



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

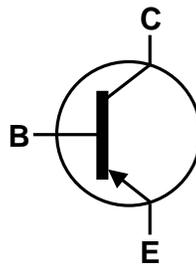
- $BV_{CEO} > -400V$
- $I_C = -0.5A$ High Continuous Collector Current
- $I_{CM} = -1.5A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -400mV @ -0.5A$
- h_{FE} Specified up to -2A for a High Gain Hold-Up

Mechanical Data

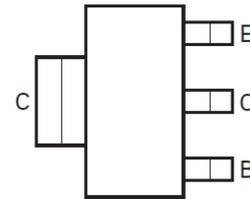
- Package: SOT223 (Type DN)
- Package Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.112 grams (Approximate)



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	-0.5	A
Peak Pulse Current	I _{CM}	-1.5	A

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

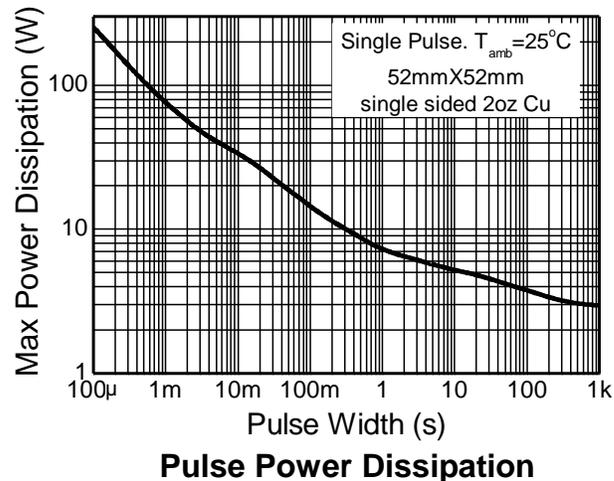
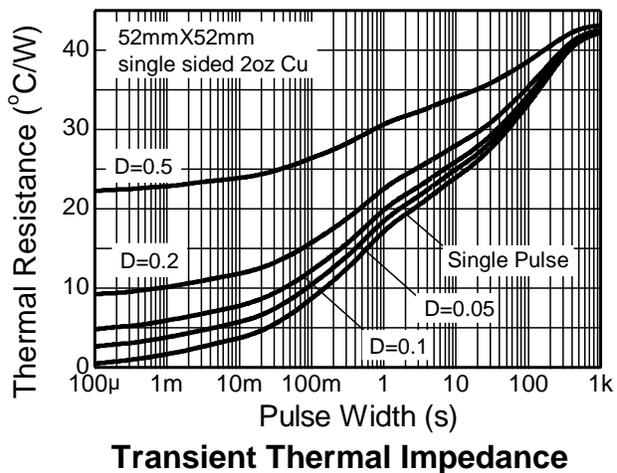
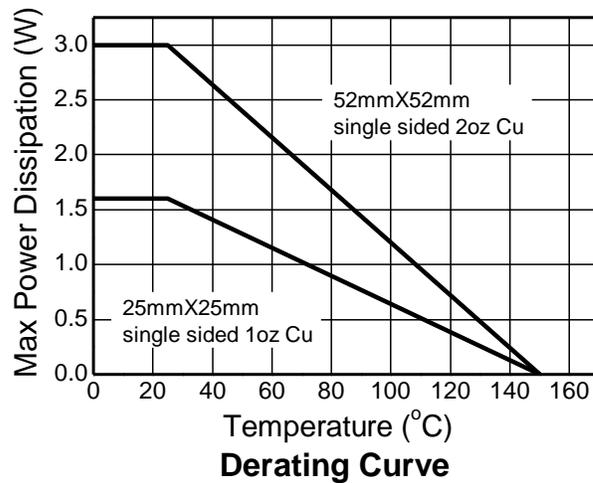
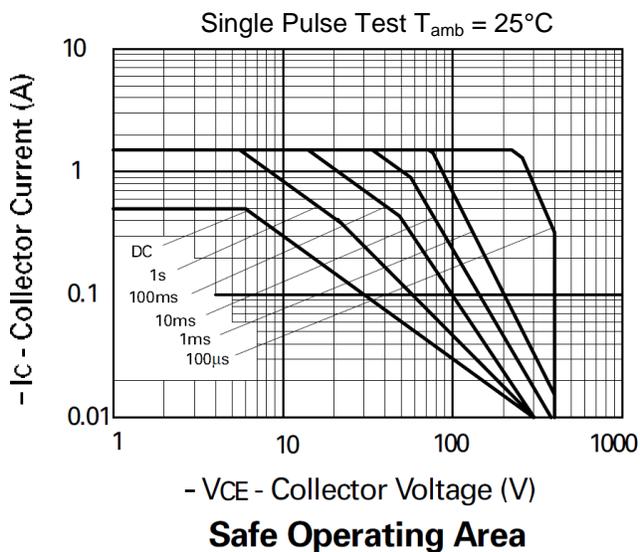
Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	P _D	3.0	W
		24	
		1.6	
Thermal Resistance, Junction to Ambient	R _{θJA}	42	°C/W
		78	
Thermal Resistance, Junction to Lead	R _{θJL}	8.8	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	

ESD Ratings (Note 8)

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 52mm x 52mm 2oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in steady-state.
 6. Same as Note 5, except the device is mounted on 25mm x 25mm 1oz copper.
 7. Thermal resistance from junction to solder-point (at the end of the collector lead).
 8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

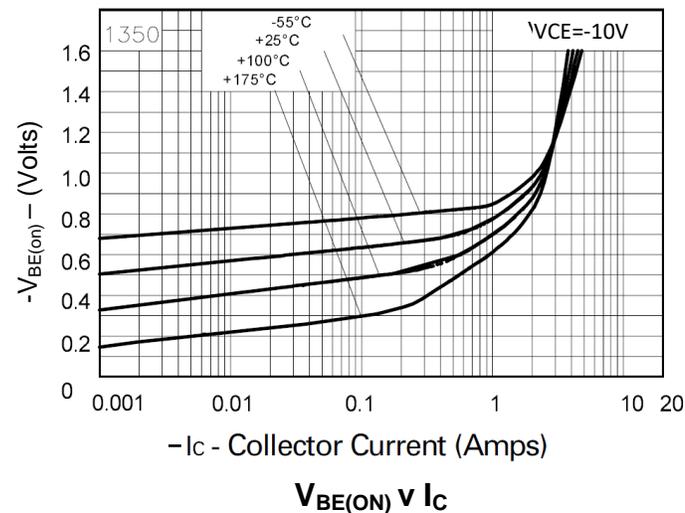
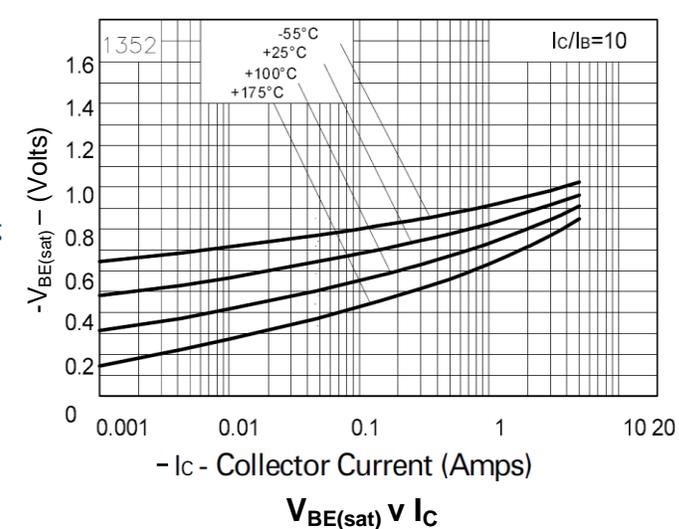
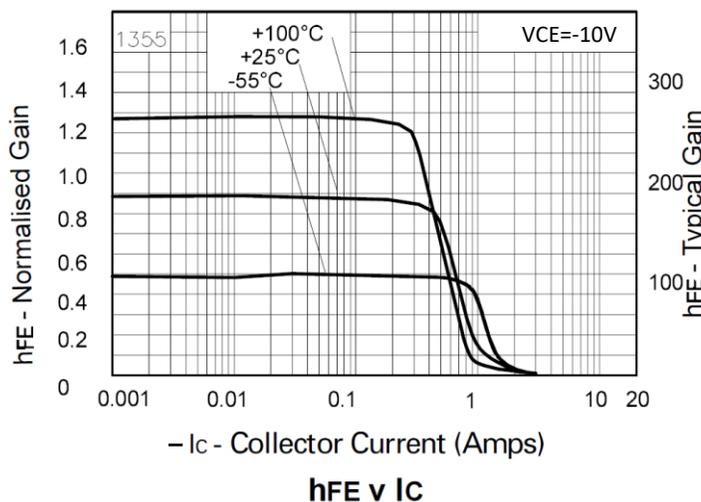
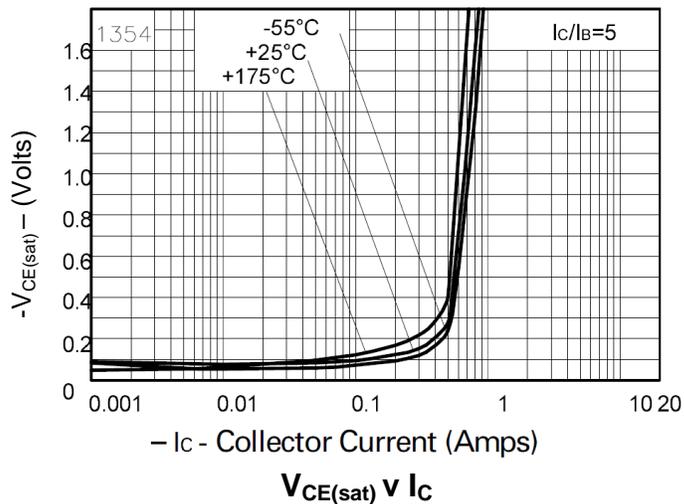
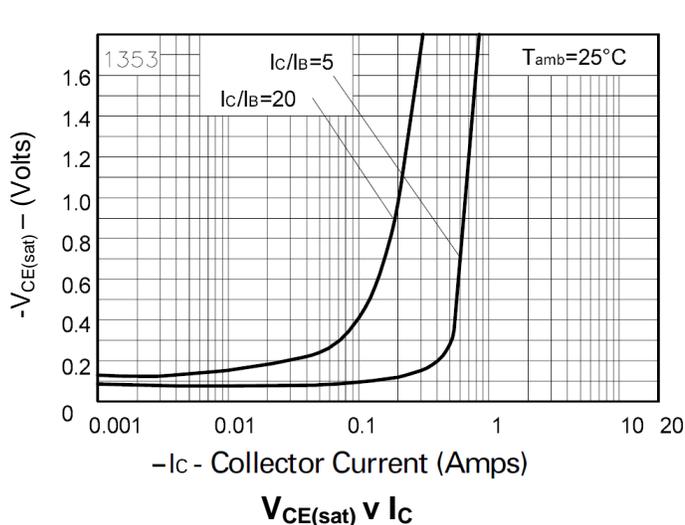


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-400	-600	—	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CER}	-400	-600	—	V	$I_C = -1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	-400	-550	—	V	$I_C = -10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8	—	V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}	—	—	-50	nA	$V_{CB} = -300\text{V}$
		—	—	-1	μA	$V_{CB} = -300\text{V}$, $T_A = +100^\circ\text{C}$
Collector Cut-Off Current	I_{CER}	—	—	-50	nA	$V_{CE} = -300\text{V}$, $R \leq 1\text{k}\Omega$
		—	—	-1	μA	$V_{CE} = -300\text{V}$, $R \leq 1\text{k}\Omega$, $T_A = +100^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}	—	—	-10	nA	$V_{EB} = -6\text{V}$
DC Current Transfer Static Ratio (Note 9)	h_{FE}	100	200	—	—	$I_C = -10\text{mA}$, $V_{CE} = -10\text{V}$
		100	200	300		$I_C = -0.5\text{A}$, $V_{CE} = -10\text{V}$
		10	20	—		$I_C = -1\text{A}$, $V_{CE} = -10\text{V}$
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	—	-100	-150	mV	$I_C = -10\text{mA}$, $I_B = -1\text{mA}$
		—	-150	-200		$I_C = -100\text{mA}$, $I_B = -10\text{mA}$
		—	-340	-400		$I_C = -500\text{mA}$, $I_B = -100\text{mA}$
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	—	-830	-950	mV	$I_C = -0.5\text{A}$, $I_B = -100\text{mA}$
Base-Emitter Turn-On Voltage (Note 9)	$V_{BE(on)}$	—	-725	-840	mV	$I_C = -0.5\text{A}$, $V_{CE} = -10\text{V}$
Transitional Frequency	f_T	—	85	—	MHz	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$, $f = 50\text{MHz}$
Output Capacitance	C_{obo}	—	19	—	pF	$V_{CB} = -20\text{V}$, $f = 1\text{MHz}$
Switching Time	t_{on}	—	104	—	ns	$V_{CC} = -100\text{V}$, $I_C = -500\text{mA}$, $I_{B1} = -I_{B2} = -50\text{mA}$
	t_{off}	—	2,400	—		

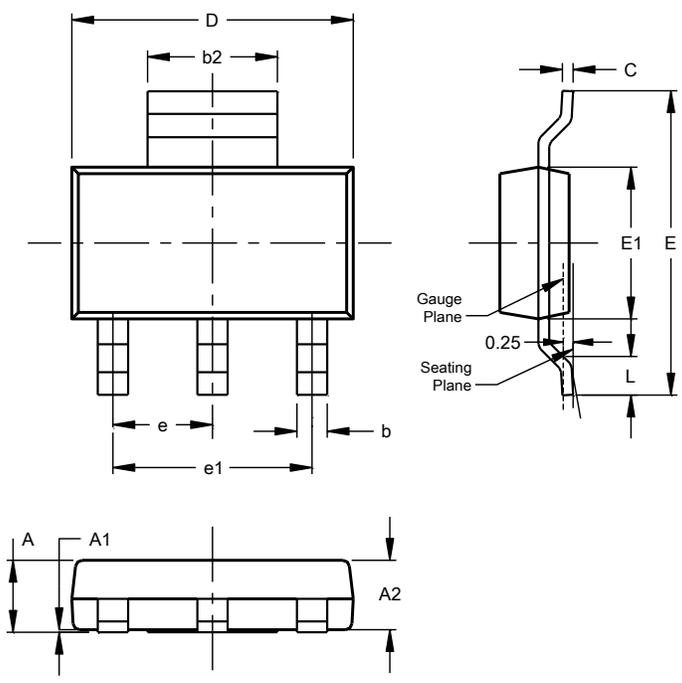
 Note: 9. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

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



Package Outline Dimensions

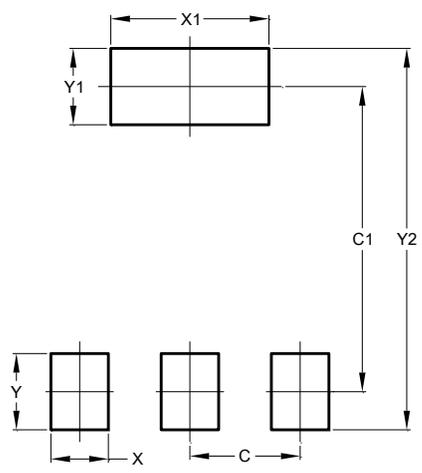
SOT223 (Type DN)



SOT223 (Type DN)			
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