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**

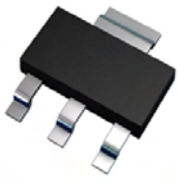
Mechanical Data

- 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)

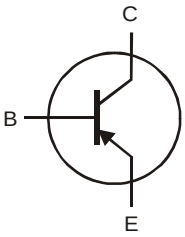
Applications

- LED TV backlight

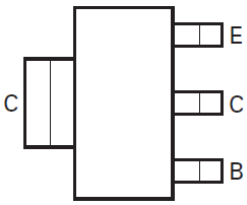
SOT223



Top View



Device Symbol



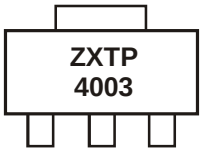
Top View
Pin-Out

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_A = 25°C unless otherwise specified

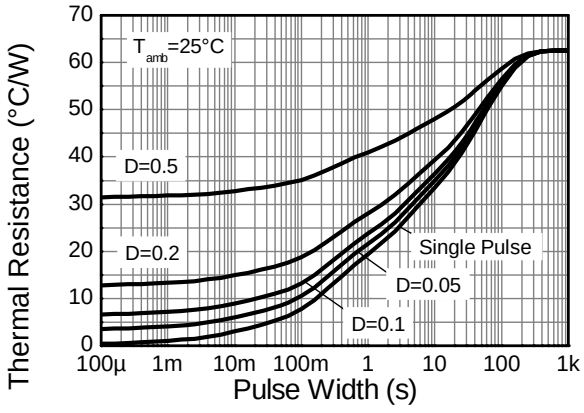
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-100	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-1	A
Peak Pulse Current (Note 4)	I_{CM}	-3	A
Base Current	I_B	-500	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

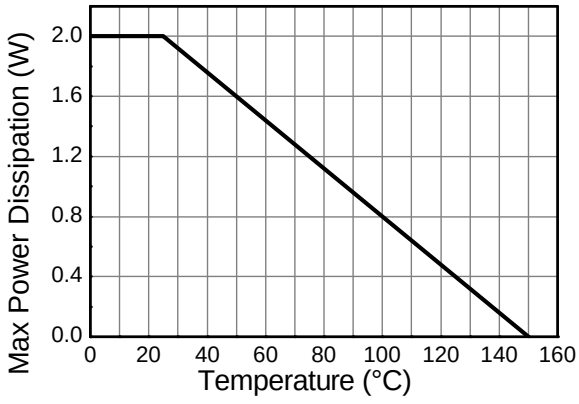
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P_D	2	W
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance, Junction to Leads (Note 5)	$R_{\theta JL}$	28.75	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 3. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
4. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%.
5. Thermal resistance from junction to solder-point (on the exposed collector pad).

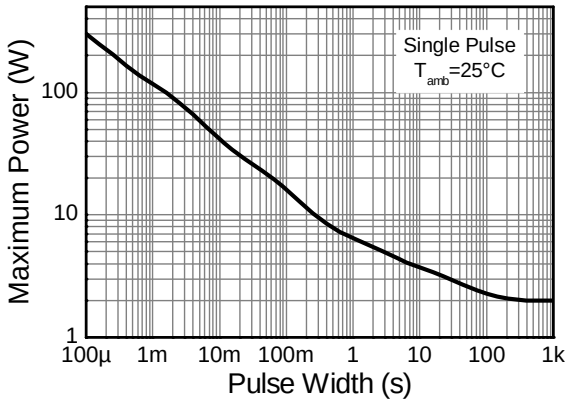
Thermal Characteristics and Derating Information



Transient Thermal Impedance



Derating Curve



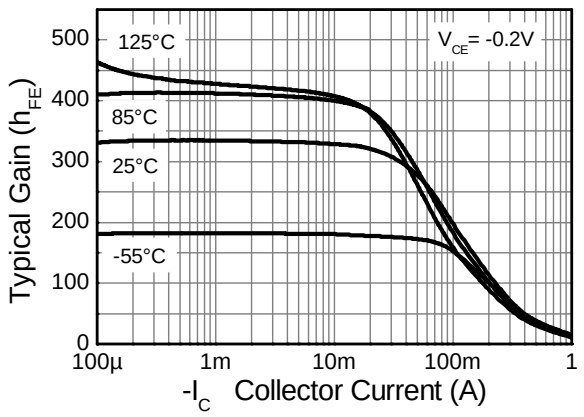
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

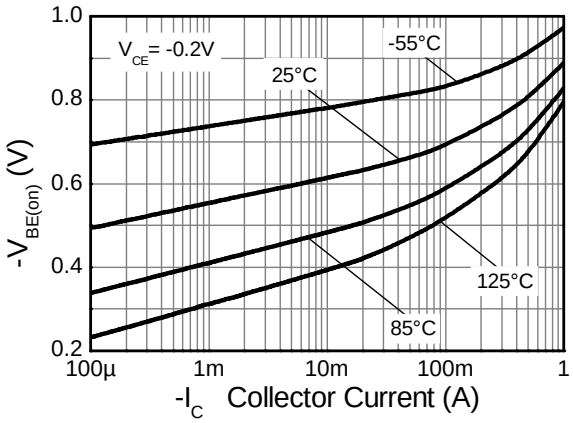
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	-100	-170	-	V	I_C = -10mA
Collector Cut-off Current	I_{CBO}	-	-	-50	nA	V_{CB} = -100V
Emitter Cut-off Current	I_{EBO}	-	-	-50	nA	V_{EB} = -7V
Static Forward Current Transfer Ratio (Note 6)	h_{FE}	60 100	133 112	- -	-	I_C = -85mA, V_{CE} = -0.15V I_C = -150mA, V_{CE} = -0.2V
Base-Emitter Turn-On Voltage (Note 6)	$V_{BE(on)}$	-	-0.71	-0.95	V	I_C = -150mA, V_{CE} = -0.2V
Delay Time	$t_{(d)}$	-	378	-	ns	V_{CC} = -80V, I_C = -150mA, $-I_{B2}$ = 1.5mA, $V_{CE(ON)}$ = -0.2V
Rise Time	$t_{(r)}$	-	388	-	ns	
Storage Time	$t_{(s)}$	-	1348	-	ns	
Fall Time	$t_{(f)}$	-	382	-	ns	
Storage Time	$t_{(s)}$	-	75	-	ns	V_{CC} = -80V, I_C = -150mA, $-I_{B2}$ = 1.5mA, $V_{CE(ON)}$ = -4V
Fall Time	$t_{(f)}$	-	363	-	ns	

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

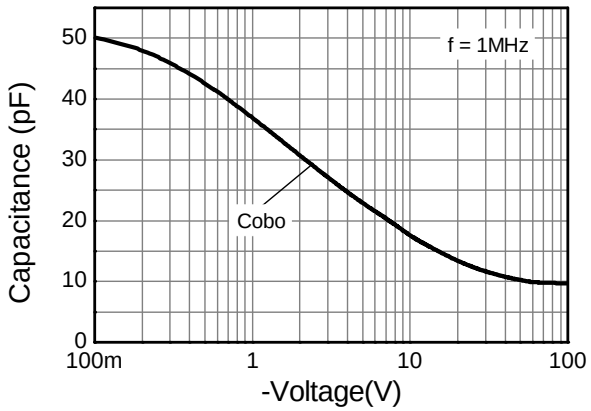
Electrical Characteristics @T_A = 25°C unless otherwise specified



h_{FE} v I_C

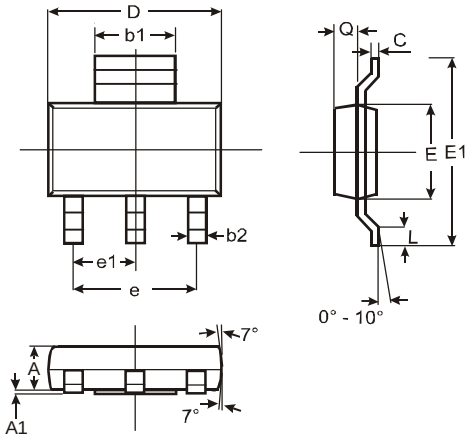


$V_{BE(on)}$ v I_C



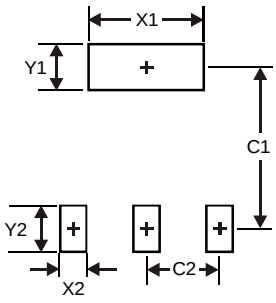
Capacitance v Voltage

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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