


**ZXTP25100CFH**

**100V PNP MEDIUM POWER TRANSISTOR IN SOT23**

**Features**

- $BV_{CEO} > -100V$
- Maximum Continuous Collector Current  $I_C = -1A$
- $V_{CE(sat)} < -220mV @ -1A$
- $R_{CE(sat)} = 150m\Omega$
- 7V reverse blocking voltage
- High peak current
- Complementary part number ZXTN25100CFH
- **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
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208 
- Weight: 0.008 grams (Approximate)

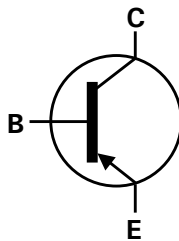
**Applications**

- MOSFET and IGBT gat driving
- DC – DC converters
- Motor drive
- High side driver

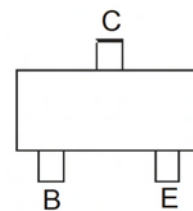
SOT23



Top View



Device Symbol



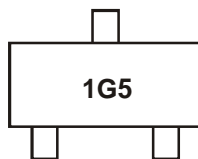
Top View  
Pin-Out

**Ordering Information** (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP25100CFHTA	1G5	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**



1G5 = Product Type Marking Code

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

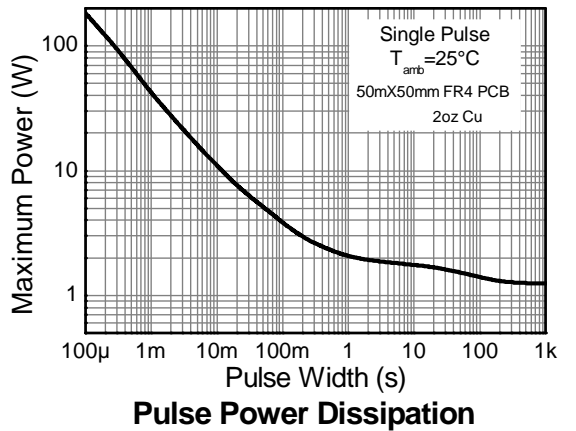
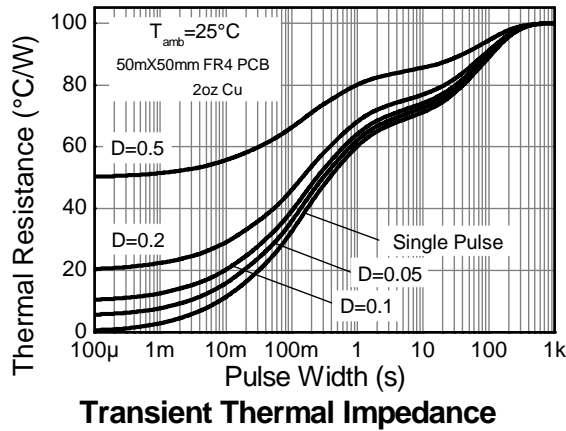
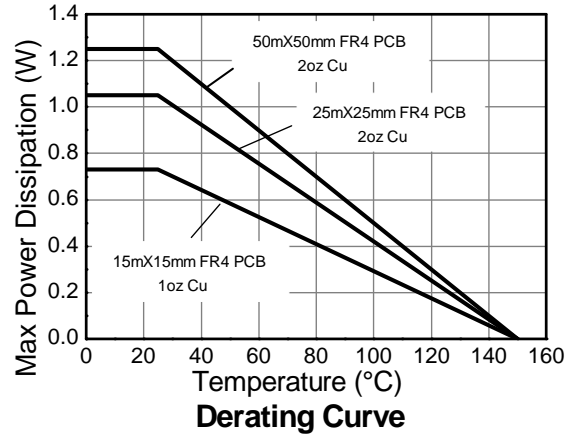
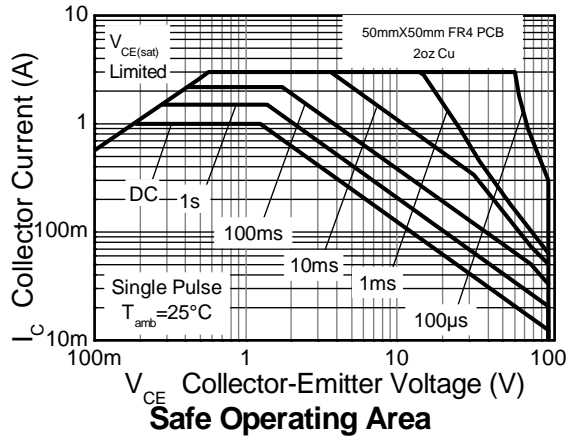
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-115	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-100	V
Emitter-collector voltage (reverse blocking)	V <sub>ECO</sub>	-7	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current (Note 5)	I <sub>C</sub>	-1	A
Base Current	I <sub>B</sub>	-500	mA
Peak Pulse Current	I <sub>CM</sub>	-3	A

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

Characteristic	Symbol	Value	Unit
Collector Power Dissipation	P <sub>D</sub>	(Note 5)	0.73
		(Note 6)	1.05
		(Note 7)	1.25
		(Note 8)	1.81
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	(Note 5)	171
		(Note 6)	119
		(Note 7)	100
		(Note 8)	69
Thermal Resistance, Junction to Leads	R <sub>θJL</sub>	75.25	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
5. For the device mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1oz copper in still air condition;
  6. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 2oz copper in still air condition
  7. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 2oz copper in still air condition
  8. As Note 7 above, measured at t < 5 secs.
  9. Thermal resistance from junction to solder-point (at the end of the collector lead).

**Thermal Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

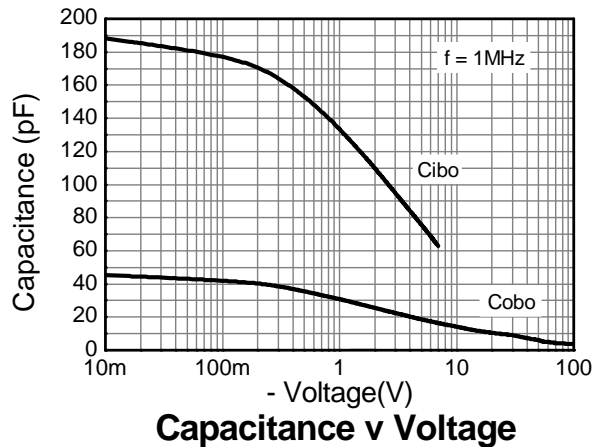
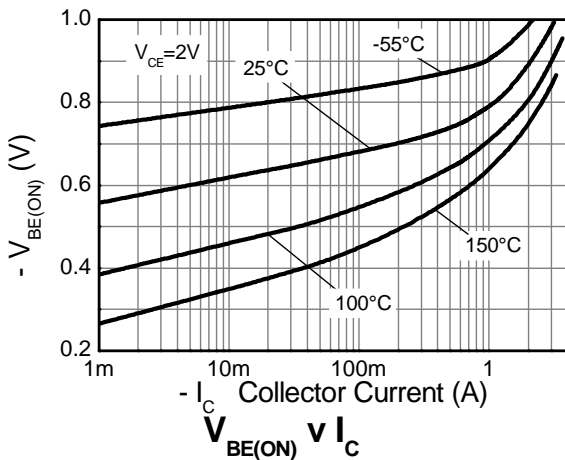
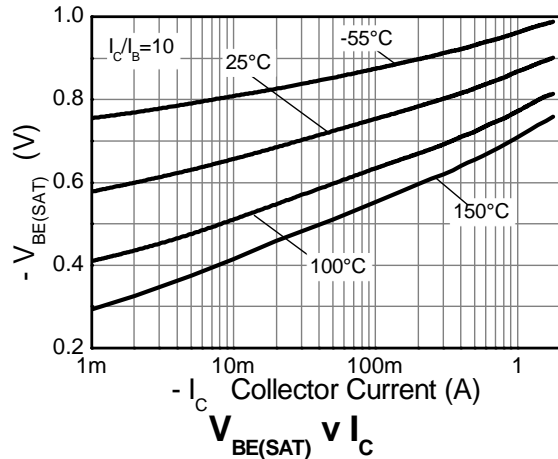
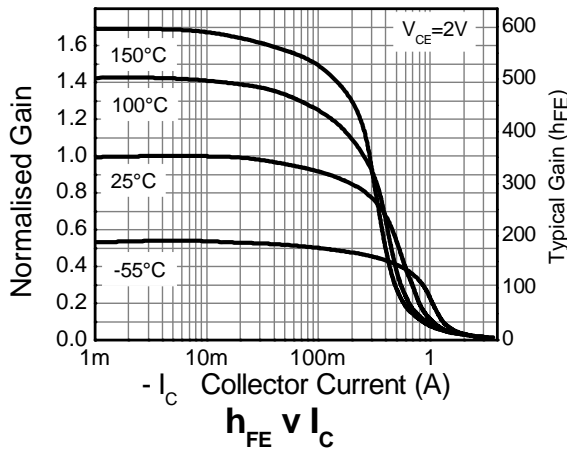
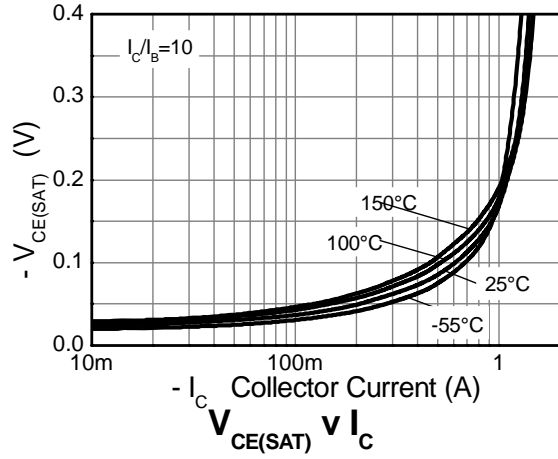
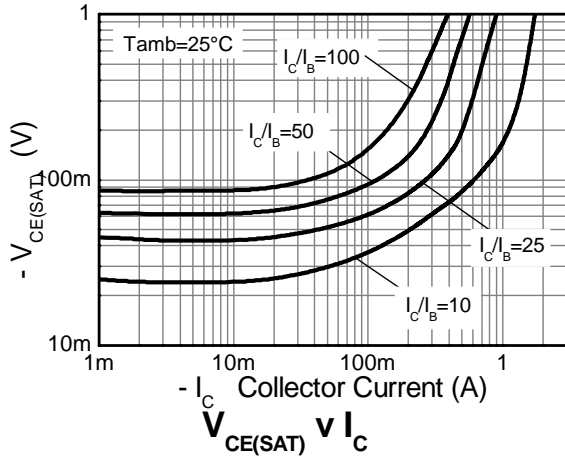


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-115	-180	-	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 10)	BV <sub>CEO</sub>	-100	-140	-	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	-8.4	-	V	I <sub>E</sub> = -100μA
Emitter-Base Breakdown Voltage	BV <sub>ECX</sub>	-7	-8.3	-	V	I <sub>E</sub> = -100μA, R <sub>BC</sub> < 1kΩ or -0.25 < V <sub>BC</sub> < 0.25V
Emitter-Base Breakdown Voltage	BV <sub>ECO</sub>	-7	-8.8	-	V	I <sub>E</sub> = -100μA
Collector-Base Cutoff Current	I <sub>CBO</sub>	-	< -1	-50	nA	V <sub>CB</sub> = -115V
		-	-	-0.5	μA	V <sub>CB</sub> = -115V, T <sub>amb</sub> = 100°C
Collector-Emitter Cutoff Current	I <sub>CEX</sub>	-	-	-100	nA	V <sub>CE</sub> = -90V, R <sub>BE</sub> < 1kΩ or -0.25V < V <sub>BE</sub> < 1V
Emitter-Base Cutoff Current	I <sub>EBO</sub>	-	< -1	-50	nA	V <sub>EB</sub> = -5.6V
Static Forward Current Transfer Ratio (Note 10)	h <sub>FE</sub>	200	350	500	-	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -2V
		180	320	-		I <sub>C</sub> = -100mA, V <sub>CE</sub> = -2V
		110	190	-		I <sub>C</sub> = -500mA, V <sub>CE</sub> = -2V
		20	35	-		I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
Collector-Emitter Saturation Voltage (Note 10)	V <sub>CE(sat)</sub>	-	-140	-210	mV	I <sub>C</sub> = -100mA, I <sub>B</sub> = -1mA
		-	-80	-110		I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA
		-	-180	-310		I <sub>C</sub> = -500mA, I <sub>B</sub> = -20mA
		-	-150	-220		I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
Base-Emitter Saturation Voltage (Note 10)	V <sub>BE(sat)</sub>	-	-849	-950	mV	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
Base-Emitter Saturation Voltage (Note 10)	V <sub>BE(on)</sub>	-	-790	-900	mV	I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
Output Capacitance	C <sub>obo</sub>	-	14.1	20	pF	V <sub>CB</sub> = -10V, f = 1MHz
Transition Frequency	f <sub>T</sub>	-	180	-	MHz	V <sub>CE</sub> = -15V, I <sub>C</sub> = -20mA, f = 100MHz
Delay Time	t <sub>(d)</sub>	-	15.8	-	ns	V <sub>CC</sub> = -10V, I <sub>C</sub> = -500mA, I <sub>B1</sub> = I <sub>B2</sub> = -50mA
Rise Time	t <sub>(r)</sub>	-	41	-	ns	
Storage Time	t <sub>(s)</sub>	-	411	-	ns	
Fall Time	t <sub>(f)</sub>	-	89	-	ns	

Notes: 10. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

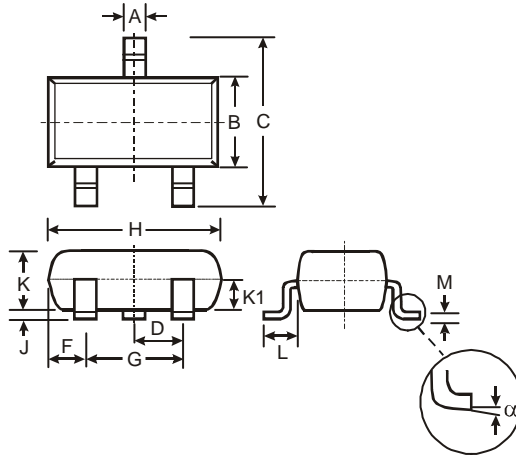
**Typical Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified



**ZXTP25100CFH**

### Package Outline Dimensions

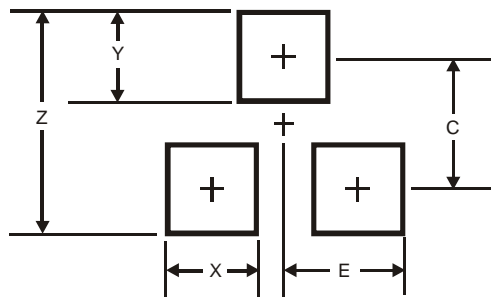
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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