



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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企业微信二维码



企业QQ二维码

Features

- $BV_{CEO} > -100V$
- Maximum continuous current $I_C = -1A$
- $h_{FE} > 100$ @ $I_C = -150mA$, $V_{CE} = -0.2V$

Applications

- LED TV backlight

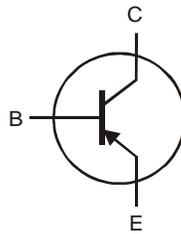
Mechanical Data

- Case: SOT223
- 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: 0.112 grams (Approximate)

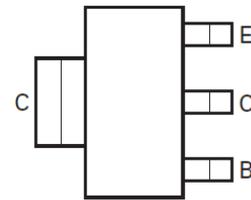
SOT223



Top View



Device Symbol



Top View
Pin-Out

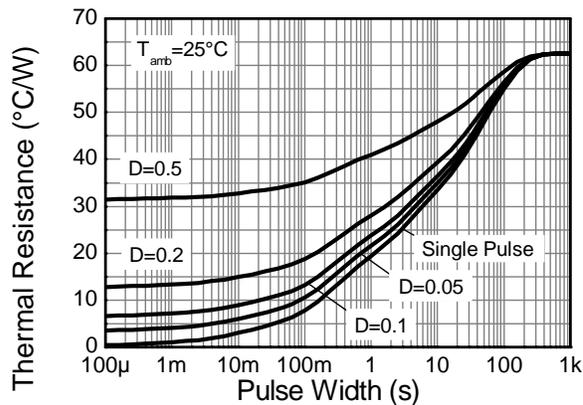
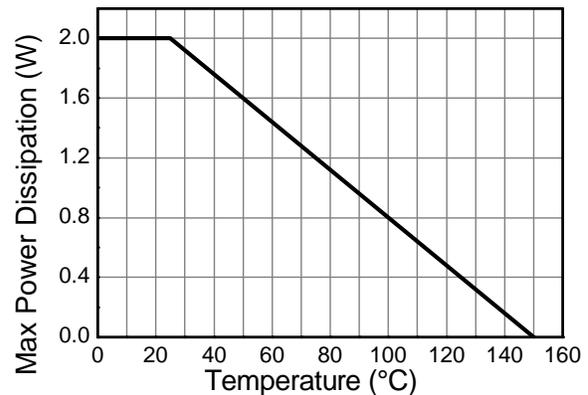
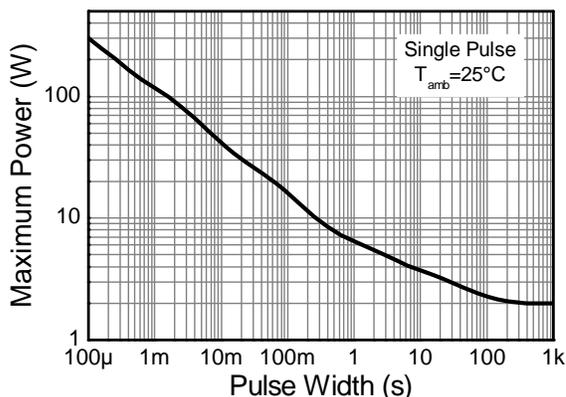
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

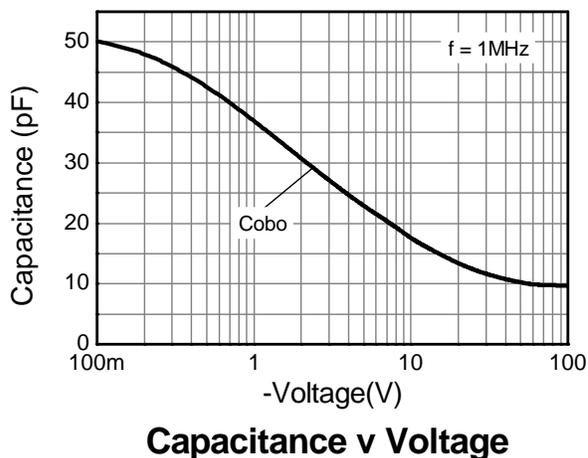
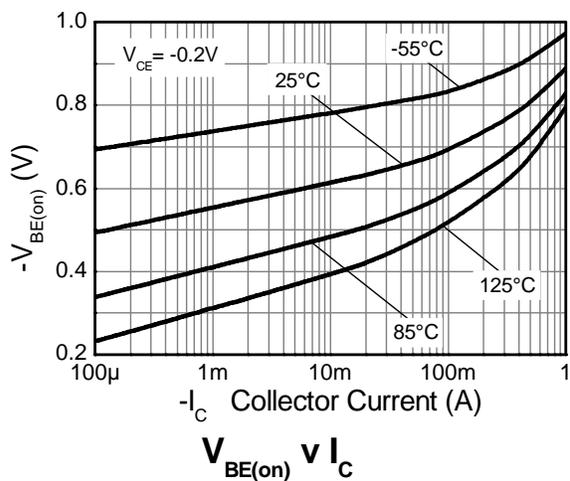
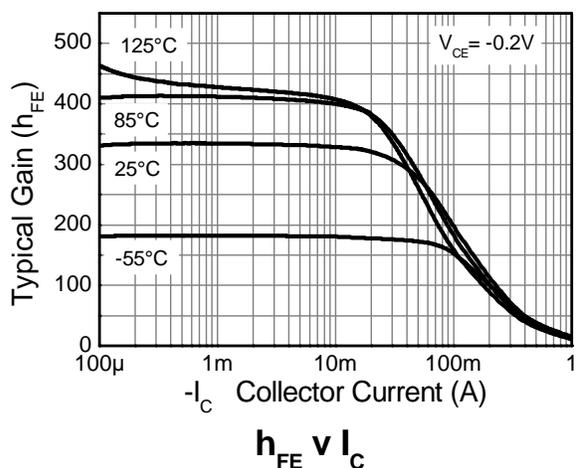
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P_D	2	W
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads (Note 5)	$R_{\theta JL}$	28.75	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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

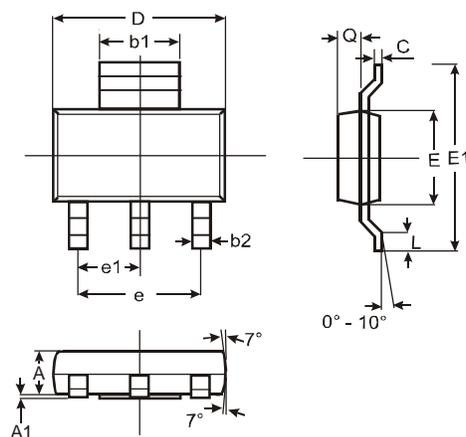
Thermal Characteristics and Derating Information

Transient Thermal Impedance

Derating Curve

Pulse Power Dissipation

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	-100	-170	-	V	$I_C = -10\text{mA}$
Collector Cut-off Current	I_{CBO}	-	-	-50	nA	$V_{CB} = -100\text{V}$
Emitter Cut-off Current	I_{EBO}	-	-	-50	nA	$V_{EB} = -7\text{V}$
Static Forward Current Transfer Ratio (Note 6)	h_{FE}	60 100	133 112	- -	-	$I_C = -85\text{mA}, V_{CE} = -0.15\text{V}$ $I_C = -150\text{mA}, V_{CE} = -0.2\text{V}$
Base-Emitter Turn-On Voltage (Note 6)	$V_{BE(on)}$	-	-0.71	-0.95	V	$I_C = -150\text{mA}, V_{CE} = -0.2\text{V}$
Delay Time	$t_{(d)}$	-	378	-	ns	$V_{CC} = -80\text{V}, I_C = -150\text{mA},$ $-I_{B2} = 1.5\text{mA}, V_{CE(ON)} = -0.2\text{V}$
Rise Time	$t_{(r)}$	-	388	-	ns	
Storage Time	$t_{(s)}$	-	1348	-	ns	
Fall Time	$t_{(f)}$	-	382	-	ns	
Storage Time	$t_{(s)}$	-	75	-	ns	$V_{CC} = -80\text{V}, I_C = -150\text{mA},$ $-I_{B2} = 1.5\text{mA}, V_{CE(ON)} = -4\text{V}$
Fall Time	$t_{(f)}$	-	363	-	ns	

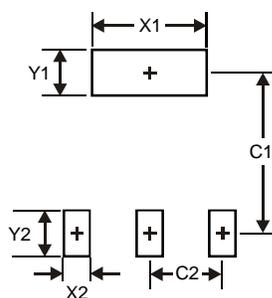
 Notes: 6. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified


Package Outline Dimensions



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	4.60
e1	—	—	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
X1	3.3
X2	1.2
Y1	1.6
Y2	1.6
C1	6.4
C2	2.3