



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

- $BV_{CEO} > -200V$
- $BV_{ECO} > -2V$
- Continuous current $I_{C(cont)} = 2A$
- $V_{CE(sat)} < -160mV @ -1A$
- $R_{CE(sat)} = 130m\Omega$
- $P_D = 2.4W$
- 2 Amps continuous current
- Up to 5 Amps peak current
- Very low saturation voltage
- Enhanced switching performance

Mechanical Data

- Case: SOT-89
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.052 grams (approximate)

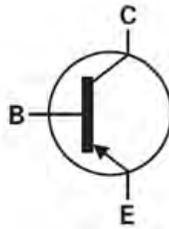
Applications

- DC-DC Convertors

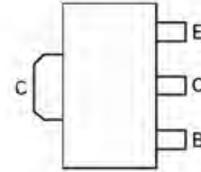
SOT-89



Top View



Device symbol



Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

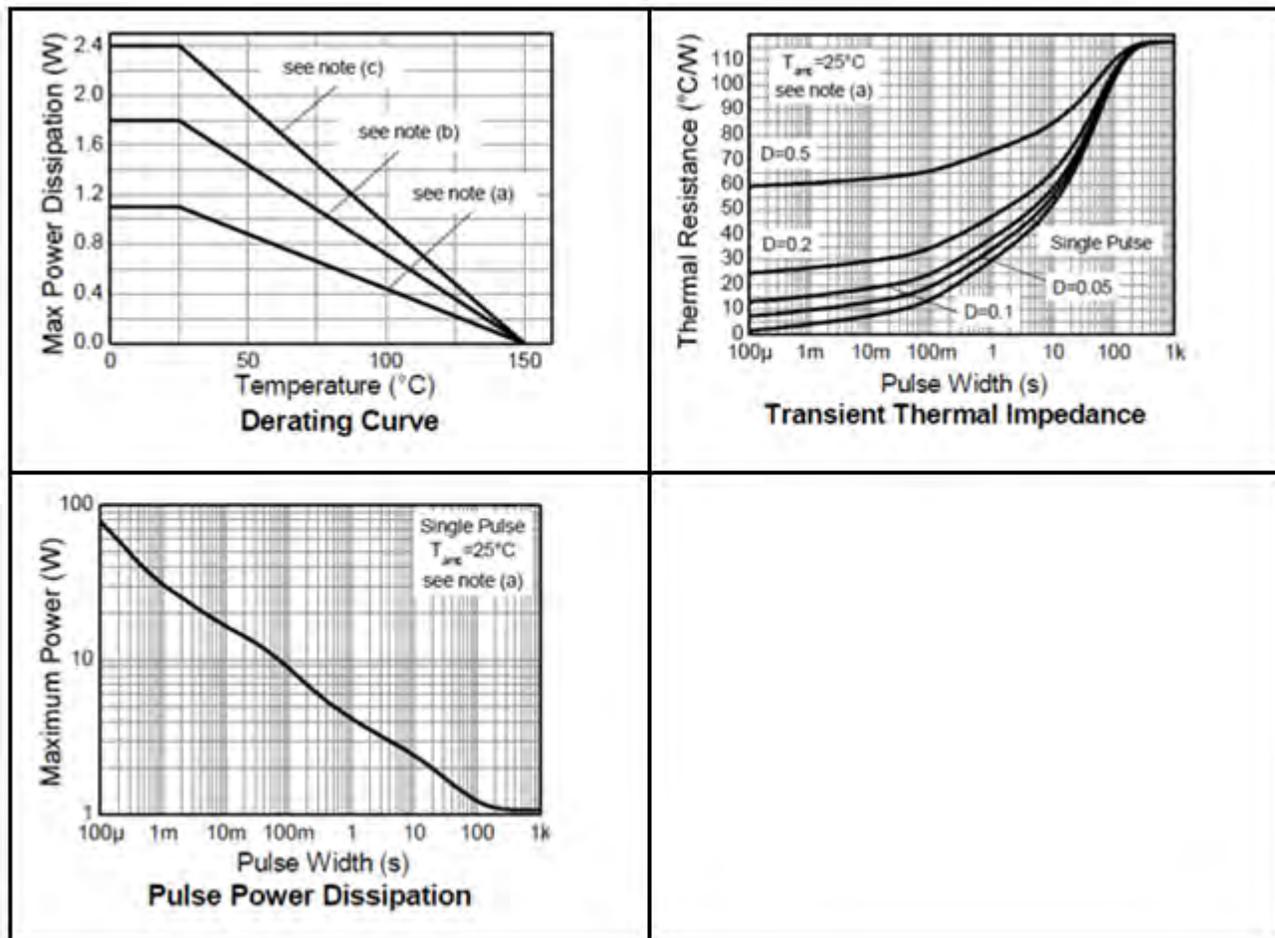
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	-220	V
Collector-Emitter Voltage	V _{CEO}	-200	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current (Note a)	I _C	-2	A
Base Current	I _B	-1	A
Peak Pulse Current	I _{CM}	-5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation at T _A = 25°C (Note a) Linear derating factor	P _D	1.1 8.8	W mW/°C
Power Dissipation at T _A = 25°C (Note b) Linear derating factor	P _D	1.8 14.4	W mW/°C
Power Dissipation at T _A = 25°C (Note c) Linear derating factor	P _D	2.4 19.2	W mW/°C
Power Dissipation at T _A = 25°C (Note d) Linear derating factor	P _D	4.46 35.7	W mW/°C
Power Dissipation at T _A = 25°C (Note e) Linear derating factor	P _D	38.7 309.6	W mW/°C
Junction to Ambient (Note a)	R _{θJA}	117	°C/W
Junction to Ambient (Note b)	R _{θJA}	68	°C/W
Junction to Ambient (Note c)	R _{θJA}	51	°C/W
Junction to Ambient (Note d)	R _{θJA}	28	°C/W
Junction to Lead (Note e)	R _{θJL}	3.23	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- a. 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
 - b. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions.
 - c. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 2 oz copper, in still air conditions.
 - d. As (c) above measured at t<5 seconds
 - e. Junction to lead from collector Tab. Typical

Thermal Characteristics and Derating information

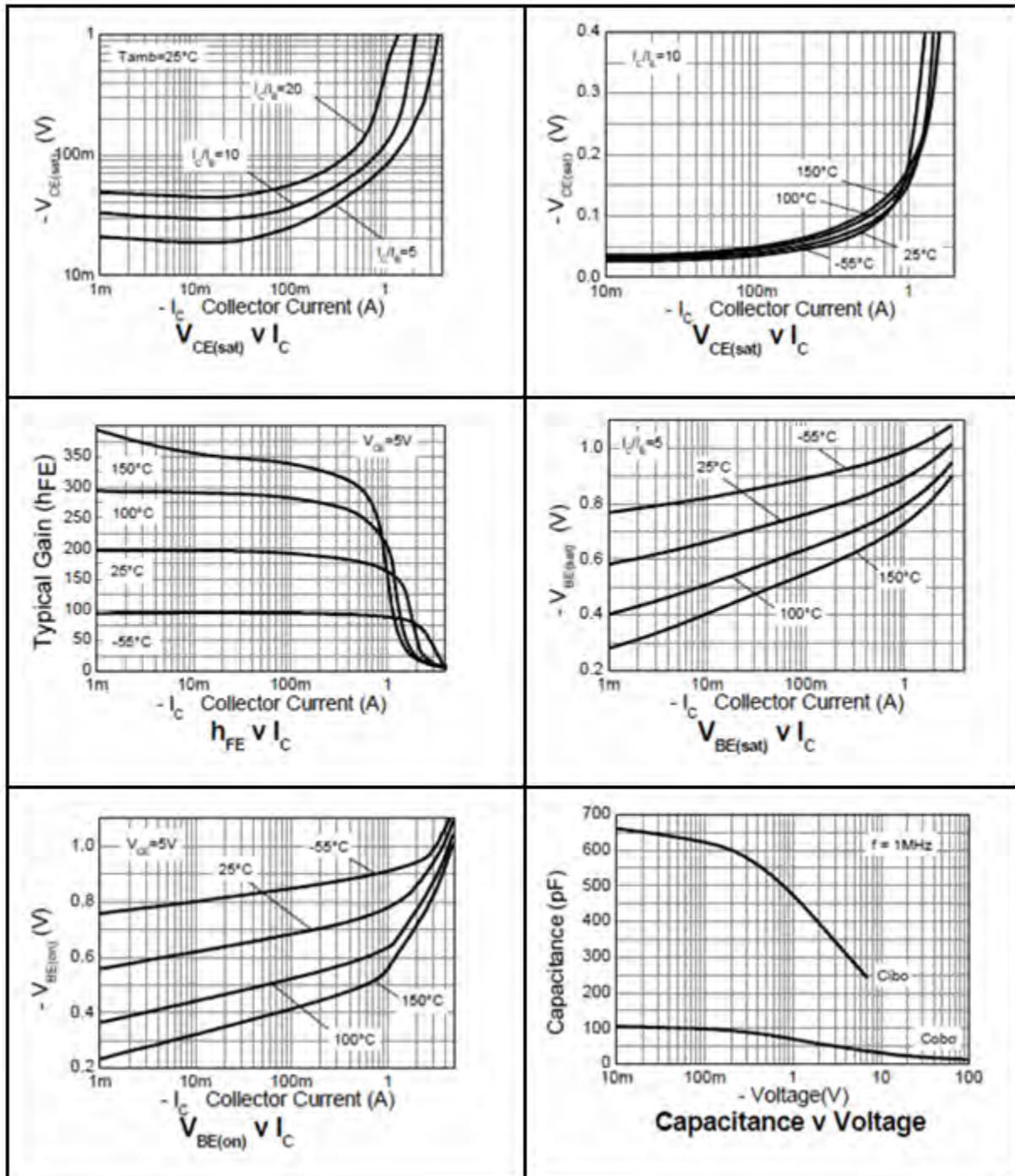


Electrical Characteristics @T_A = 25°C unless otherwise specified

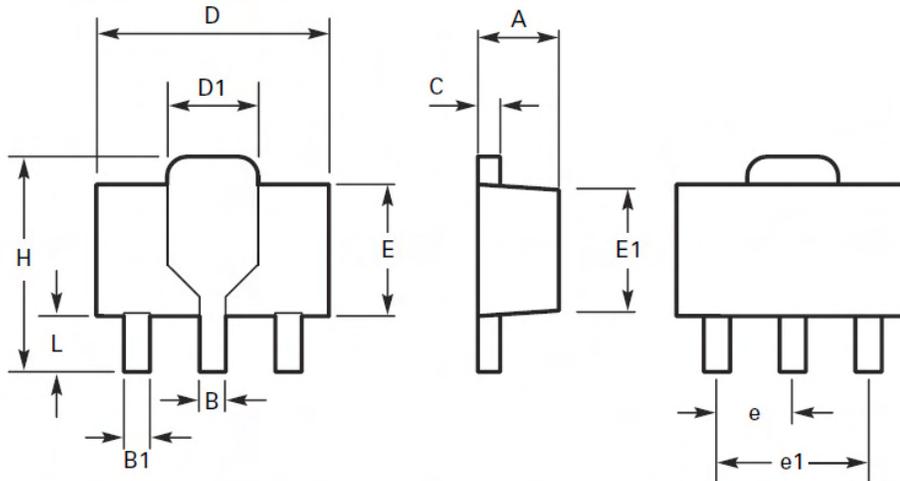
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-220	-245		V	I _C = -100μA
Collector-Emitter Breakdown Voltage	V _{(BR)CER}	-220	-245		V	I _C = -1μA, R _{BE} ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note f)	V _{(BR)CEO}	-220	-225		V	I _C = -10mA
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-7	-8.4		V	I _E = -100μA
Collector-Base Cutoff Current	I _{CBO}		<1	-50 -0.5	nA μA	V _{CB} = -200V V _{CB} = -200V, T _{amb} = 100°C
Emitter Cutoff Current	I _{EBO}		<1	-10	nA	V _{EB} = -6V
Static Forward Current Transfer Ratio (Note f)	h _{FE}	100 100 20	195 179 50 5	300		I _C = -10mA, V _{CE} = -5V I _C = -1A, V _{CE} = -5V I _C = -2A, V _{CE} = -5V I _C = -5A, V _{CE} = -5V
Collector-Emitter Saturation Voltage (Note f)	V _{CE(SAT)}		-37 -120 -130 -160	-50 -155 -160 -260	mV mV mV mV	I _C = -100mA, I _B = -10mA I _C = -500mA, I _B = -25mA I _C = -1A, I _B = -100mA I _C = -2A, I _B = -400mA
Base-Emitter Saturation Voltage (Note f)	V _{BE(sat)}		-940	-1100	mV	I _C = -2A, I _B = -400mA
Base-Emitter Turn-On Voltage (Note f)	V _{BE(ON)}		-840	-1000	mV	I _C = -2A, V _{CE} = -5V
Output Capacitance (Note f)	C _{obo}		31		pF	V _{CB} = -10V, f = 1MHz
Transition Frequency	f _T		105		MHz	V _{CE} = -10V, I _C = -100mA f = 50MHz
Delay Time	t _d		21		ns	V _{CC} = -50V, I _C = -1A I _{B1} = -I _{B2} = -100mA
Rise Time	t _r		18		ns	
Storage Time	T _s		680		ns	
Fall Time	T _f		75		ns	

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

Typical Characteristics



Package Outline Dimensions



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	1.40	1.60	0.550	0.630	E	2.29	2.60	0.090	0.102
B	0.44	0.56	0.017	0.022	E1	2.13	2.29	0.084	0.090
B1	0.36	0.48	0.014	0.019	e	1.50 BSC		0.059 BSC	
C	0.35	0.44	0.014	0.017	e1	3.00 BSC		0.118 BSC	
D	4.40	4.60	0.173	0.181	H	3.94	4.25	0.155	0.167
D1	1.52	1.83	0.064	0.072	L	0.89	1.20	0.035	0.047

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

Suggested Pad Layout

