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
- Complementary NPN Type Available (NK-DNLS160)
- Surface Mount Package Suited for Automated Assembly
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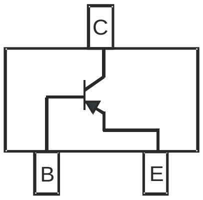
SOT-23

Mechanical Data

- Case: SOT-23
- 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
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)



Schematic and Pin Configuration

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
Base Current (DC)	I_B	-300	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ T_A = 25°C	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 3) @ T_A = 25°C	$R_{\theta JA}$	417	°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	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
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 -50	nA µA	V_{CB} = -60V, I_E = 0 V_{CB} = -60V, I_E = 0, T_A = 150°C
Collector Cutoff Current	I_{CES}	—	—	-100	nA	V_{CE} = -60V, V_{BE} = 0
Emitter Cutoff Current	I_{EBO}	—	—	-100	nA	V_{EB} = -5V, I_C = 0
ON CHARACTERISTICS (Note 4)						
DC Current Gain	h_{FE}	200 150 100	325 250 180	— — —	V	V_{CE} = -5V, I_C = -1mA V_{CE} = -5V, I_C = -500mA V_{CE} = -5V, I_C = -1A
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	— — —	-90 -90 -160	-160 -175 -330	mV	I_C = -100mA, I_B = -1mA I_C = -500mA, I_B = -50mA I_C = -1A, I_B = -100mA
Collector-Emitter Saturation Resistance	$R_{CE(SAT)}$	—	160	330	mΩ	I_C = -1A, I_B = -100mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-0.95	-1.1	V	I_C = -1A, I_B = -50mA
Base-Emitter Turn On Voltage	$V_{BE(ON)}$	—	-0.82	-0.9	V	V_{CE} = -5V, I_C = -1A
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	10	15	pF	V_{CB} = -10V, f = 1.0MHz
Current Gain-Bandwidth Product	f_T	150	220	—	MHz	V_{CE} = -10V, I_C = -50mA, f = 100MHz

Notes: 4. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤2%.

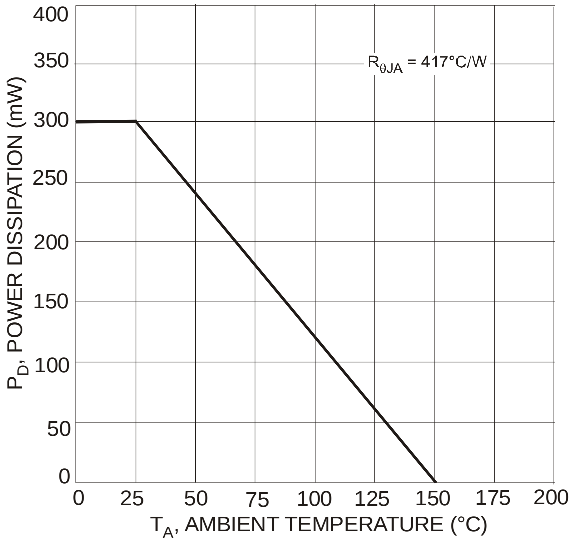


Fig. 1 Maximum Power Dissipation vs. Ambient Temperature

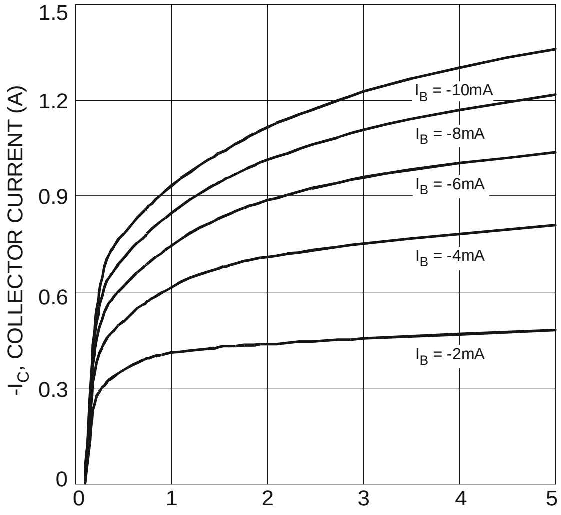


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

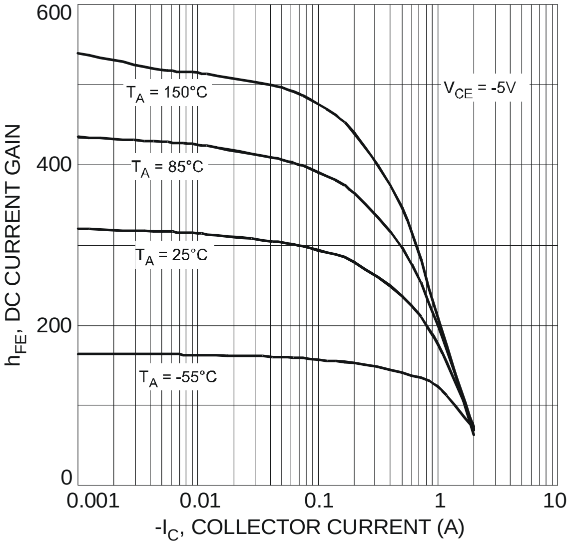


Fig. 3 Typical DC Current Gain vs. Collector Current

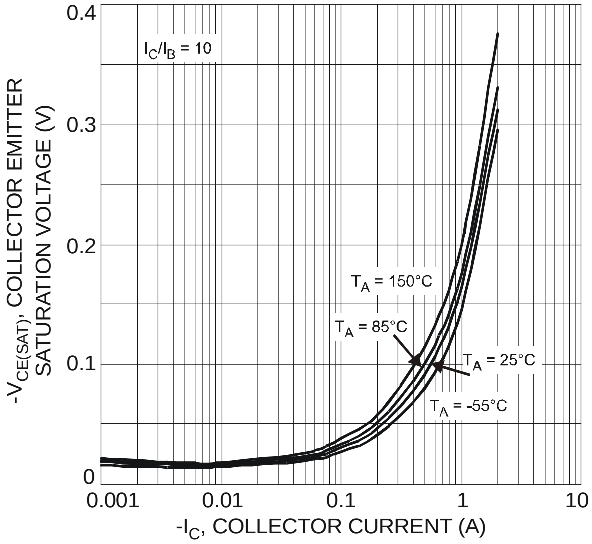


Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

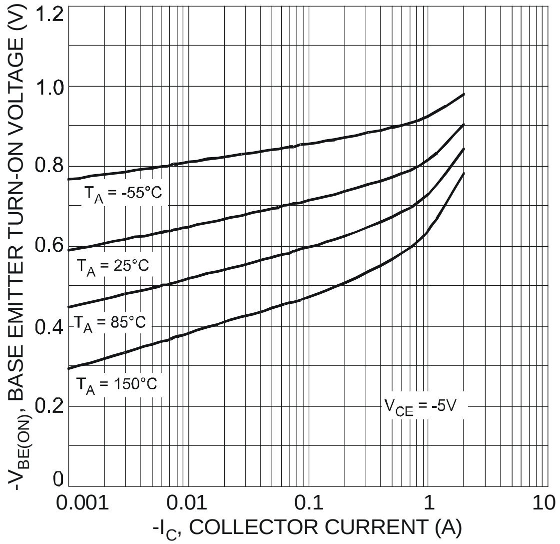


Fig. 5 Typical Base Emitter Turn-On Voltage vs. Collector Current

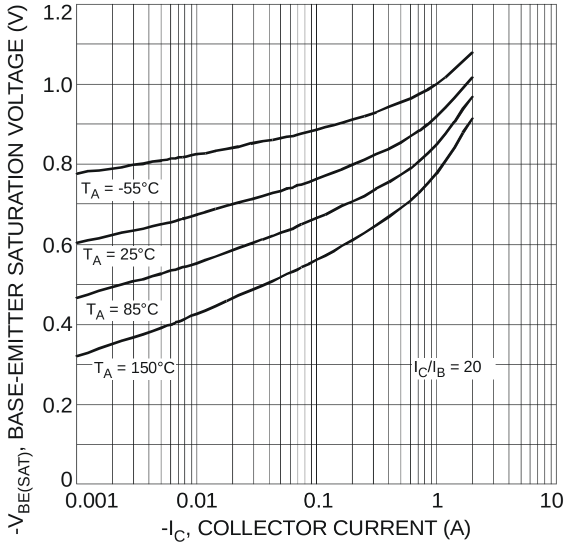


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

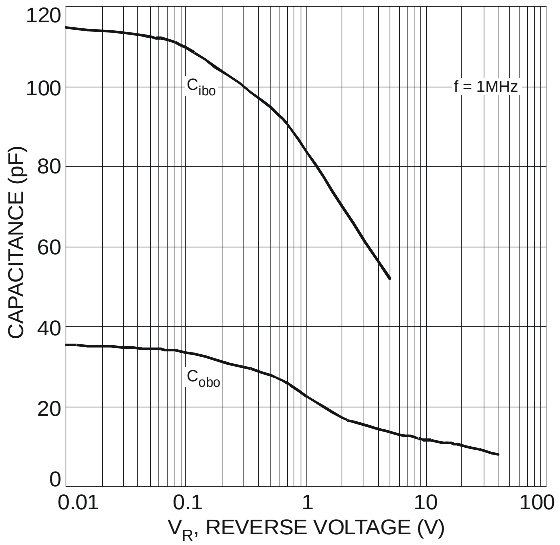


Fig. 7 Typical Total Capacitance

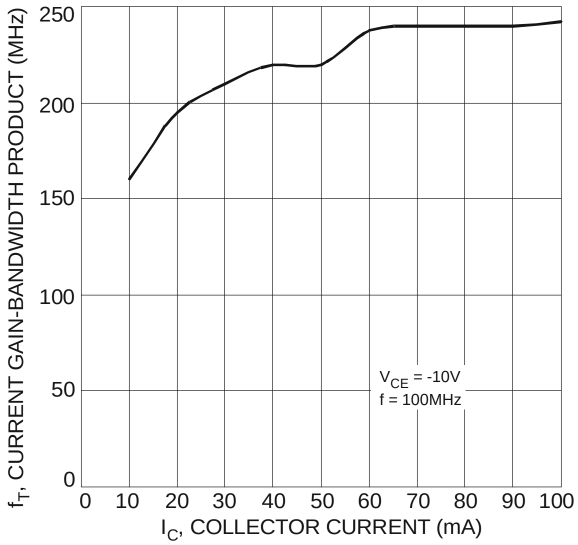
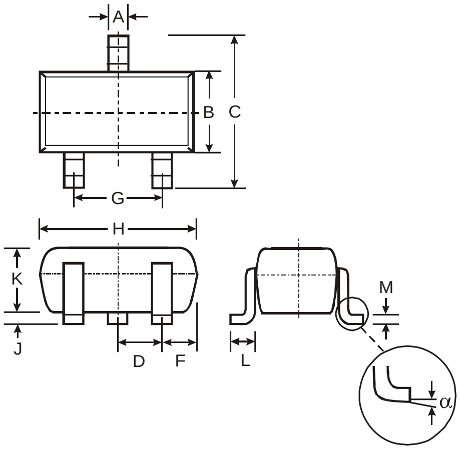


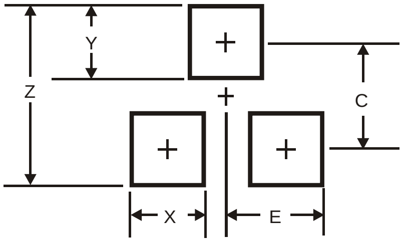
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
F	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
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