



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



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## Features

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

## Mechanical Data

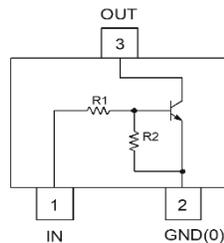
- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.006 grams (Approximate)

R1 (NOM)	R2 (NOM)
4.7k $\Omega$	10k $\Omega$

SOT323



Top View



Device Schematic

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

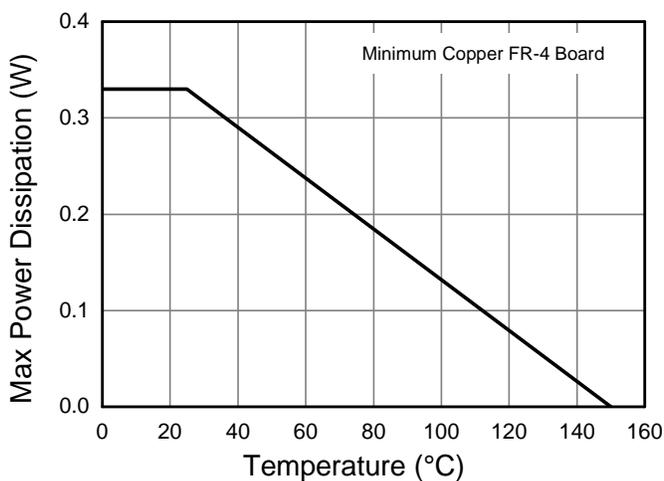
Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	$V_{CC}$	50	V
Input Voltage <Pin: (1) to (2)>	$V_{IN}$	-7 to +20	V
Output Current	$I_O$	100	mA
Output Current	$I_C$ (Max)	100	mA

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

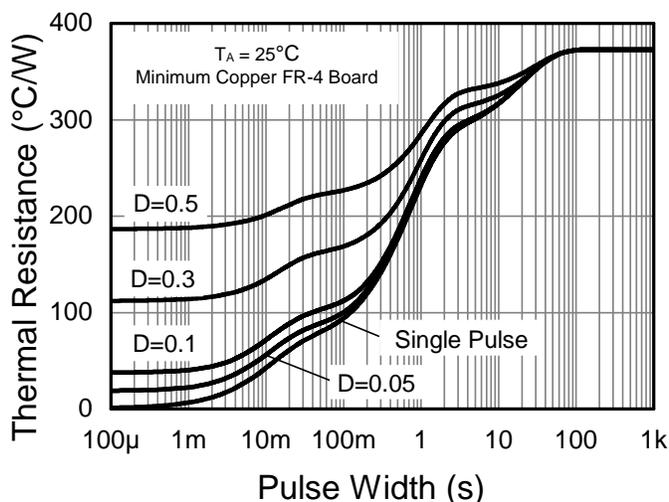
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	330	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	375	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Note: 5. Mounted on FR-4 PC Board with minimum recommended pad layout.

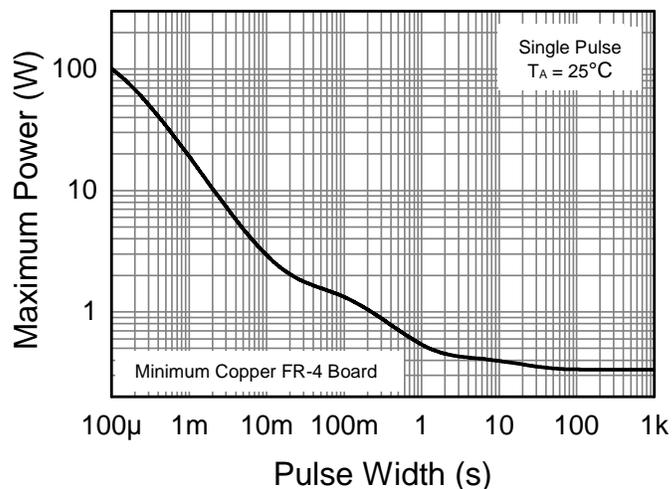
### Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

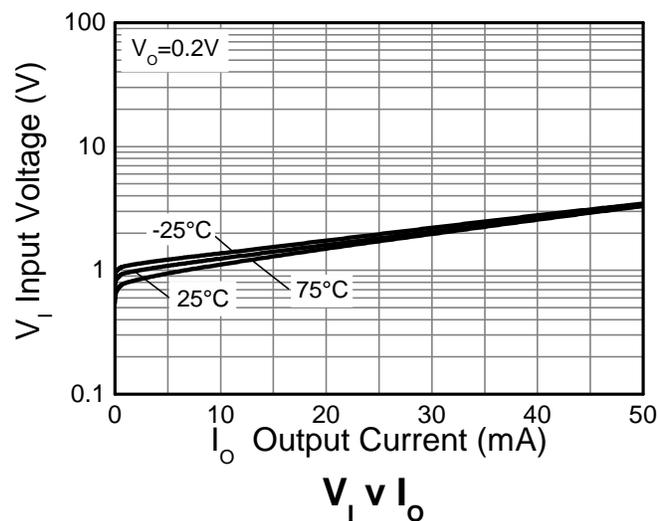
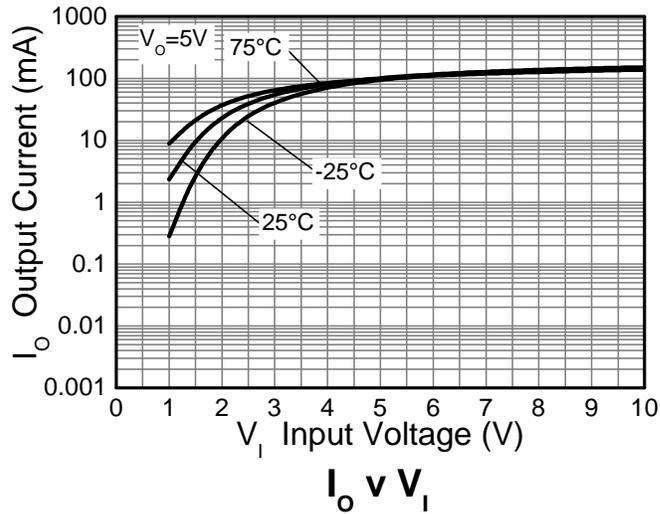
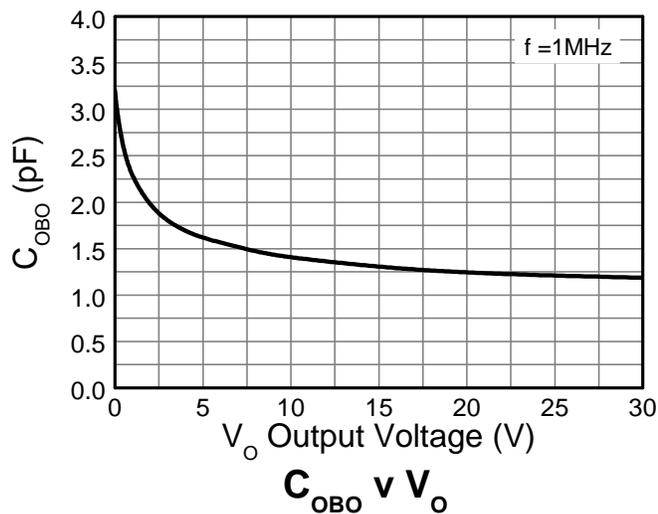
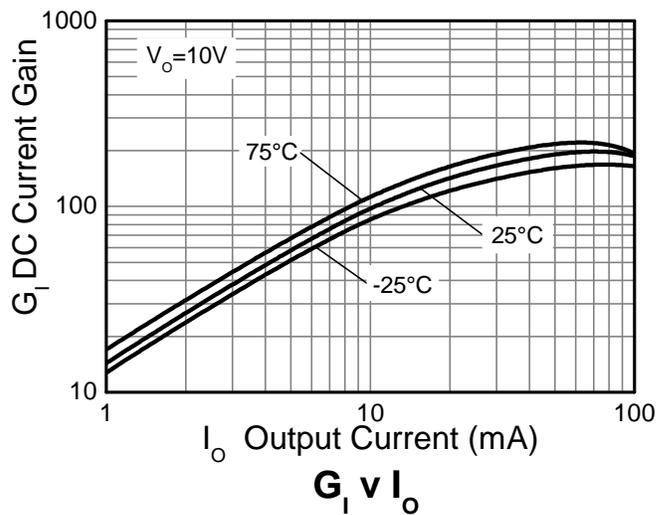
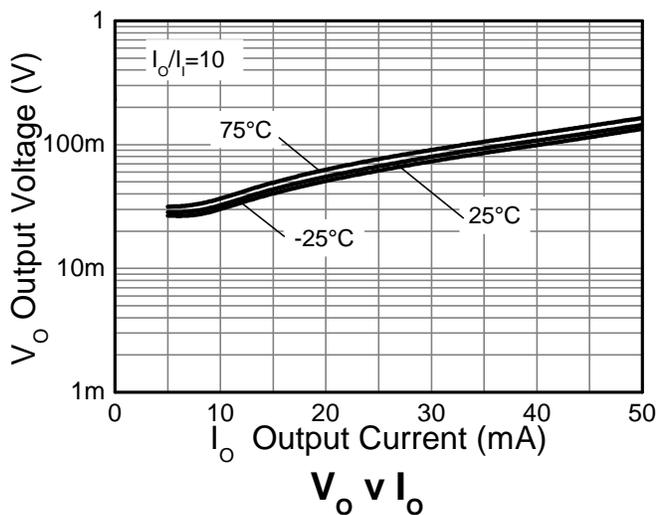
**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(off)}$ (Note 6)	0.3	—	—	V	$V_{CC} = 5V, I_O = 100\mu A$
	$V_{I(on)}$ (Note 7)	—	—	2.5		$V_O = 0.3V, I_O = 20mA$
Output Voltage	$V_{O(on)}$	—	0.1	0.3	V	$I_O/I_I = 10mA / 0.5mA$
Input Current	$I_I$	—	—	1.8	mA	$V_I = 5V$
Output Current	$I_{O(off)}$	—	—	0.5	$\mu A$	$V_{CC} = 50V, V_I = 0V$
DC Current Gain	$G_I$	30	—	—	—	$V_O = 5V, I_O = 10mA$
Input Resistor ( $R_1$ ) Tolerance	$\Delta R_1$	-30	—	+30	%	—
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	—	+20	%	—
Gain-Bandwidth Product (Note 8)	$f_T$	—	250	—	MHz	$V_{CE} = 10V, I_E = 5mA, f = 100MHz$

Notes:

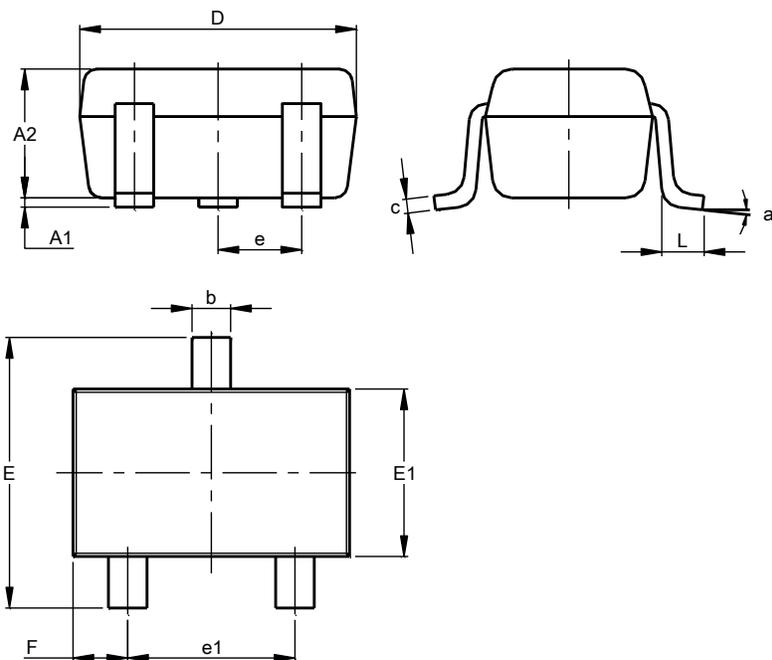
6. Guarantees that the device will be switched OFF if the Input Voltage is less than 0.3V.
7. Guarantees that the device will be switched ON if the Input Voltage is more than 2.5V.
8. Transistor - For Reference Only.

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



## Package Outline Dimensions

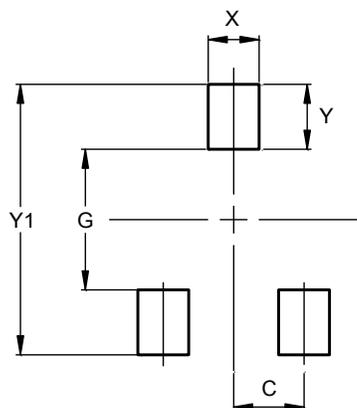
SOT323



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