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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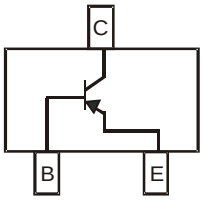
Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- High Collector Current Rating
- Complementary Version Available (NK-DNBT8105)

Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

Top View



Device Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current - Continuous	I_C	-1	A
Peak Pulse Collector Current	I_{CM}	-2	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4) @ T_A = 25°C	P_D	600	mW
Thermal Resistance, Junction to Ambient (Note 4) @ T_A = 25°C	$R_{\theta JA}$	209	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-80	—	V	I_C = -100μA, I_E = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-60	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	—	V	I_E = -100μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	-100	nA	V_{CB} = -60V, I_E = 0
Collector Cutoff Current	I_{CES}	—	-100	nA	V_{CE} = -60V
Emitter Cutoff Current	I_{EBO}	—	-100	nA	V_{EB} = -4V, I_C = 0
ON CHARACTERISTICS (Note 5)					
DC Current Gain	h_{FE}	100 100 80 30	— 300 — —	—	I_C = -1mA, V_{CE} = -5V I_C = -500mA, V_{CE} = -5V I_C = -1A, V_{CE} = -5V I_C = -2A, V_{CE} = -5V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	— —	-0.3 -0.6	V	I_C = -500mA, I_B = -50mA I_C = -1A, I_B = -100mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-1.2	V	I_C = -1A, I_B = -100mA
Base-Emitter Turn On Voltage	$V_{BE(ON)}$	—	-1.0	V	I_C = -1A, V_{CE} = -5V
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	—	12	pF	V_{CB} = -10V, f = 1.0MHz
Current Gain-Bandwidth Product	f_T	150	—	MHz	V_{CE} = 10V, I_C = 50mA, f = 100MHz

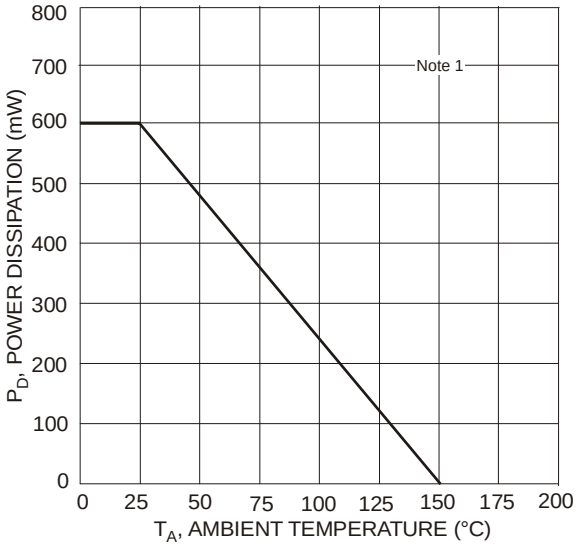


Fig. 1, Max Power Dissipation vs. Ambient Temperature

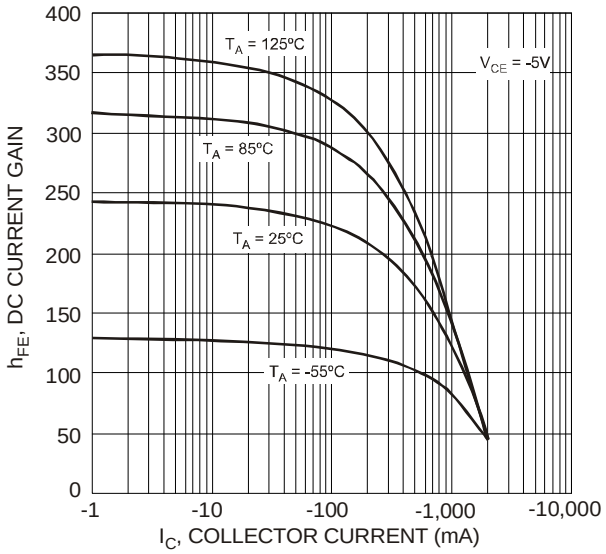


Fig. 2, DC Current Gain vs. Collector Current

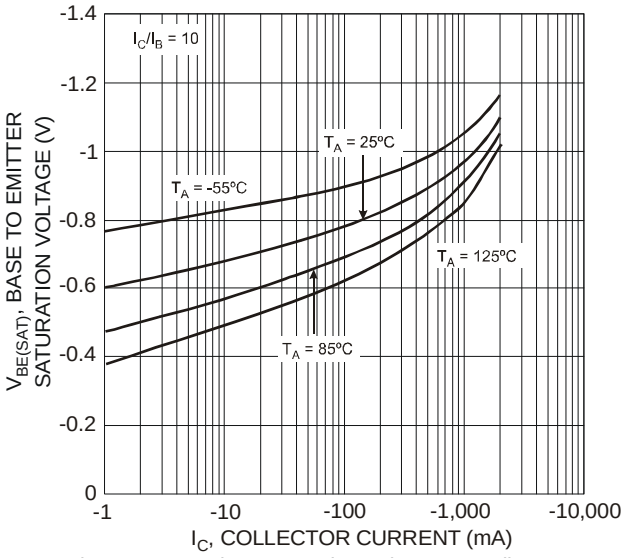


Fig. 3, Base-Emitter Saturation Voltage vs. Collector Current

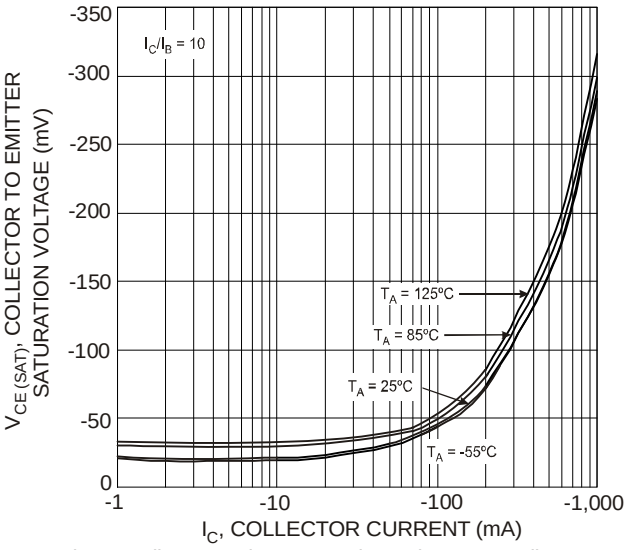


Fig. 4, Collector-Emitter Saturation Voltage vs. Collector Current

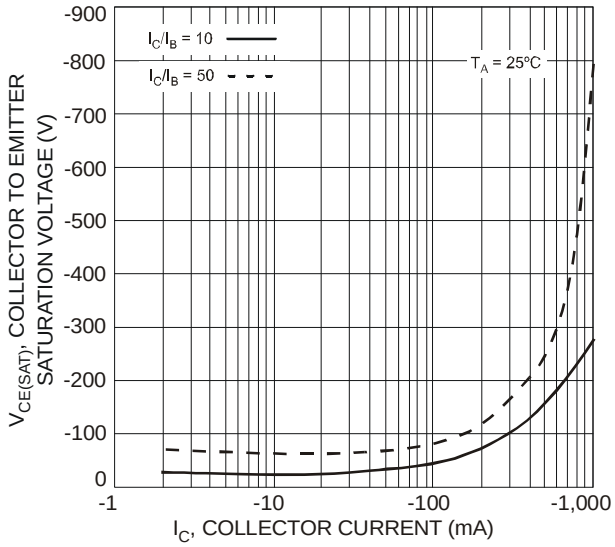


Fig. 5, Collector-Emitter Saturation Voltage vs. Collector Current

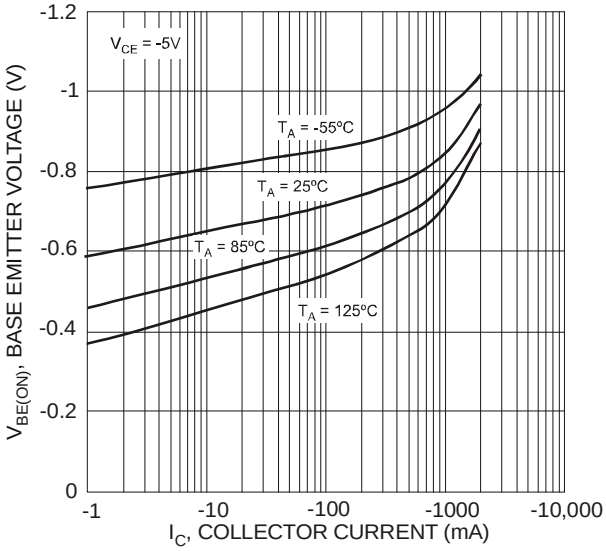


Fig. 6, Base-Emitter Voltage vs. Collector Current

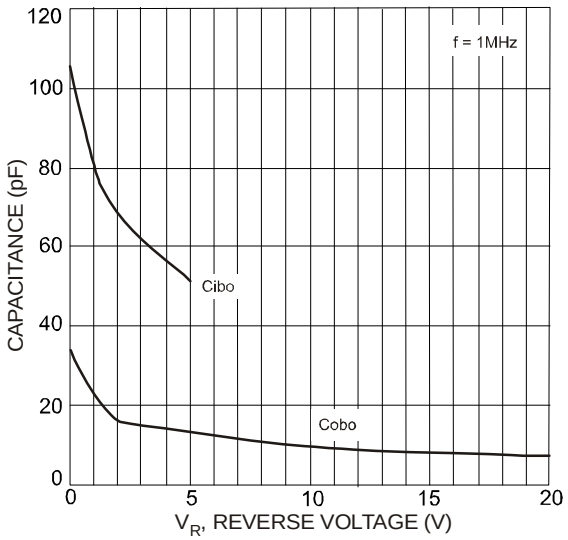
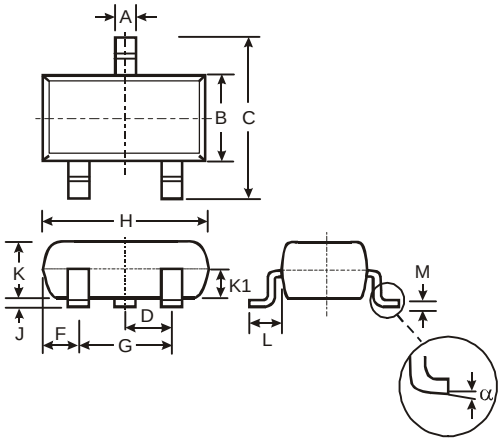


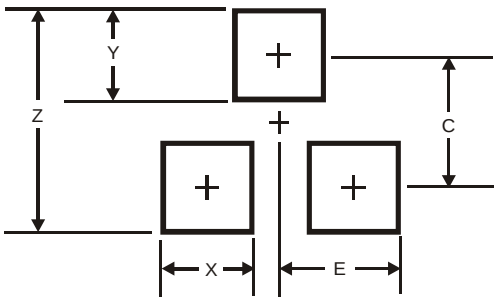
Fig. 7, Capacitance vs. Reverse Voltage

Package Outline Dimensions



SOT-23			
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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35