优尚

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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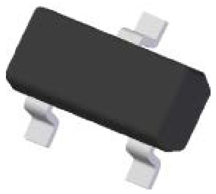
Features

- BV_{CEO} > 60V
- I_{CM} = 800mA Peak Pulse Current
- 330mW Power Dissipation
- Darlington Transistor with h_{FE} >10k at I_C = 500mA

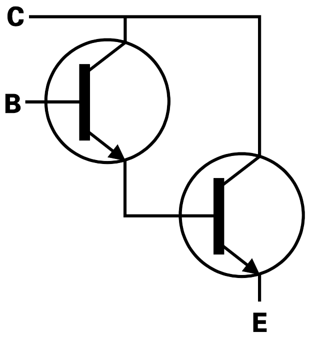
Mechanical Data

- Case: SOT23
- 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 e3
- Weight: 0.008 grams (Approximate)

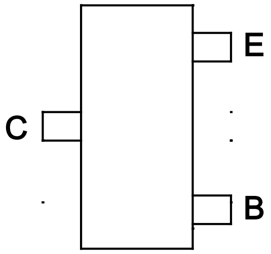
SOT23



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_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	10	V
Continuous Collector Current	I_C	300	mA
Peak Pulse Current	I_{CM}	800	mA

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

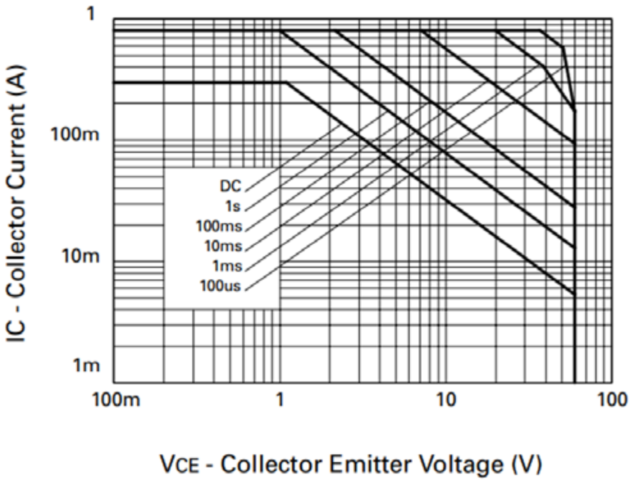
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	330	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	378	°C/W
Thermal Resistance, Junction to Case (Note 7)	$R_{\theta JC}$	306	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 8)

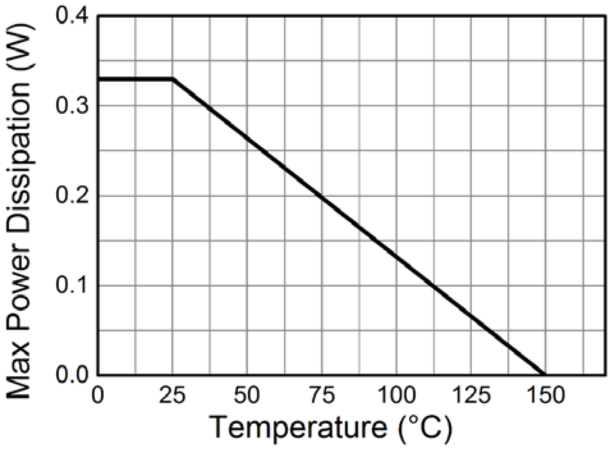
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge—Human Body Model	ESD HBM	2000	V	2
Electrostatic Discharge—Machine Model	ESD MM	200	V	B

Notes:
6. For a device mounted on 15mm × 15mm 1oz weight copper that is on a single-sided FR4 PCB; device is measured under still air conditions while operating in a steady-state.
7. Thermal resistance from junction to the top of the case.
8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

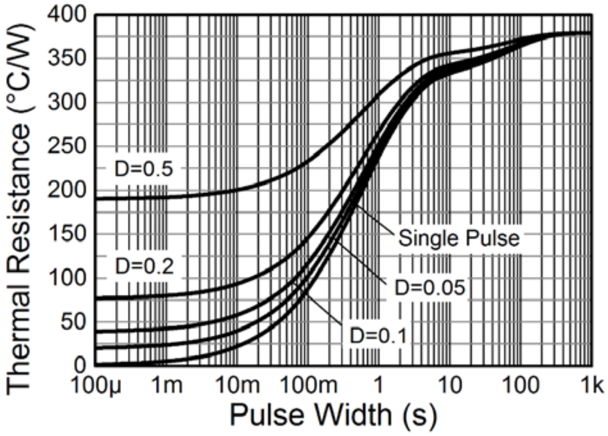
Thermal Characteristics and Derating Information



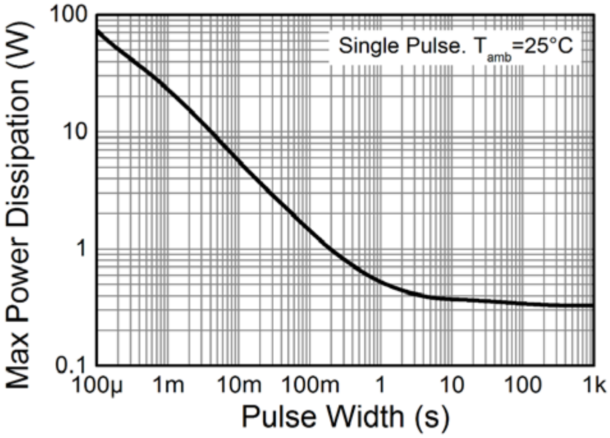
Safe Operating Area



Derating Curve



Transient Thermal Impedance



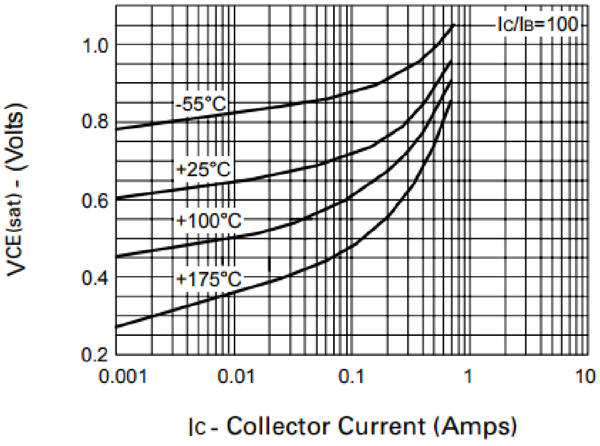
Pulse Power Dissipation

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

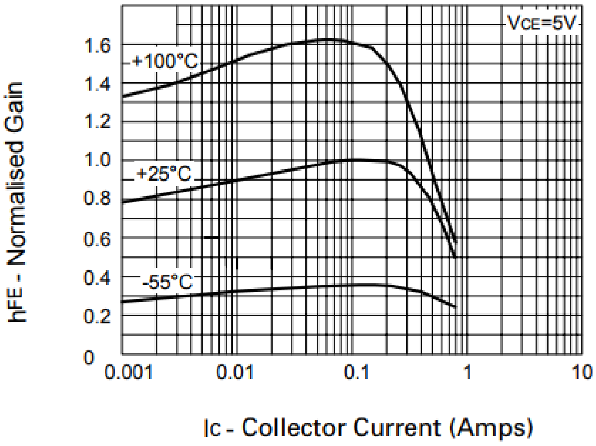
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	80	180	—	V	I_C = 100µA
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	60	75	—	V	I_C = 10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	10	16	—	V	I_E = 100µA
Collector Cutoff Current	I_{CBO}	—	1.5	100	nA	V_{CB} = 60V
Emitter Cutoff Current	I_{EBO}	—	1	100	nA	V_{EB} = 8V
Static Forward Current Transfer Ratio (Note 9)	h_{FE}	5k 10k	— 27k	—	—	I_C = 100mA, V_{CE} = 5V I_C = 500mA, V_{CE} = 5V
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(SAT)}$	—	0.89	1.25	V	I_C = 800mA, I_B = 8mA
Base-Emitter Turn-On Voltage (Note 9)	$V_{BE(ON)}$	—	1.3	1.8	V	I_C = 800mA, V_{CE} = 5V

Note: 9. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.

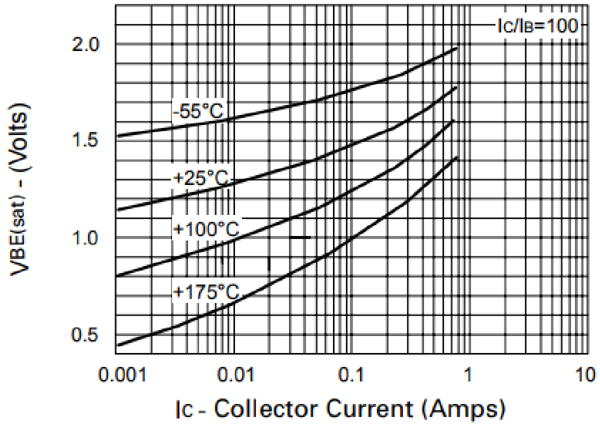
Typical Electrical Characteristics (@T$_A$ = +25°C, unless otherwise specified.)



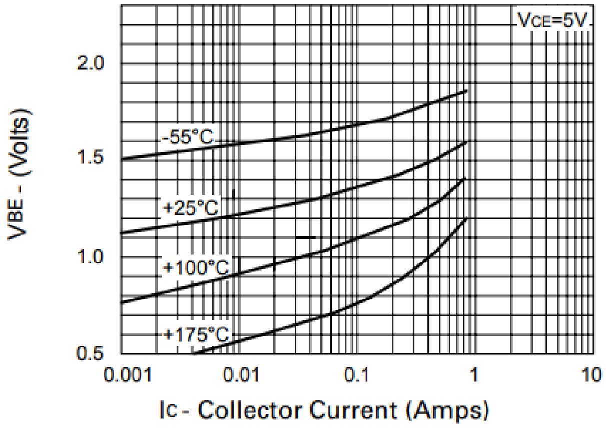
VCE(sat) v IC



hFE v IC



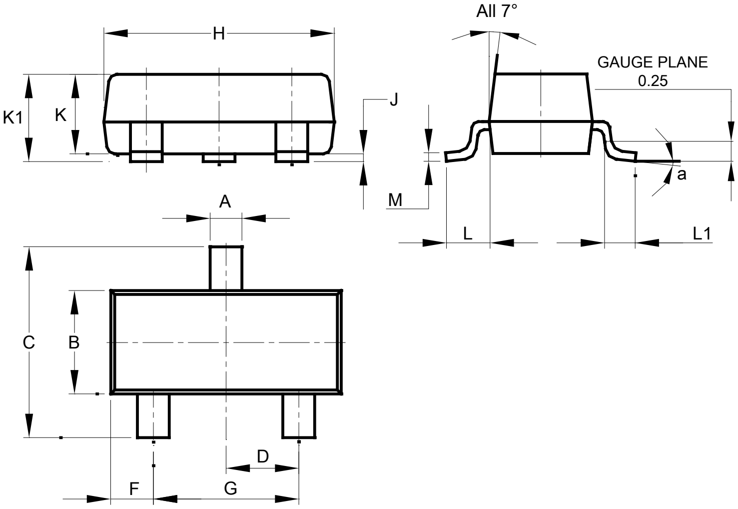
VBE(sat) v IC



VBE(on) v IC

Package Outline Dimensions

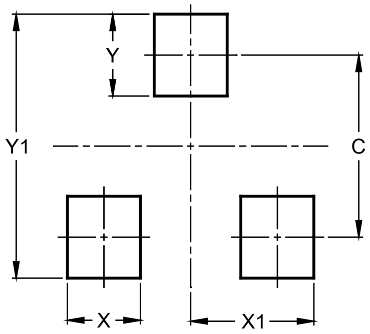
SOT23



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