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

0755-83047638
ysbdt@szyoushang.cn
www.szyoushang.cn

企业微信二维码　　企业QQ二维码

Description

This Pre-Biased Transistor (PBT) is designed to meet the stringent requirements of automotive applications.

Features

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

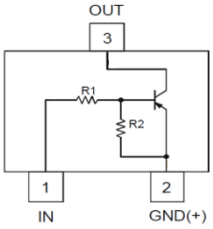
Mechanical Data

- Package: SOT323
- Package 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)
4.7kΩ	47kΩ

SOT323

Top View



Device Schematic

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

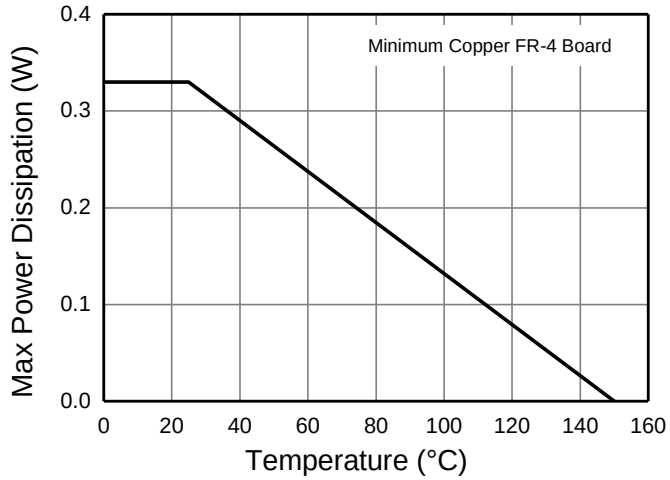
Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	V_{CC}	-50	V
Input Voltage <Pin: (1) to (2)>	V_{IN}	+5 to -30	V
Output Current	I_O	-100	mA
Output Current	I_C (Max)	-100	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

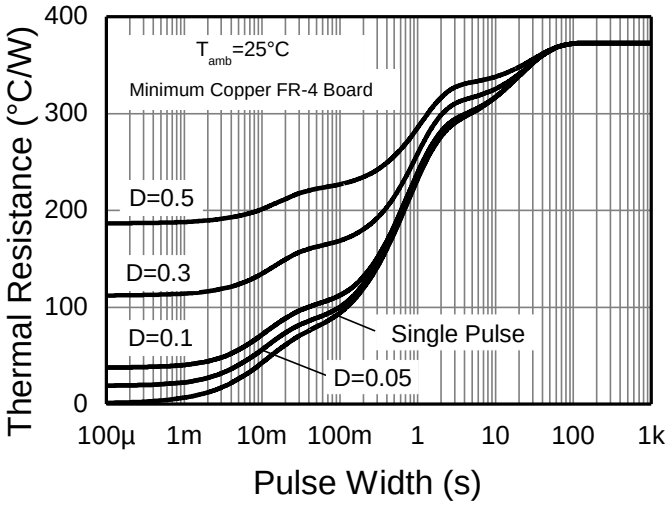
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	330	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	375	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

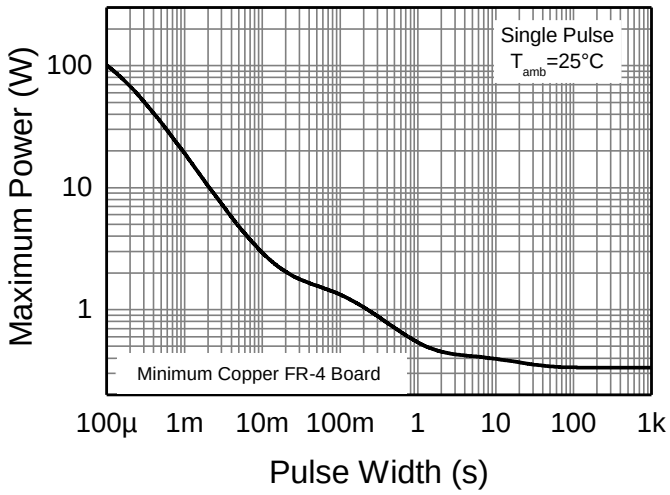
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



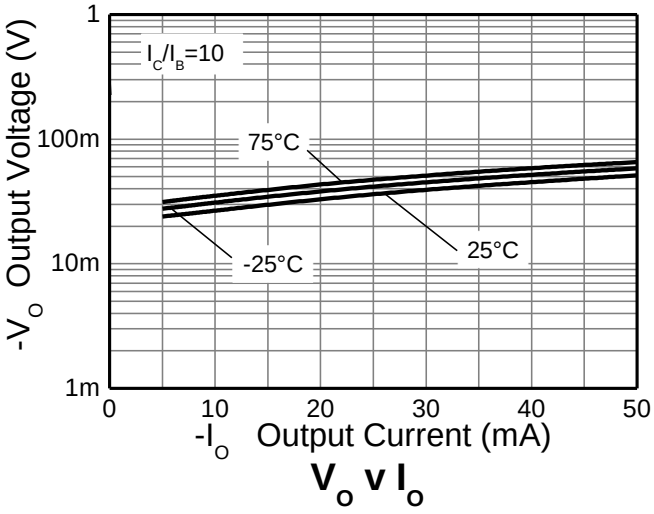
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

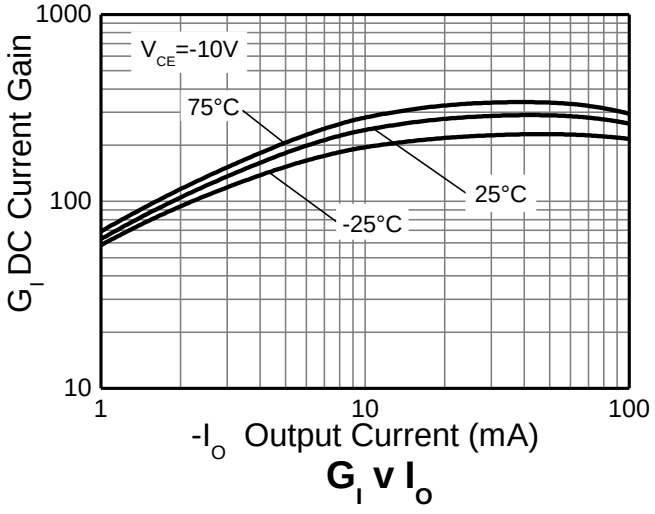
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(OFF)}$ (Note 6)	-0.5	—	—	V	V_{CC} = -5V, I_O = -100μA
	$V_{I(ON)}$ (Note 7)	—	—	-1.3		V_O = -0.3V, I_O = -5mA
Output Voltage	$V_{O(ON)}$	—	-0.1	-0.3	V	I_O/I_I = -5mA / -0.25mA
Input Current	I_I	—	—	-1.8	mA	V_I = -5V
Output Current	$I_{O(OFF)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
DC Current Gain	G_I	80	—	—	—	V_O = -5V, I_O = -10mA
Input Resistor (R_1) Tolerance	ΔR_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 -0.5V.
7. Guarantees that the device will be switched ON if the Input Voltage is more than -1.3V.
8. Transistor - For Reference Only.

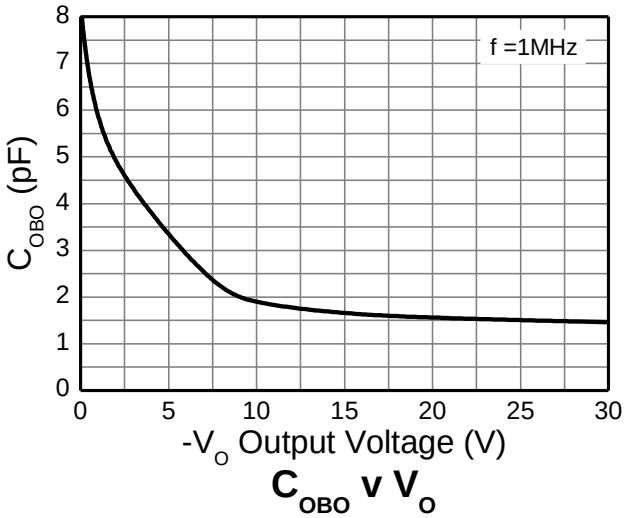
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



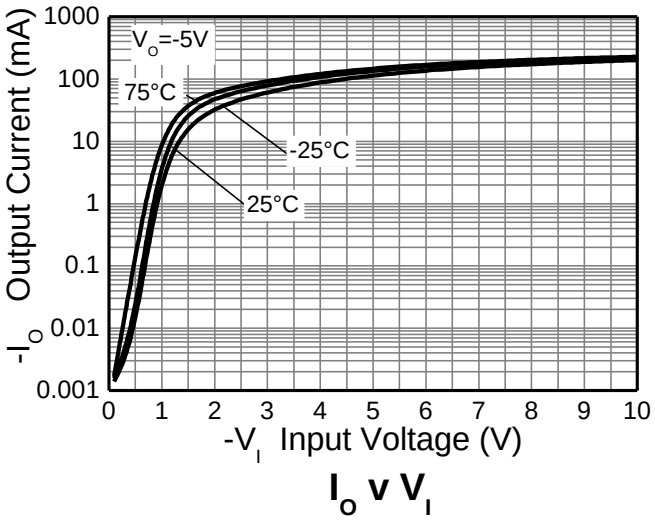
V_O v I_O



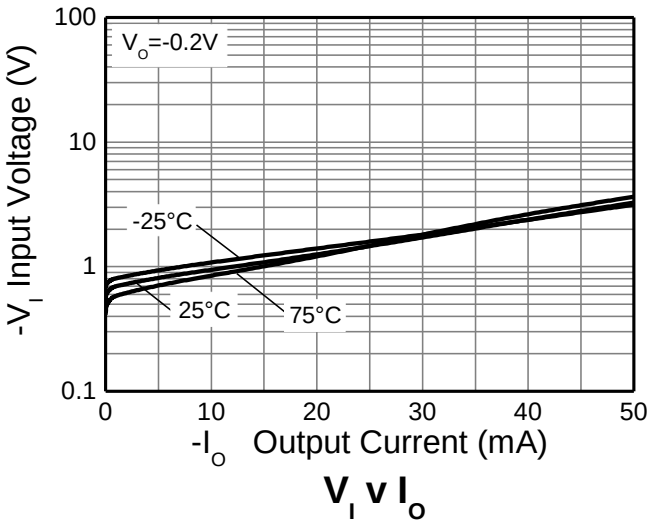
G_I v I_O



C_{OBO} v V_O



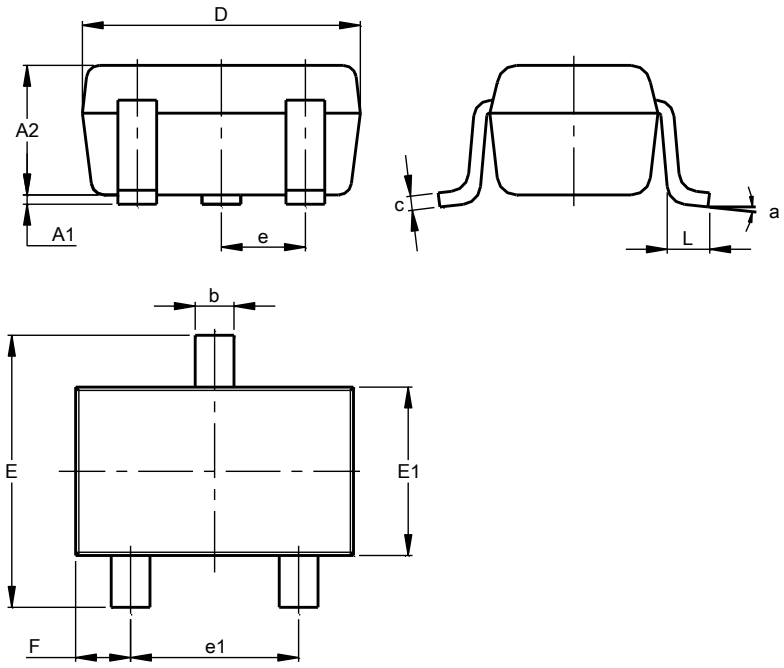
I_O v V_I



V_I v I_O

Package Outline Dimensions

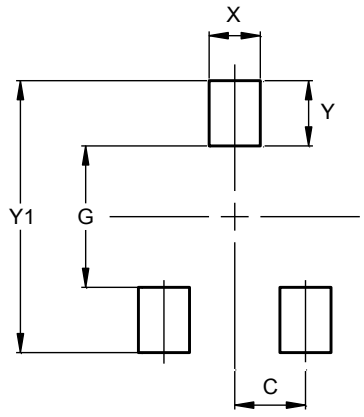
SOT323



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