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} > 100V
- Max continuous current $I_{C\ (cont)}$ = 1A
- h_{FE} > 100 @ I_C = 150mA, V_{CE} = 200mV

Mechanical Data

- Case: SOT89
- Case material: molded Plastic. “Green” molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.052 grams (Approximate)
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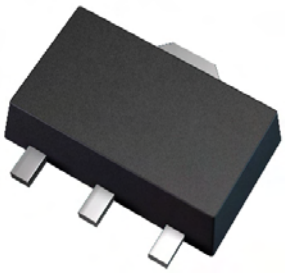
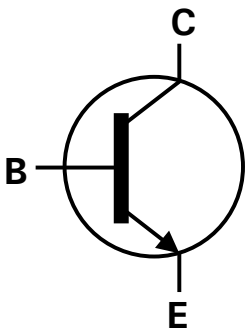
Applications

LED TV backlight

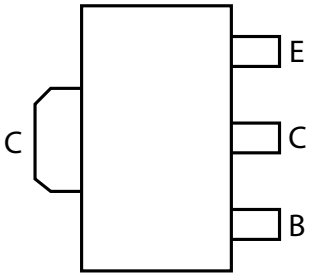
SOT89



Top View



Device symbol



Top View
Pin Out

Maximum Ratings @T_A = 25°C unless otherwise specified

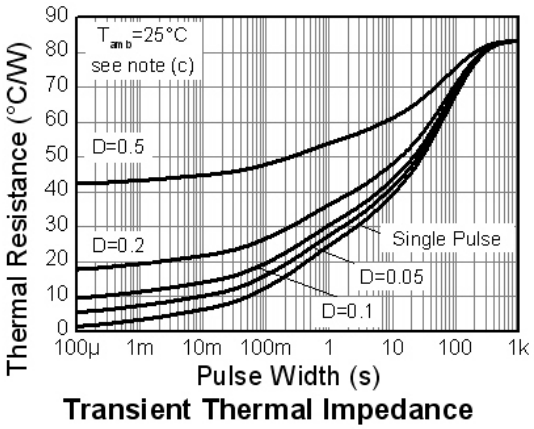
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	1	A
Peak Pulse Current (Note 4)	I_{CM}	3	A
Base Current	I_B	500	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

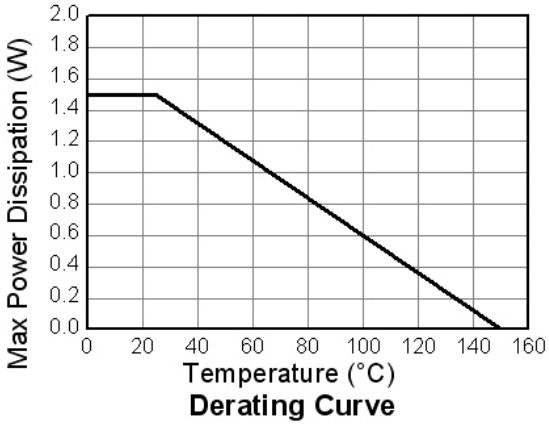
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	83	°C/W
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	22.44	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.
5. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
6. Thermal resistance from junction to solder-point (at the end of the collector lead).

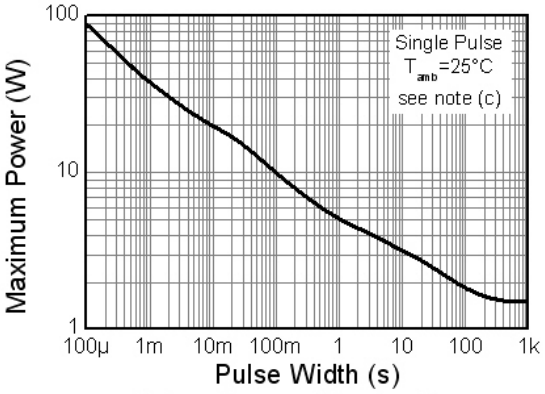
Thermal Characteristics and Derating information



Transient Thermal Impedance



Derating Curve



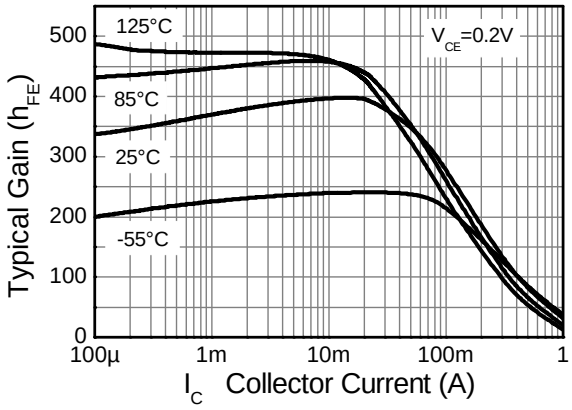
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

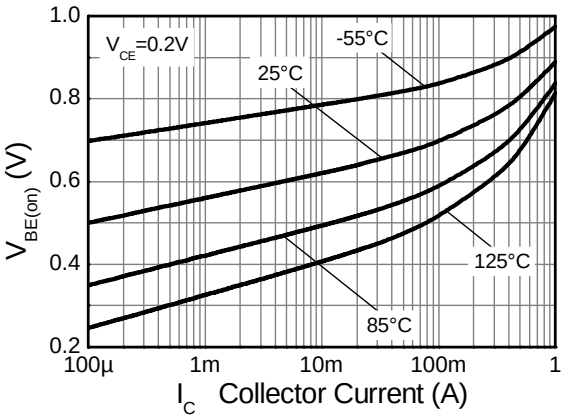
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	100	-	-	V	I_C = 100μA
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	100	-	-	V	I_C = 10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.3	-	V	I_E = 100μA
Collector Cut-off Current	I_{CBO}	-	-	50	nA	V_{CB} = 100V
Emitter Cut-off Current	I_{EBO}	-	-	50	nA	V_{EB} = 7V
Static Forward Current Transfer Ratio (Note 7)	h_{FE}	60	-	-	-	I_C = 85mA, V_{CE} = 0.15V
		100	-	-		I_C = 150mA, V_{CE} = 0.2V
Base-Emitter Turn-On Voltage (Note 7)	$V_{BE(on)}$	-	0.72	0.95	V	I_C = 150mA, V_{CE} = 0.2V
Delay Time	$t_{(d)}$	-	468	-	ns	V_{CC} = 80V, I_C = 150mA, $-I_{B2}$ = 1.5mA, $V_{CE(ON)}$ = 0.2V
Rise Time	$t_{(r)}$	-	441	-	ns	
Storage Time	$t_{(s)}$	-	1540	-	ns	
Fall Time	$t_{(f)}$	-	251	-	ns	
Storage Time	$t_{(s)}$	-	22	-	ns	V_{CC} = 80V, I_C = 150mA, $-I_{B2}$ = 1.5mA, $V_{CE(ON)}$ = 4V
Fall Time	$t_{(f)}$	-	204	-	ns	

Notes: 7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%

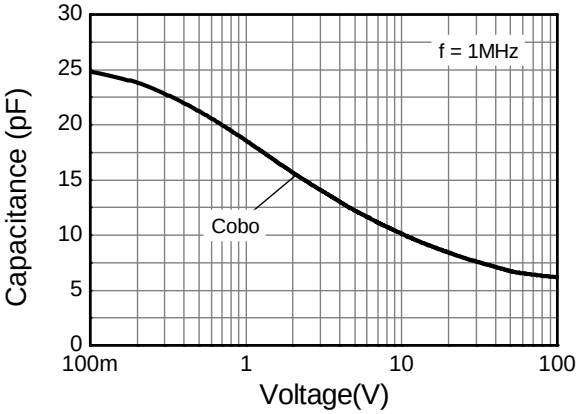
Electrical Characteristics @T_A = 25°C unless otherwise specified



h_{FE} v I_C

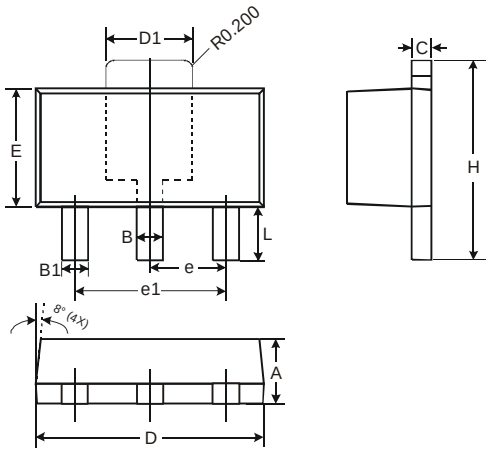


$V_{BE(on)}$ v I_C



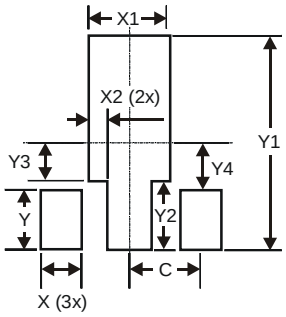
Capacitance v Voltage

Package Outline Dimensions



SOT89		
Dim	**Min**	**Max**
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.43
D	4.40	4.60
D1	1.52	1.83
E	2.29	2.60
e	1.50 Typ	
e1	3.00 Typ	
H	3.94	4.25
L	0.89	1.20
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
X	0.900
X1	1.733
X2	0.416
Y	1.300
Y1	4.600
Y2	1.475
Y3	0.950
Y4	1.125
C	1.500