



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

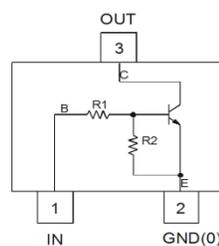
- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight: 0.006 grams (Approximate)

R1(NOM)	R2(NOM)
10k Ω	47k Ω

SOT323



Top View



Device Schematic

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

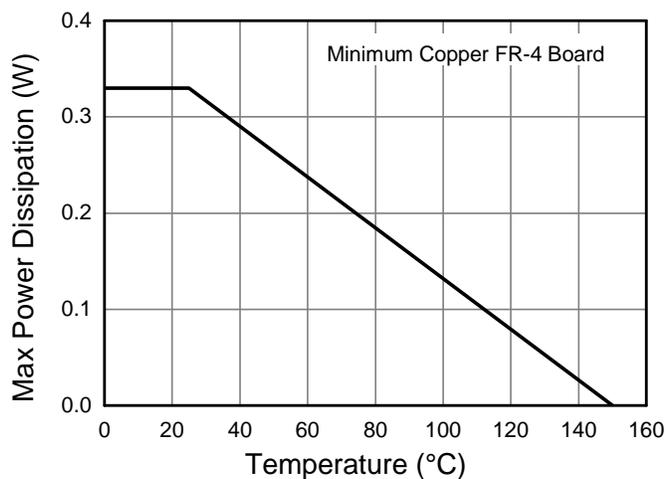
Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	V _{CC}	50	V
Input Voltage <Pin: (1) to (2)>	V _{IN}	-6 to +40	V
Output Current	I _O	70	mA
Output Current	I _C (Max)	100	mA

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

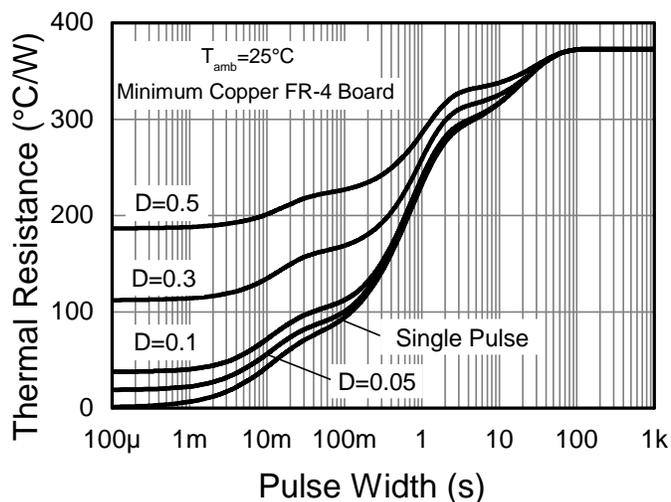
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	330	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	375	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Note: 6. Mounted on FR-4 PC Board with minimum recommended pad layout.

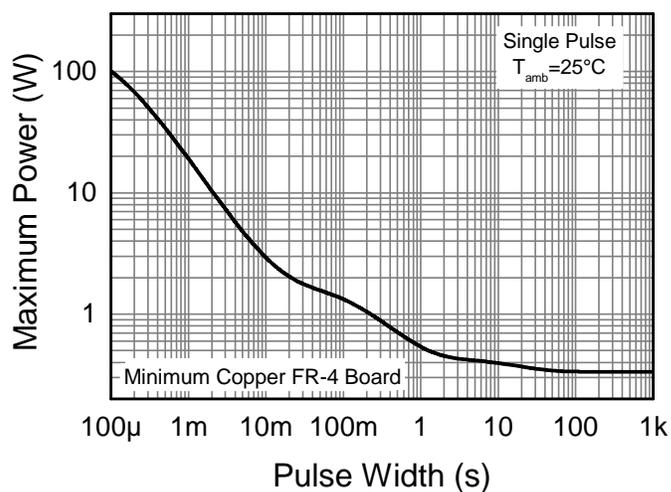
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



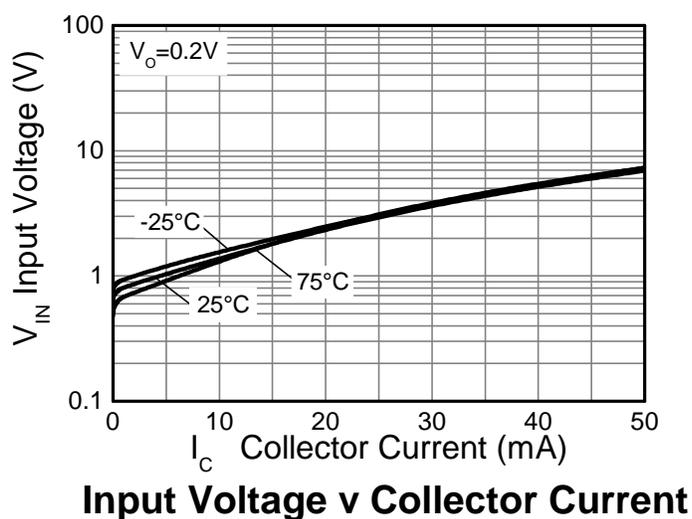
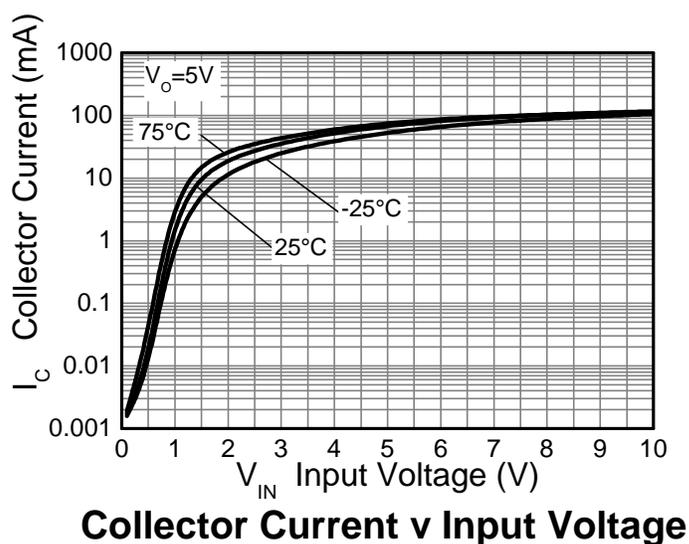
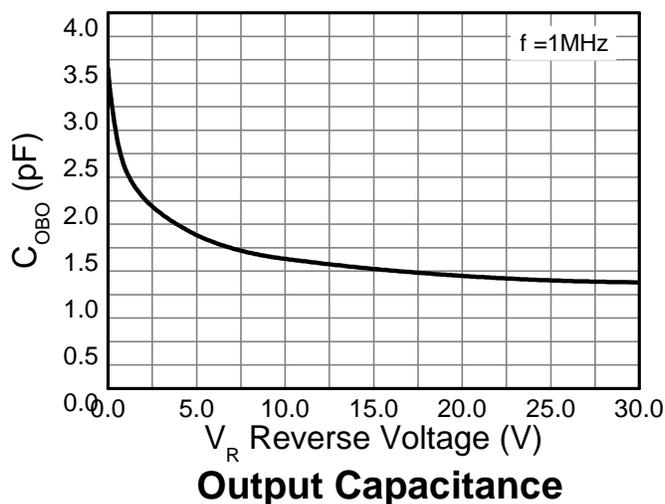
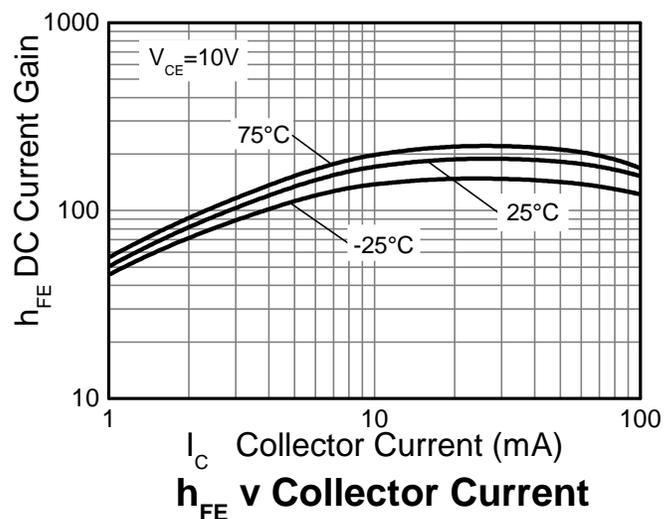
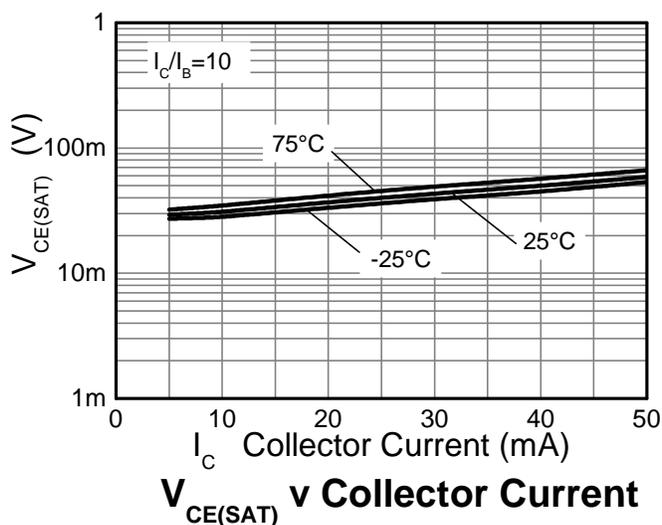
Pulse Power Dissipation

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 7)	0.3	—	—	V	$V_{CC} = 5V, I_O = 100\mu A$
	$V_{I(ON)}$ (Note 8)	—	—	1.4		$V_O = 0.3V, I_O = 1mA$
Output Voltage	$V_{O(ON)}$	—	0.1	0.3	V	$I_O/I_I = 5mA / 0.25mA$
Input Current	I_I	—	—	0.88	mA	$V_I = 5V$
Output Current	$I_{O(OFF)}$	—	—	0.5	μA	$V_{CC} = 50V, V_I = 0V$
DC Current Gain	G_I	68	—	—	—	$V_O = 5V, I_O = 5mA$
Input Resistor (R_1) Tolerance	ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	—	+20	%	—
Gain-Bandwidth Product (Note 9)	f_T	—	250	—	MHz	$V_{CE} = 10V, I_E = 5mA, f = 100MHz$

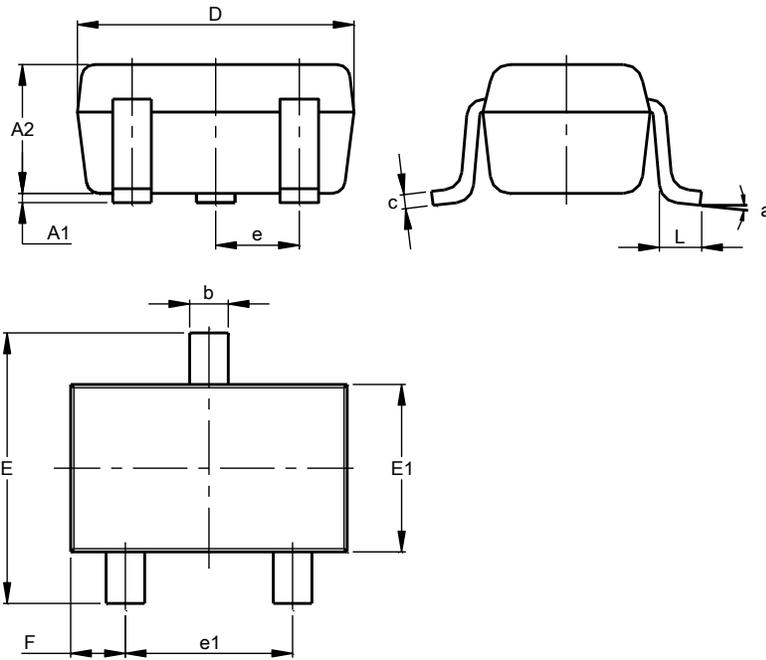
- Notes:
7. Guarantees that the device will be switched OFF if the Input Voltage is less than 0.3V.
 8. Guarantees that the device will be switched ON if the Input Voltage is more than 1.4V.
 9. Transistor - For Reference Only.

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



Package Outline Dimensions

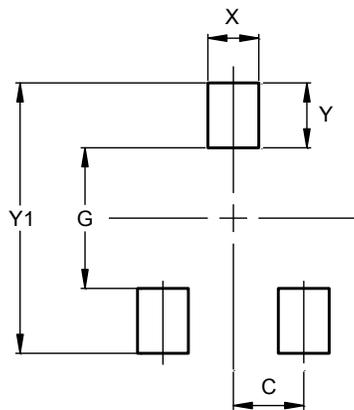
SOT323



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