优尚

YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

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企业微信二维码

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Features

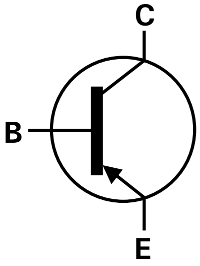
- BV_{CEO} > -150V
- BV_{CEV} > -180V
- I_C = -700mA high Continuous Collector Current
- Low saturation voltage $V_{CE(sat)}$ < -300mV @ -100mA
- Complementary NPN type: NK-FCX495

Mechanical Data

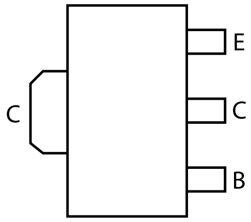
- Case: SOT89
- Case material: molded plastic. “Green” molding compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.052 grams (Approximate)

SOT89

Top View



Device Symbol



Top View
Pin Out

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-180	V
Collector-Emitter Voltage	V_{CEV}	-180	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-0.7	A
Peak Pulse Current	I_{CM}	-2	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	1	W
	(Note 6)		1.5	
	(Note 7)		2.1	
Thermal Resistance, Junction to Ambient Air	(Note 5)	$R_{\theta JA}$	125	°C/W
	(Note 6)		83	
	(Note 7)		60	
Thermal Resistance, Junction to Lead	(Note 8)	$R_{\theta JL}$	10.01	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

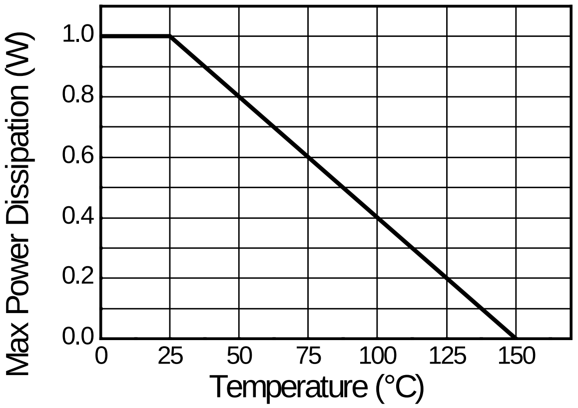
ESD Ratings (Note 9)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

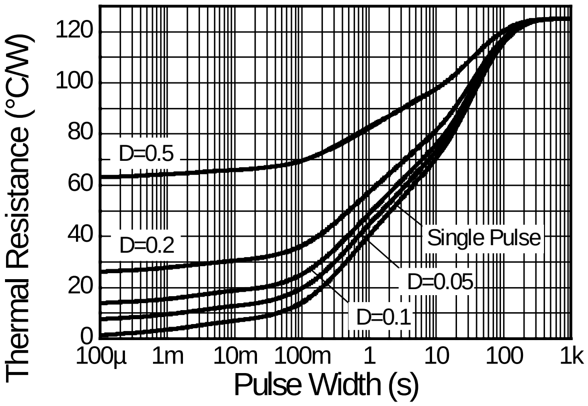
Notes:

5. For a device mounted with the exposed collector pad on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as note (5), except the device is mounted on 25mm x 25mm 1oz copper.
7. Same as note (5), except the device is mounted on 50mm x 50mm 1oz copper.
8. Thermal resistance from junction to solder-point (on the exposed collector pad).
9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

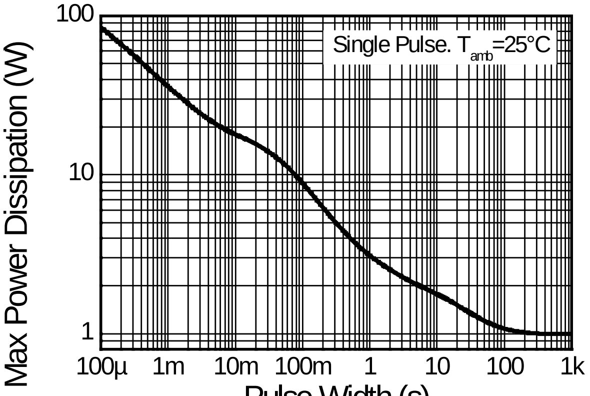
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



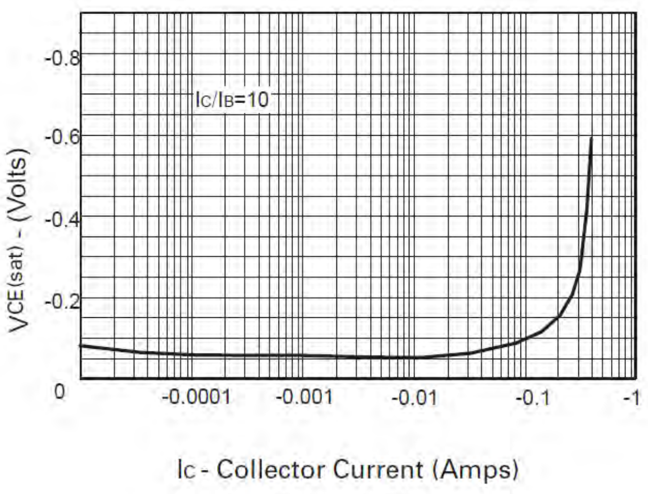
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

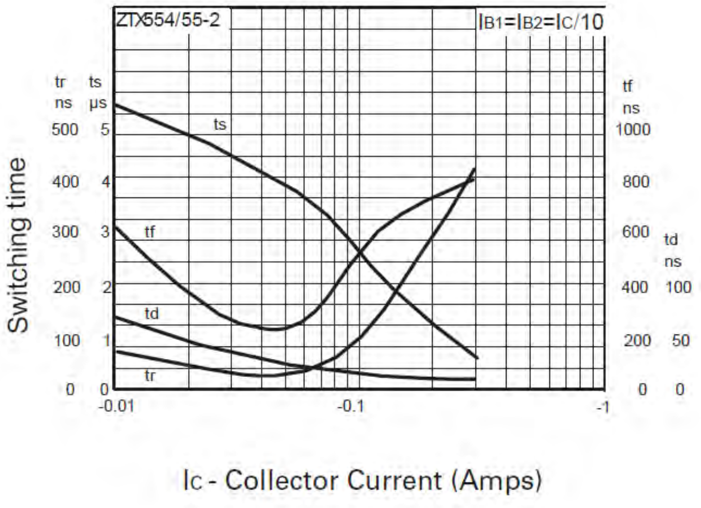
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-180	—	—	V	I_C = -100µA
Collector-Emitter Breakdown Voltage	BV_{CEV}	-180	—	—	V	I_C = -1µA, -0.3V < V_{BE} < 1V
Collector-Emitter Breakdown Voltage	BV_{CER}	-180	—	—	V	I_C = -1µA, $R_B \leq 1k\Omega$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	-150	—	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.1	—	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	— —	<1 -	-20 -10	nA µA	V_{CB} = -144V V_{CB} = -144V, T_A = +100°C
Emitter Cutoff Current	I_{EBO}	—	<1	-20	nA	V_{EB} = -6V
DC current transfer Static ratio (Note 10)	h_{FE}	100 100	—	— 300	—	I_C = -10mA, V_{CE} = -5V I_C = -100mA, V_{CE} = -5V
Collector-Emitter Saturation Voltage (Note 10)	$V_{CE(sat)}$	— —	— —	-300 -400	mV	I_C = -100mA, I_B = -10mA I_C = -250mA, I_B = -25mA
Base-Emitter Saturation Voltage (Note 10)	$V_{BE(sat)}$	—	—	-1000	mV	I_C = -250mA, I_B = -25mA
Base-Emitter Turn-on Voltage (Note 10)	$V_{BE(on)}$	—	—	-950	mV	I_C = -250mA, V_{CE} = -5V
Transitional Frequency	f_T	—	100	—	MHz	I_E = -50mA, V_{CE} = -10V f = 100MHz
Output capacitance	C_{obo}	—	—	10	pF	V_{CB} = -10V, f = 1MHz,

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

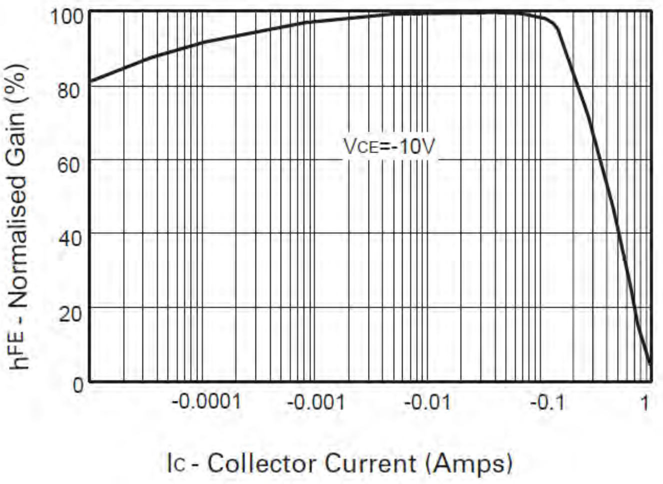
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



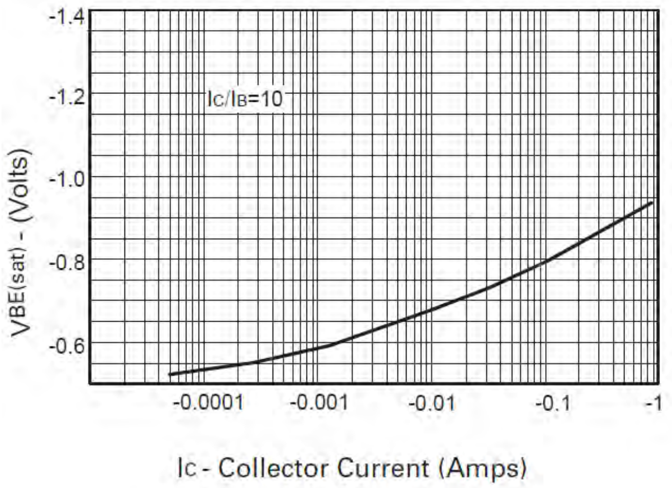
VCE(sat) v IC



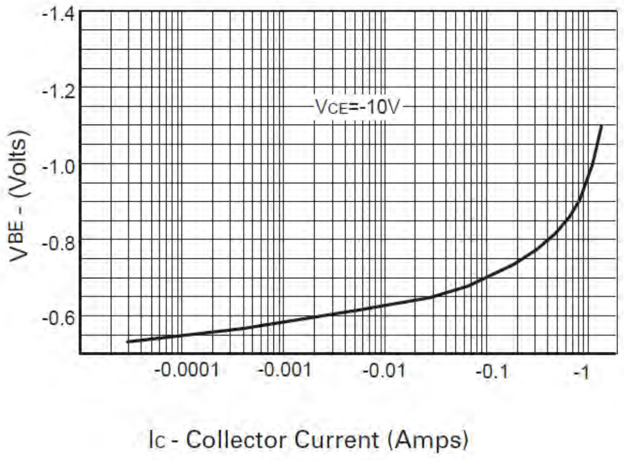
Switching Speeds



hFE v IC

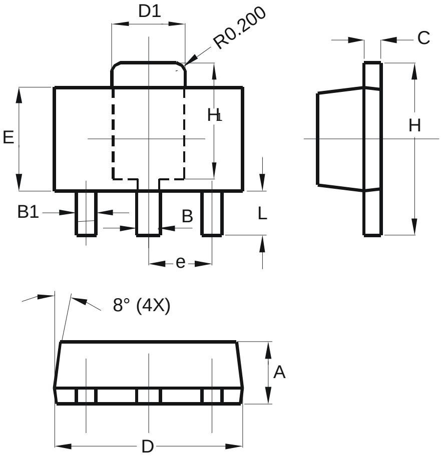


VBE(sat) v IC



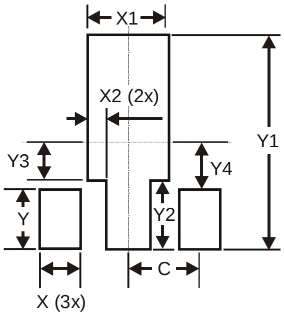
VBE(on) v IC

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	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 Typ	
H	3.94	4.25
H1	2.63	2.93
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

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to voltage spacing between terminals.