



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

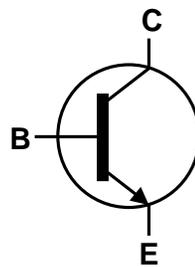
- $BV_{CEO} > 300V$
- Ideal for Medium Power Amplification and Switching
- Complementary PNP Type: DIODES™ NK-MMBTA92Q

Mechanical Data

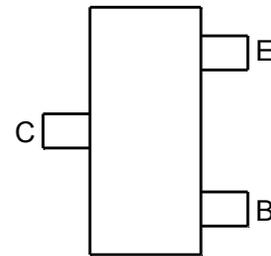
- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish-Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 (Ⓢ)
- Weight: 0.008 grams (Approximate)



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 _{CB0}	300	V
Collector-Emitter Voltage	V _{CEO}	300	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current - Continuous	I _C	500	mA

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

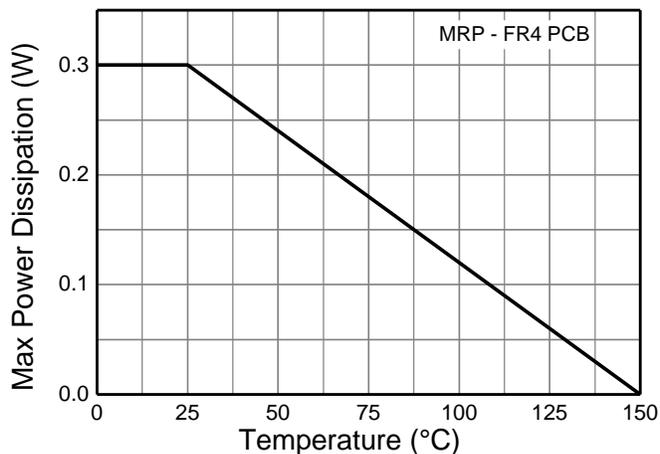
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 6)

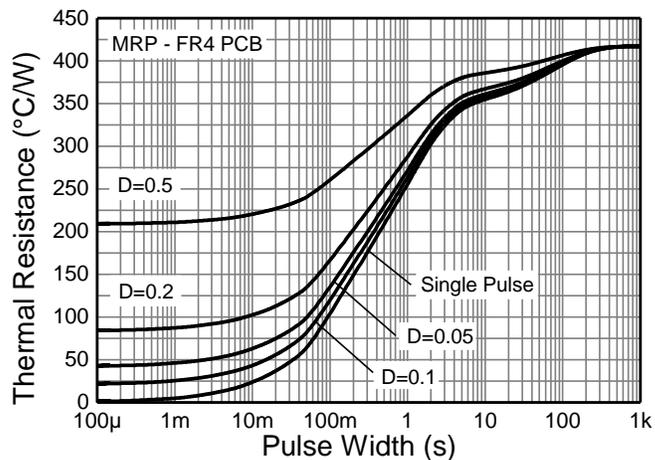
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

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

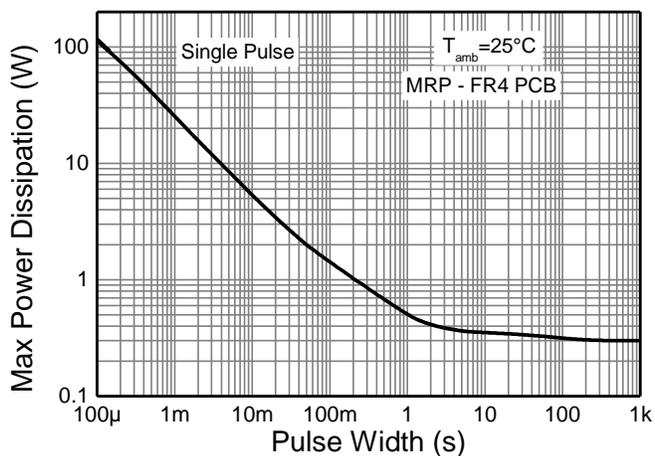
Thermal Characteristics



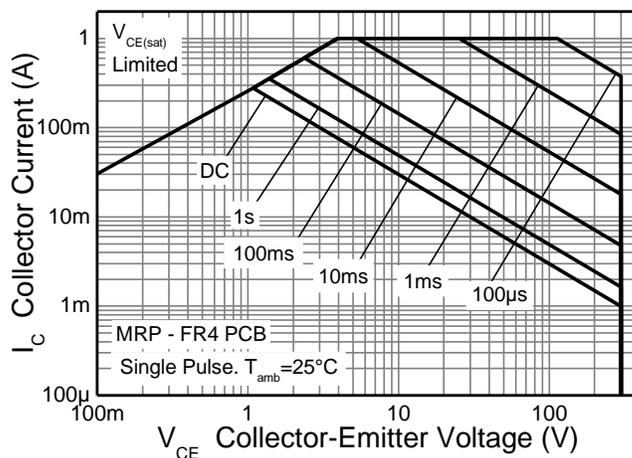
Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation



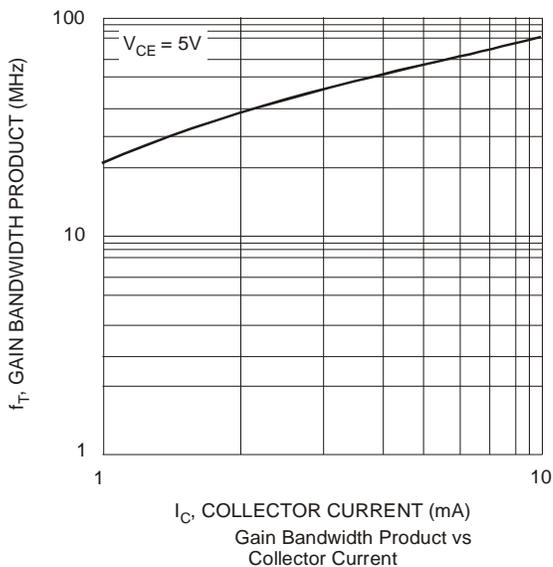
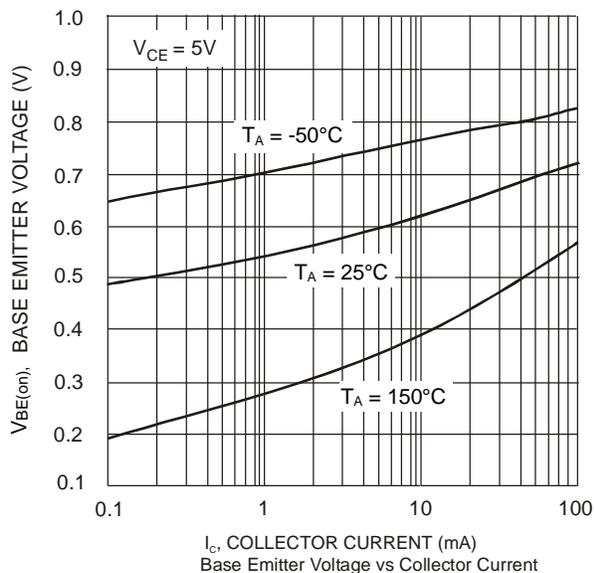
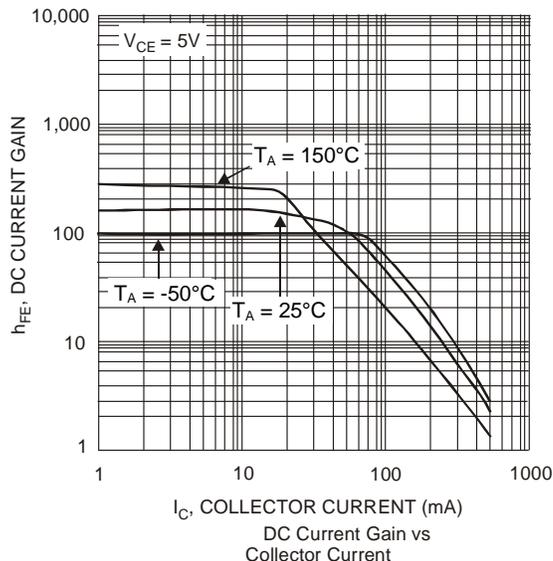
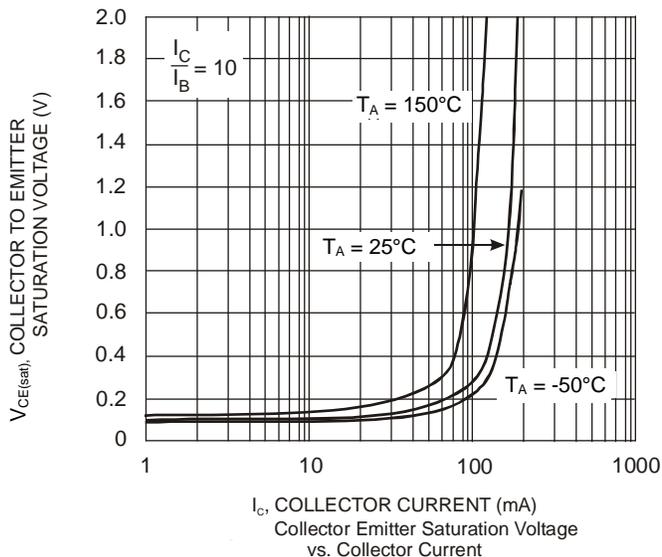
Safe Operating Area

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)					
Collector-Base Breakdown Voltage	BV _{CB0}	300	—	V	I _C = 100μA, I _E = 0
Collector-Emitter Breakdown Voltage	BV _{CEO}	300	—	V	I _C = 1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EB0}	6.0	—	V	I _E = 100μA, I _C = 0
Collector Cut-Off Current	I _{CB0}	—	100	nA	V _{CB} = 200V, I _E = 0
Emitter Cut-Off Current	I _{EBO}	—	100	nA	V _{EB} = 6.0V, I _C = 0
ON CHARACTERISTICS (Note 7)					
DC Current Gain	h _{FE}	25	—	—	I _C = 1.0mA, V _{CE} = 10V
		40	—		I _C = 10mA, V _{CE} = 10V
		40	—		I _C = 30mA, V _{CE} = 10V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	0.5	V	I _C = 20mA, I _B = 2.0mA
Base-Emitter Saturation Voltage	V _{BE(sat)}	—	0.9	V	I _C = 20mA, I _B = 2.0mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{cb}	—	3.0	pF	V _{CB} = 20V, f = 1.0MHz, I _E = 0
Current Gain-Bandwidth Product	f _T	50	—	MHz	V _{CE} = 20V, I _C = 10mA, f = 100MHz

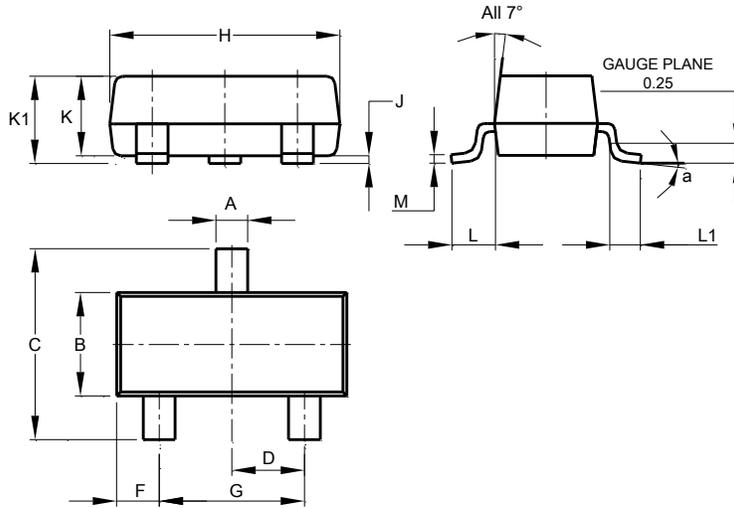
Note: 7. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics



Package Outline Dimensions

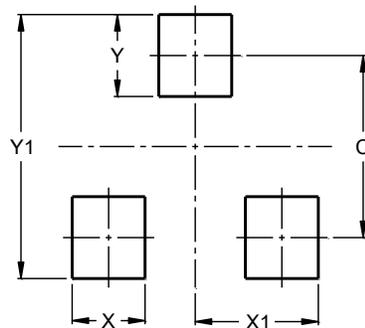
SOT23



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

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.