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

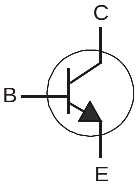
- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- Complementary PNP Type Available (NK-DSS5240Y)
- Ultra Small Surface Mount Package

Mechanical Data

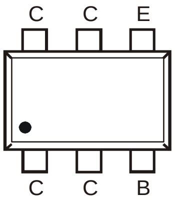
- Case: SOT363
- Case Material: Molded Plastic, “Green” Molding Compound.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper Plated Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.006 grams (approximate)

SOT363

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}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current - Continuous	I_C	2	A
Peak Pulse Collector Current	I_{CM}	3	A
Peak Base Current	I_{BM}	0.3	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4) @ T_A = 25°C	P_D	625	mW
Thermal Resistance, Junction to Ambient (Note 4) @ T_A = 25°C	$R_{\theta JA}$	200	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 4. Device mounted on FR-4 PCB, with minimum recommended pad layout.

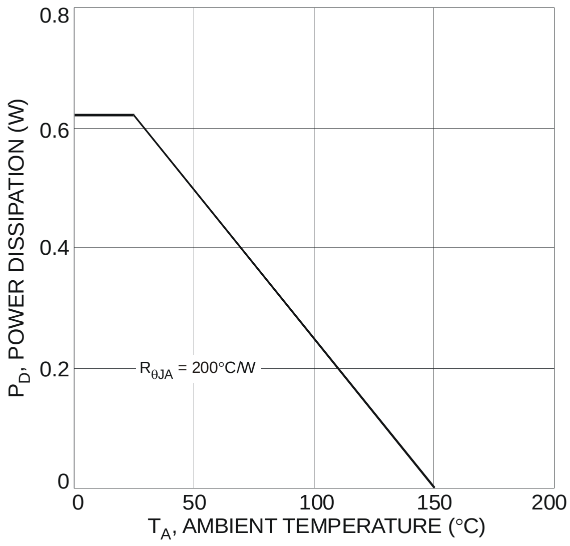


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

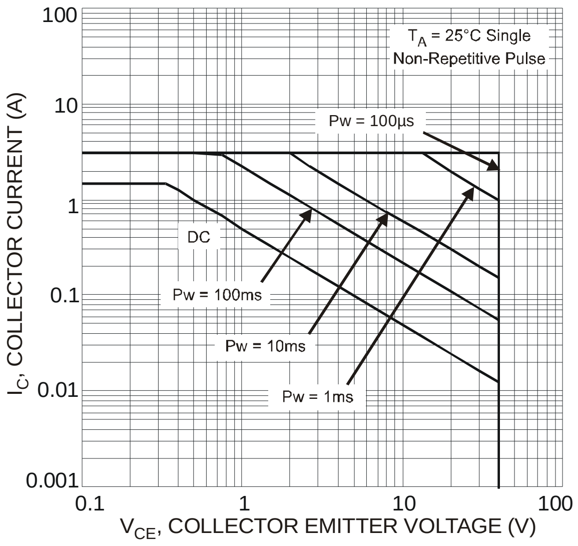


Fig. 2 Safe Operating Area

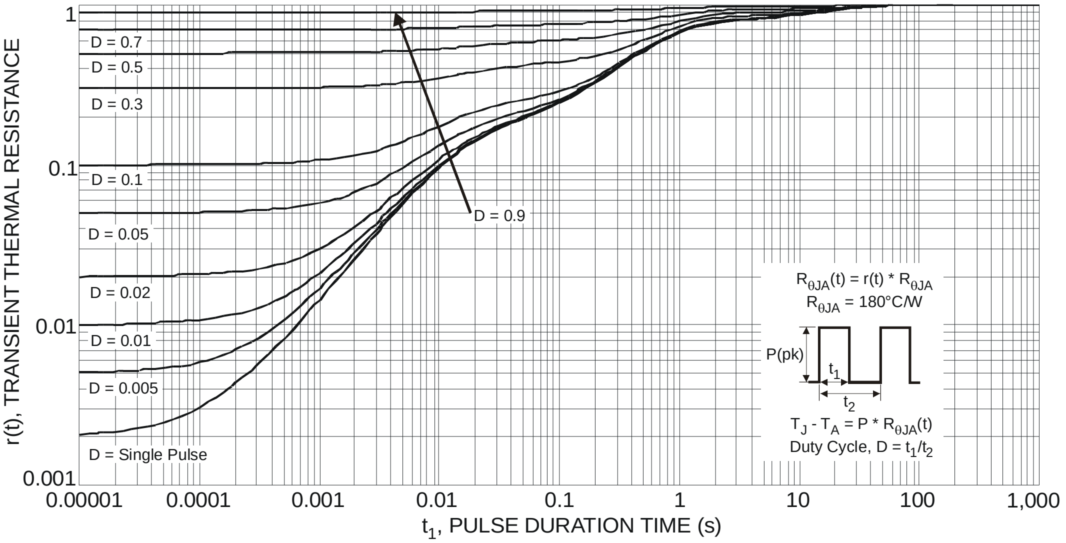


Fig. 3 Transient Thermal Response

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	40	150	—	V	$I_C = 100\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage (Note 5)	BV_{CEO}	40	55	—	V	$I_C = 10mA, I_B = 0$
Emitter-Base Breakdown Voltage	BV_{EBO}	5	8.5	—	V	$I_E = 100\mu A, I_C = 0$
Collector Cutoff Current	I_{CBO}	— —	— —	100 50	nA µA	$V_{CB} = 30V, I_E = 0$ $V_{CB} = 30V, I_E = 0, T_A = 150°C$
Emitter Cutoff Current	I_{EBO}	—	—	100	nA	$V_{EB} = 4V, I_C = 0$
DC Current Gain (Note 5)	h_{FE}	350 300 300 150	— — — —	— — — —	—	$V_{CE} = 2V, I_C = 100mA$ $V_{CE} = 2V, I_C = 500mA$ $V_{CE} = 2V, I_C = 1A$ $V_{CE} = 2V, I_C = 2A$
Collector-Emitter Saturation Voltage (Note 5)	$V_{CE(sat)}$	— — — — —	45 52 100 105 190	70 100 180 180 320	mV	$I_C = 100mA, I_B = 1mA$ $I_C = 500mA, I_B = 50mA$ $I_C = 750mA, I_B = 15mA$ $I_C = 1A, I_B = 50mA$ $I_C = 2A, I_B = 200mA$
Collector-Emitter Saturation Resistance	$R_{CE(sat)}$	—	105	200	mΩ	$I_C = 500mA, I_B = 50mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	1.1	V	$I_C = 2A, I_B = 200mA$
Base-Emitter Turn On Voltage	$V_{BE(on)}$	—	—	0.75	V	$V_{CE} = 2V, I_C = 100mA$
Output Capacitance	C_{obo}	—	—	20	pF	$V_{CB} = 10V, f = 1.0MHz$
Current Gain-Bandwidth Product	f_T	100	250	—	MHz	$V_{CE} = 10V, I_C = 50mA, f = 100MHz$
Turn-On Time	t_{on}	—	64	—	ns	$V_{CC} = 10V$ $I_C = 1A, I_{B1} = -I_{B2} = 50mA$
Delay Time	t_d	—	20	—	ns	
Rise Time	t_r	—	44	—	ns	
Turn-Off Time	t_{off}	—	315	—	ns	
Storage Time	t_s	—	275	—	ns	
Fall Time	t_f	—	40	—	ns	

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

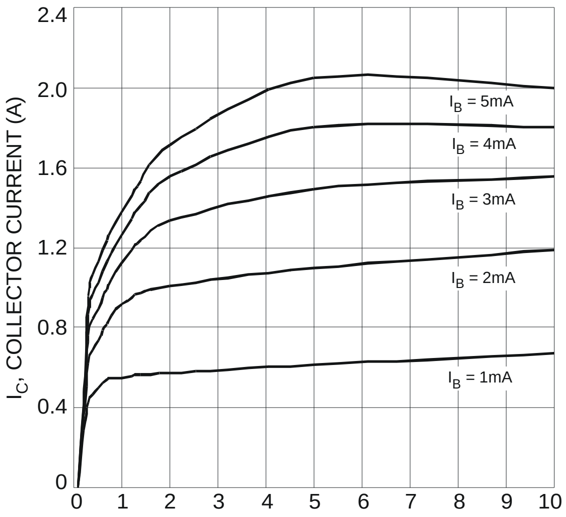


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

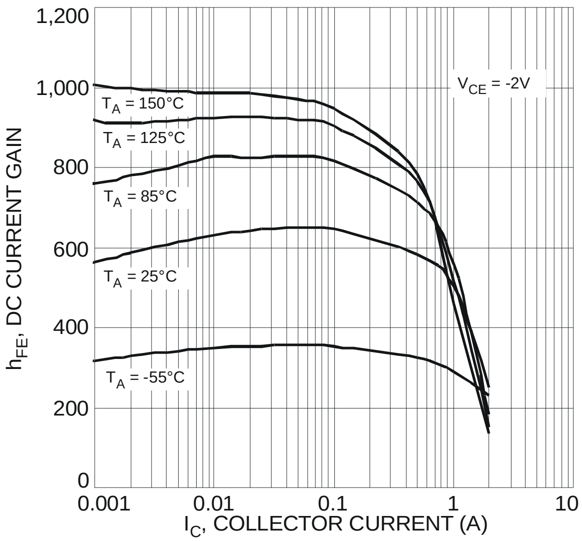


Fig. 5 Typical DC Current Gain vs. Collector Current

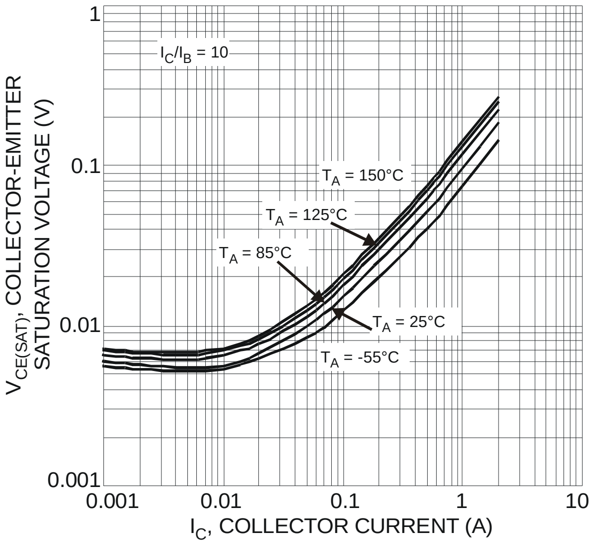


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

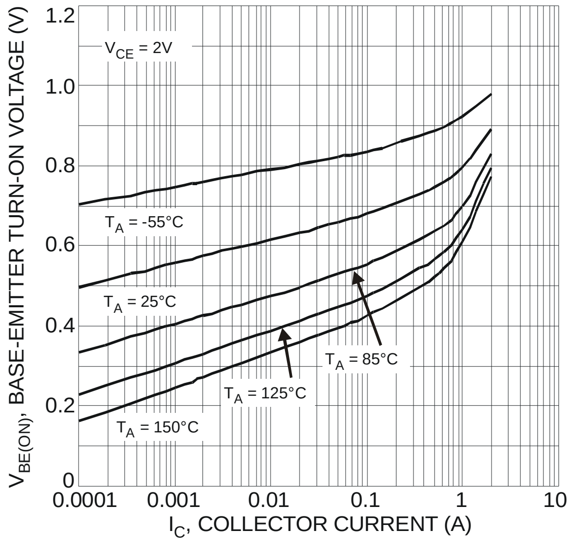


Fig. 7 Typical Base-Emitter Turn-On Voltage vs. Collector Current

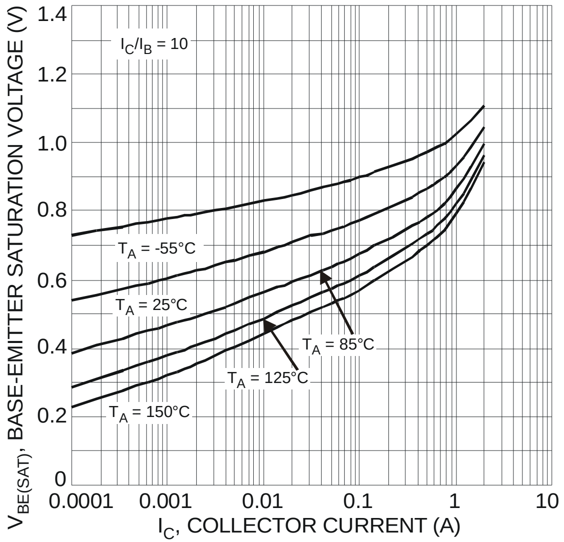


Fig. 8 Typical Base-Emitter Saturation Voltage vs. Collector Current

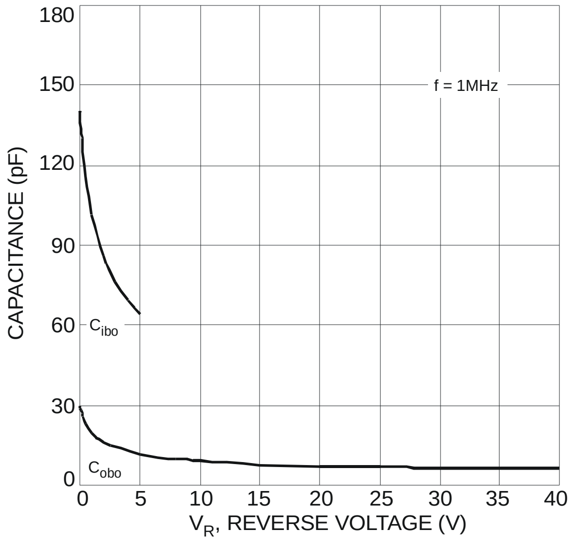
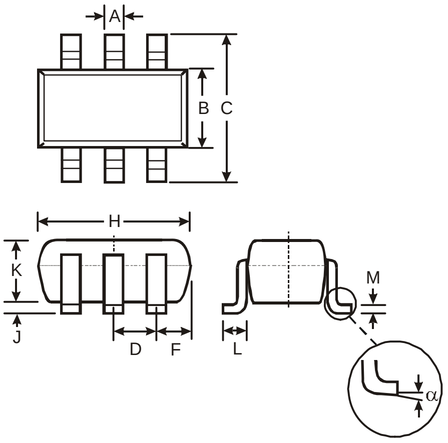


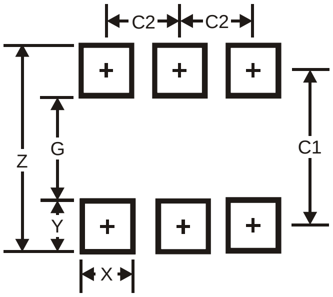
Fig. 9 Typical Capacitance Characteristics

Package Outline Dimensions



SOT363		
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