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

0755-83047638
ysbdt@szyoushang.cn
www.szyoushang.cn

企业微信二维码

企业QQ二维码

Features

- BV_{CEO} > -25V
- BV_{CEO} > -35V forward blocking voltage
- I_C = -3A Continuous Collector Current
- Low Saturation Voltage, $V_{CE(SAT)}$ < -150mV @ -1A.
- $R_{CE(sat)}$ = 87mΩ for a low equivalent on-resistance
- 725mW power dissipation
- h_{FE} characterised up to -6A for high current gain hold-up
- Complementary NPN Type: NK-ZXTN649F

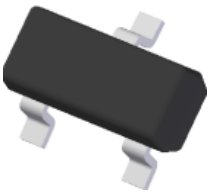
Mechanical Data

- 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 e3
- Weight 0.008 grams (Approximate)

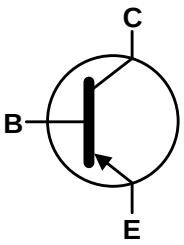
Application

- MOSFET Gate Drivers
- Power Switching in Automotive and Industrial Applications
- Motor Drive and Control

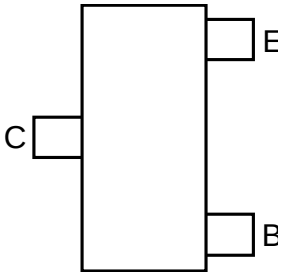
SOT23



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}	-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
Peak Pulse Current	I_{BM}	-2	A

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

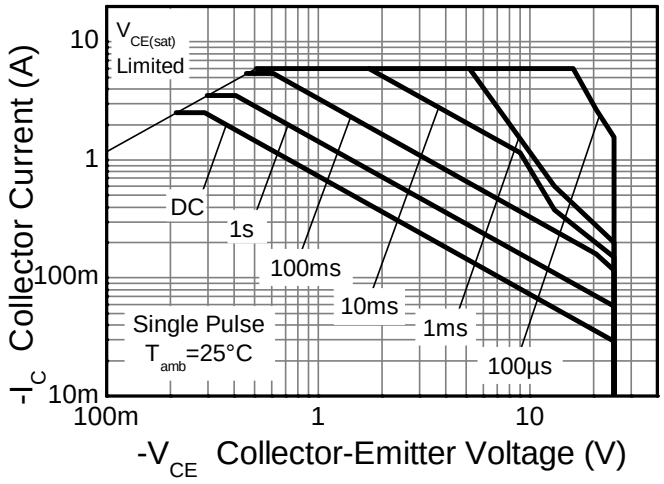
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	725	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	172	°C/W
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	79	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 7)

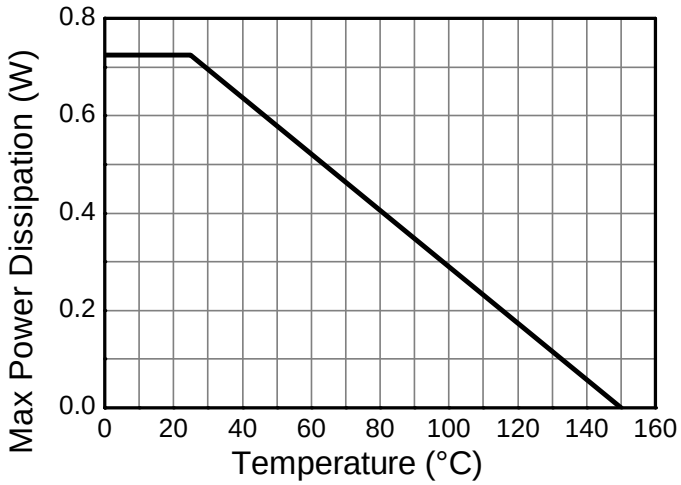
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1 oz. 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 the collector lead).
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

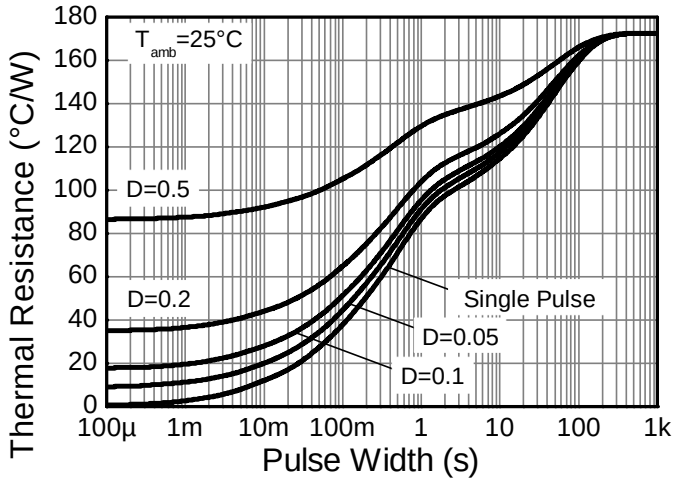
Thermal Characteristics and Derating information



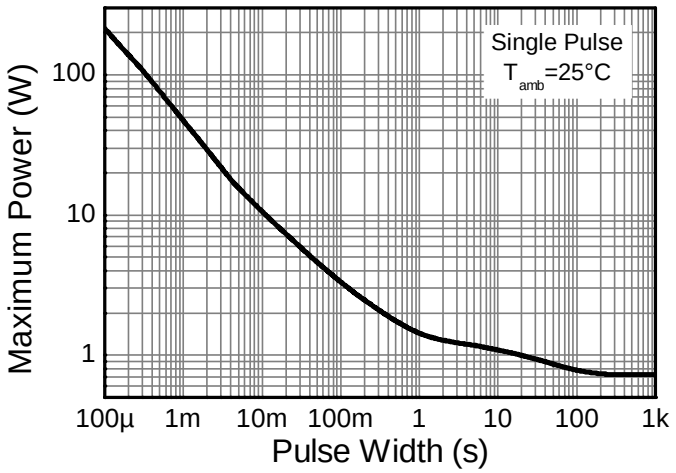
Safe Operating Area



Derating Curve



Transient Thermal Impedance



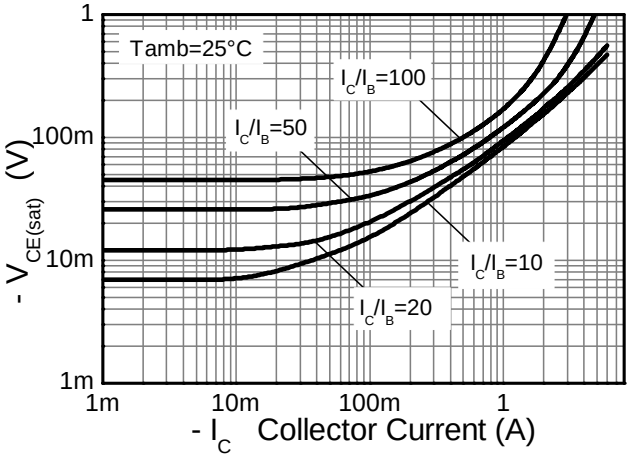
Pulse Power Dissipation

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

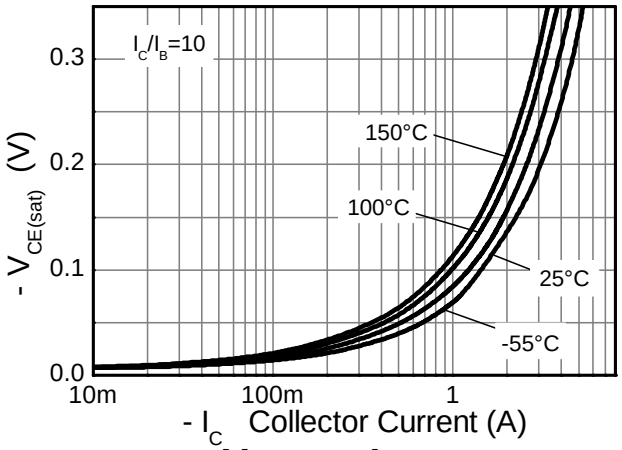
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-35	-60	-	V	I_C = -100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	-25	-40	-	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.4	-	V	I_E = -100μA
Collector Cutoff Current	I_{CBO}	-	<1	-50 -0.5	nA μA	V_{CB} = -28V V_{CB} = -28V, T_A = +100°C
Emitter Cutoff Current	I_{EBO}	-	<1	-50	nA	V_{EB} = -5.6V
Static Forward Current Transfer Ratio (Note 8)	h_{FE}	200 130 100 25	320 230 180 50	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)	$V_{CE(sat)}$	- -	-85 -229	-150 -350	mV	I_C = -1A, I_B = -100mA I_C = -3A, I_B = -300mA
Base-Emitter Turn-On Voltage (Note 8)	$V_{BE(on)}$	-	-786	-850	mV	I_C = -1A, V_{CE} = -2V
Base-Emitter Saturation Voltage (Note 8)	$V_{BE(sat)}$	-	-895	-1,000	mV	I_C = -1A, I_B = -100mA

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

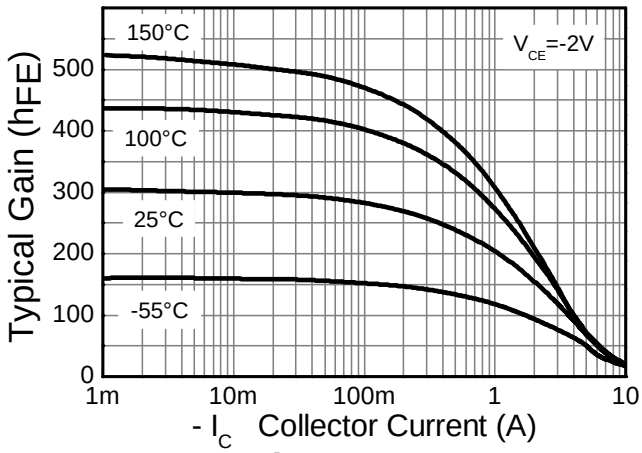
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



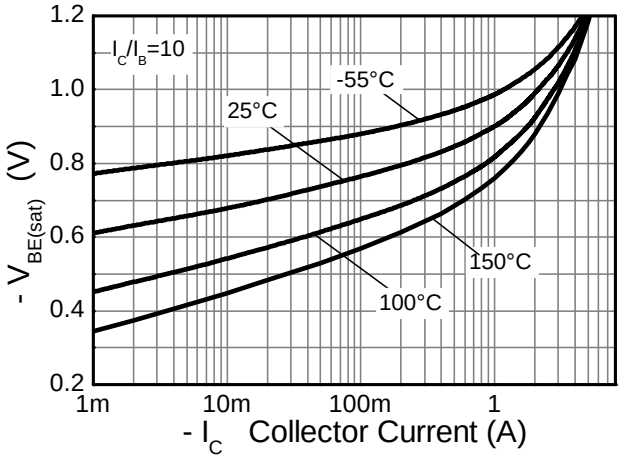
$V_{CE(sat)}$ v I_C



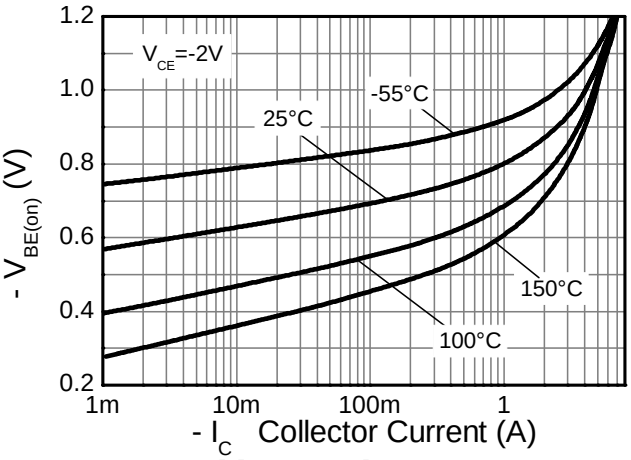
$V_{CE(sat)}$ v I_C



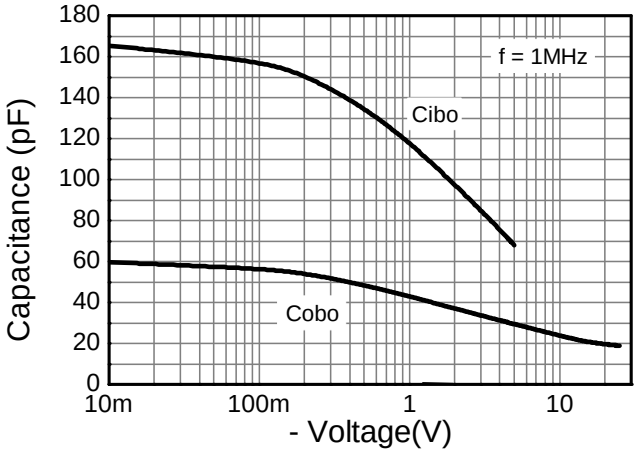
h_{FE} v I_C



$V_{BE(sat)}$ v I_C

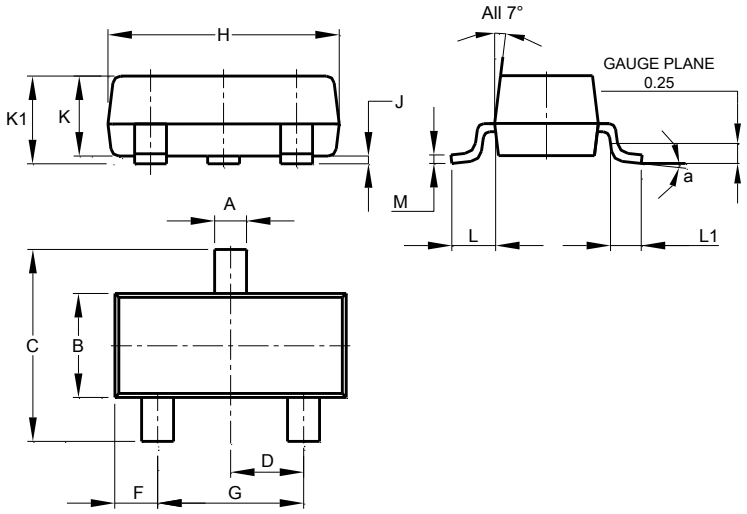


$V_{BE(on)}$ v I_C



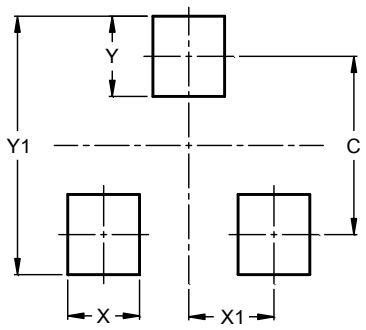
Capacitance v Voltage

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	0.890	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



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