



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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ZXTN4002Z

100V NPN LED DRIVING TRANSISTOR IN SOT89

Features

- $BV_{CEO} > 100V$
- Max continuous current $I_C (cont) = 1A$
- $h_{FE} > 100 @ I_C = 150mA, V_{CE} = 200mV$
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

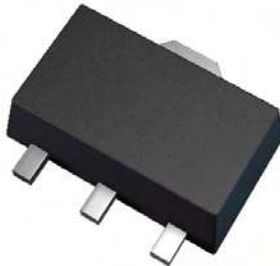
Applications

LED TV backlight

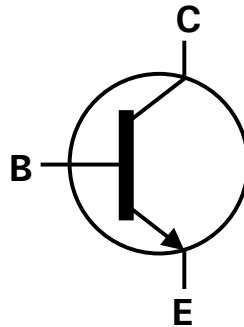
Mechanical Data

- Case: 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)

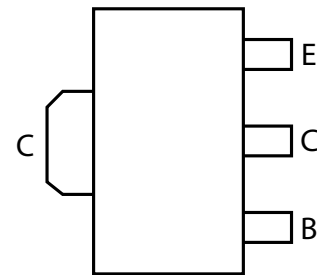
SOT89



Top View



Device symbol



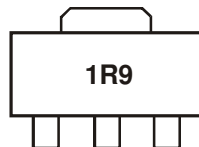
Top View
Pin Out

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN4002ZTA	1R9	7	12mm embossed	1000 units

- 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



1R9 = Product type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

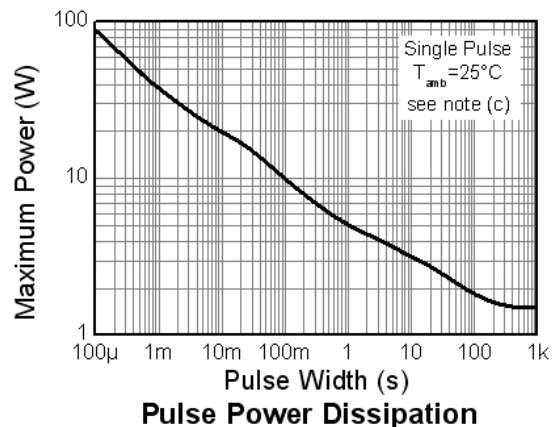
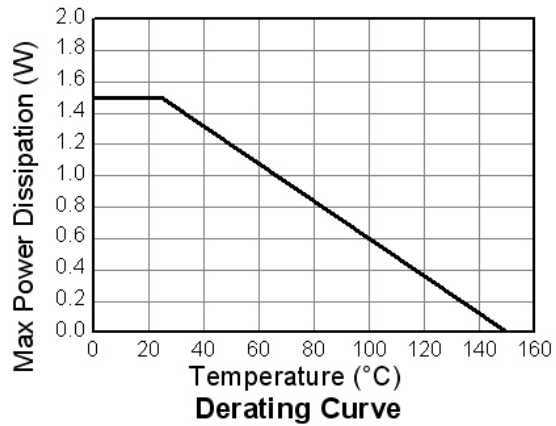
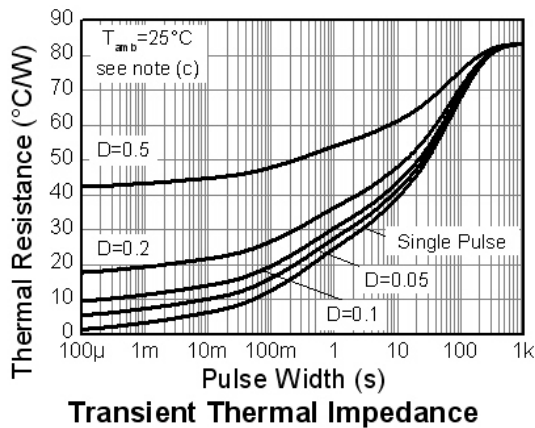
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	100	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	1	A
Peak Pulse Current (Note 4)	I _{CM}	3	A
Base Current	I _B	500	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	83	°C/W
Thermal Resistance, Junction to Leads (Note 6)	R _{θJL}	22.44	°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 ≤ 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 (at the end of the collector lead).

Thermal Characteristics and Derating information

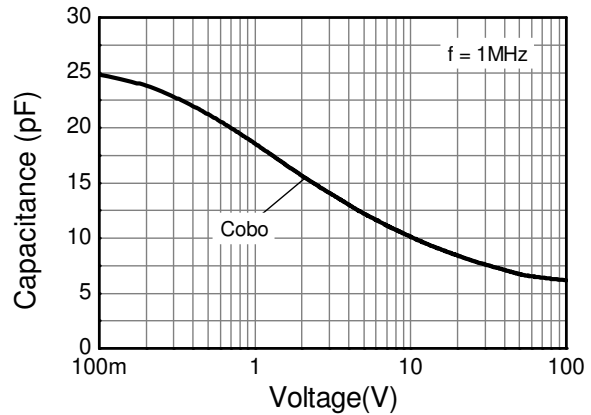
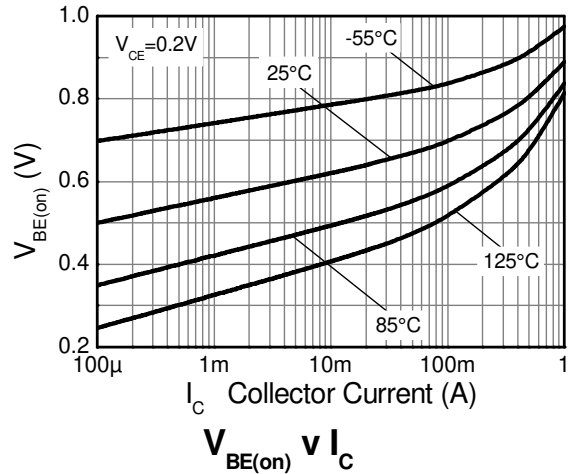
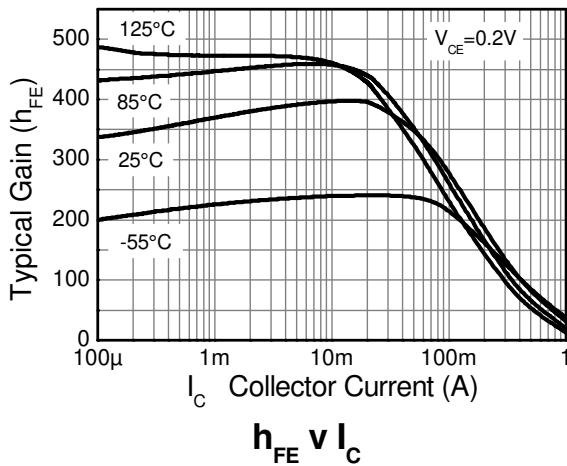


Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	100	-	-	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 7)	BV _{CEO}	100	-	-	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	7	8.3	-	V	I _E = 100μA
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 7)	h _{FE}	60	-	-	-	I _C = 85mA, V _{CE} = 0.15V
		100	-	-	-	I _C = 150mA, V _{CE} = 0.2V
Base-Emitter Turn-On Voltage (Note 7)	V _{BE(on)}	-	0.72	0.95	V	I _C = 150mA, V _{CE} = 0.2V
Delay Time	t _(d)	-	468	-	ns	V _{CC} = 80V, I _C = 150mA, -I _{B2} = 1.5mA, V _{CE(ON)} = 0.2V
Rise Time	t _(r)	-	441	-	ns	
Storage Time	t _(s)	-	1540	-	ns	
Fall Time	t _(f)	-	251	-	ns	V _{CC} = 80V, I _C = 150mA, -I _{B2} = 1.5mA, V _{CE(ON)} = 4V
Storage Time	t _(s)	-	22	-	ns	
Fall Time	t _(f)	-	204	-	ns	

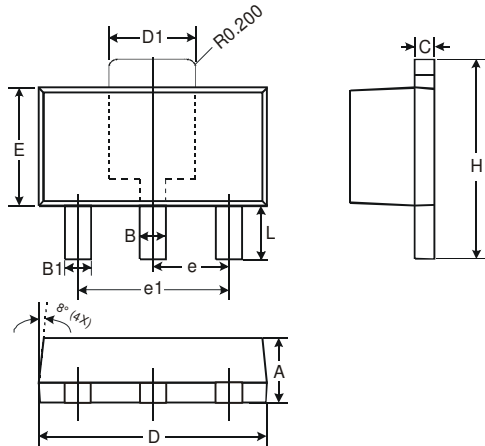
Notes: 7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%

Electrical Characteristics @T_A = 25°C unless otherwise specified



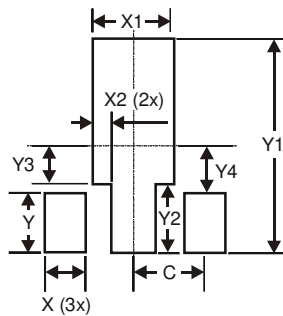
Capacitance v Voltage

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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