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} > 25V
- BV_{CBO} > 35V forward blocking voltage
- I_C = 3A high Continuous Collector Current
- Low saturation voltage, $V_{CE(SAT)}$ < 120mV @1A
- $R_{CE(SAT)}$ = 77mΩ for a low equivalent On-Resistance
- 725mW Power dissipation
- h_{FE} specified up to 6A for high current gain hold up
- Complementary PNP Type: ZXTP749F

Mechanical Data

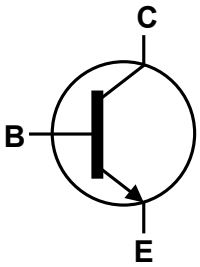
- Case: SOT23
- Case Material: molded plastic, “Green” molding compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208
- Weight 0.008 grams (approximate)

Applications

- MOSFET gate drivers
- Power switching in automotive and industrial applications
- Motor drive and control

SOT23

Top View



Device Symbol

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	3	A
Peak Pulse Current	I_{CM}	6	A
Base Current	I_B	500	mA

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

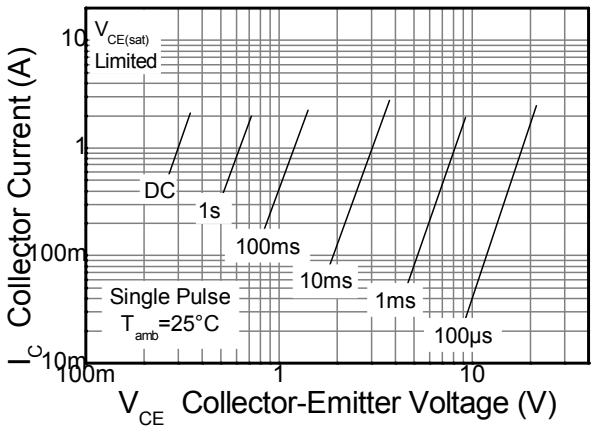
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	725	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	172	°C/W
Thermal Resistance, Junction to Leads	(Note 6)	$R_{\theta JL}$	79	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 7)

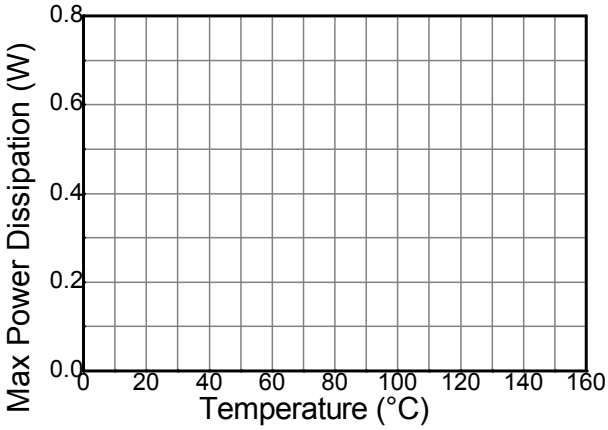
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

Notes:
5. For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
6. Thermal resistance from junction to solder-point (at the end of collector lead).
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

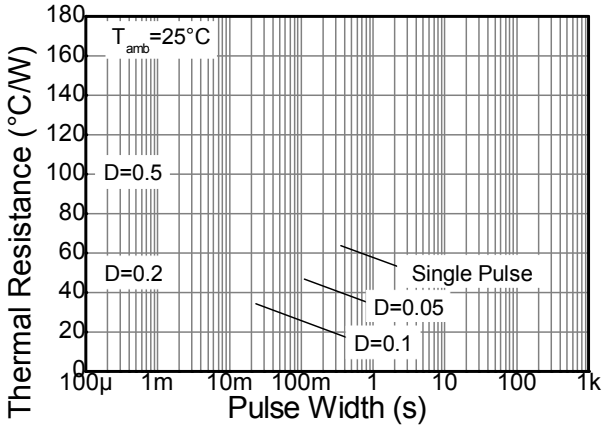
Thermal Characteristics and Derating information



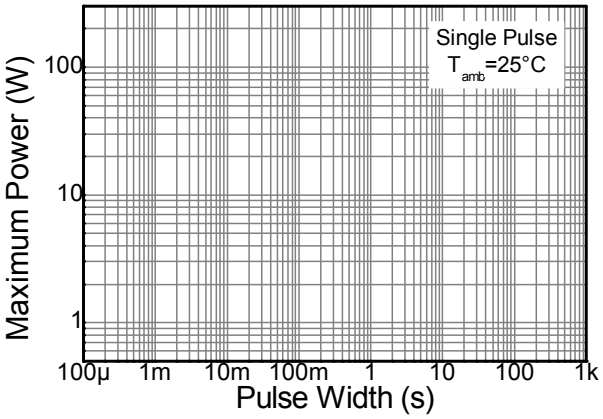
Safe Operating Area



Derating Curve



Transient Thermal Impedance



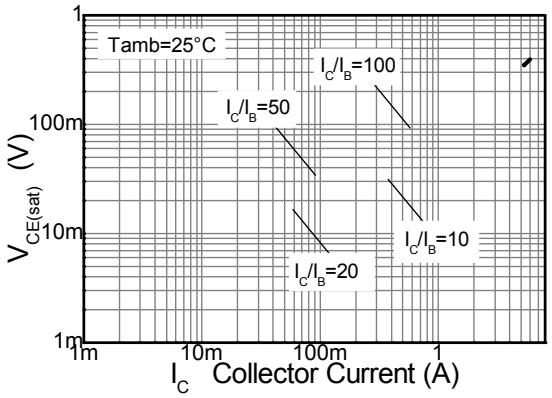
Pulse Power Dissipation

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

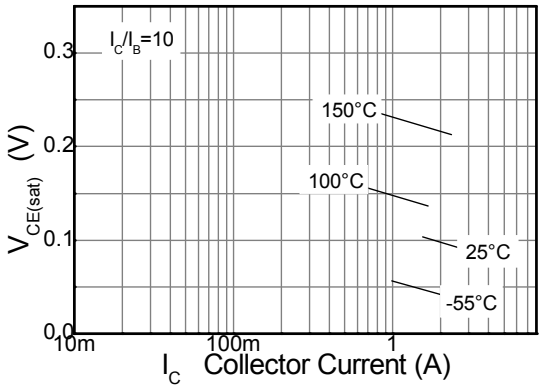
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	35	110	-	V	I_C = 100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	25	35	-	V	I_C = 10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.1	-	V	I_E = 100μA
Collector Cut-off Current	I_{CBO}	-	<1	50 0.5	nA μA	V_{CB} = 28V V_{CB} = 28V, T_A = +100°C
Emitter Cut-off Current	I_{EBO}	-	<1	50	nA	V_{EB} = 5.6V
Static Forward Current Transfer Ratio (Note 8)	h_{FE}	200 175 155 50	320 280 250 85	500 - - -	-	I_C = 100mA, V_{CE} = 2V I_C = 1A, V_{CE} = 2V I_C = 2A, V_{CE} = 2V I_C = 6A, V_{CE} = 2V
Collector-Emitter Saturation Voltage (Note 8)	$V_{CE(sat)}$	- -	70 200	120 300	mV	I_C = 1A, I_B = 100mA I_C = 3A, I_B = 300mA
Base-Emitter Saturation Voltage (Note 8)	$V_{BE(sat)}$	-	900	1000	mV	I_C = 1A, I_B = 100mA
Base-Emitter Saturation Voltage (Note 8)	$V_{BE(on)}$	-	780	850	mV	I_C = 1A, V_{CE} = 2V

Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

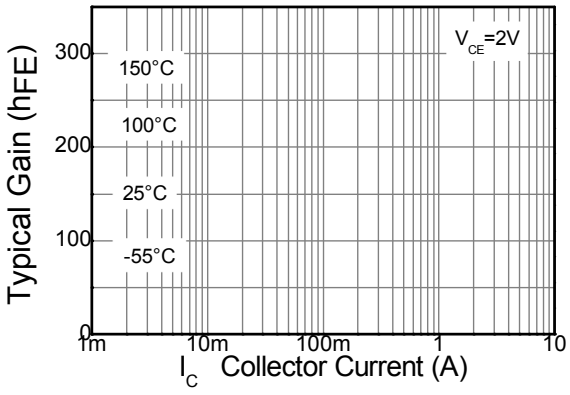
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



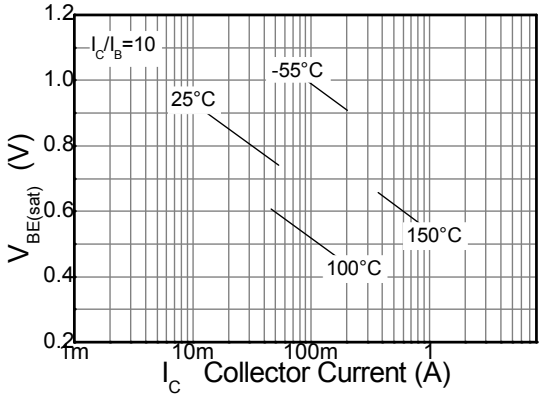
$V_{CE(sat)}$ v I_C



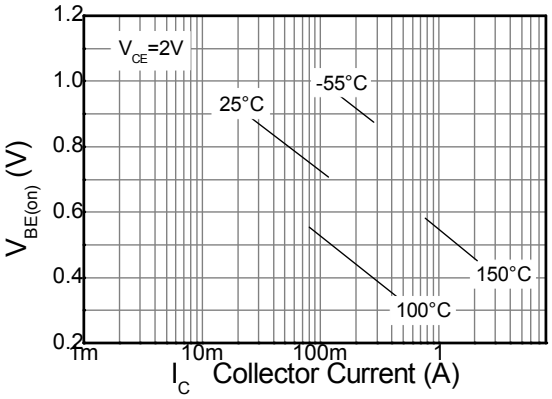
$V_{CE(sat)}$ v I_C



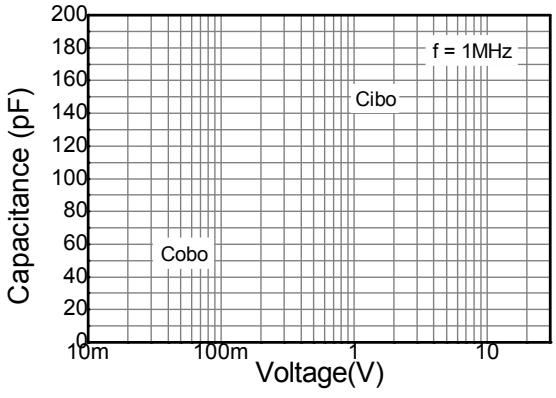
h_{FE} v I_C



$V_{BE(sat)}$ v I_C

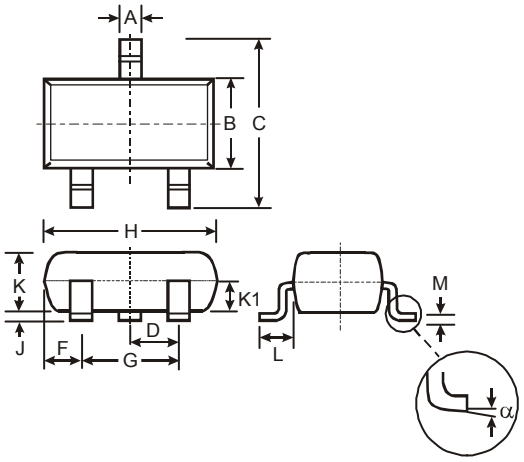


$V_{BE(on)}$ v I_C



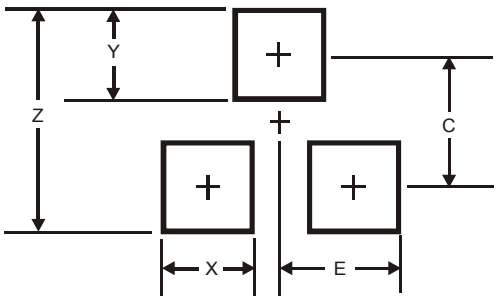
Capacitance v Voltage

Package Outline Dimensions



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35