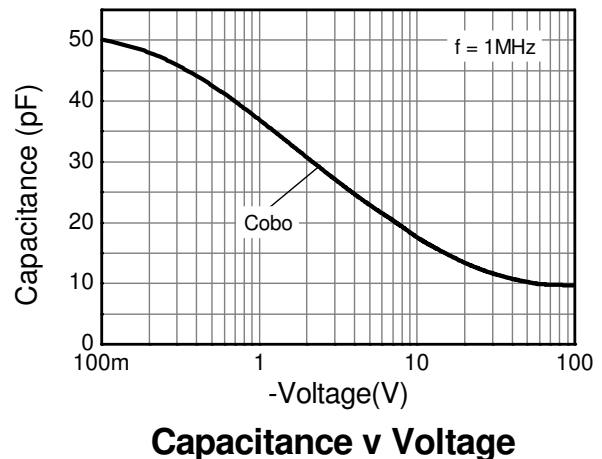
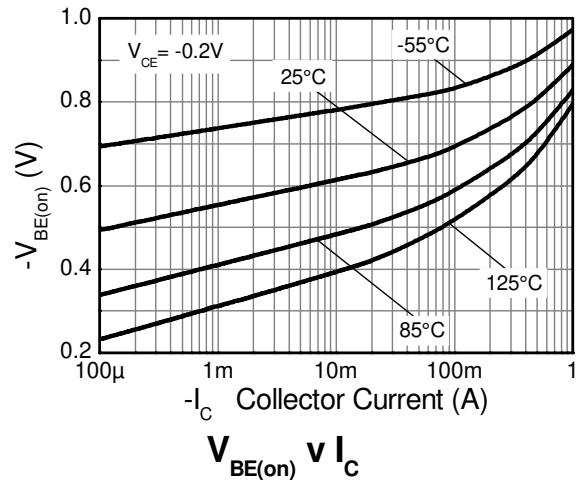
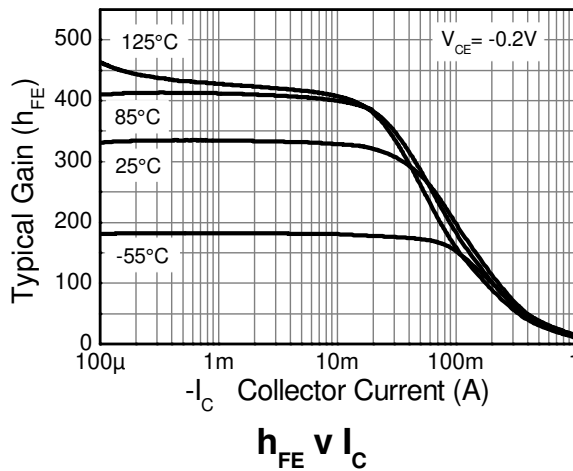
**Pulse Power Dissipation**

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

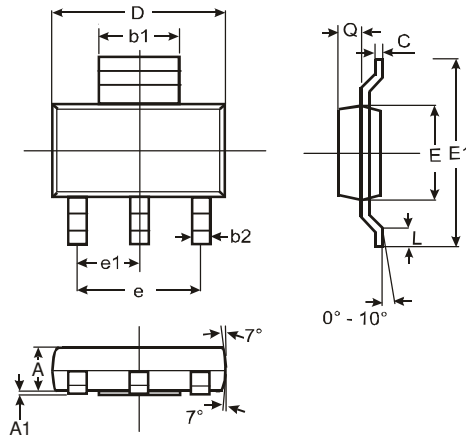
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage (Note 6)	BV <sub>CEO</sub>	-100	-170	-	V	I <sub>C</sub> = -10mA
Collector Cut-off Current	I <sub>CBO</sub>	-	-	-50	nA	V <sub>CB</sub> = -100V
Emitter Cut-off Current	I <sub>EBO</sub>	-	-	-50	nA	V <sub>EB</sub> = -7V
Static Forward Current Transfer Ratio (Note 6)	h <sub>FE</sub>	60 100	133 112	- -	-	I <sub>C</sub> = -85mA, V <sub>CE</sub> = -0.15V 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, -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, -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

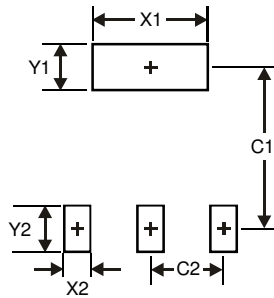


**Package Outline Dimensions**



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	4.60
e1	—	—	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
X1	3.3
X2	1.2
Y1	1.6
Y2	1.6
C1	6.4
C2	2.3

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