



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

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- Surface Mount Package Suited for Automated Assembly

## Mechanical Data

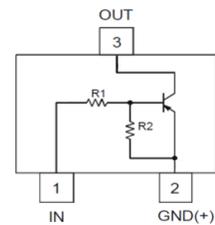
- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight: 0.006 grams (Approximate)

R1(NOM)	R2(NOM)
47kΩ	47kΩ

SOT323



Top View



Device Schematic

### Absolute Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

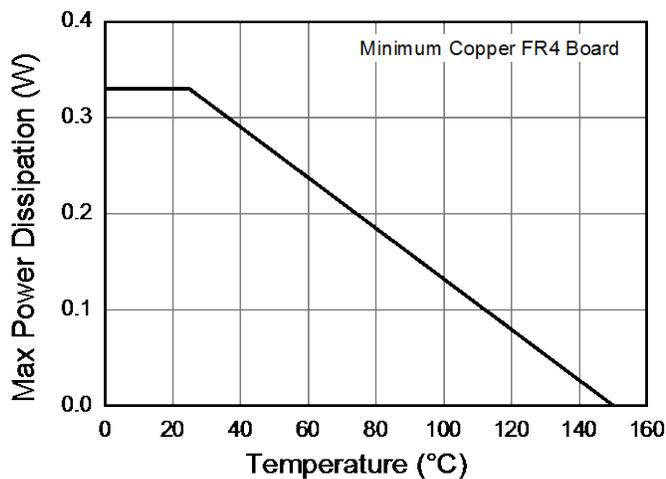
Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	$V_{CC}$	-50	V
Input Voltage <Pin: (1) to (2)>	$V_{IN}$	+10 to -40	V
Output Current	$I_O$	-30	mA
Output Current	$I_C$ (Max)	-100	mA

### Thermal Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

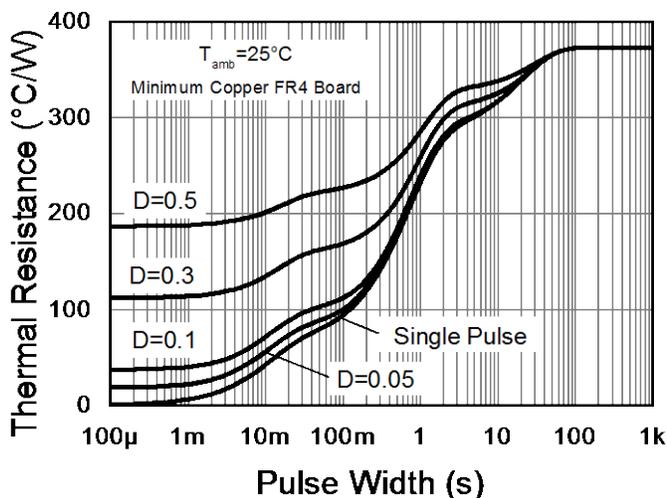
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	330	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	375	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Note: 5. Mounted on FR4 PC Board with minimum recommended pad layout.

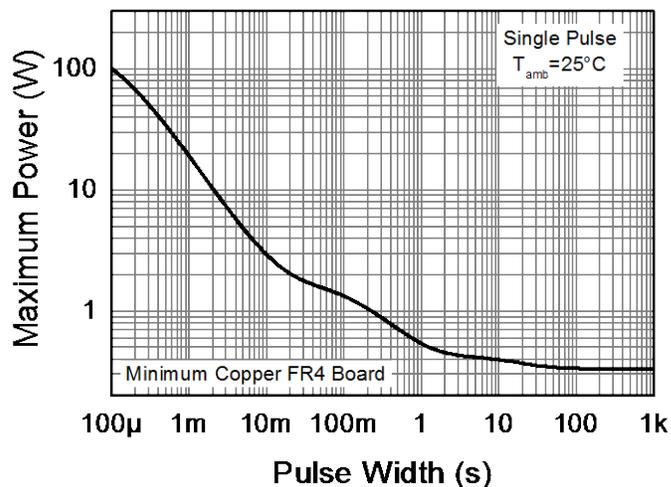
### Thermal Characteristics and Derating Information



**Derating Curve**



**Transient Thermal Impedance**



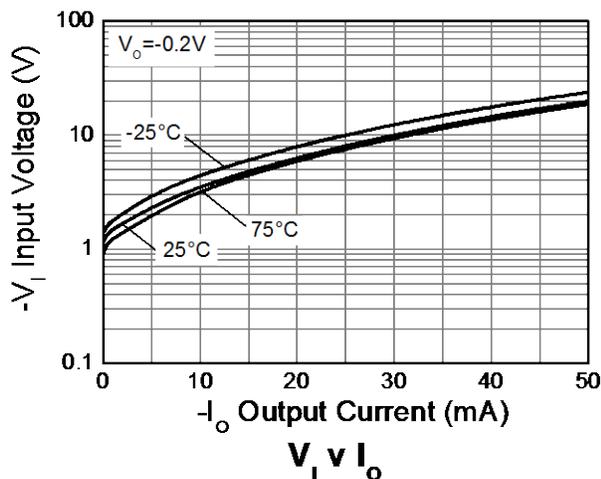
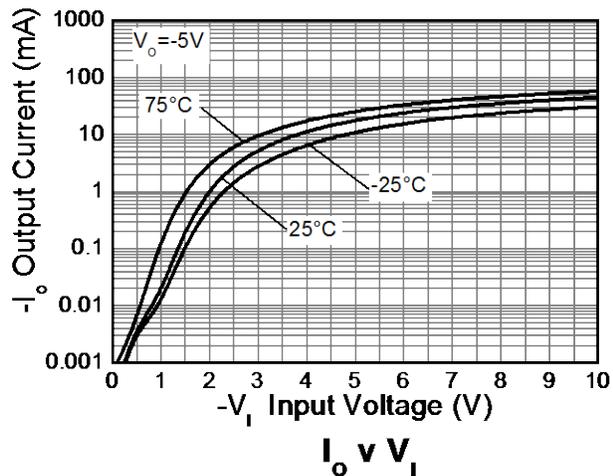
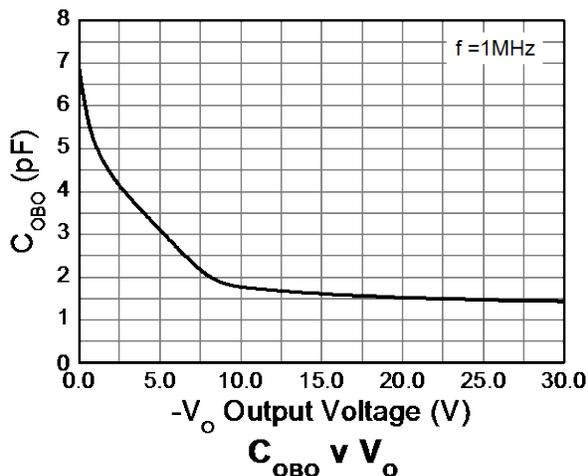
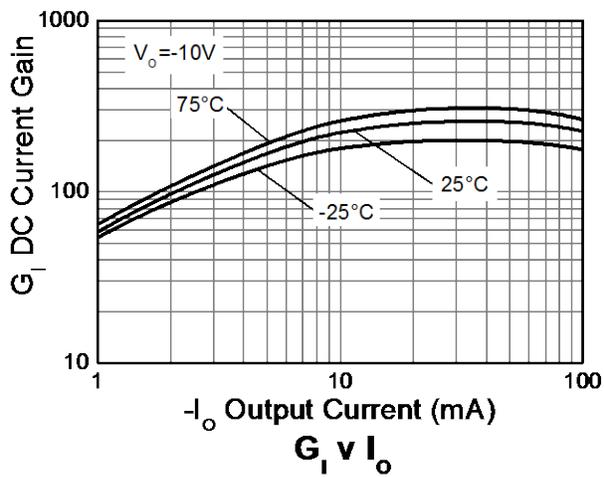
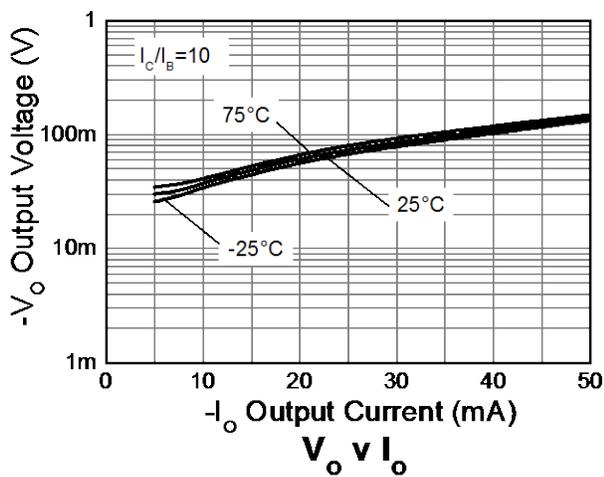
**Pulse Power Dissipation**

**Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(\text{off})}$ (Note 6)	-0.5	-1.1	—	V	$V_{CC} = -5V, I_O = -100\mu\text{A}$
	$V_{I(\text{on})}$ (Note 7)	—	-1.9	-3.0		$V_O = -0.3V, I_O = -2\text{mA}$
Output Voltage	$V_{O(\text{on})}$	—	-0.1	-0.3	V	$I_O/I_I = -10\text{mA} / -0.5\text{mA}$
Input Current	$I_I$	—	—	-0.18	mA	$V_I = -5V$
Output Current	$I_{O(\text{off})}$	—	—	-0.5	$\mu\text{A}$	$V_{CC} = -50V, V_I = 0V$
DC Current Gain	$G_I$	68	—	—	—	$V_O = -5V, I_O = -5\text{mA}$
Input Resistor ( $R_1$ ) Tolerance	$\Delta R_1$	-30	—	+30	%	—
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	—	+20	%	—
Transition frequency (Note 8)	$f_T$	—	250	—	MHz	$V_{CE} = -10V, I_E = -5\text{mA}, f = 100\text{MHz}$

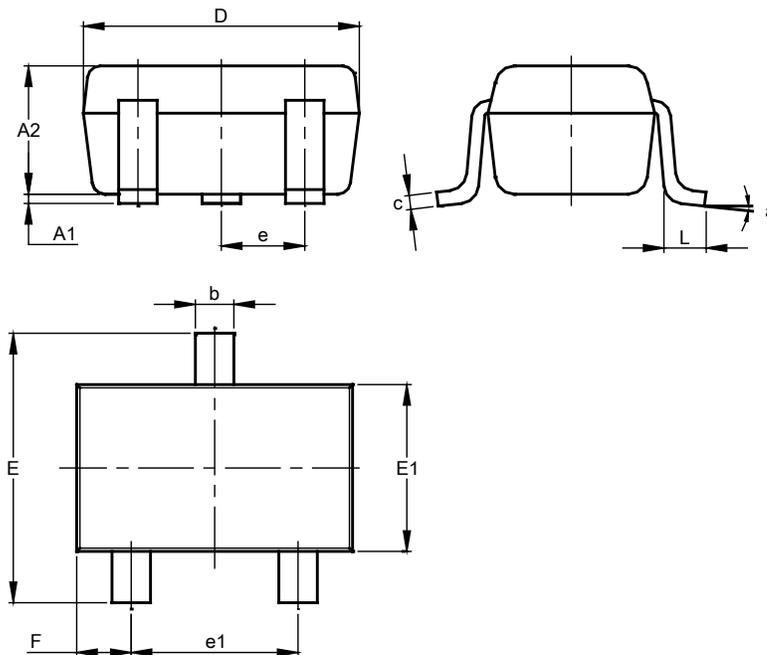
Notes: 6. Guarantees that the device will be switched OFF if the Input Voltage is less than -0.5V.  
 7. Guarantees that the device will be switched ON if the Input Voltage is more than -3V.  
 8. Transistor - For Reference Only.

**Typical Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



## Package Outline Dimensions

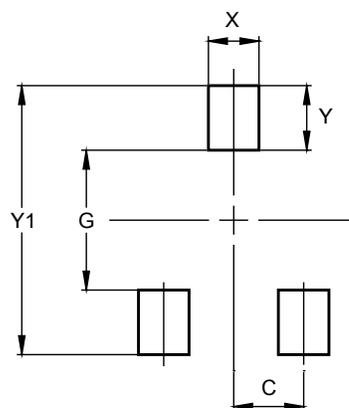
SOT323



SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

## Suggested Pad Layout

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500