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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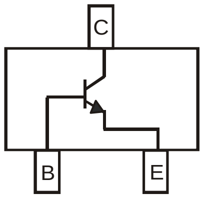
Features

- Epitaxial Planar Die Construction
- Low Collector-Emitter Saturation Voltage
- Ideal for Low Power Amplification and Switching
- Complementary PNP Type Available (NK-2DB1689)
- Ultra-Small Surface Mount Package

Mechanical Data

- Case: SOT-323
- 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 Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)

Top View



Device Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	15	V
Collector-Emitter Voltage	V_{CEO}	12	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current - Continuous	I_C	1.5	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	300	mW
Thermal Resistance, Junction to Ambient (Note 3) @ T_A = 25°C	$R_{\theta JA}$	417	°C/W
Power Dissipation (Note 4) @ T_A = 25°C	P_D	500	mW
Thermal Resistance, Junction to Ambient (Note 4) @ T_A = 25°C	$R_{\theta JA}$	250	°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	Conditions
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\mu A$, $I_E = 0$
Collector-Emitter Breakdown Voltage (Note 5)	$V_{(BR)CEO}$	12	—	—	V	$I_C = 1mA$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	—	—	V	$I_E = 10\mu A$, $I_C = 0$
Collector Cut-Off Current	I_{CBO}	—	—	0.1	µA	$V_{CB} = 15V$, $I_E = 0$
Emitter Cut-Off Current	I_{EBO}	—	—	0.1	µA	$V_{EB} = 6V$, $I_C = 0$
ON CHARACTERISTICS (Note 5)						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	80	200	mV	$I_C = 500mA$, $I_B = 25mA$
DC Current Gain	h_{FE}	270	—	680	—	$V_{CE} = 2V$, $I_C = 200mA$
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	11	—	pF	$V_{CB} = 10V$, $I_E = 0$, f = 1MHz
Current Gain-Bandwidth Product	f_T	—	260	—	MHz	$V_{CE} = 2V$, $I_C = 100mA$, f = 100MHz

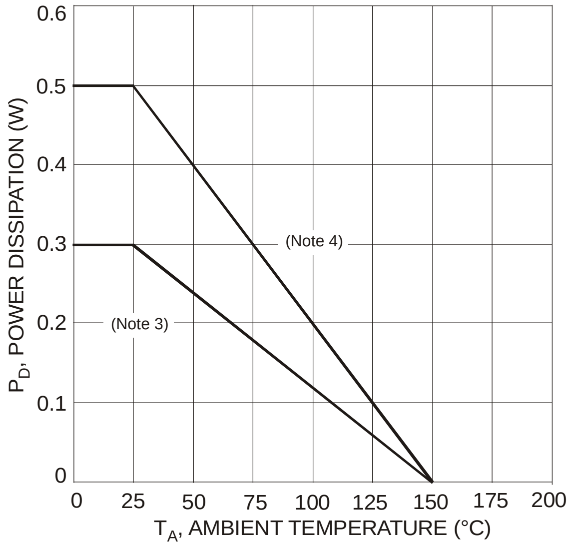


Fig. 1 Power Dissipation vs. Ambient Temperature

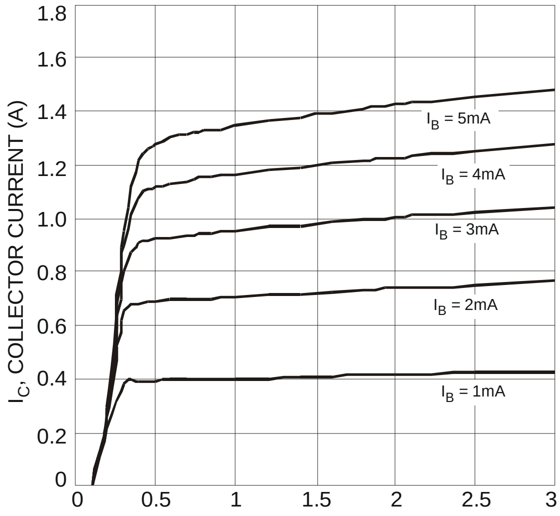


Fig. 2 Typical Collector Current
vs. Collector-Emitter Voltage

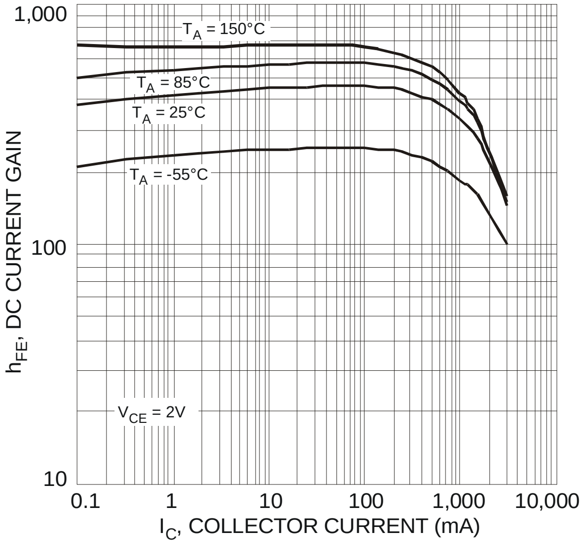


Fig. 3 Typical DC Current Gain vs. Collector Current

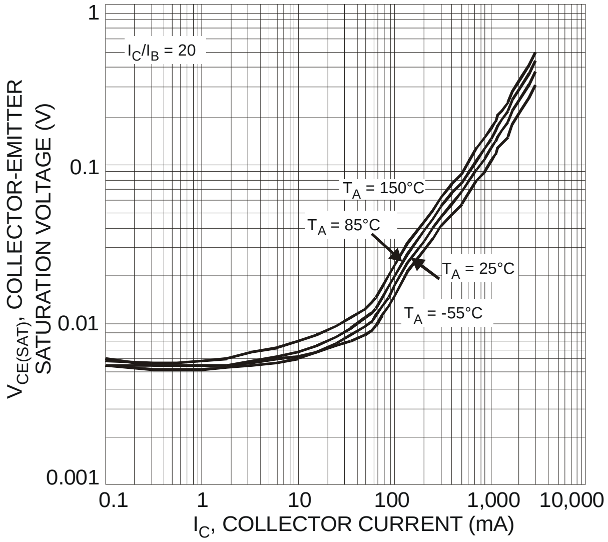


Fig. 4 Typical Collector-Emitter Saturation Voltage
vs. Collector Current

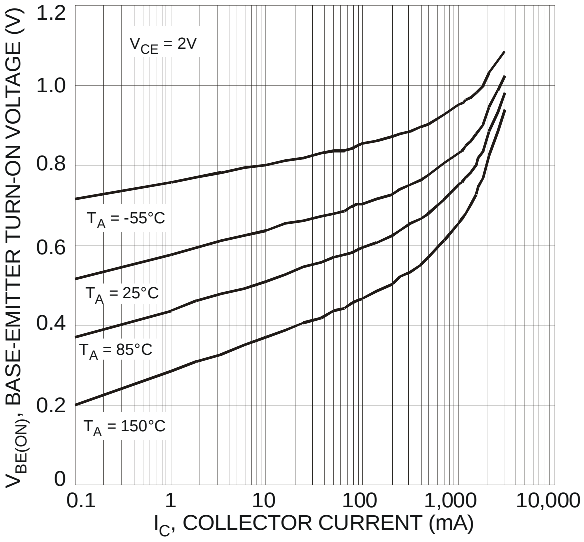


Fig. 5 Typical Base-Emitter Turn-On Voltage
vs. Collector Current

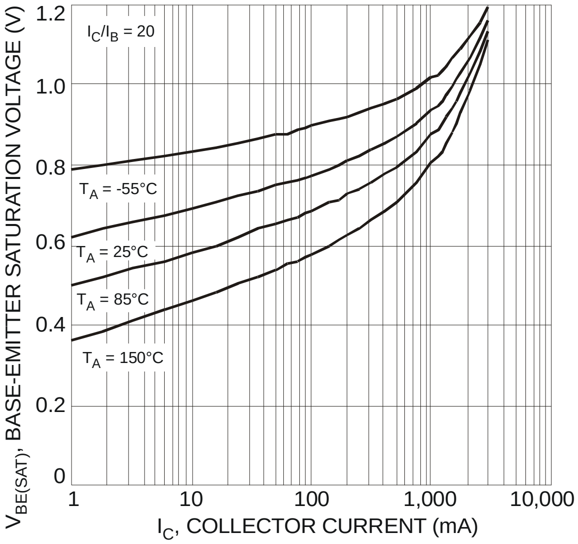


Fig. 6 Typical Base-Emitter Saturation Voltage
vs. Collector Current

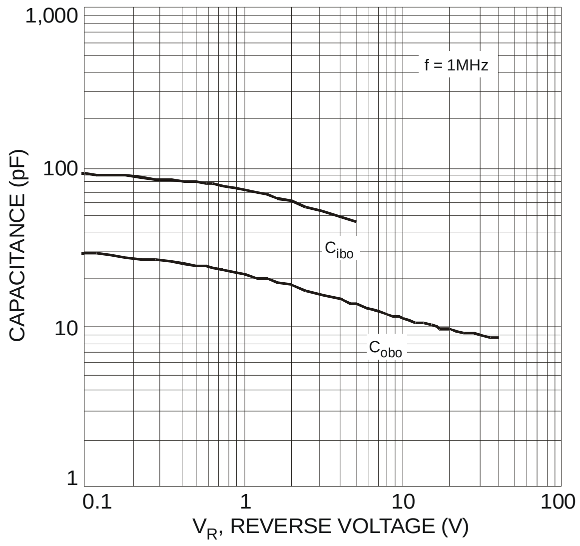
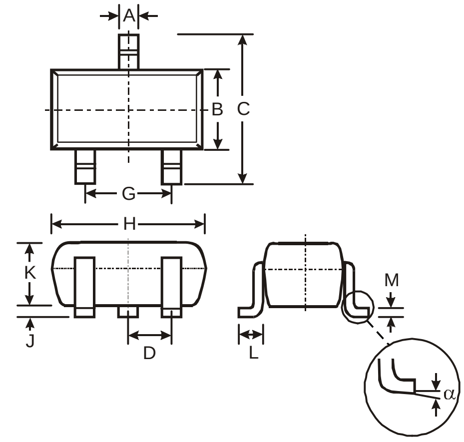


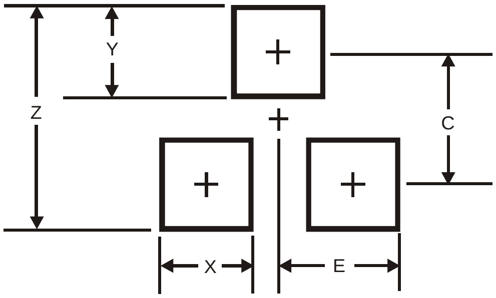
Fig. 7 Typical Capacitance Characteristics

Package Outline Dimensions



SOT-323			
Dim	**Min**	**Max**	**Typ**
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0