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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Description

This Bipolar Junction Transistor (BJT) is designed to meet the stringent requirements of Automotive Applications.

Features

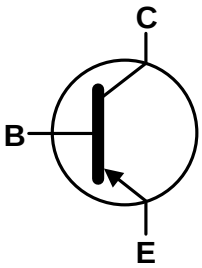
- BV_{CEO} > -80V
- I_C = -500mA Collector Current
- Epitaxial Planar Die Construction
- Ultra-Small Surface Mount Package
- Complementary NPN Type: NK-MMSTA06Q

Mechanical Data

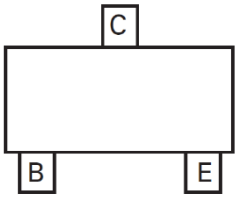
- Case: SOT323
- Case Material: Molded Plastic. “Green” Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208e3
- Weight: 0.006 grams (Approximate)

SOT323

Top View



Device Symbol



Pin-out Top View

Absolute 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}	-80	V
Emitter-Base Voltage	V_{EBO}	-4	V
Collector Current	I_C	-500	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

Notes: 6. For a device mounted with the collector lead on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

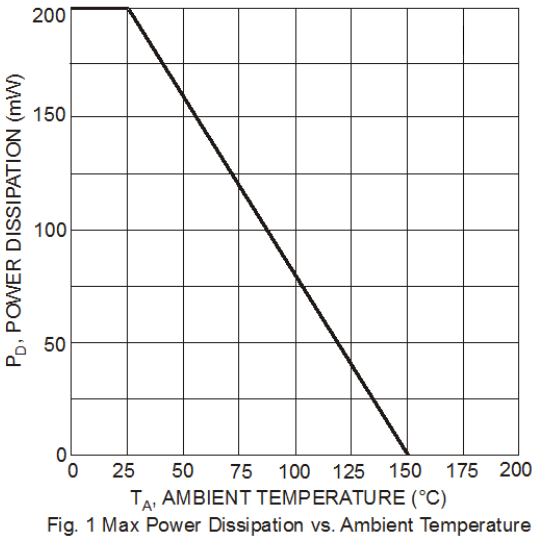


Fig. 1 Max Power Dissipation vs. Ambient Temperature

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)					
Collector-Base Breakdown Voltage	BV_{CBO}	-80	—	V	I_C = -100μA
Collector-Emitter Breakdown Voltage	BV_{CEO}	-80	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-4	—	V	I_E = -100μA
Collector Base Cutoff Current	I_{CBO}	—	-100	nA	V_{CB} = -80V, T_A = +125°C
Collector Cutoff Current	I_{CEX}	—	-100	nA	V_{CE} = -80V
ON CHARACTERISTICS (Note 8)					
DC Current Gain	h_{FE}	100	—	—	I_C = -10mA, V_{CE} = -1.0V I_C = -100mA, V_{CE} = -1.0V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	-0.25	V	I_C = -100mA, I_B = -10mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	-1.2	V	I_C = -100mA, V_{CE} = -1.0V
SMALL SIGNAL CHARACTERISTICS					
Current Gain-Bandwidth Product	f_T	50	—	MHz	V_{CE} = -1.0V, I_C = -100mA, f = 100MHz

Note: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

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

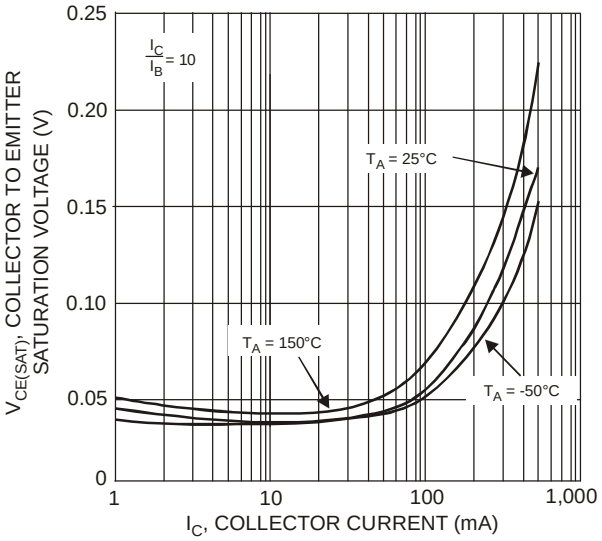


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

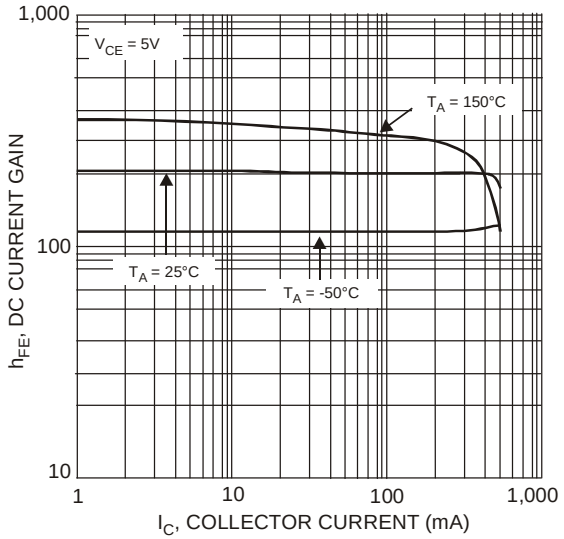


Fig. 3, DC Current Gain vs. Collector Current

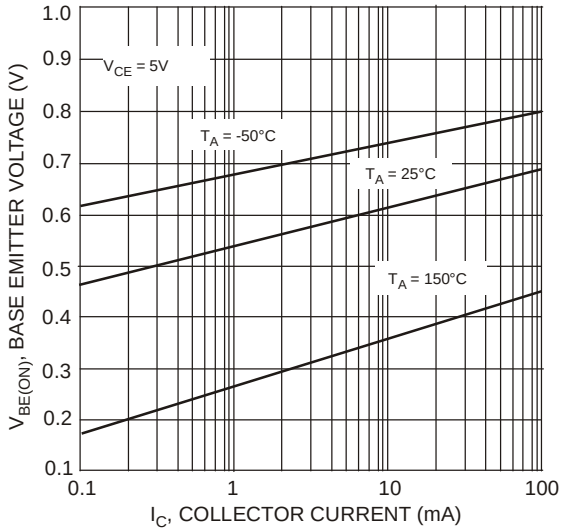


Fig. 4 Base Emitter Voltage vs. Collector Current

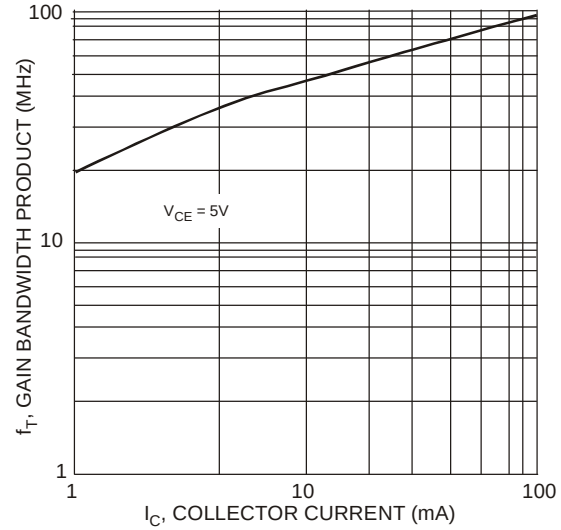
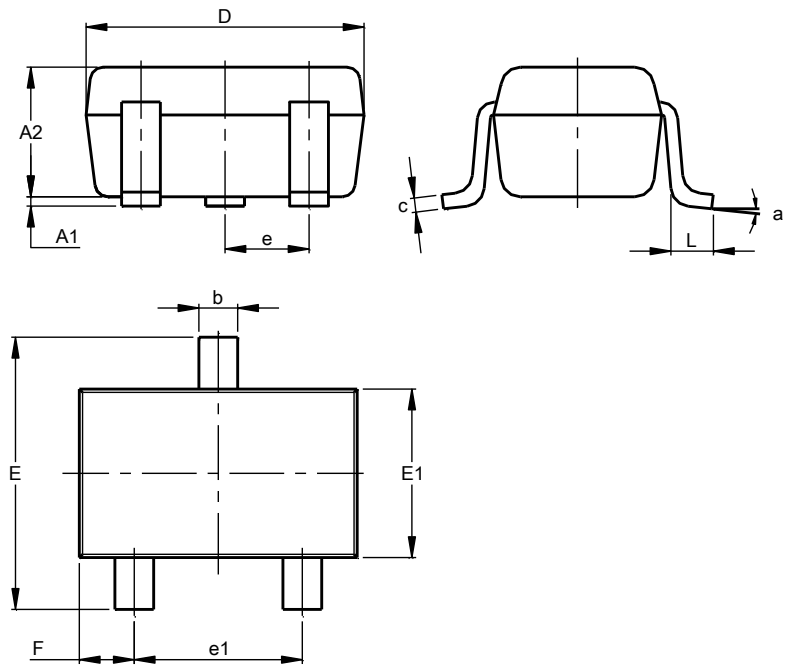


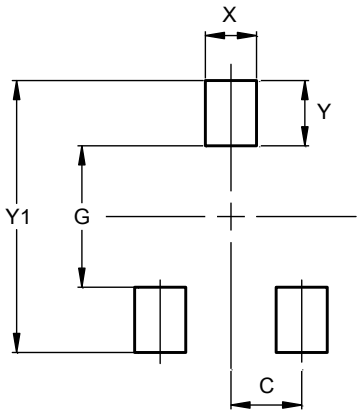
Fig. 5 Gain Bandwidth Product vs. Collector Current

Package Outline Dimensions



SOT323			
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



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