



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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Description

This pre-biased transistor (PBT) is designed to meet the stringent requirements of automotive applications.

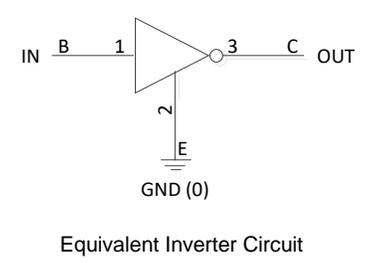
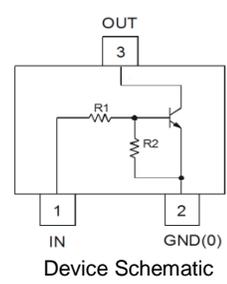
Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors

Mechanical Data

- Package: SOT23
- 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 ③
- Weight: 0.008 grams (Approximate)

R1 (NOM)	R2 (NOM)
47kΩ	10kΩ



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

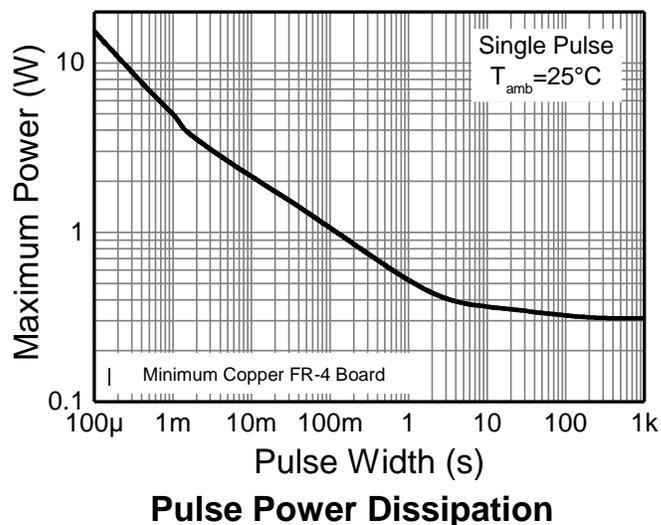
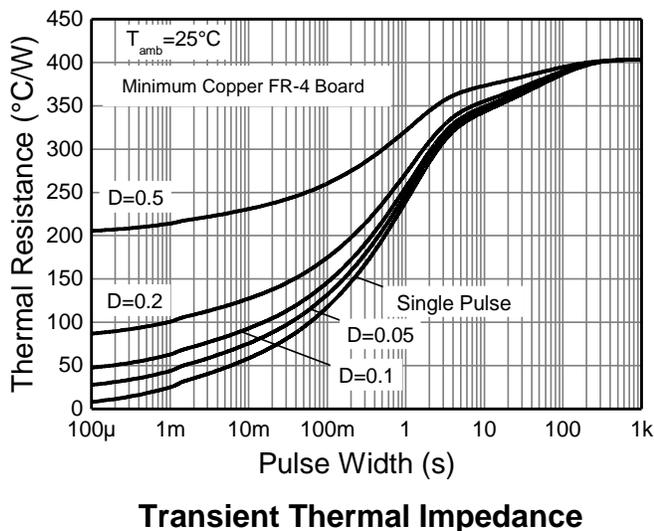
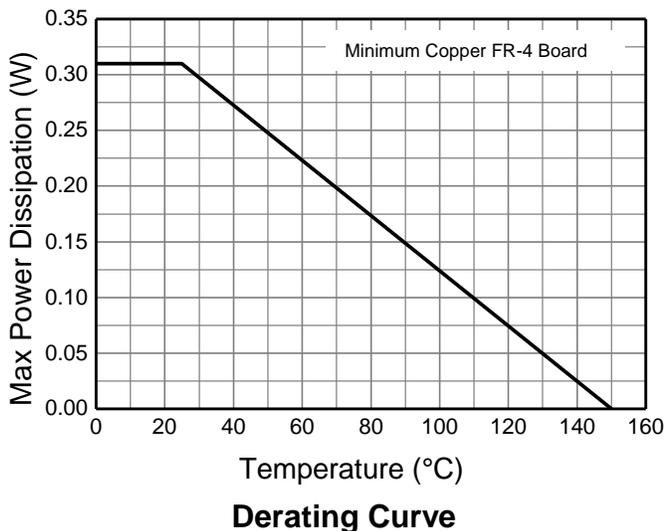
Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	V _{CC}	50	V
Input Voltage <Pin: (1) to (2)>	V _{IN}	-15 to 40	V
Output Current	I _O	30	mA
Output Current	I _C (Max)	100	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	310	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R _{θJA}	403	°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

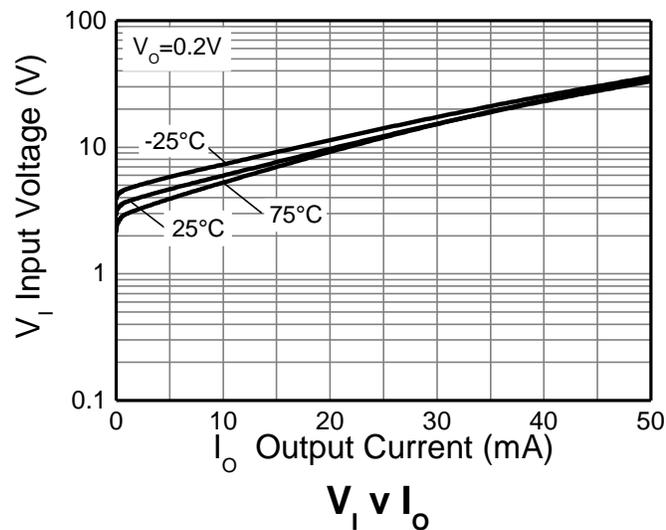
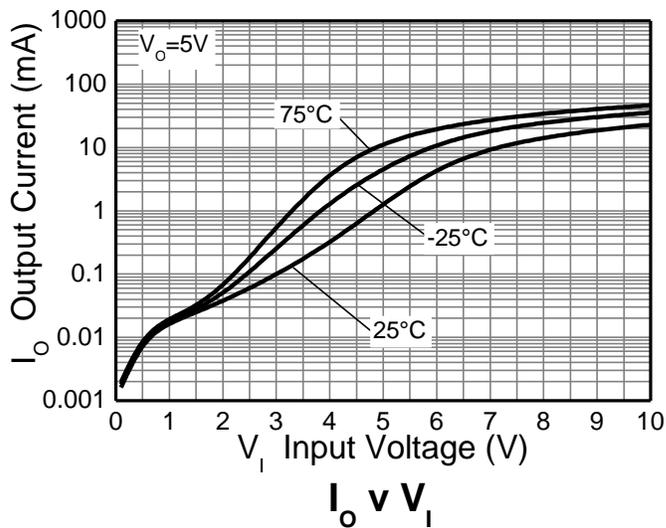
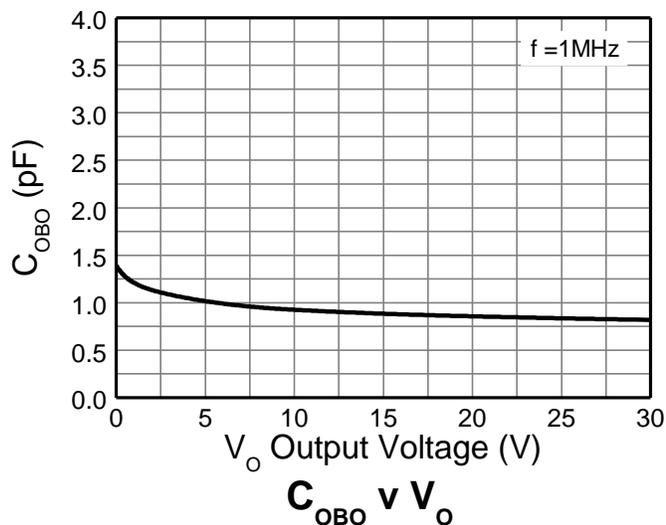
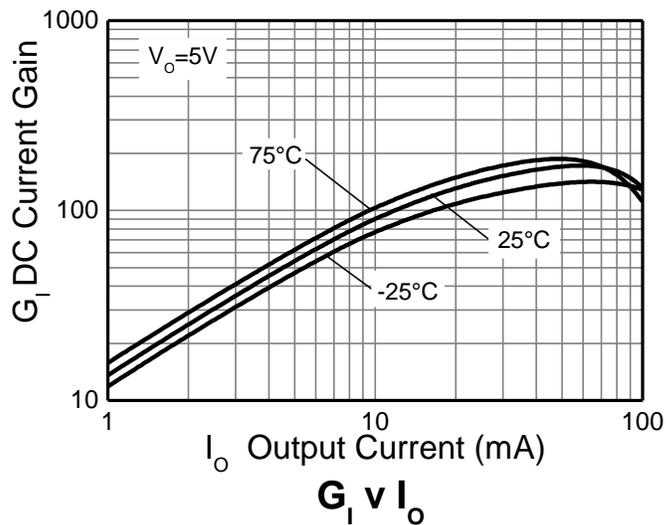
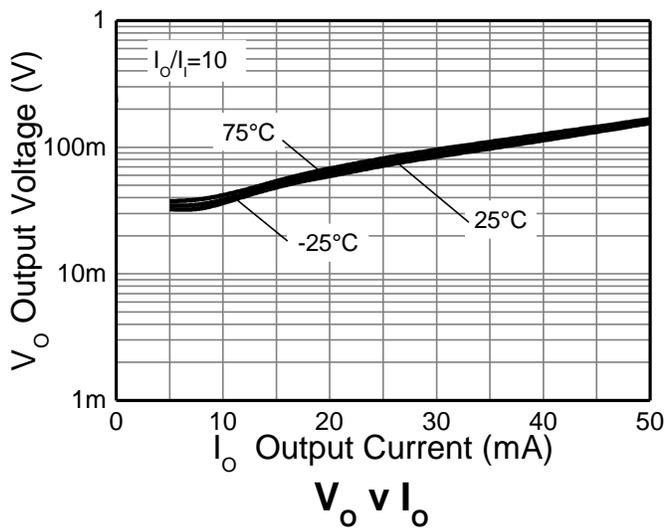


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	V _{I(off)} (Note 6)	1.0	—	—	V	V _{CC} = 5V, I _O = 100µA
	V _{I(on)} (Note 7)	—	—	5.0		V _O = 0.3V, I _O = 2mA
Output Voltage	V _{O(on)}	—	0.1	0.3	V	I _O /I _I = 10mA/0.5mA
Input Current	I _I	—	—	0.16	mA	V _I = 5V
Output Current	I _{O(off)}	—	—	0.5	µA	V _{CC} = 50V, V _I = 0V
DC Current Gain	G _I	33	—	—	—	V _O = 5V, I _O = 5mA
Input Resistor Tolerance	ΔR ₁	-30	—	+30	%	—
Resistance Ratio Tolerance	ΔR ₂ /R ₁	-20	—	+20	%	—
Gain-Bandwidth Product (Note 8)	f _T	—	250	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

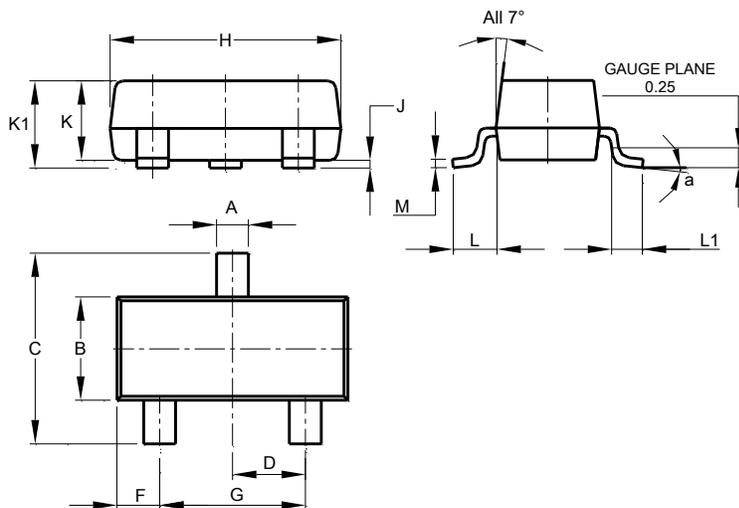
- Notes:
6. Guarantees that the device will be switched OFF if the Input Voltage is less than 1V.
 7. Guarantees that the device will be switched ON if the Input Voltage is more than 5V.
 8. Transistor - For Reference Only.

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



Package Outline Dimensions

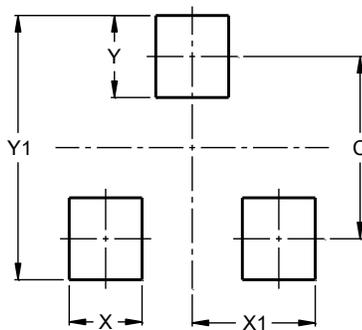
SOT23



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9