

**25V PNP LOW SATURATION TRANSISTOR IN SOT23**

**Features**

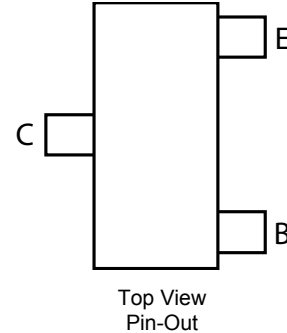
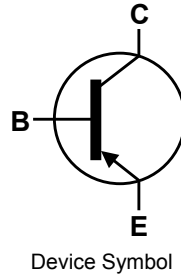
- $BV_{CEO} > -25V$
- $BV_{CEO} > -35V$  forward blocking voltage
- $I_C = -3A$  Continuous Collector Current
- Low Saturation Voltage,  $V_{CE(SAT)} < -150mV @ -1A$ .
- $R_{CE(sat)} = 87m\Omega$  for a low equivalent on-resistance
- 725mW power dissipation
- $h_{FE}$  characterised up to -6A for high current hold-up
- Complementary NPN Type: ZXTN649F
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: SOT23
- Case Material: molded plastic, "Green" molding compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 **e3**
- Weight 0.008 grams (approximate)

**Application**

- MOSFET gate drivers
- Power switching in automotive and industrial applications
- Motor drive and control

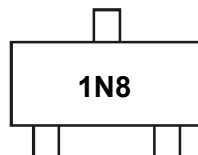


**Ordering Information** (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP749FTA	1N8	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See <http://www.diodes.com> for more information about Diodes Incorporated's definitions of Halogen and Antimony free, "Green" and Lead-Free.
  3. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com>

**Marking Information**



1N8 = Product type Marking Code

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

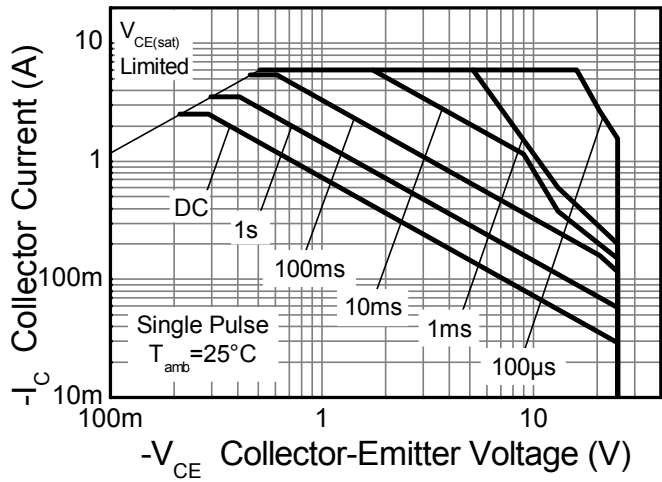
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-35	V
Collector-Emitter Voltage	$V_{CEO}$	-25	V
Emitter-Base Voltage	$V_{EBO}$	-7	V
Continuous Collector Current	$I_C$	-3	A
Peak Pulse Current	$I_{CM}$	-6	A
Base Current	$I_B$	-500	mA

**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

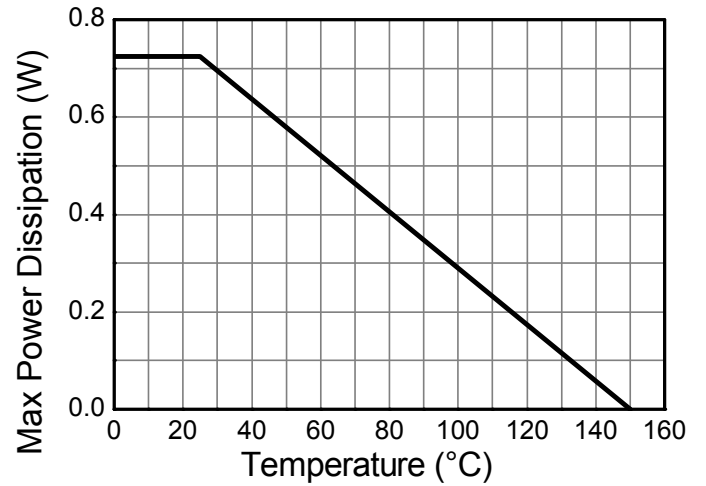
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	725	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	172	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	79	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
5. For a device surface mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
  6. Thermal resistance from junction to solder-point (at the end of the collector lead).

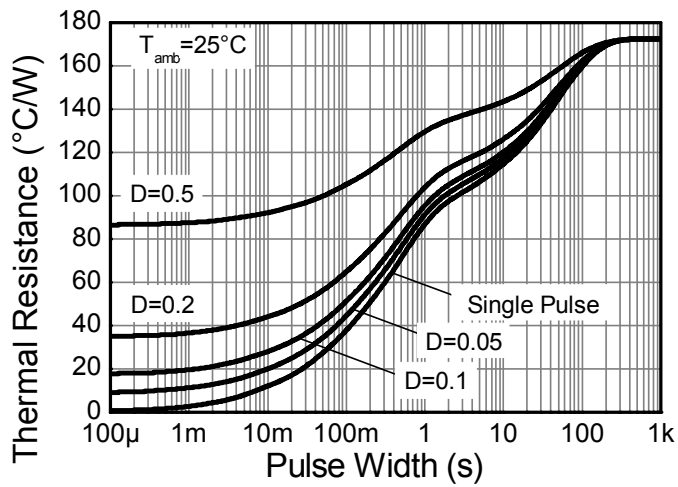
**Thermal Characteristics and Derating information**



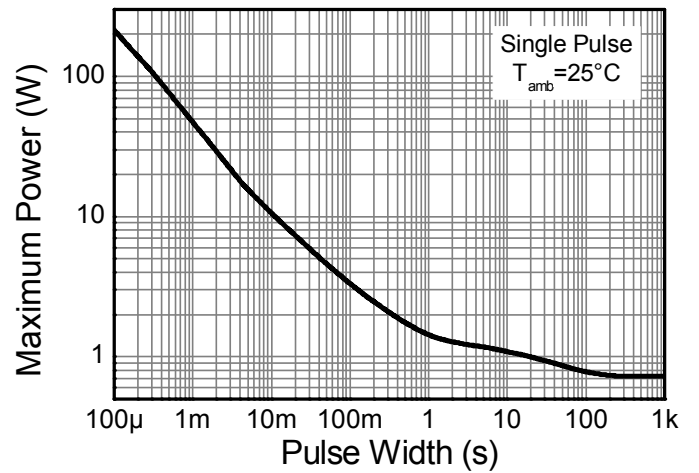
**Safe Operating Area**



**Derating Curve**



**Transient Thermal Impedance**



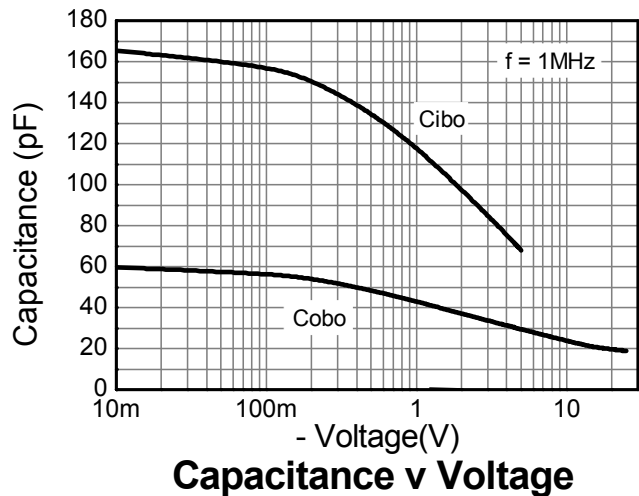
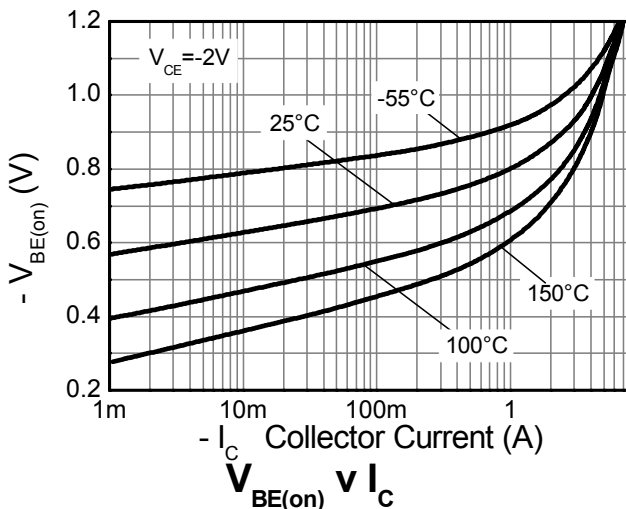
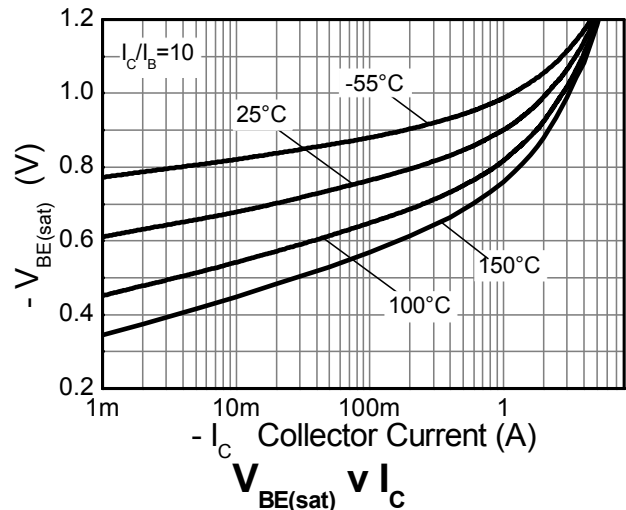
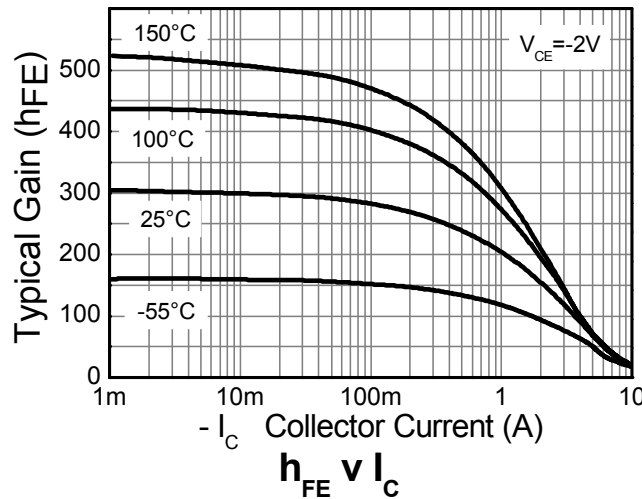
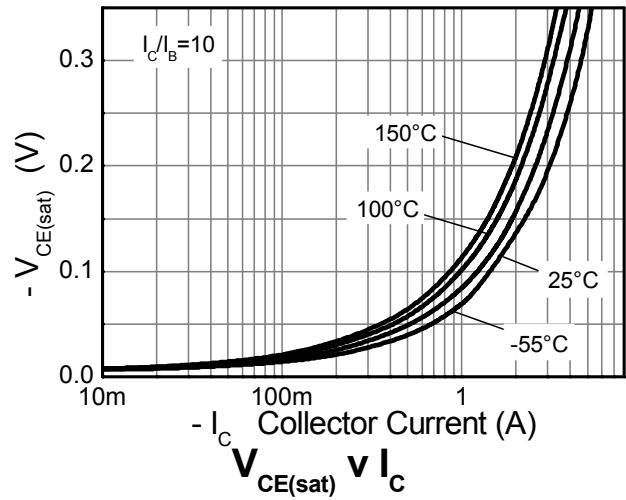
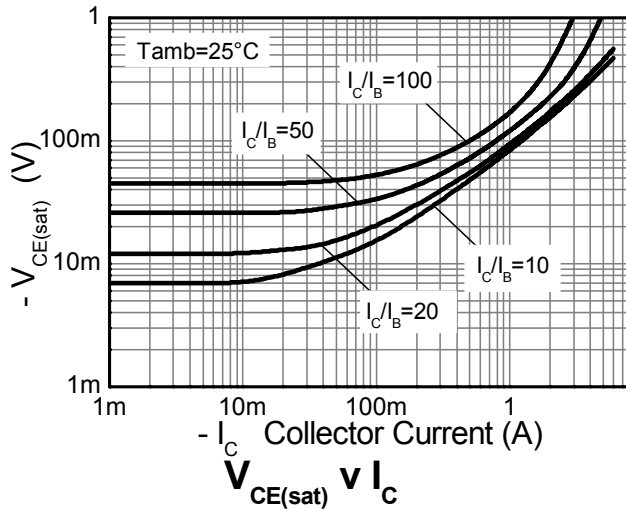
**Pulse Power Dissipation**

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-35	-60	-	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 7)	BV <sub>CEO</sub>	-25	-40	-	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	-8.4	-	V	I <sub>E</sub> = -100μA
Collector Cutoff Current	I <sub>CBO</sub>	-	<1	-50 -0.5	nA μA	V <sub>CB</sub> = -28V V <sub>CB</sub> = -28V, T <sub>A</sub> = +100°C
Emitter Cutoff Current	I <sub>EBO</sub>	-	<1	-50	nA	V <sub>EB</sub> = -5.6V
Static Forward Current Transfer Ratio (Note 7)	h <sub>FE</sub>	200 130 100 25	320 230 180 50	500 - - -	-	I <sub>C</sub> = -100mA, V <sub>CE</sub> = -2V I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V I <sub>C</sub> = -2A, V <sub>CE</sub> = -2V I <sub>C</sub> = -6A, V <sub>CE</sub> = -2V
Collector-Emitter Saturation Voltage (Note 7)	V <sub>CE(sat)</sub>	-	-85 -229	-150 -350	mV	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Base-Emitter Turn-On Voltage (Note 7)	V <sub>BE(on)</sub>	-	-786	-850	mV	I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
Base-Emitter Saturation Voltage (Note 7)	V <sub>BE(sat)</sub>	-	-895	-1000	mV	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA

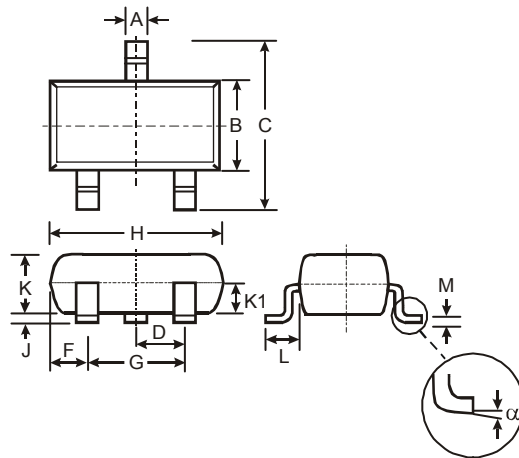
Notes: 7. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



### Package Outline Dimensions

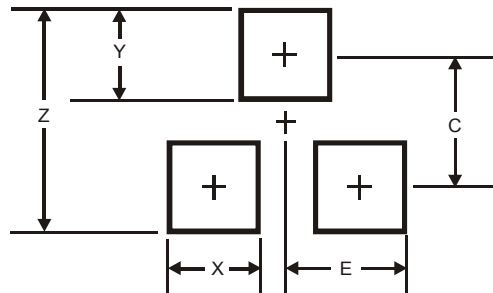
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

### Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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