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 mΩ 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

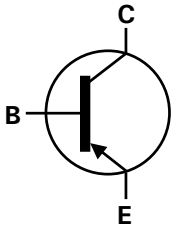
- Case: SOT23
- Case material: molded Plastic. “Green” molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

Applications

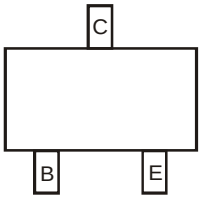
- MOSFET drivers
- Power switches
- Motor control

SOT23

Top View



Device Symbol



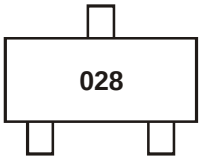
Top View
Pin-Out

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_A = 25°C unless otherwise specified

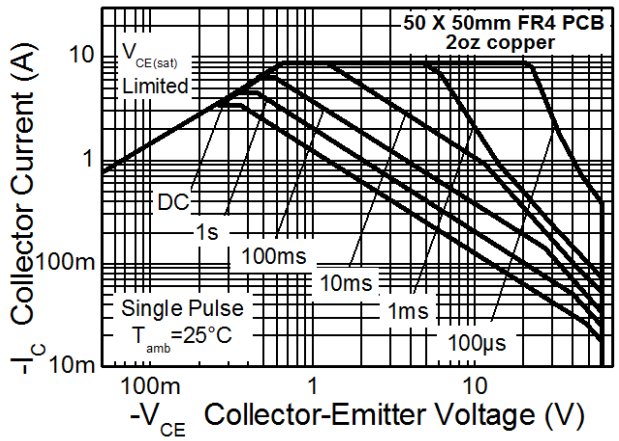
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-100	V
Collector-Emitter Voltage (forward blocking)	V_{CEX}	-100	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Collector Voltage (reverse blocking)	V_{ECO}	-7	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-3	A
Peak pulse Current	I_{CM}	-9	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

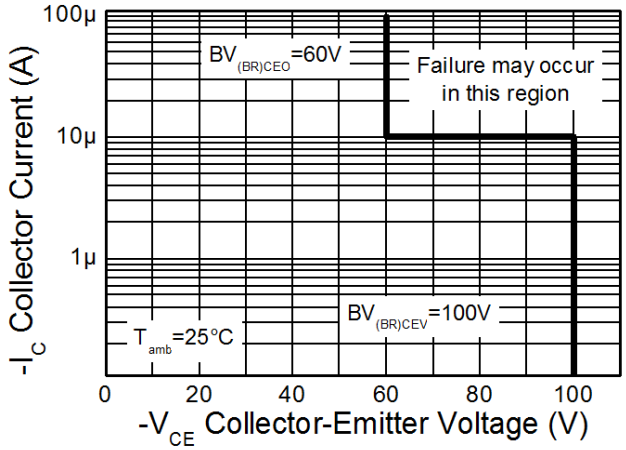
Characteristic		Symbol	Value	Unit
Power Dissipation Linear derating factor	(Note 4)	P_D	0.73 5.84	W
	(Note 5)		1.05 8.4	
	(Note 6)		1.25 9.6	
	(Note 7)		1.81 14.5	
Thermal Resistance, Junction to Ambient	(Note 4)	$R_{\theta JA}$	171	°C/W
	(Note 5)		119	
	(Note 6)		100	
	(Note 7)		69	
Thermal Resistance, Junction to Lead	(Note 8)	$R_{\theta JL}$	74.95	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-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).

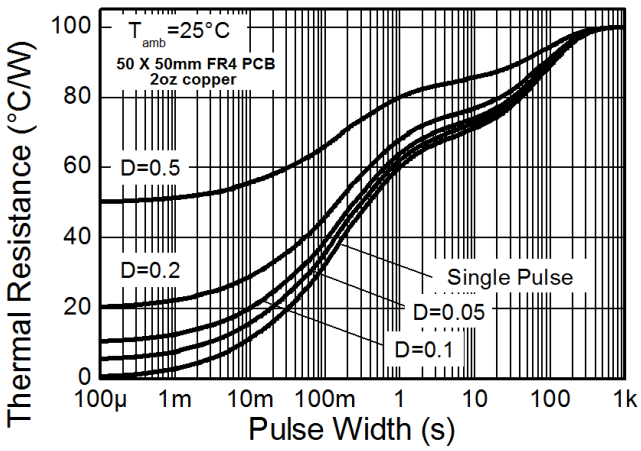
Thermal Characteristics



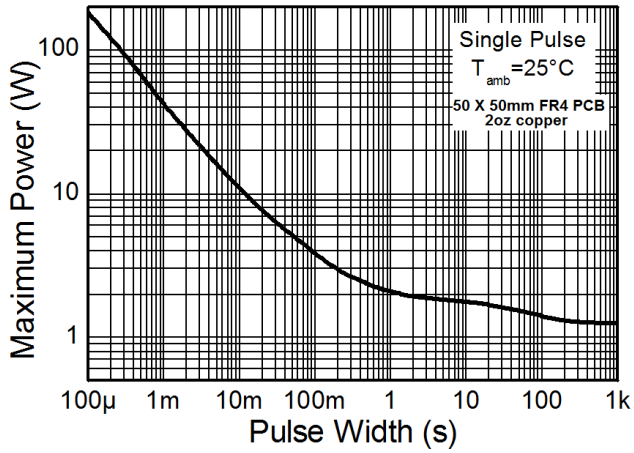
Safe Operating Area



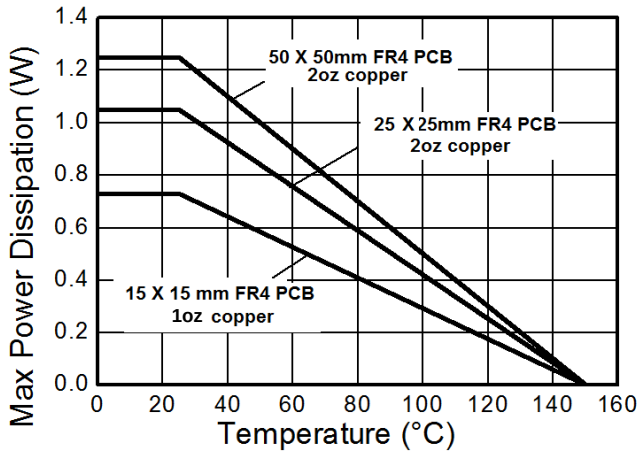
Safe Operating Area



Transient Thermal Impedance



Pulse Power Dissipation



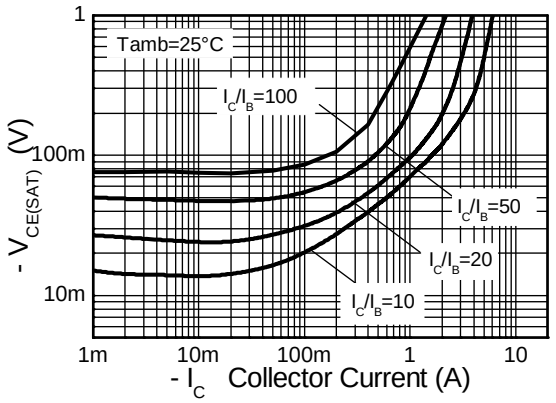
Derating Curve

Electrical Characteristics @T_A = 25°C unless otherwise specified

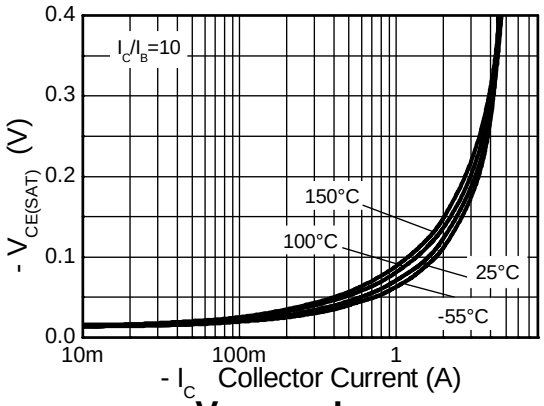
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-100	-120	-	V	I_C = -100 µA
Collector-Emitter Breakdown Voltage (forward blocking)	BV_{CEX}	-100	-120	-	V	I_C = -100 µA, R_{BE} < 1kΩ or -0.25V < V_{BE} < 1V
Collector-Emitter Breakdown Voltage (base open) (Note 9)	BV_{CEO}	-60	-80	-	V	I_C = -10mA
Emitter- Collector Breakdown Voltage (Reverse blocking) (Note 9)	BV_{ECO}	-7	-8.6	-	V	I_E = -100µA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.1	-	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	- -	< -1 -	-50 -20	nA µA	V_{CB} = -80V V_{CB} = -80V, T_A = 100°C
Collector emitter Cutoff Current	I_{CEX}	-	-	-100	nA	V_{CE} = -80V, R_{BE} < 1kΩ or -0.25V < V_{BE} < 1V
Emitter Cutoff Current	I_{EBO}	-	< -1	-50	nA	V_{EB} = -6V
Static Forward Current Transfer Ratio (Note 9)	h_{FE}	100 75 30	200 150 60	300 - -	-	I_C = -10mA, V_{CE} = -2V I_C = -1A, V_{CE} = -2V I_C = -3A, V_{CE} = -2V
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	-	-940	-1040	mV	I_C = -3A, I_B = -300mA
Base-Emitter turn-on Voltage (Note 9)	$V_{BE(on)}$	-	-830	-930	mV	I_C = -3A, V_{CE} = -2V
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	- - - -	-45 -100 -70 -175	-55 -135 -85 -235	mV	I_C = -0.5A, I_B = -50mA I_C = -0.5A, I_B = -10mA I_C = -1A, I_B = -100mA I_C = -3A, I_B = -300mA
Transition Frequency	f_T	-	250	-	MHz	I_C = -100mA, V_{CE} = -5V, f = 100MHz
Collector Output Capacitance (Note 9)	C_{OBO}	-	17.6	30	pF	V_{CB} = -10V, f = 1MHz
Turn-on time	$t_{(on)}$	-	26.5	-	ns	V_{CC} = -10V, I_C = -500mA,
Turn-off time	$t_{(off)}$	-	291	-	ns	I_{B1} = I_{B2} = -50mA

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

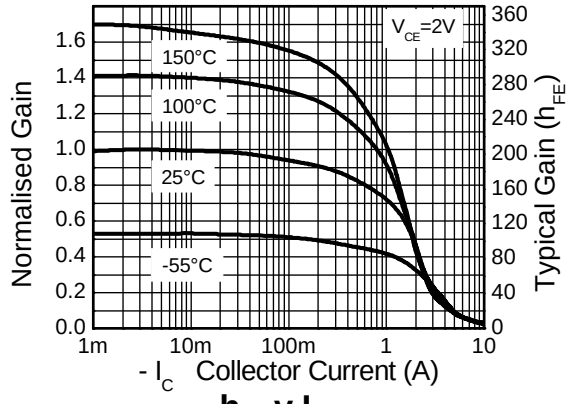
Typical Characteristics



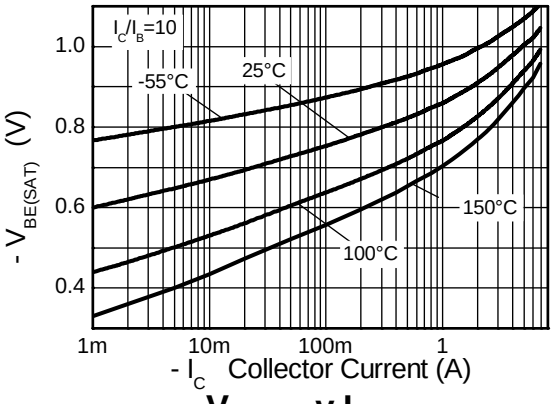
$V_{CE(SAT)}$ v I_C



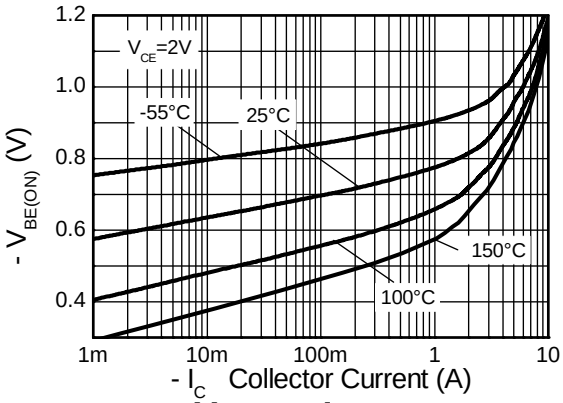
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C

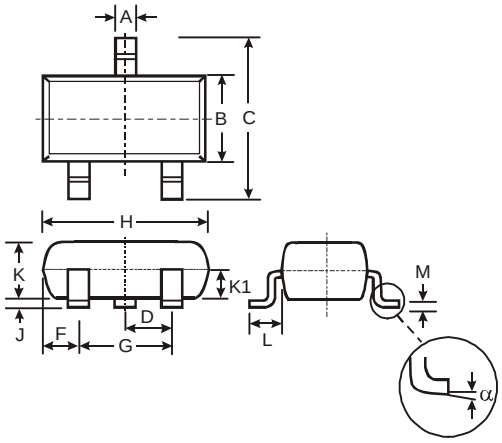


$V_{BE(SAT)}$ v I_C



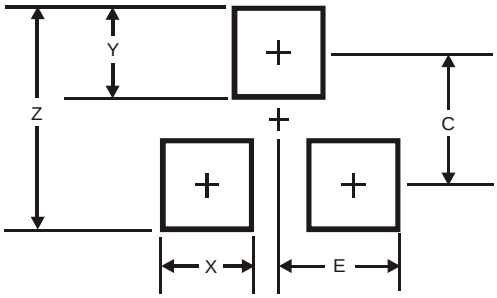
$V_{BE(ON)}$ v I_C

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
α	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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