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

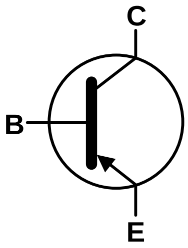
- Epitaxial Planar Die Construction
- Ultra-Small Surface Mount Package
- Complementary PNP Type: NK-MMST5551
- Ideal for Low Power Amplification and Switching

Mechanical Data

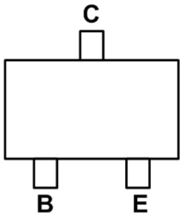
- Case: SOT323
- Case Material: Molded Plastic. “Green” Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.006 grams (Approximate)

SOT323

Top View



Device Symbol



Top View
Pin-Out

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P_D	200	mW
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 7)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)					
Collector-Base Breakdown Voltage	V_{CBO}	-160	—	V	I_C = -100μA, I_E = 0
Collector-Emitter Breakdown Voltage	V_{CEO}	-150	—	V	I_C = -1mA, I_B = 0
Emitter-Base Breakdown Voltage	V_{EBO}	-5	—	V	I_E = -100μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	-50	nA μA	V_{CB} = -120V, I_E = 0 V_{CB} = -120V, I_E = 0, T_A = +100°C
Emitter Cutoff Current	I_{EBO}	—	-50	nA	V_{EB} = -3V, I_C = 0
ON CHARACTERISTICS (Note 8)					
DC Current Gain	h_{FE}	50 60 50	— 240 —	—	I_C = -1mA , V_{CE} = -5V I_C = -10mA, V_{CE} = -5V I_C = -50mA, V_{CE} = -5V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-0.2 -0.5	V	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-1	V	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	—	6.0	pF	V_{CB} = -10V, f = 1MHz, I_E = 0
Small Signal Current Gain	h_{fe}	40	260	—	V_{CE} = -10V, I_C = -1mA, f = 1kHz
Current Gain-Bandwidth Product	f_T	100	300	MHz	V_{CE} = -10V, I_C = -10mA, f = 100MHz
Noise Figure	NF	—	8	dB	V_{CE} = -5V, I_C = -200μA, R_S =10Ω, f = 1kHz

Notes:
6. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.
8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

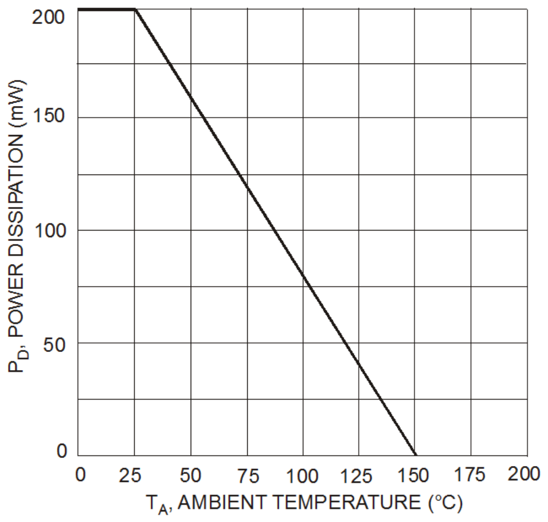


Fig. 1, Max Power Dissipation vs. Ambient Temperature

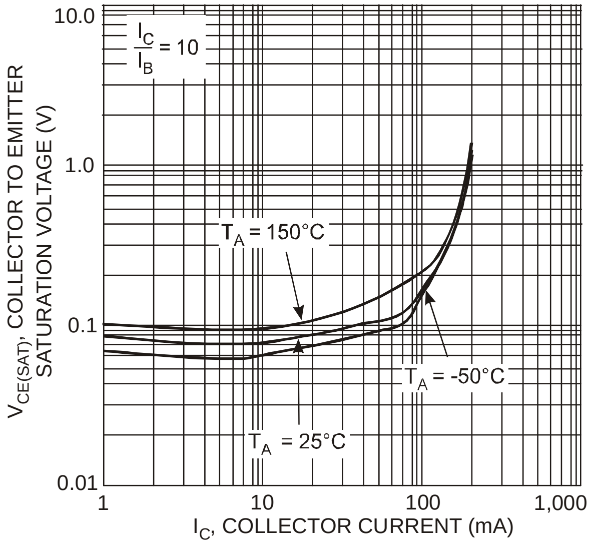


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

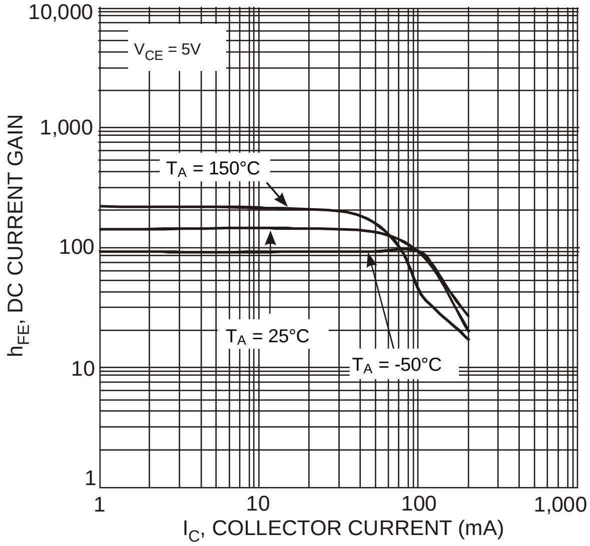


Fig. 3, DC Current Gain vs. Collector Current

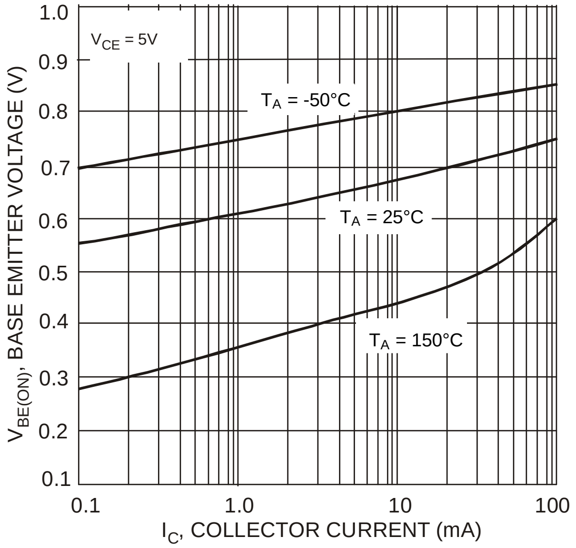


Fig. 4, Base Emitter Voltage vs. Collector Current

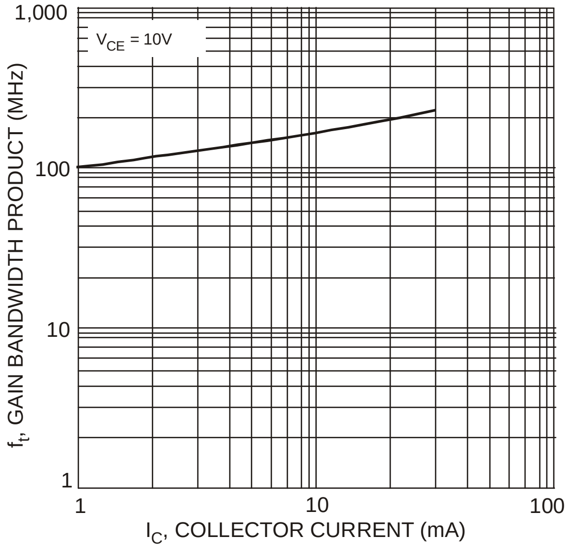
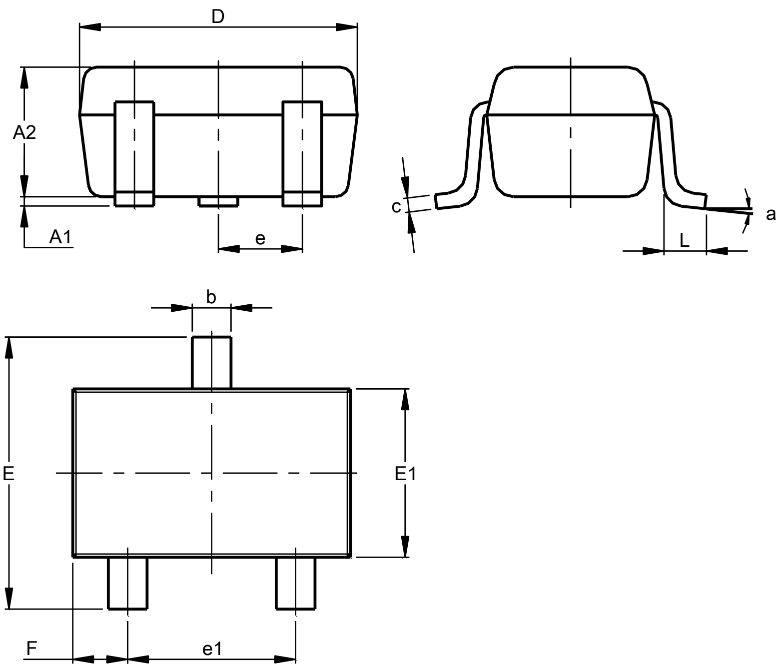


Fig. 5, Gain Bandwidth Product vs. Collector Current

Package Outline Dimensions

SOT323



SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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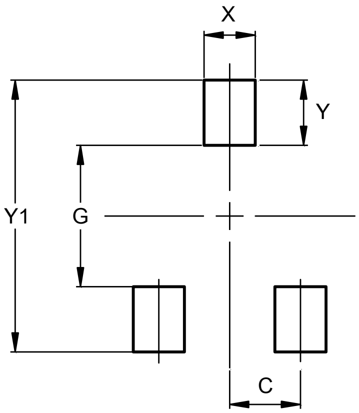
SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.