



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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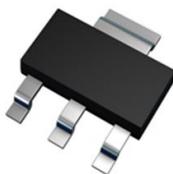
Features

- $BV_{CEO} > 400V$
- $I_C = 300mA$ High Continuous Current
- Excellent h_{FE} Characteristics up to 100mA
- Low Saturation Voltage $V_{CE(sat)} < 200mV @ 20mA$
- Complementary PNP Type: NK-FZT558

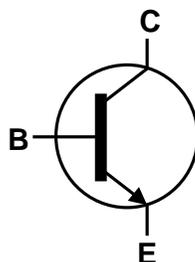
Mechanical Data

- Case: SOT223
- 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: 0.112 grams (Approximate)

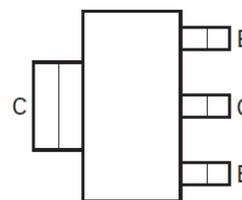
SOT223



Top View



Device Symbol



Top View
Pin-Out

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	400	V
Collector-Emitter Voltage	V _{CEO}	400	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	300	mA
Base Current	I _B	200	mA
Peak Pulse Current	I _{CM}	1	A

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

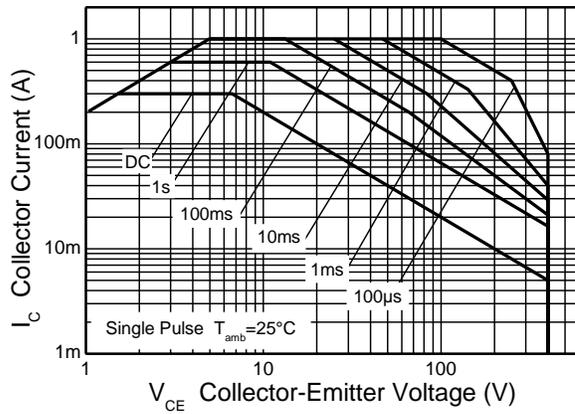
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	2	W
		3	W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
		41.7	°C/W
Thermal Resistance, Junction to Leads (Note 8)	R _{θJL}	19.41	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 9)

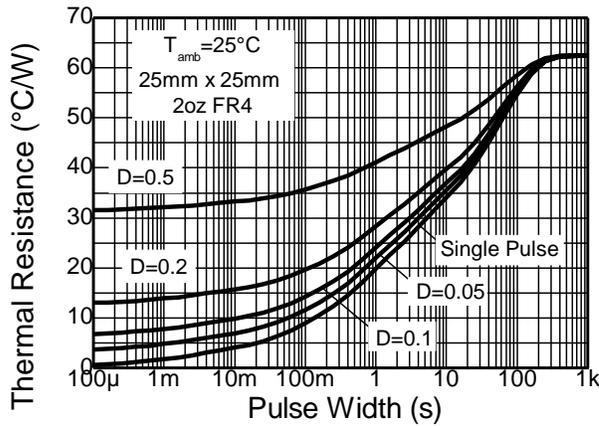
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
6. For a device mounted with the collector lead on 25mm x 25mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 7. Same as Note 6, except the device is mounted on 50mm x 50mm single sided 2oz weight copper.
 8. Thermal resistance from junction to solder-point (at the end of the collector lead).
 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

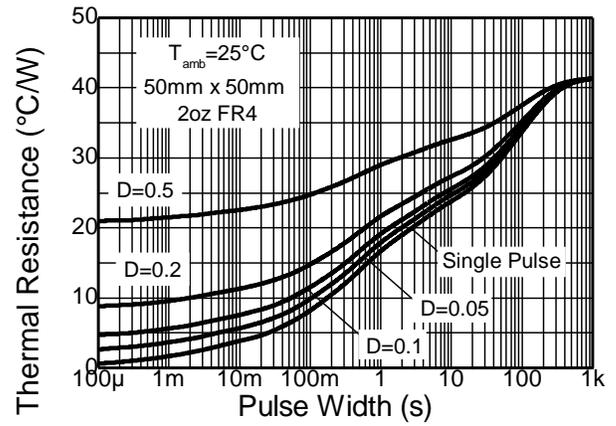
Thermal Characteristics and Derating Characteristics



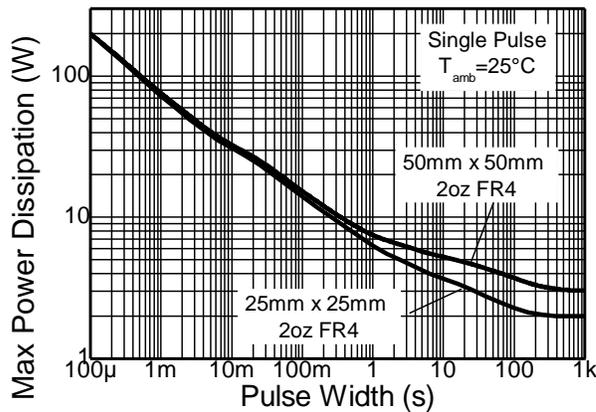
Safe Operating Area



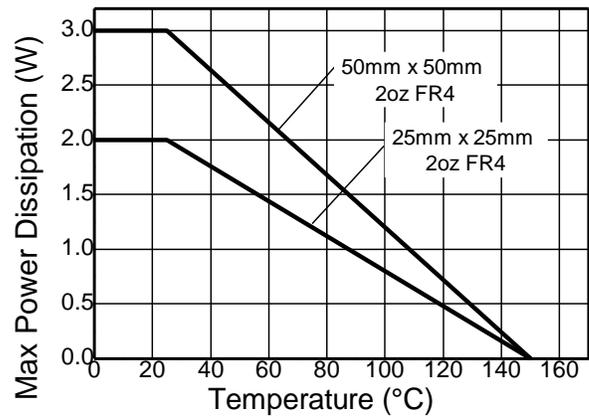
Transient Thermal Impedance



Transient Thermal Impedance



Pulse Power Dissipation



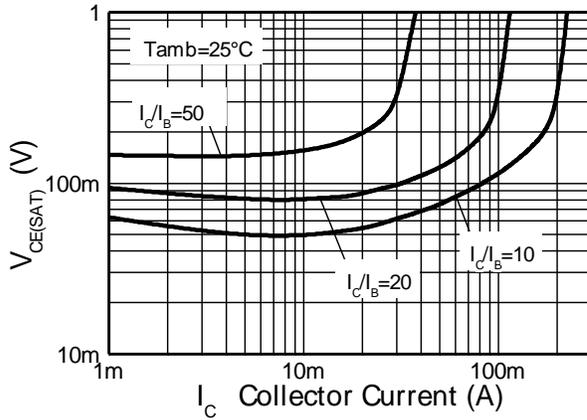
Derating Curve

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

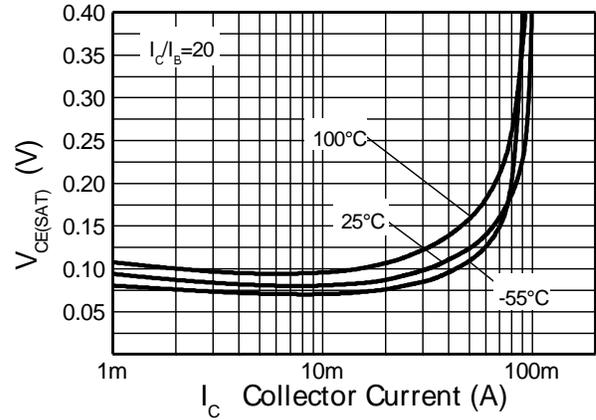
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	400	–	–	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 10)	BV _{CEO}	400	–	–	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	7	–	–	V	I _E = 100μA
Collector Cut-Off Current	I _{CBO}	–	–	100	nA	V _{CB} = 320V
Collector Cut-Off Current	I _{CES}	–	–	100	nA	V _{CE} = 320V
Emitter Cut-Off Current	I _{EBO}	–	–	100	nA	V _{EB} = 4V
Collector-Emitter Saturation Voltage (Note 10)	V _{CE(sat)}	–	–	0.2 0.5	V	I _C = 20mA, I _B = 2mA I _C = 50mA, I _B = 6mA
Base-Emitter Saturation Voltage (Note 10)	V _{BE(sat)}	–	–	0.9	V	I _C = 50mA, I _B = 5mA
Base-Emitter Turn-On Voltage (Note 10)	V _{BE(on)}	–	–	0.9	V	I _C = 50mA, V _{CE} = 10V
DC Current Gain (Note 10)	h _{FE}	100 100 15	– – –	– 300 –		I _C = 1mA, V _{CE} = 10V I _C = 50mA, V _{CE} = 10V I _C = 100mA, V _{CE} = 10V
Current Gain-Bandwidth Product (Note 10)	f _T	50	–	–	MHz	V _{CE} = 20V, I _C = 10mA f = 20MHz
Output Capacitance (Note 10)	C _{obo}	–	–	5	pF	V _{CB} = 20V, f = 1MHz
Switching Times	t _{on}	–	135	–	ns	I _C = 50mA, V _{CC} = 100V I _{B1} = 5mA, I _{B2} = -10mA
	t _{off}	–	2260	–		

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

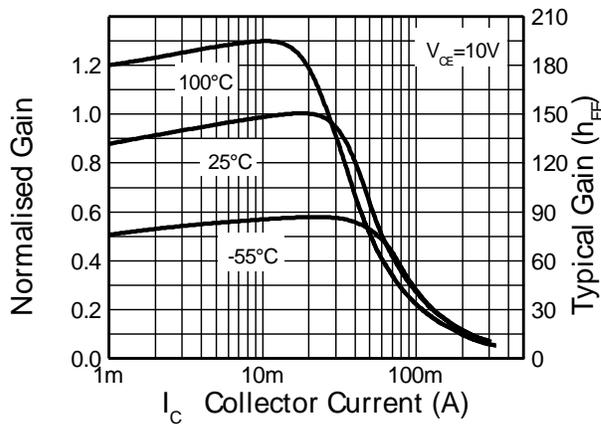
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



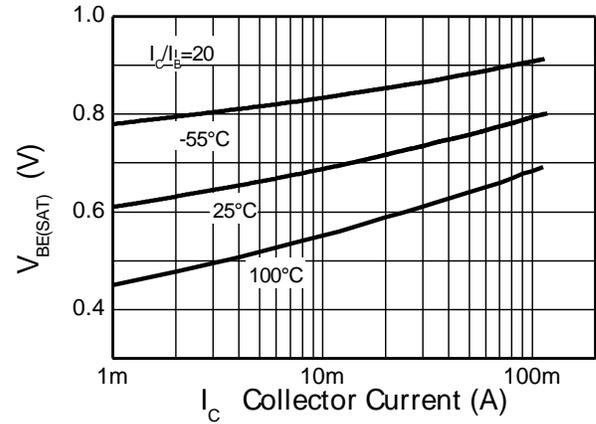
$V_{CE(SAT)} \text{ v } I_C$



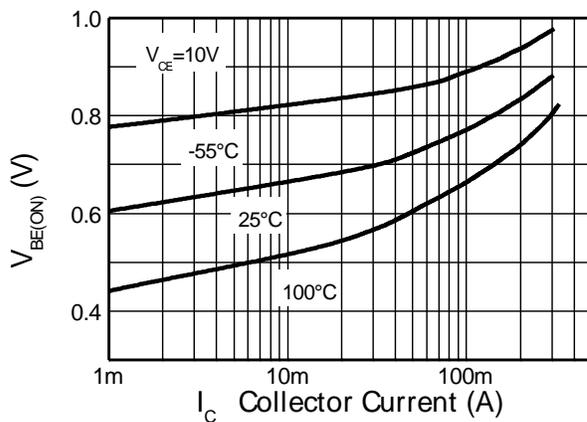
$V_{CE(SAT)} \text{ v } I_C$



$h_{FE} \text{ v } I_C$

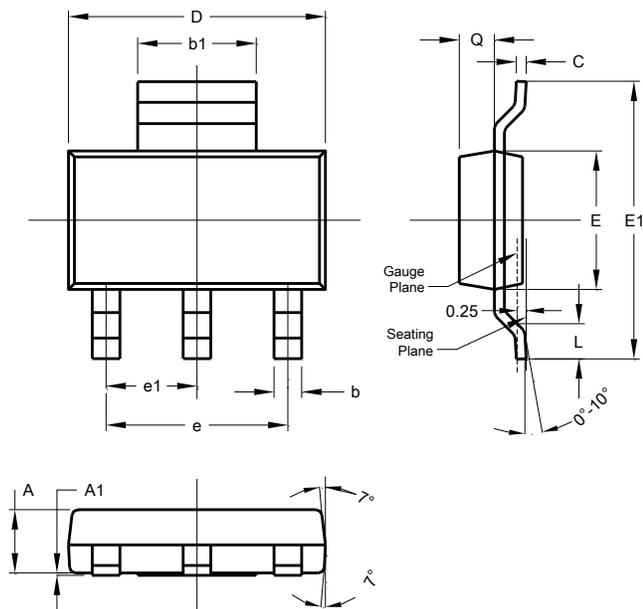


$V_{BE(SAT)} \text{ v } I_C$



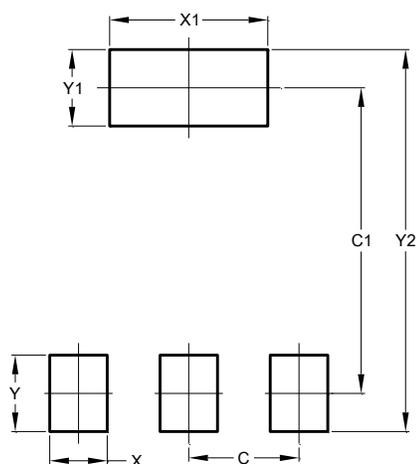
$V_{BE(ON)} \text{ v } I_C$

Package Outline Dimensions



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.