



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

0755-83047638

ysbdt@szyoushang.cn

www.szyoushang.cn



企业微信二维码



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Features

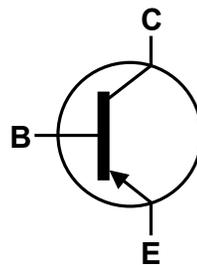
- $BV_{CEO} > -60V$
- $I_C = -1A$ high Continuous Collector Current
- $I_{CM} = -2A$ Peak Collector Current
- $R_{CE(SAT)} = 295m\Omega$ for a Low Equivalent On-Resistance
- h_{FE} characterized up to 2A for high current gain hold up
- Complementary NPN type: NK-FCX491

Mechanical Data

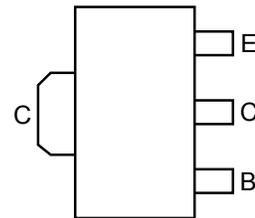
- Case: SOT89
- Case Material: Molded Plastic. "Green" Molding Compound
UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per
MIL-STD-202, Method 208 **Ⓔ3**
- Weight: 0.05 grams (Approximate)



Top View



Device Symbol



Top View
Pin Out

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

Characteristic	Symbol	Limit	Unit
Collector-Base Voltage	V_{CB0}	-80	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-1	A
Peak Pulse Current	I_{CM}	-2	A
Base Current	I_B	-200	mA

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

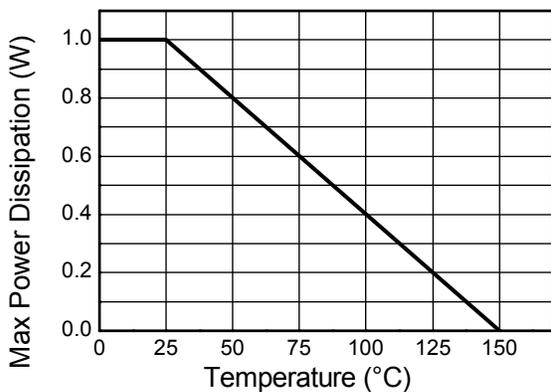
Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	(Note 5)	1
		(Note 6)	1.5
		(Note 7)	2.0
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	(Note 5)	125
		(Note 6)	83
		(Note 7)	60
Thermal Resistance, Junction to Lead	$R_{\theta JL}$	22	$^{\circ}\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	16	
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	

ESD Ratings (Note 10)

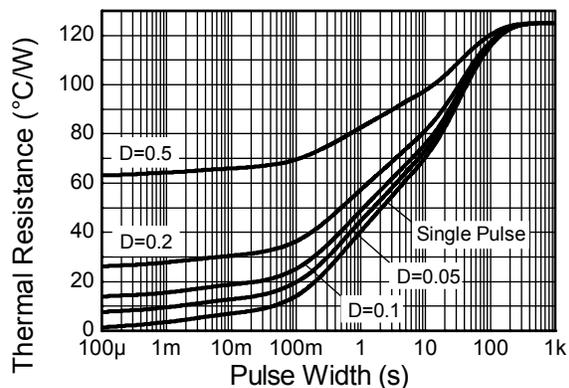
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- 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. Thermal resistance from junction to the top of the case.
 10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

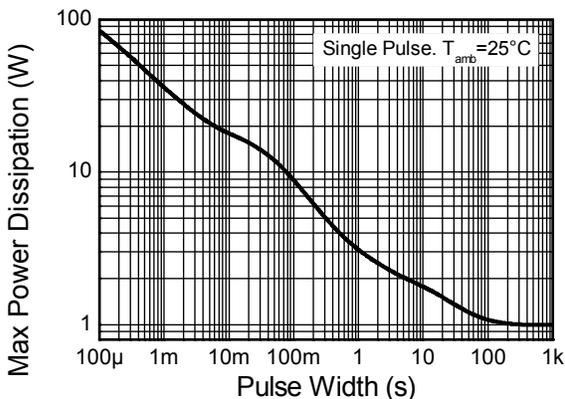
Thermal Characteristics and Derating Information



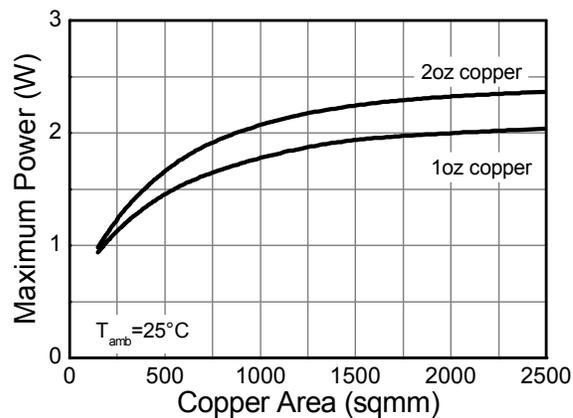
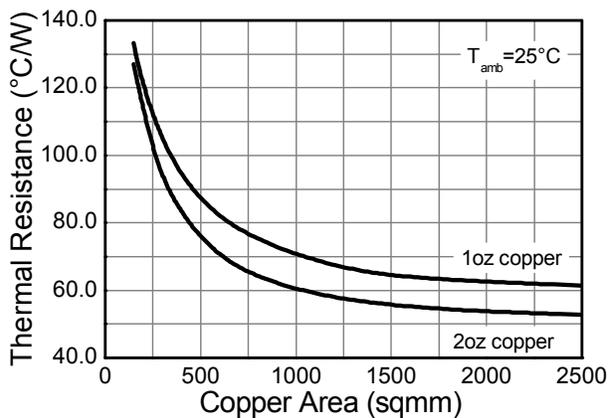
Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

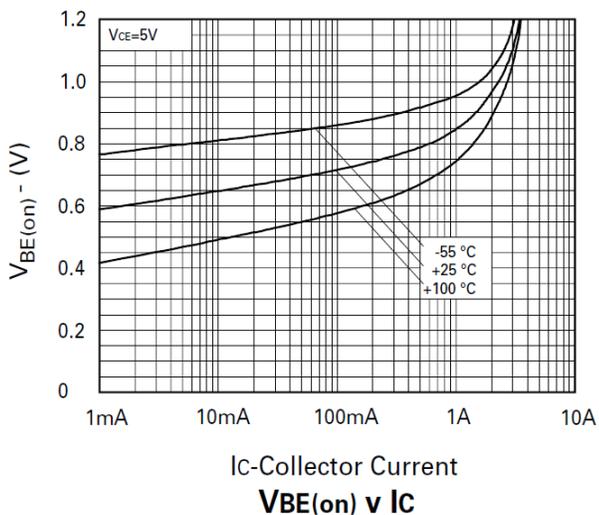
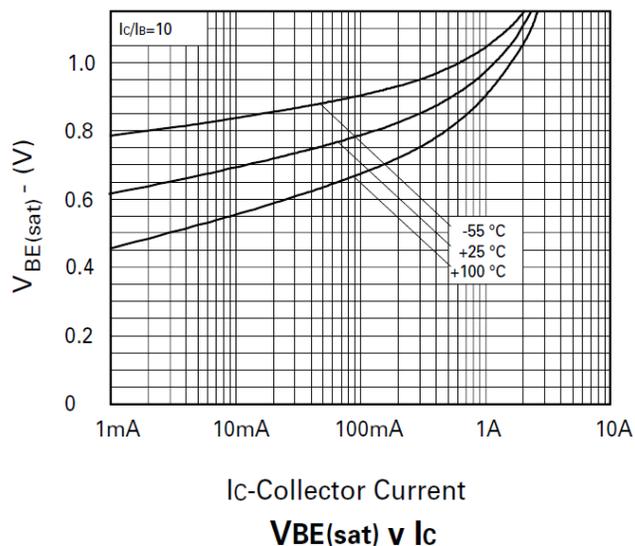
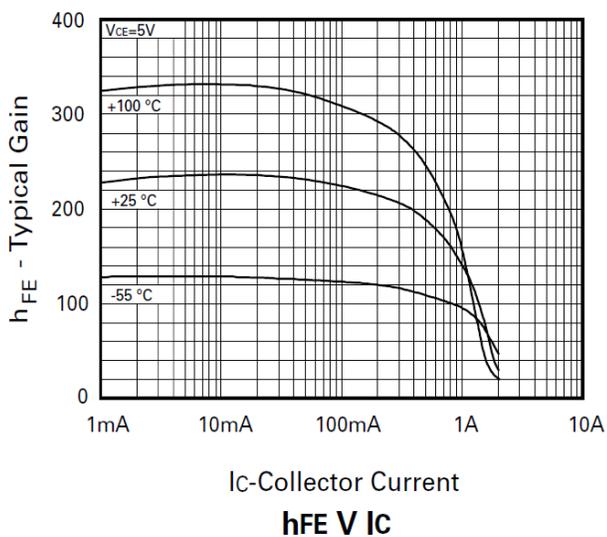
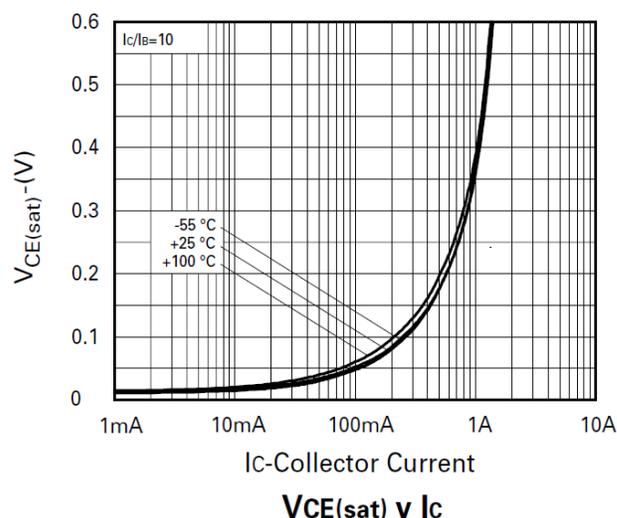
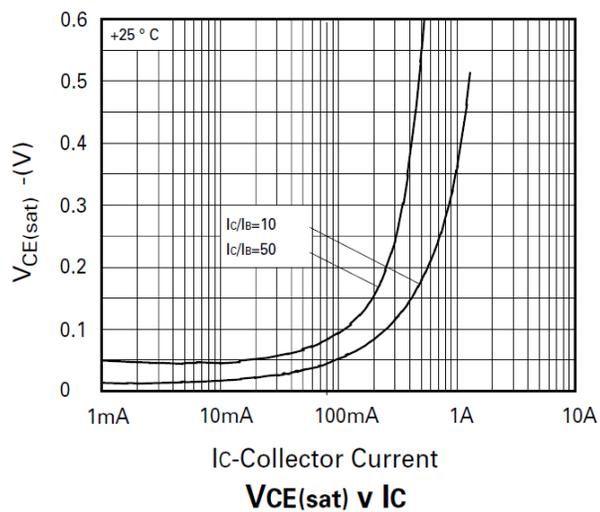


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

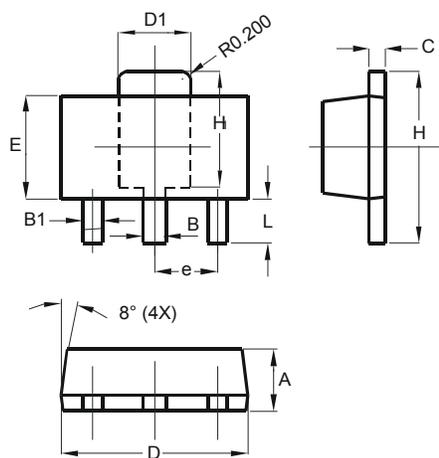
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-80	—	—	V	I _C = -100μA, I _E = 0
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	-60	—	—	V	I _C = -10mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.1	—	V	I _E = -100μA, I _C = 0
Collector Cutoff Current	I _{CBO}	—	<1	-100	nA	V _{CB} = -60V
Emitter Cutoff Current	I _{EBO}	—	<1	-100	nA	V _{EB} = -5.6V, I _C = 0
Emitter Cutoff Current	I _{CES}	—	<1	-100	nA	V _{CES} = -60V
DC current transfer Static ratio (Note 11)	h _{FE}	100 100 80 15	220 175 155 40	— — 300 —	—	I _C = -1mA, V _{CE} = -5V I _C = -500mA, V _{CE} = -5V I _C = -1A, V _{CE} = -5V I _C = -2A, V _{CE} = -5V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	—	-155 -295	-300 -600	mV	I _C = -500mA, I _B = -50mA I _C = -1A, I _B = -100mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	—	-965	-1200	mV	I _C = -1A, I _B = -100mA
Base-Emitter Turn-on Voltage (Note 11)	V _{BE(on)}	—	-830	-1000	mV	I _C = -1A, V _{CE} = -5V
Transitional Frequency	f _T	150	—	—	MHz	I _E = -50mA, V _{CE} = -10V f = 100MHz
Output capacitance	C _{obo}	—	—	10	pF	V _{CB} = -10V, f = 1MHz,

Note: 11. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

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

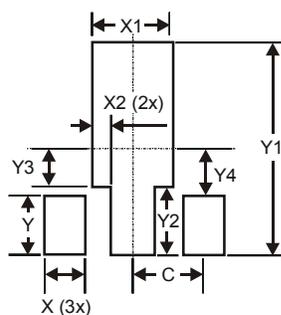


Package Outline Dimensions



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