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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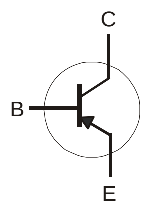
Features

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- Complementary NPN Type Available (NK-DSS8110Y)
- Ultra Small Surface Mount Package

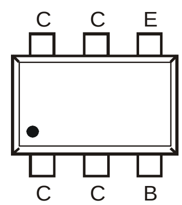
Mechanical Data

- 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



Device Symbol



Top View
Pin Out Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-120	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current - Continuous	I_C	-1	A
Peak Pulse Collector Current	I_{CM}	-3	A
Base Current – Continuous	I_B	-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.

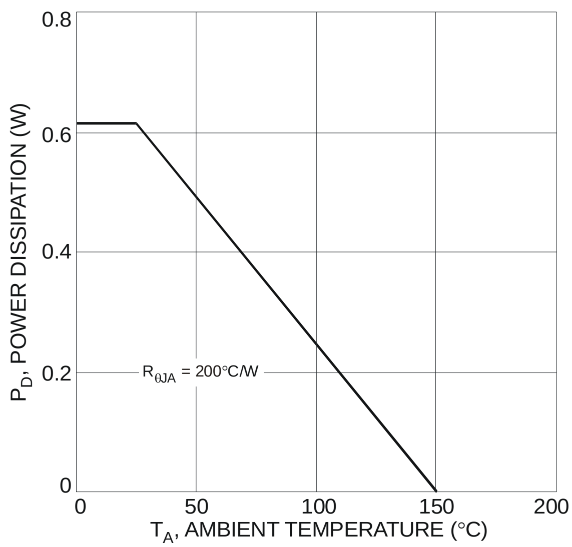


Fig. 1 Power Dissipation vs. Ambient Temperature

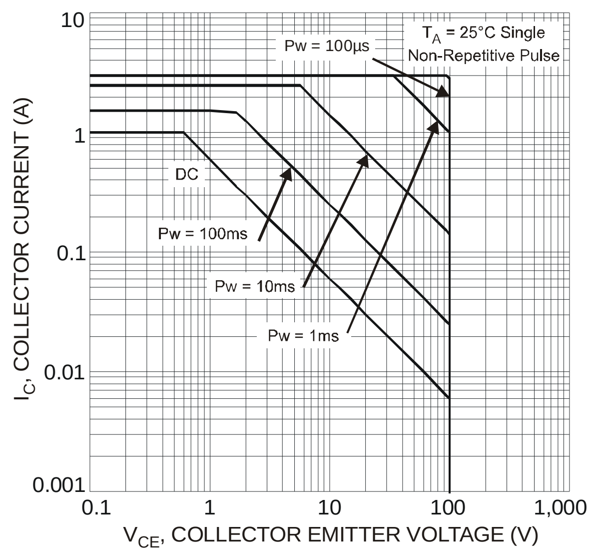


Fig. 2 Safe Operating Area

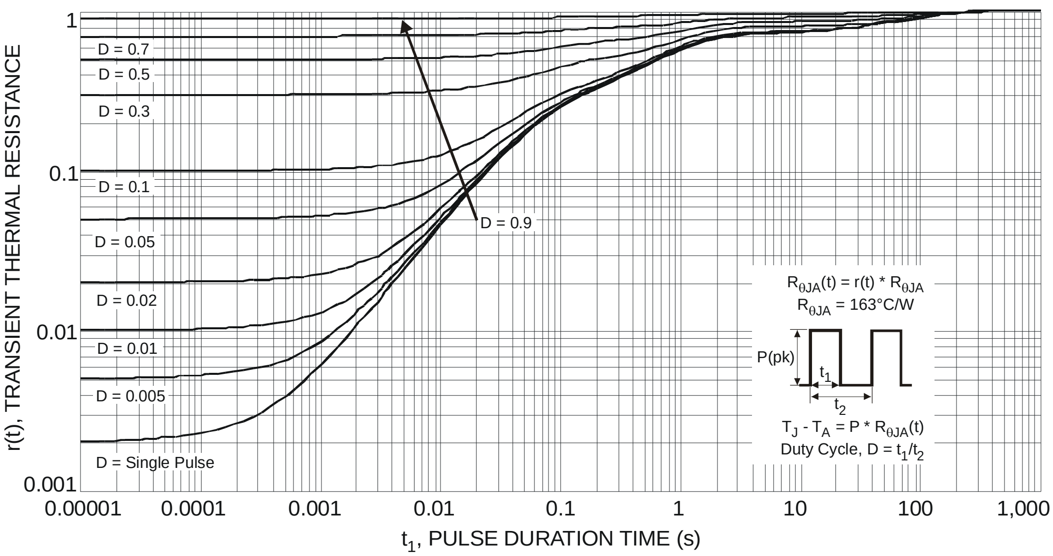


Fig. 3 Transient Thermal Response

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-120	—	—	V	I_C = -100μA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 5)	BV_{CEO}	-100	—	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -100μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	—	-100 -50	nA μA	V_{CB} = -80V, I_E = 0 V_{CB} = -80V, I_E = 0, T_A = 150°C
Collector Cutoff Current	I_{CES}	—	—	-100	nA	V_{CE} = -80V, V_{BE} = 0
Emitter Cutoff Current	I_{EBO}	—	—	-100	nA	V_{EB} = -4V, I_C = 0
DC Current Gain (Note 5)	h_{FE}	150 150 150 125	— — — —	— — 450 —	V	V_{CE} = -5V, I_C = -1mA V_{CE} = -5V, I_C = -250mA V_{CE} = -5V, I_C = -500mA V_{CE} = -5V, I_C = -1A
Collector-Emitter Saturation Voltage (Note 5)	$V_{CE(sat)}$	— — —	— — —	-120 -180 -320	mV	I_C = -250mA, I_B = -25mA I_C = -500mA, I_B = -50mA I_C = -1A, I_B = -100mA
Collector-Emitter Saturation Resistance	$R_{CE(sat)}$	—	—	320	mΩ	I_C = -1A, I_B = -100mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	-1.1	V	I_C = -1A, I_B = -100mA
Base-Emitter Turn On Voltage	$V_{BE(on)}$	—	—	-1	V	V_{CE} = -5V, I_C = -1A
Output Capacitance	C_{obo}	—	16	—	pF	V_{CB} = -10V, f = 1.0MHz
Current Gain-Bandwidth Product	f_T	100	—	—	MHz	V_{CE} = -10V, I_C = -50mA, f = 100MHz
Delay Time	t_d	—	27	—	ns	V_{CC} = -10V, I_C = -1A, I_{B1} = $-I_{B2}$ = -50mA
Rise Time	t_r	—	230	—	ns	
Storage Time	t_s	—	165	—	ns	
Fall Time	t_f	—	160	—	ns	

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

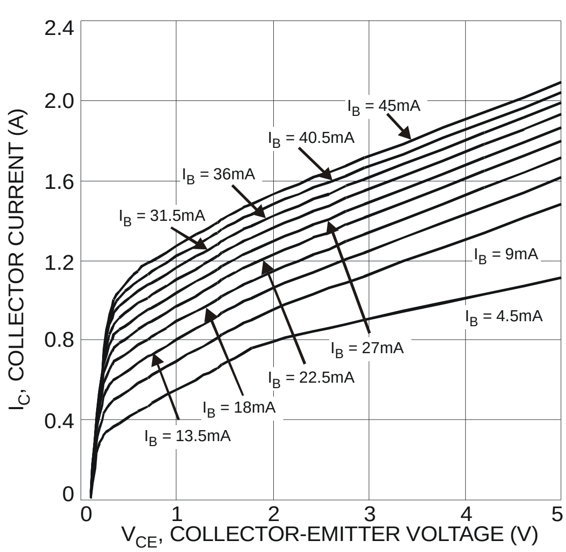


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

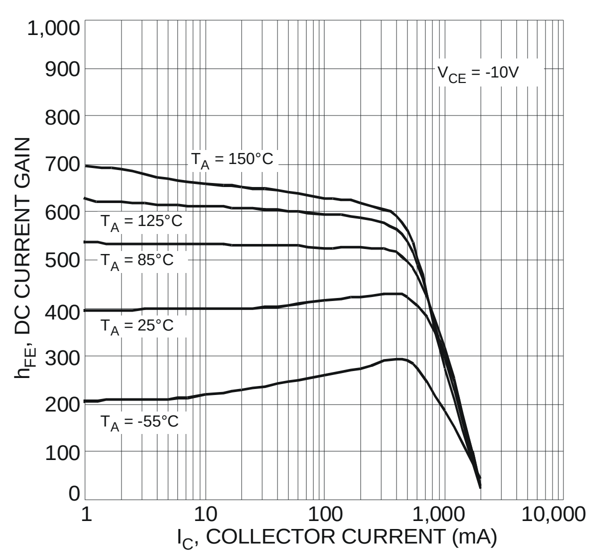


Fig. 5 Typical DC Current Gain vs. Collector Current

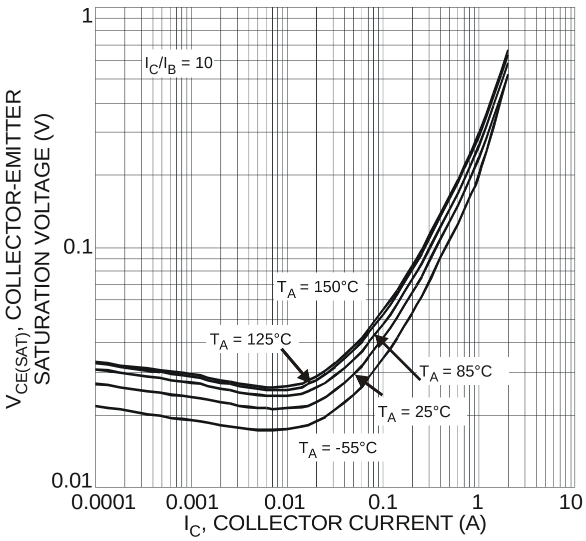


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

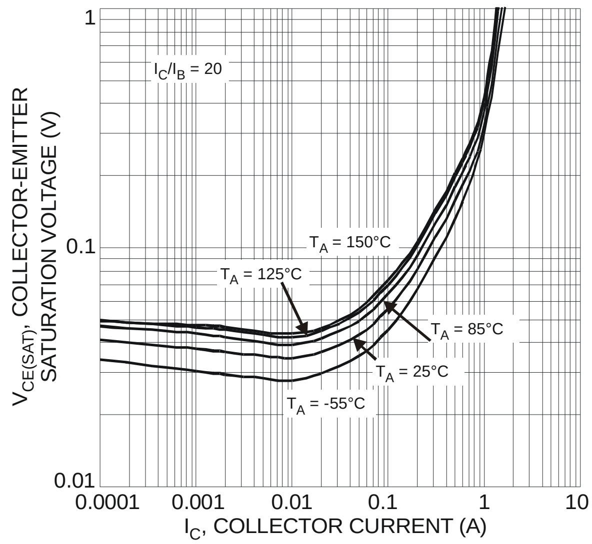


Fig. 7 Typical Collector-Emitter Saturation Voltage vs. Collector Current

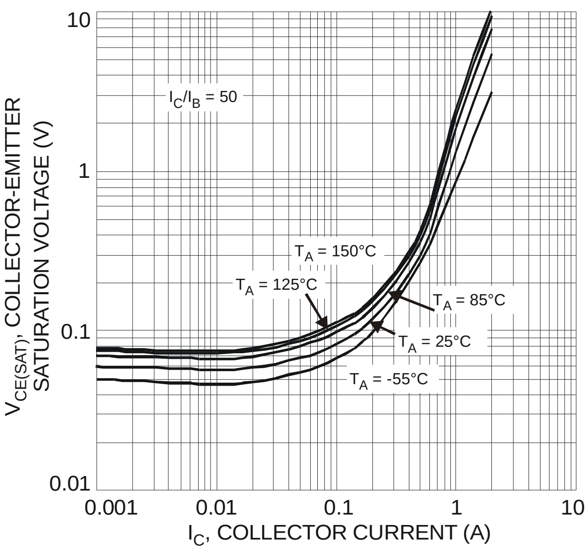


Fig. 8 Typical Collector-Emitter Saturation Voltage vs. Collector Current

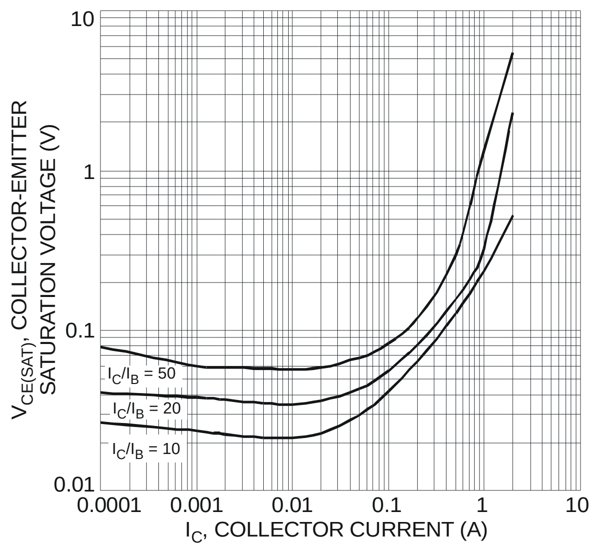


Fig. 9 Typical Collector-Emitter Saturation Voltage vs. Collector Current

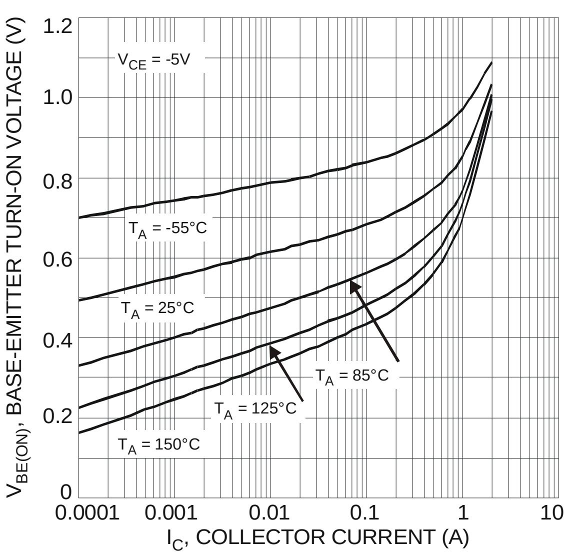


Fig. 10 Typical Base-Emitter Turn-On Voltage vs. Collector Current

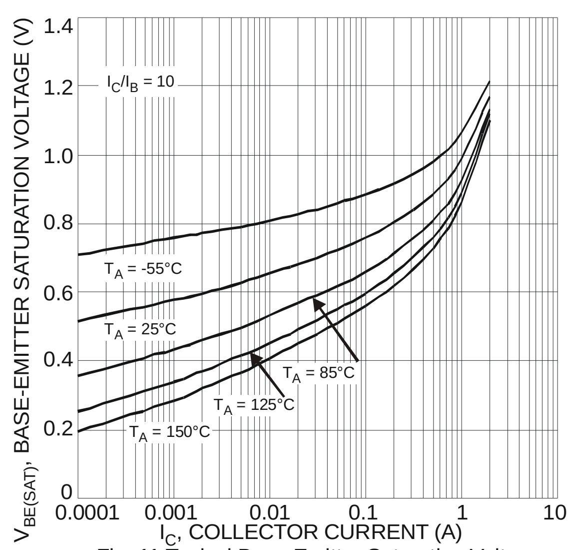
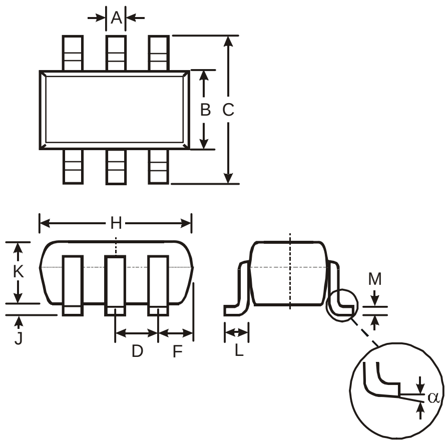


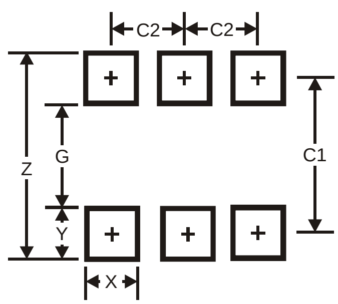
Fig. 11 Typical Base-Emitter Saturation Voltage vs. Collector Current

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