



**THE DATASHEET OF  
ZXTP25060BFHTA**





**ZXTP25060BFH**

**60V PNP MEDIUM POWER TRANSISTOR IN SOT23**

**Features and Benefits**

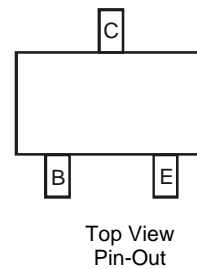
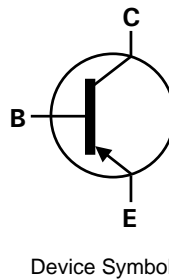
- $BV_{CEO} > -60V$  Breakdown Voltage
- 100V forward blocking voltage
- $I_C = -3A$  Continuous Collector Current,
- $I_{CM} = -9A$  Peak Pulse Current,
- Low saturation voltage,  $V_{CE(sat)} < -85mV @ -1A$
- $R_{CE(sat)} = 58 m\Omega$  for a low equivalent on-resistance
- 1.25W power dissipation using SuperSOT package
- Complementary part number ZXTN25060BFH
- **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: SOT23
- 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: 0.008 grams (Approximate)

**Applications**

- MOSFET drivers
- Power switches
- Motor control

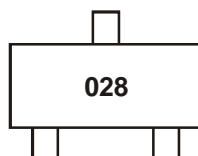


**Ordering Information** (Note 3)

Product	Case	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP25060BFHTA	SOT23	7	8mm	3000

- 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**



028 = Product Type Marking Code

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

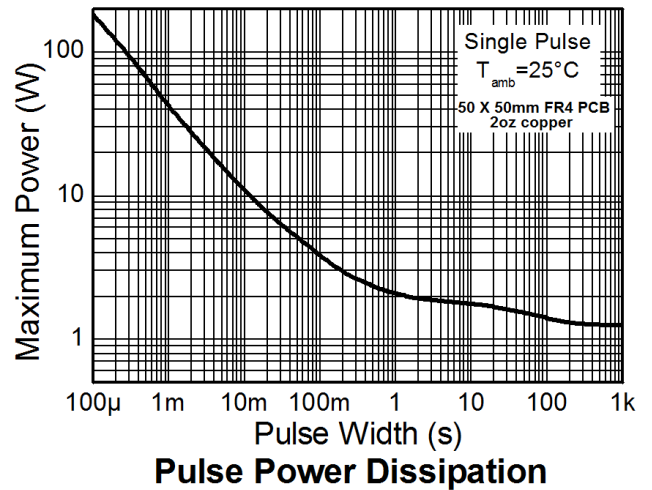
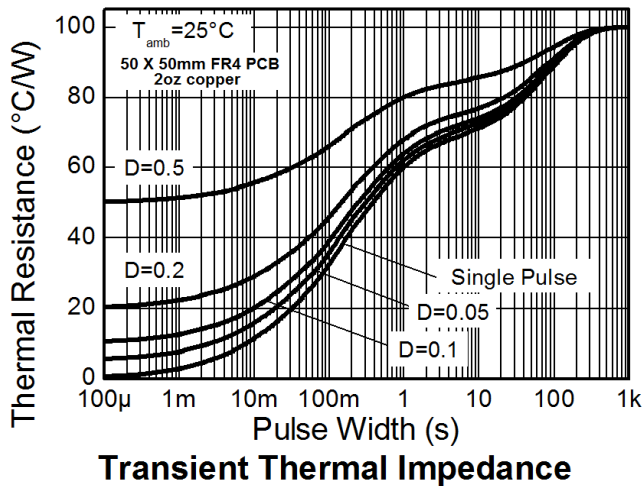
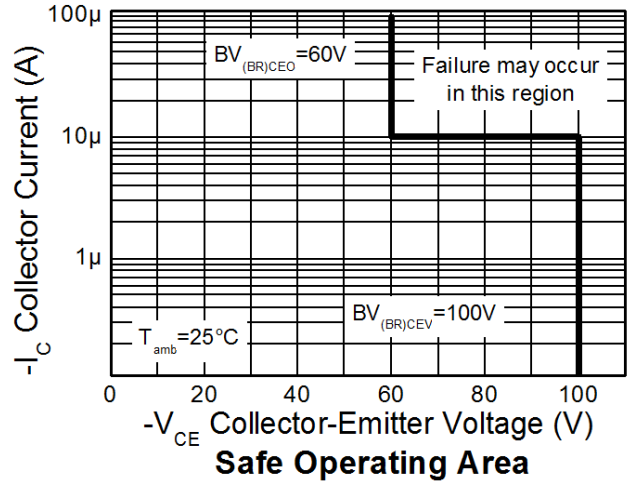
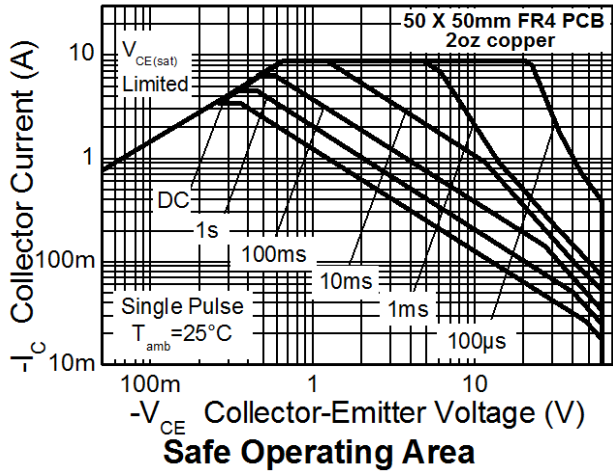
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-100	V
Collector-Emitter Voltage (forward blocking)	V <sub>CEx</sub>	-100	V
Collector-Emitter Voltage	V <sub>CE0</sub>	-60	V
Emitter-Collector Voltage (reverse blocking)	V <sub>EC0</sub>	-7	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-3	A
Peak pulse Current	I <sub>CM</sub>	-9	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation Linear derating factor	P <sub>D</sub>	0.73	W
		5.84	
		1.05	
		8.4	
		1.25	
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	9.6	°C/W
		1.81	
		14.5	
		171	
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	119	°C/W
		100	
		69	
		74.95	
Thermal Resistance, Junction to Lead	R <sub>θJL</sub>	74.95	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
4. For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
  5. Same as note (4), except the device is surface mounted on 25mm x 25mm with 2 oz copper.
  6. Same as note (4), except the device is surface mounted on 50mm x 50mm with 2 oz copper.
  7. Same as note (6), except the device is measured at t<5secs.
  8. Thermal resistance from junction to solder-point (at the end of the collector lead).

**Thermal Characteristics**



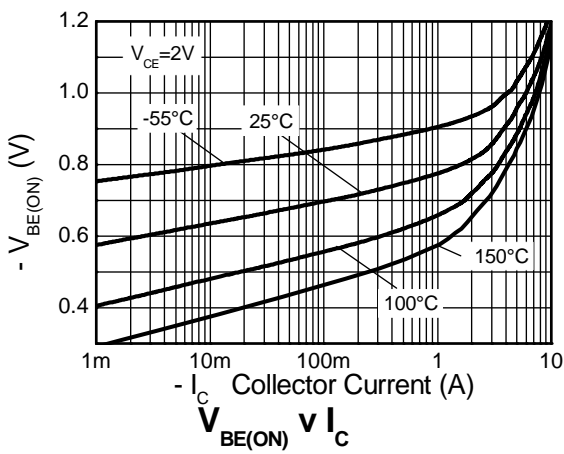
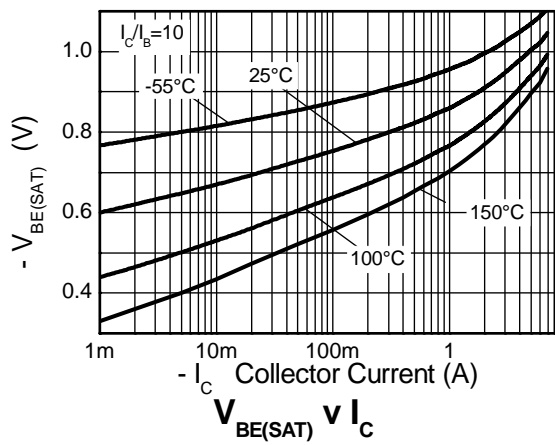
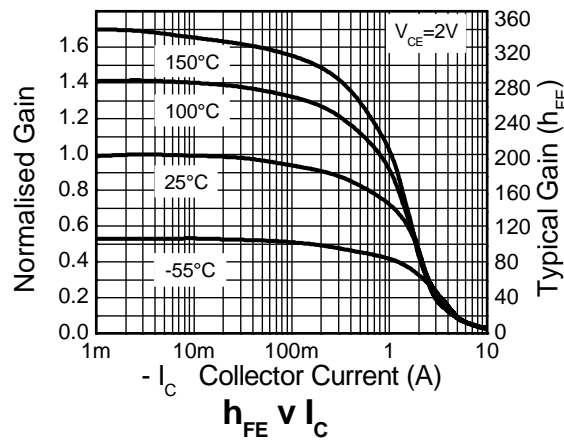
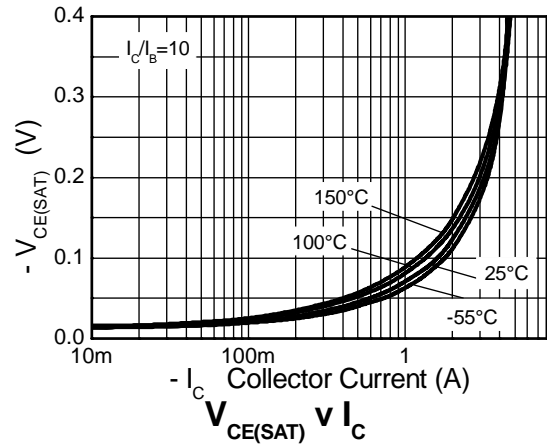
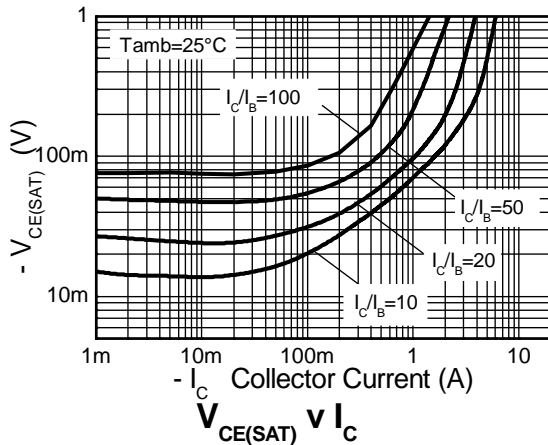
**ZXTP25060BFH**

**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>	-100	-120	-	V	I <sub>C</sub> = -100 μA
Collector-Emitter Breakdown Voltage (forward blocking)	BV <sub>CEX</sub>	-100	-120	-	V	I <sub>C</sub> = -100 μA, R <sub>BE</sub> < 1kΩ or -0.25V < V <sub>BE</sub> < 1V
Collector-Emitter Breakdown Voltage (base open) (Note 9)	BV <sub>CEO</sub>	-60	-80	-	V	I <sub>C</sub> = -10mA
Emitter- Collector Breakdown Voltage (Reverse blocking) (Note 9)	BV <sub>ECO</sub>	-7	-8.6	-	V	I <sub>E</sub> = -100μA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	-8.1	-	V	I <sub>E</sub> = -100μA
Collector Cutoff Current	I <sub>CBO</sub>	-	< -1	-50	nA	V <sub>CB</sub> = -80V
		-	-	-20	μA	V <sub>CB</sub> = -80V, T <sub>A</sub> = 100°C
Collector emitter Cutoff Current	I <sub>CEX</sub>	-	-	-100	nA	V <sub>CE</sub> = -80V, R <sub>BE</sub> < 1kΩ or -0.25V < V <sub>BE</sub> < 1V
Emitter Cutoff Current	I <sub>EBO</sub>	-	< -1	-50	nA	V <sub>EB</sub> = -6V
Static Forward Current Transfer Ratio (Note 9)	h <sub>FE</sub>	100	200	300	-	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -2V
		75	150	-	-	I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
		30	60	-	-	I <sub>C</sub> = -3A, V <sub>CE</sub> = -2V
Base-Emitter Saturation Voltage (Note 9)	V <sub>BE(sat)</sub>	-	-940	-1040	mV	I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Base-Emitter turn-on Voltage (Note 9)	V <sub>BE(on)</sub>	-	-830	-930	mV	I <sub>C</sub> = -3A, V <sub>CE</sub> = -2V
Collector-Emitter Saturation Voltage (Note 9)	V <sub>CE(sat)</sub>	-	-45	-55	mV	I <sub>C</sub> = -0.5A, I <sub>B</sub> = -50mA
		-	-100	-135		I <sub>C</sub> = -0.5A, I <sub>B</sub> = -10mA
		-	-70	-85		I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
		-	-175	-235		I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Transition Frequency	f <sub>T</sub>	-	250	-	MHz	I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5V, f = 100MHz
Collector Output Capacitance (Note 9)	C <sub>OBO</sub>	-	17.6	30	pF	V <sub>CB</sub> = -10V, f = 1MHz
Turn-on time	t <sub>(on)</sub>	-	26.5	-	ns	V <sub>CC</sub> = -10V, I <sub>C</sub> = -500mA,
Turn-off time	t <sub>(off)</sub>	-	291	-	ns	I <sub>B1</sub> = I <sub>B2</sub> = -50mA

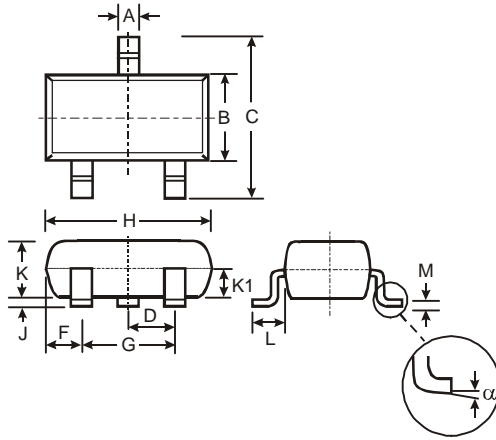
Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

**Typical Characteristics**



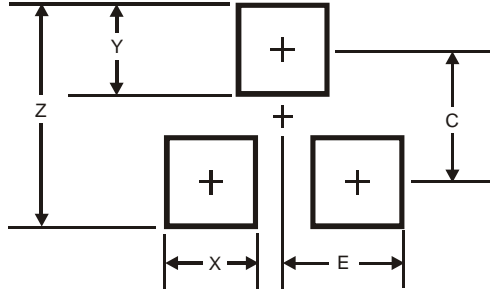
**ZXTP25060BFH**

**Package Outline Dimensions**



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
$\alpha$	0°	8°	-
All Dimensions in mm			

**Suggested Pad Layout**



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

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