



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

- $BV_{CEO} > -12V$
- $I_C = -3A$ Continuous Current
- $I_{CM} = -10A$ Peak Pulse Current

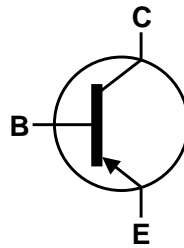
Mechanical Data

- Package: SOT223
- Package 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)

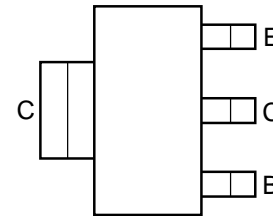
SOT223 (Type DN)



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}	-12	V
Collector-Emitter Voltage	V _{CEO}	-12	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current	I _C	-3	A
Peak Pulse Current	I _{CM}	-10	A
Base Current	I _B	-500	mA

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

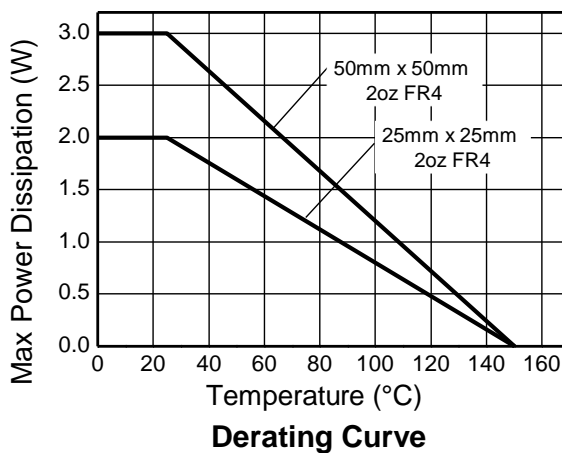
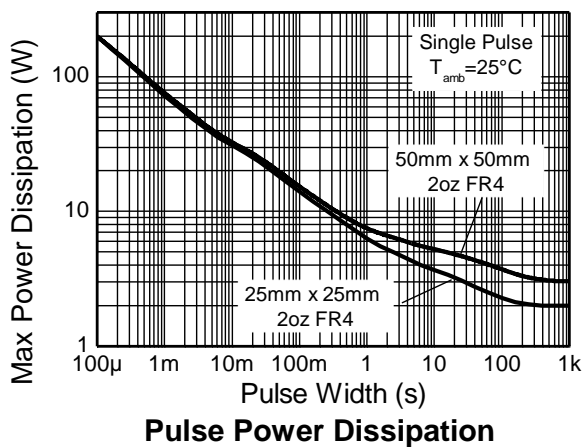
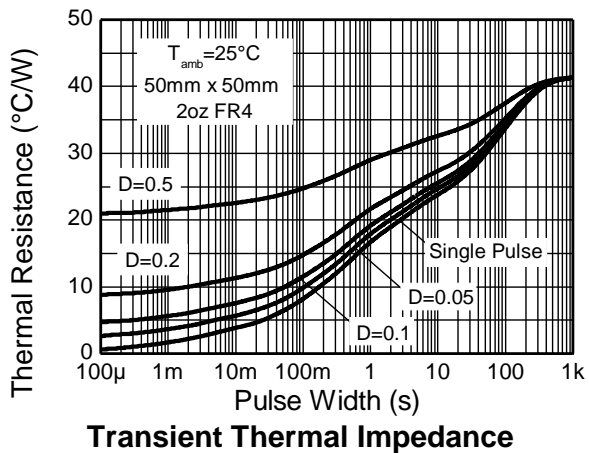
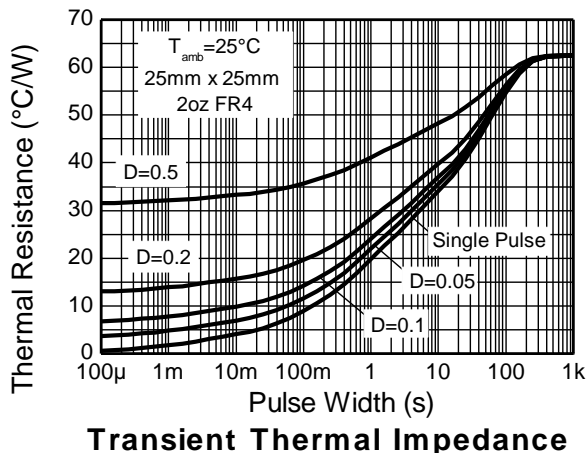
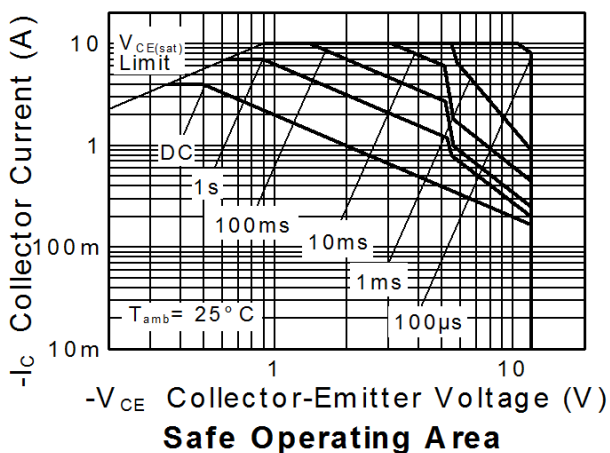
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	(Note 5)	3
		(Note 6)	2
		(Note 7)	1.6
		(Note 8)	1.2
Thermal Resistance, Junction to Ambient	R _{θJA}	(Note 5)	41.7
		(Note 6)	62.5
		(Note 7)	78.1
		(Note 8)	104
Thermal Resistance, Junction to Leads	R _{θJL}	12.9	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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 collector lead on 50mm x 50mm 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.
 6. Same as Note 5, except the device is mounted on 25mm x 25mm 2oz copper.
 7. Same as Note 5, except the device is mounted on 25mm x 25mm 1oz copper.
 8. Same as Note 5, except the device is mounted on minimum recommended pad layout.
 9. Thermal resistance from junction to solder-point (at the end of the collector lead).
 10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

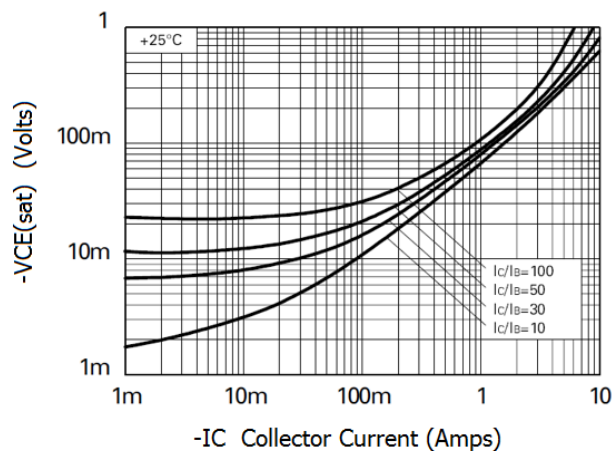


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

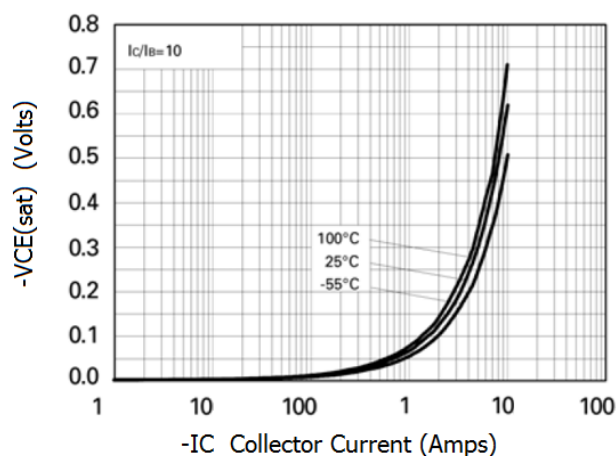
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-12	—	—	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	-12	—	—	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	—	—	V	I _E = -100μA
Collector Cut-Off Current	I _{CBO}	—	-1	-100	nA	V _{CB} = -10V
Emitter Cut-Off Current	I _{EBO}	—	-1	-100	nA	V _{EB} = -6V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	—	—	-20	mV	I _C = -100mA, I _B = -10mA
				-150		I _C = -1A, I _B = -10mA
				-320		I _C = -3A, I _B = -50mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	—	—	-1.05	V	I _C = -3A, I _B = -50mA
Base-Emitter Turn-On Voltage (Note 11)	V _{BE(on)}	—	—	-1	V	I _C = -3A, V _{CE} = -2V
DC Current Gain (Note 11)	h _{FE}	—	—	—	—	I _C = -10mA, V _{CE} = -2V
						I _C = -100mA, V _{CE} = -2V
						I _C = -3A, V _{CE} = -2V
						I _C = -8A, V _{CE} = -2V
						I _C = -10A, V _{CE} = -2V
Current Gain-Bandwidth Product	f _T	80	110	—	MHz	I _C = -50mA, V _{CE} = -10V, f = 100MHz
Output Capacitance	C _{obo}	—	21	30	pF	V _{CB} = -10V, f = 1MHz
Switching Time	t _{on}	—	70	—	ns	I _C = -2A, V _{CC} = -6V, I _{B1} = -I _{B2} = -50mA
	t _{off}		130		ns	

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

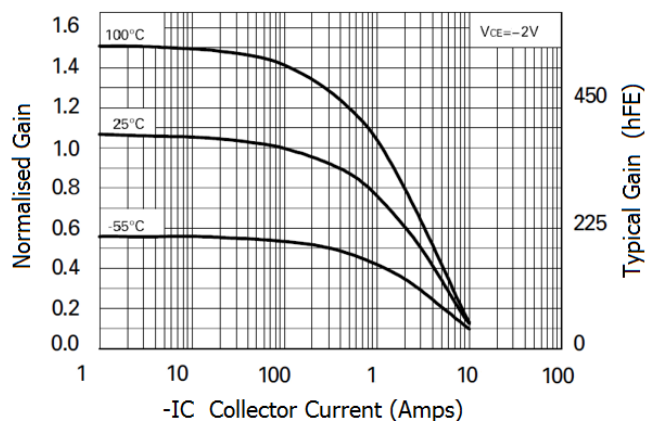
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



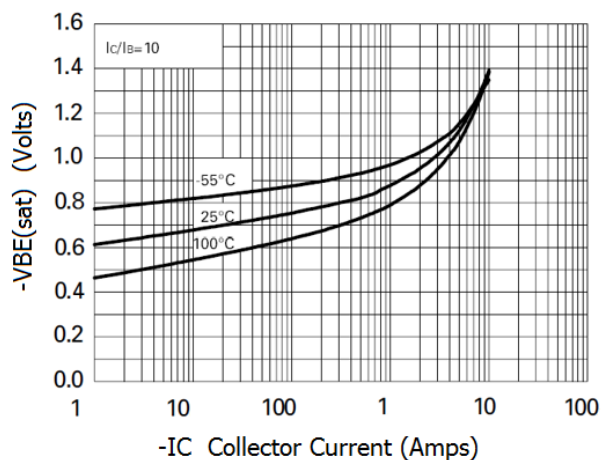
$V_{CE(sat)}$ VS I_C



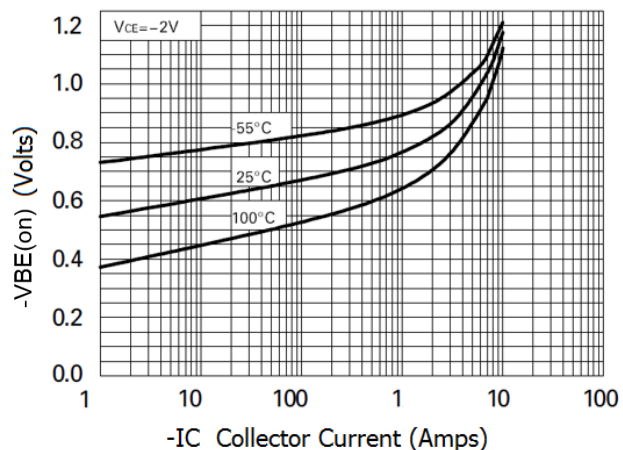
$V_{CE(sat)}$ VS I_C



h_{FE} VS I_C



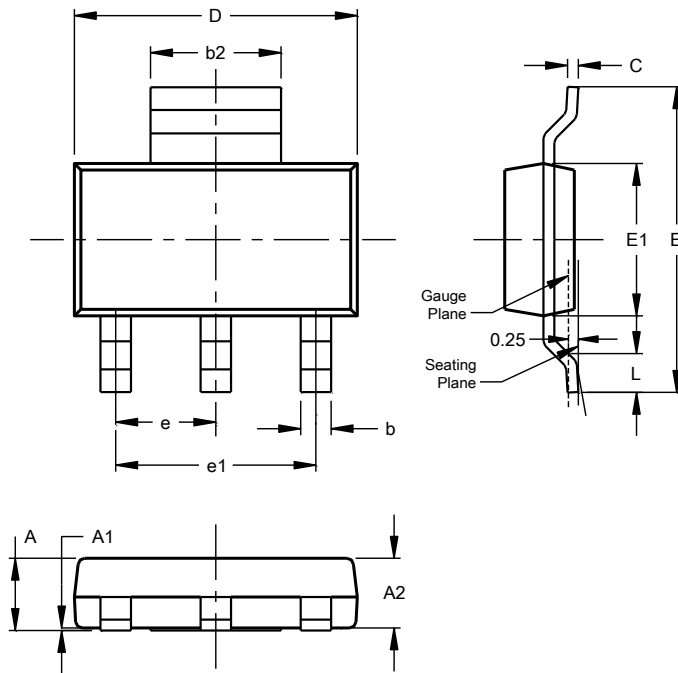
$V_{BE(sat)}$ VS I_C



$V_{BE(on)}$ VS I_C

Package Outline Dimensions

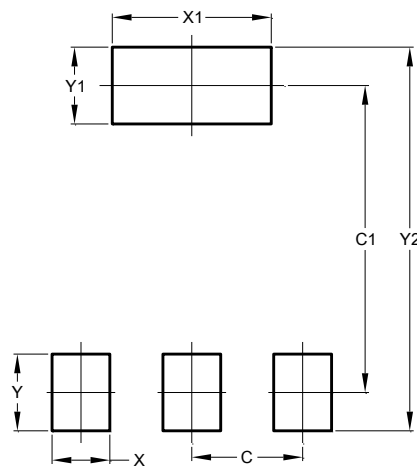
SOT223 (Type DN)



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Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

SOT223 (Type DN)



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