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

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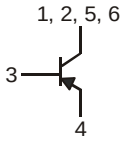
Features

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- Ultra Small Surface Mount Package

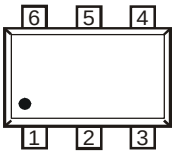
Mechanical Data

- Case: SOT-363
- 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 annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.006 grams (approximate)

Top View



Top View
Device Schematic



Top View
Pin Out Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-12	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current - Continuous	I_C	-2	A
Peak Pulse Collector Current	I_{CM}	-3	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ T_A = 25°C	P_D	450	mW
Thermal Resistance, Junction to Ambient (Note 3) @ T_A = 25°C	$R_{\theta JA}$	275	°C/W
Power Dissipation (Note 4) @ T_A = 25°C	P_D	650	mW
Thermal Resistance, Junction to Ambient (Note 3) @ T_A = 25°C	$R_{\theta JA}$	192	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 3. Device mounted on FR-4 PCB, with minimum recommended pad layout.
4. Device mounted on FR-4 PCB, mounted on 25mmx25mm square pad 1oz coverage of copper

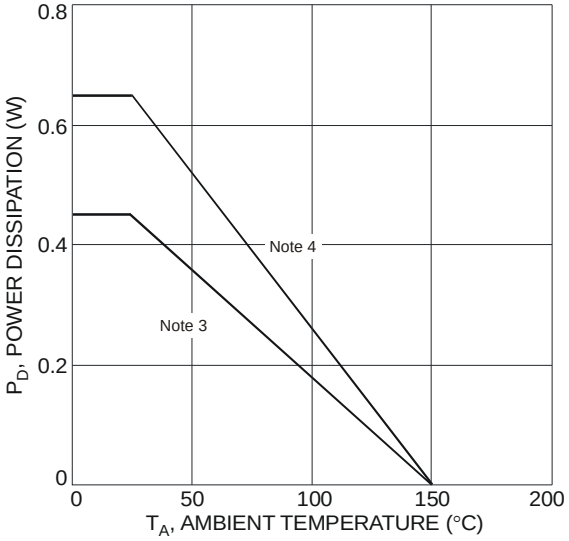


Fig. 1 Power Dissipation vs. Ambient Temperature

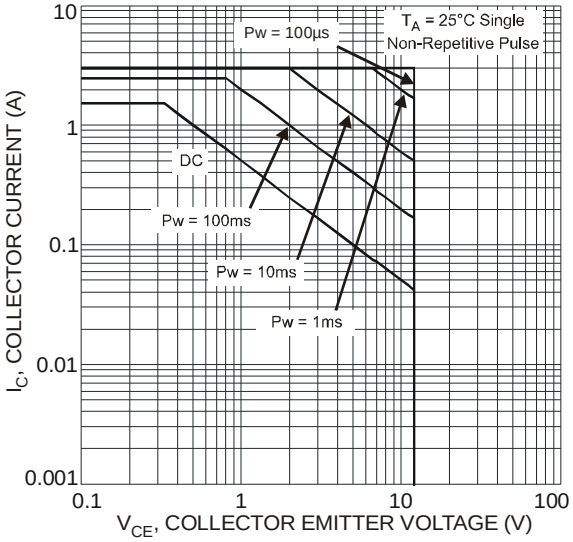


Fig. 2 Safe Operating Area

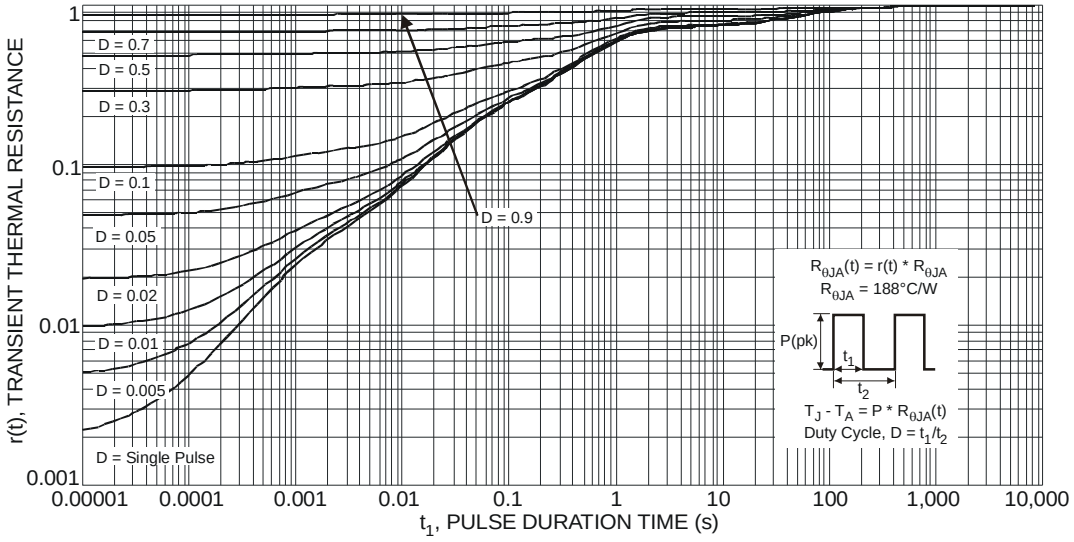


Fig. 3 Transient Thermal Response

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	-12	-35	—	V	I_C = -100μA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 5)	BV_{CEO}	-12	-20	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	-8.3	—	V	I_E = -100μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	-1	-100	nA	V_{CB} = -12V, I_E = 0
Collector Cutoff Current	I_{CES}	—	-1	-100	nA	V_{CE} = -12V, V_{BE} = 0
Emitter Cutoff Current	I_{EBO}	—	-1	-100	nA	V_{EB} = -5V, I_C = 0
ON CHARACTERISTICS						
DC Current Gain (Note 5)	h_{FE}	100 100 100	175 165 160	— 300 —	V	V_{CE} = -1.5V, I_C = -0.5A V_{CE} = -1.5V, I_C = -0.8A V_{CE} = -1.5V, I_C = -1A
Collector-Emitter Saturation Voltage (Note 5)	$V_{CE(sat)}$	— — —	-70 -95 -115	-160 -235 -290	mV	I_C = -0.5A, I_B = -10mA I_C = -0.8A, I_B = -16mA I_C = -1A, I_B = -20mA
Collector-Emitter Saturation Resistance	$R_{CE(sat)}$	—	—	290	mΩ	I_C = -1A, I_B = -20mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	-0.95	V	I_C = -1A, I_B = -20mA
Base-Emitter Turn On Voltage	$V_{BE(on)}$	—	—	-0.95	V	V_{CE} = -1.5V, I_C = -1A
Output Capacitance	C_{obo}	—	—	65	pF	V_{CB} = -1.5V, f = 1.0MHz
Current Gain-Bandwidth Product	f_T	—	180	—	MHz	V_{CE} = -5V, I_C = -100mA, f = 100MHz

Notes: 5. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

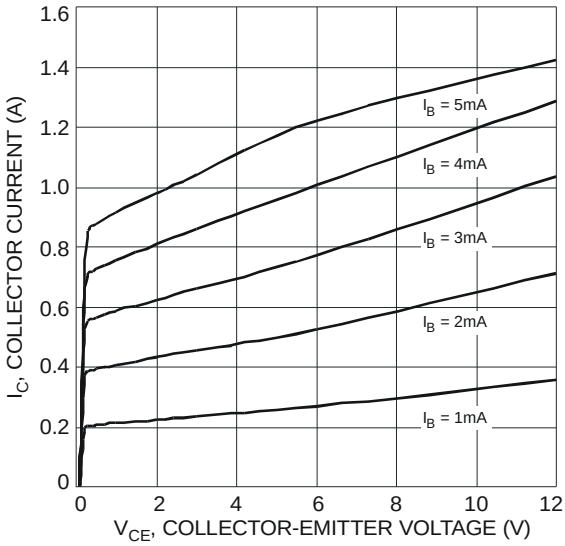


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

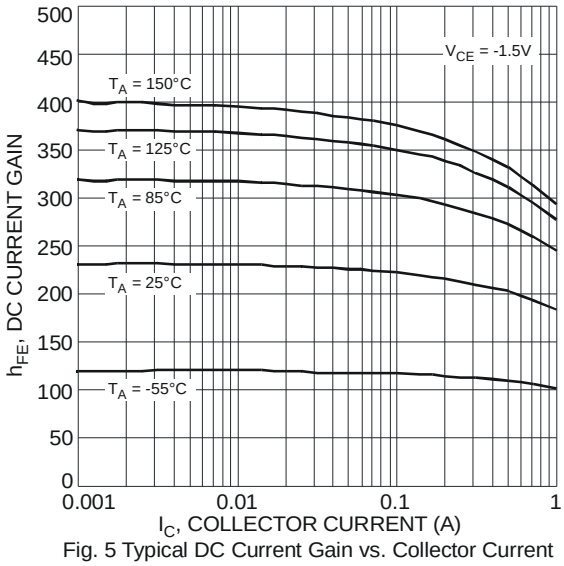


Fig. 5 Typical DC Current Gain vs. Collector Current

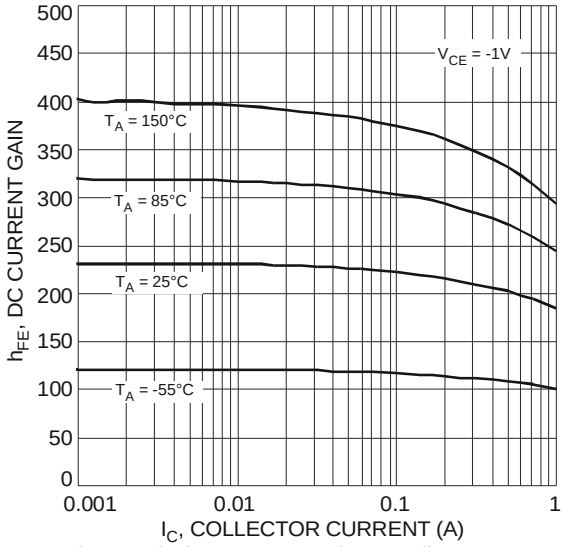


Fig. 6 Typical DC Current Gain vs. Collector Current

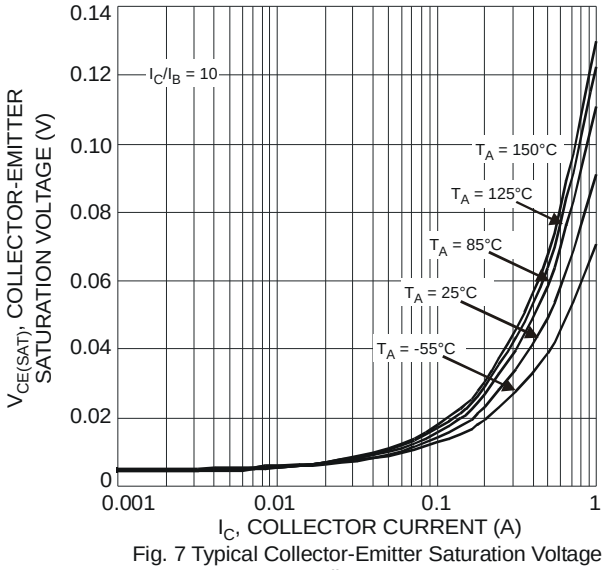


Fig. 7 Typical Collector-Emitter Saturation Voltage vs. Collector Current

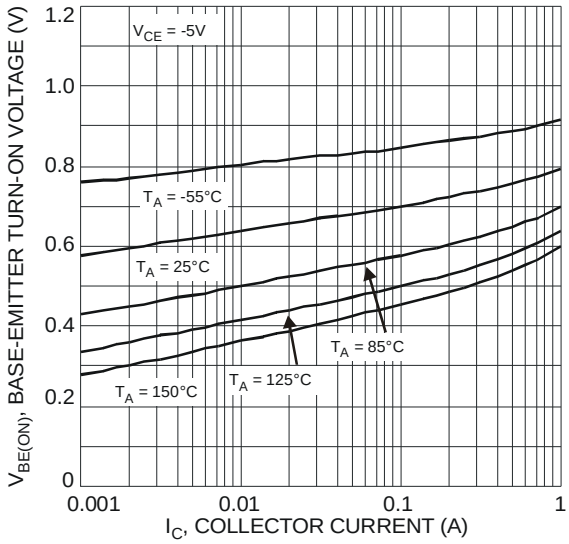


Fig. 8 Typical Base-Emitter Turn-On Voltage vs. Collector Current

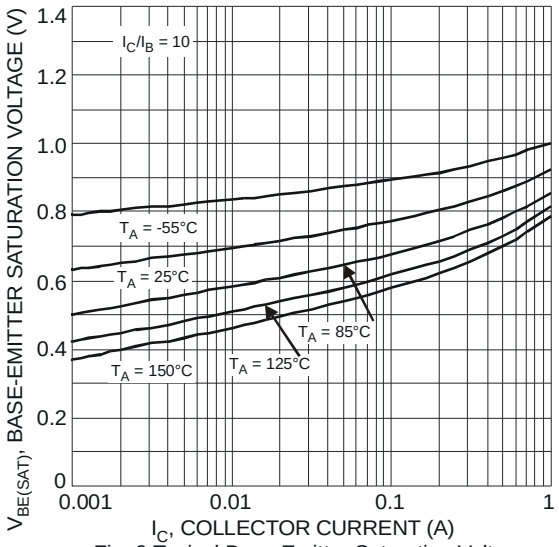


Fig. 9 Typical Base-Emitter Saturation Voltage vs. Collector Current

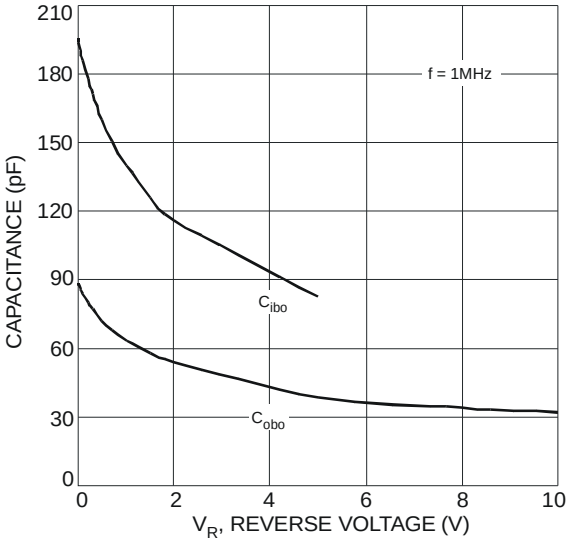
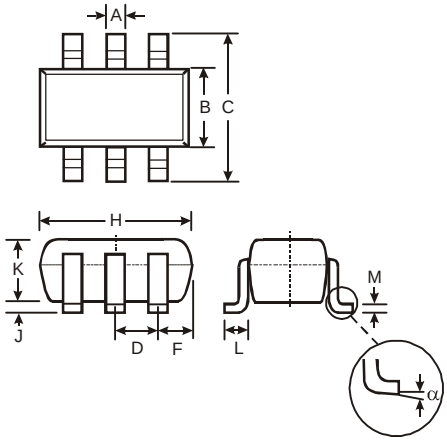


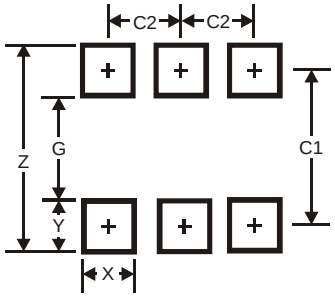
Fig. 10 Typical Capacitance Characteristics

Package Outline Dimensions



SOT-363		
Dim	**Min**	**Max**
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Typ	
F	0.40	0.45
H	1.80	2.20
J	0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.22
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65