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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企业微信二维码　　企业QQ二维码

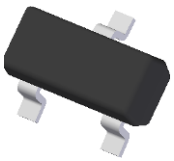
Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- High Current Gain
- Complementary PNP Types: NK-MMBTA63 / NK-MMBTA64

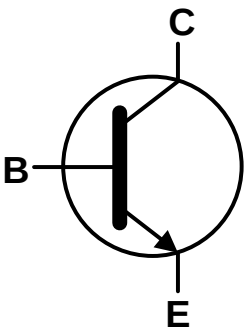
Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, “Green” Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.008 grams (Approximate)

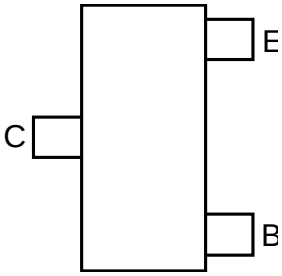
SOT23



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}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	300	mA

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

Characteristic		Symbol	Value	Unit
Collector Power Dissipation	(Note 5)	P_D	300	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	417	°C/W
Thermal Resistance, Junction to Leads	(Note 6)	$R_{\theta JL}$	—	°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 - Machine Model	ESD MM	400	V	C

Notes: 5. 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.
6. Thermal resistance from junction to solder-point (at the end of the leads).
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ.	Max	Unit	Test Condition
OFF CHARACTERISTICS							
Collector-Emitter Breakdown Voltage (Note 8)		BV_{CEO}	30	—	—	V	I_C = 100μA V_{BE} = 0V
Collector Cut-Off Current		I_{CBO}	—	—	100	nA	V_{CB} = 30V, I_E = 0
Emitter Cutoff Current		I_{EBO}	—	—	100	nA	V_{EB} = 10V, I_C = 0
ON CHARACTERISTICS (Note 8)							
DC Current Gain	NK-MMBTA13	h_{FE}	5,000	—	—	—	I_C = 10mA, V_{CE} = 5.0V
	NK-MMBTA14		10,000				I_C = 10mA, V_{CE} = 5.0V
	NK-MMBTA13		10,000				I_C = 100mA, V_{CE} = 5.0V
	NK-MMBTA14		20,000				I_C = 100mA, V_{CE} = 5.0V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	1.5	V	I_C = 100mA, I_B = 100μA
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	—	—	2.0	V	I_C = 100mA, V_{CE} = 5.0V
SMALL SIGNAL CHARACTERISTICS							
Output Capacitance		C_{obo}	—	8.0	—	pF	V_{CB} = 10V, f = 1.0MHz, I_E = 0
Input Capacitance		C_{ibo}	—	15	—	pF	V_{EB} = 0.5V, f = 1.0MHz, I_C = 0
Transition Frequency		f_T	125	—	—	MHz	V_{CE} = 5.0V, I_C = 10mA, f = 100MHz

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

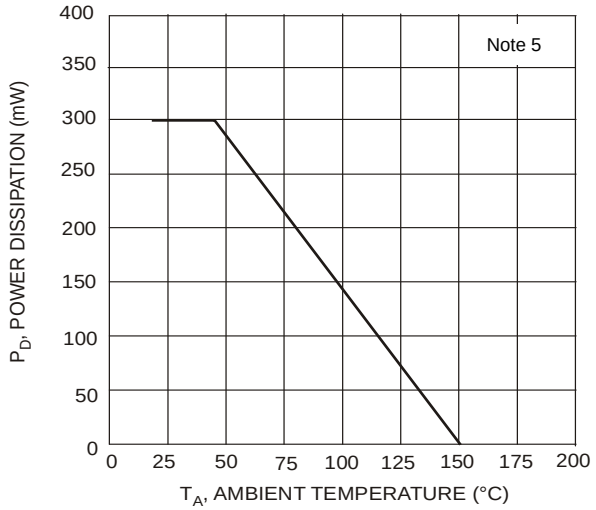


Fig. 1, Max Power Dissipation vs Ambient Temperature

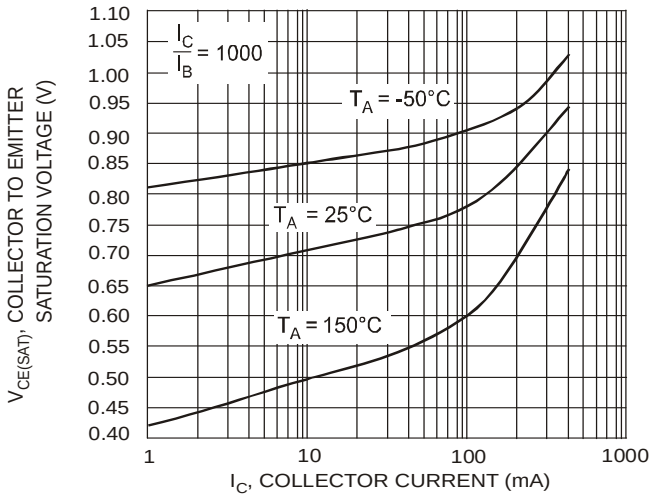


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

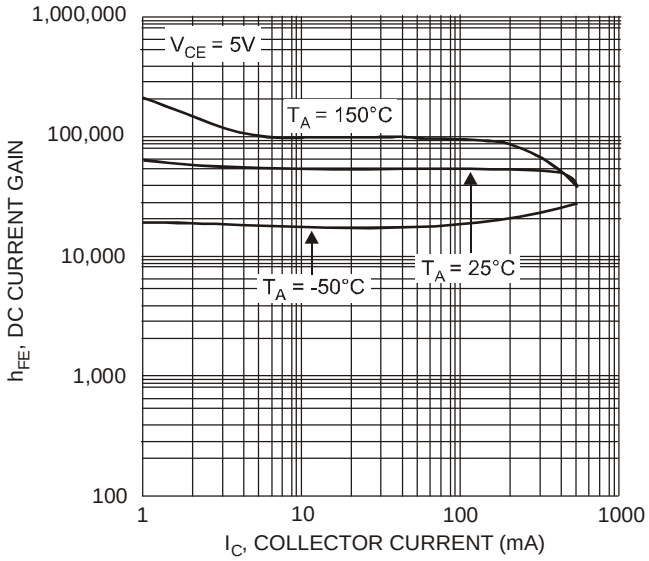


Fig. 3, DC Current Gain vs Collector Current

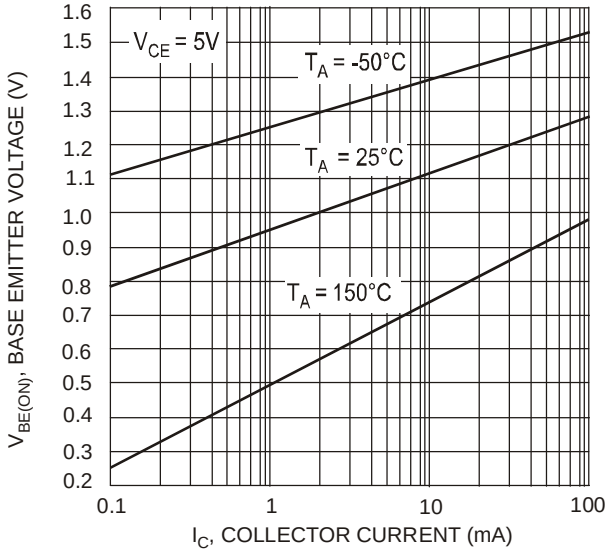


Fig. 4, Base Emitter Voltage vs. Collector Current

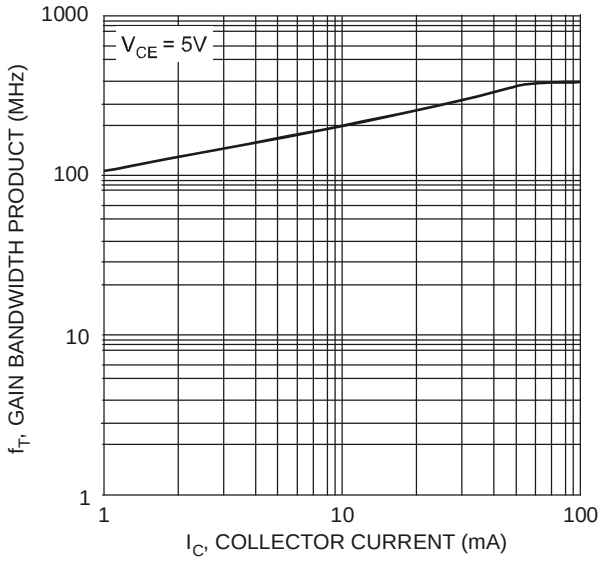
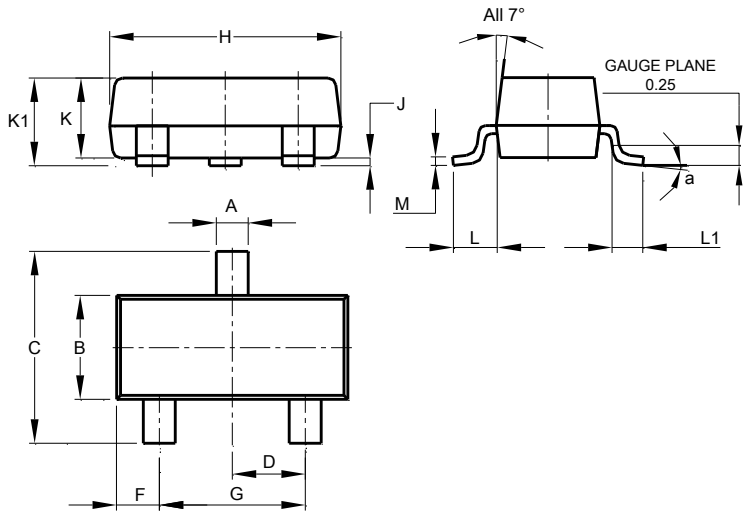


Fig. 5, Gain Bandwidth Product vs Collector Current

Package Outline Dimensions

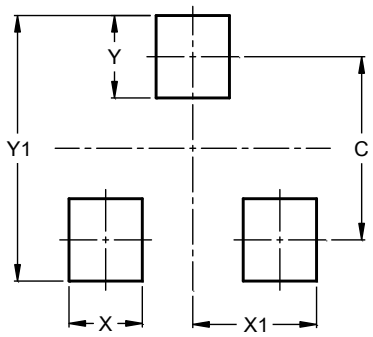
SOT23



SOT23			
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	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9