



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

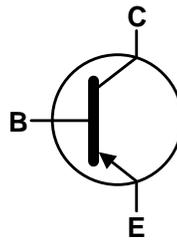
- $BV_{CEO} > -200V$
- $I_C = -0.3A$ Continuous Collector Current
- $I_{CM} = -1A$ Peak Pulse Current
- 500mW power dissipation

Mechanical Data

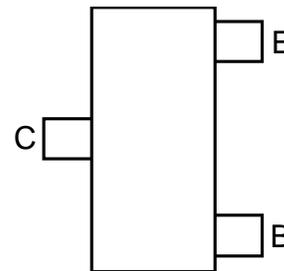
- Package: SOT23
- Package Material: Molded plastic, "Green" molding compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight 0.008 grams (Approximate)



Top View



Device Symbol



Top View
Pin-Out

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-220	V
Collector-Emitter Voltage	V_{CEO}	-200	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-0.3	A
Peak Pulse Current	I_{CM}	-1	A
Base Current	I_B	-200	mA

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

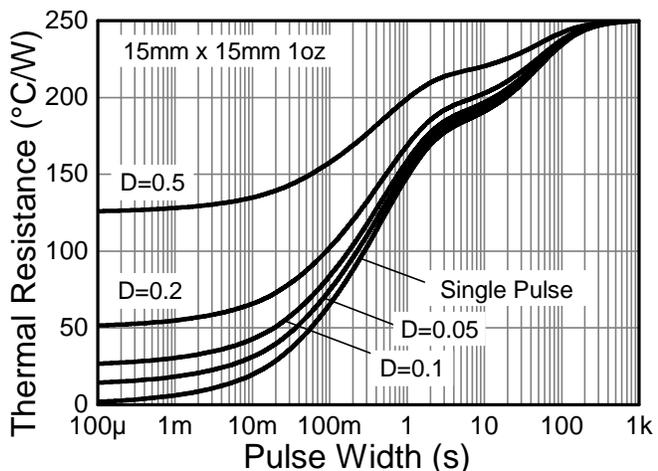
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	500	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	197	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

ESD Ratings (Note 7)

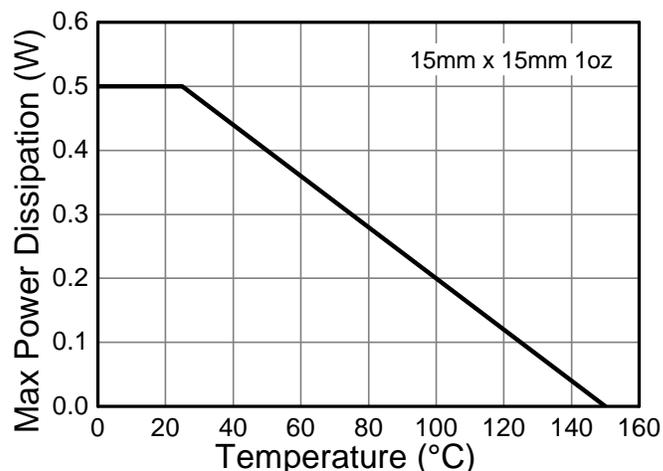
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	2,000	V	2
Electrostatic Discharge - Charged Device Model	ESD CDM	1,000	V	C3

- Notes:
5. For a device mounted with the collector lead on 15mm x 15mm 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 6. Thermal resistance from junction to solder-point (at the end of the collector lead).
 7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

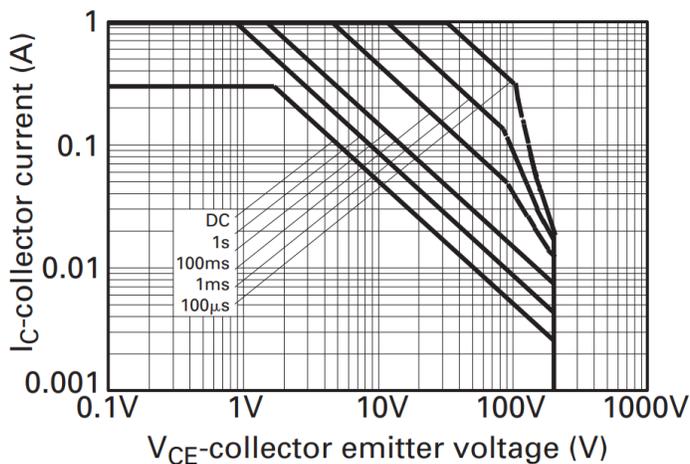
Thermal Characteristics and Derating information



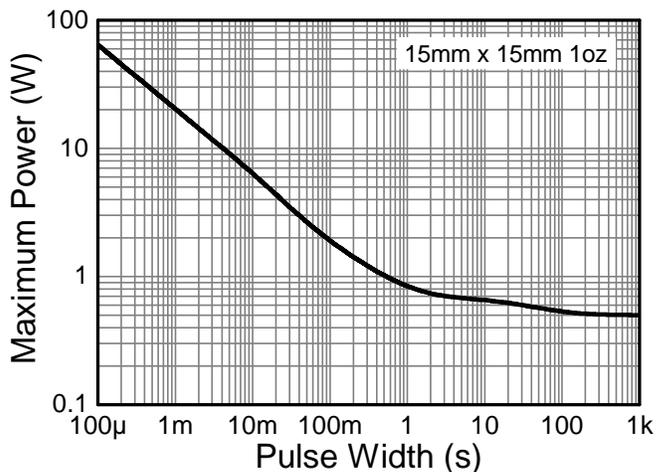
Transient Thermal Impedance



Derating Curve



Safe operating area



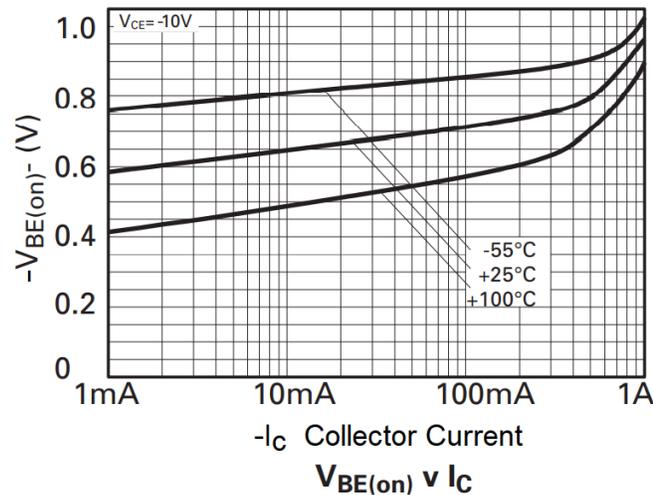
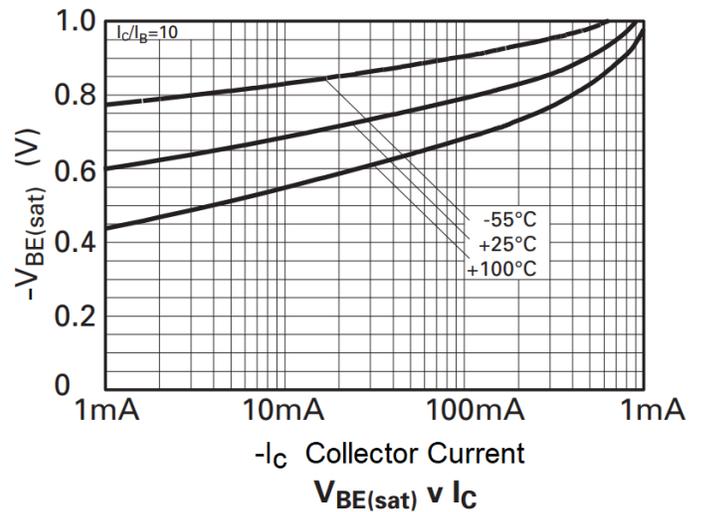
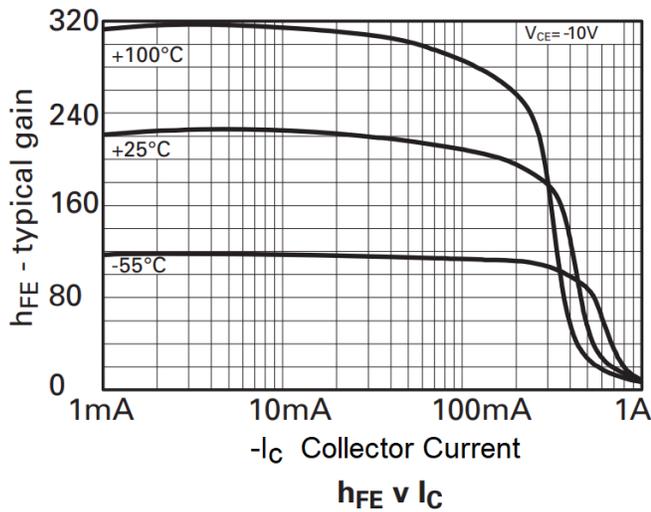
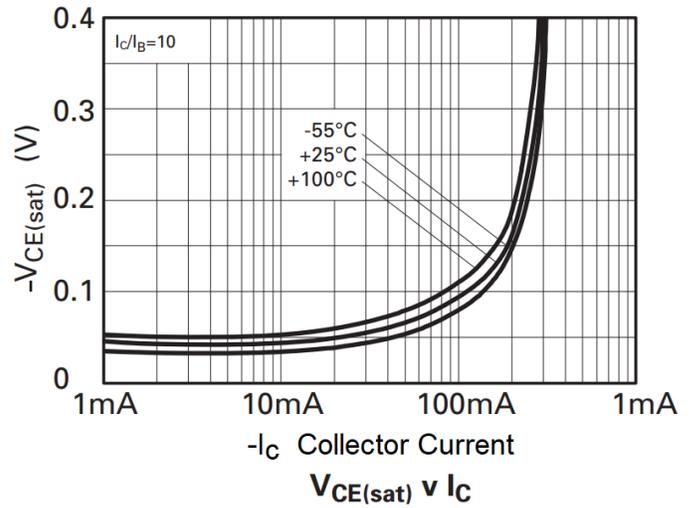
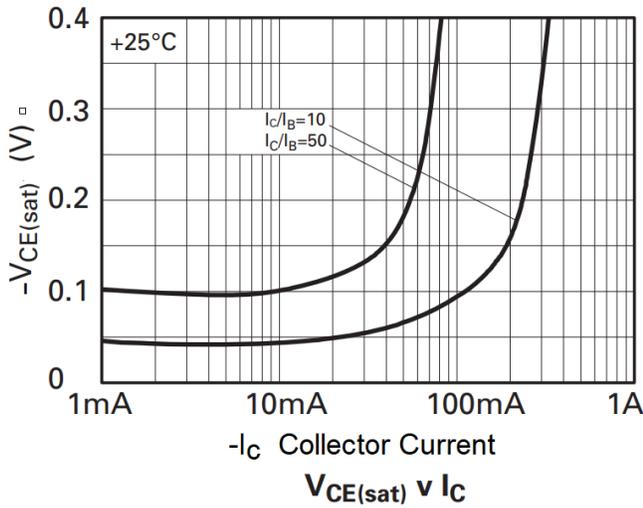
Pulse Power Dissipation

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-220	-	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	-200	-	-	V	$I_C = -10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-	-	V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	-	-	-100	nA	$V_{CB} = -200\text{V}$
Emitter Cutoff Current	I_{EBO}	-	-	-100	nA	$V_{EB} = -5\text{V}$
Collector Emitter Cutoff Current	I_{CES}	-	-	-100	nA	$V_{CES} = -200\text{V}$
Static Forward Current Transfer Ratio (Note 8)	h_{FE}	100	-	-	-	$I_C = -1\text{mA}, V_{CE} = -10\text{V}$
		100	-	-		$I_C = -100\text{mA}, V_{CE} = -10\text{V}$
		85	-	300		$I_C = -250\text{mA}, V_{CE} = -10\text{V}$
		35	-	-		$I_C = -400\text{mA}, V_{CE} = -10\text{V}$
Collector-Emitter Saturation Voltage (Note 8)	$V_{CE(sat)}$	-	-	-0.2	V	$I_C = -100\text{mA}, I_B = -10\text{mA}$
		-	-	-0.35	V	$I_C = -250\text{mA}, I_B = -25\text{mA}$
Base-Emitter Turn-On Voltage(Note 8)	$V_{BE(on)}$	-	-	-0.9	V	$I_C = -250\text{mA}, V_{CE} = -10\text{V}$
Base-Emitter Saturation Voltage(Note 8)	$V_{BE(sat)}$	-	-	-1.0	V	$I_C = -250\text{mA}, I_B = -25\text{mA}$
Output Capacitance	C_{obo}	-	-	10	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Transition Frequency	f_T	150	-	-	MHz	$V_{CE} = -10\text{V}, I_C = -50\text{mA}, f = 100\text{MHz}$
Switching Times	t_d	-	22	-	ns	$V_{CC} = -80\text{V}, I_C = -200\text{mA}$ $I_{B1} = -I_{B2} = -20\text{mA}$
	t_r	-	19	-		
	t_s	-	472	-		
	t_f	-	70	-		
Switching Times	t_d	-	44	-	ns	$V_{CC} = -80\text{V}, I_C = -100\text{mA}$ $I_{B1} = -I_{B2} = -10\text{mA}$
	t_r	-	31	-		
	t_s	-	665	-		
	t_f	-	76	-		

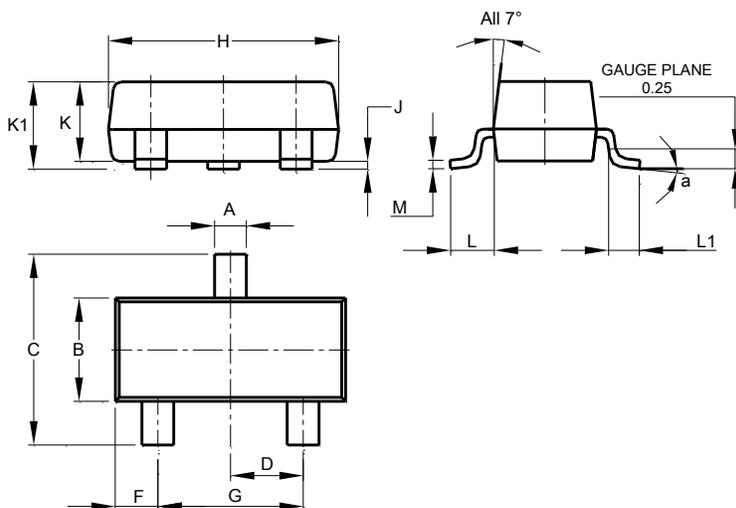
 Notes: 8. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$

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



Package Outline Dimensions

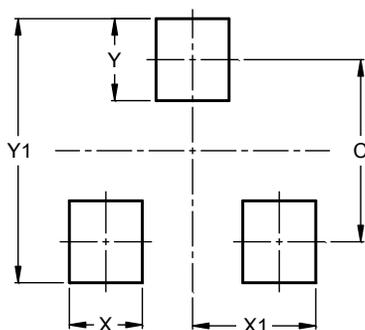
SOT23



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	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9