



# MMSTA42

## NPN Small Signal Transistors

### Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- Ultra-small surface mount package
- Marking : K3M
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Maximum Ratings

- Maximum Thermal Resistance: 625°C/W Junction To Ambient

Symbol	Rating	Rating	Unit
V <sub>CEO</sub>	Collector-Emitter Voltage	300	V
V <sub>CBO</sub>	Collector-Base Voltage	300	V
V <sub>EBO</sub>	Emitter-Base Voltage	6.0	V
I <sub>C</sub>	Collector Current-Continuous <sup>(1)</sup> <sup>(3)</sup>	200	mA
P <sub>C</sub>	Power dissipation <sup>(1)</sup>	200	mW
T <sub>J</sub>	Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage (I <sub>C</sub> =1.0mA, I <sub>B</sub> =0)	300	---	Vdc
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage (I <sub>C</sub> =100uA, I <sub>E</sub> =0)	300	---	Vdc
V <sub>(BR)EBO</sub>	Collector-Emitter Breakdown Voltage (I <sub>E</sub> =100uA, I <sub>C</sub> =0)	6.0	---	Vdc
I <sub>CBO</sub>	Collector-Base Cutoff Current (V <sub>CB</sub> =200V, I <sub>E</sub> =0)	---	100	nA
I <sub>EBO</sub>	Emitter-Base Cutoff Current (V <sub>CE</sub> =6.0V, I <sub>C</sub> =0)	---	100	nA

#### ON CHARACTERISTICS<sup>(2)</sup>

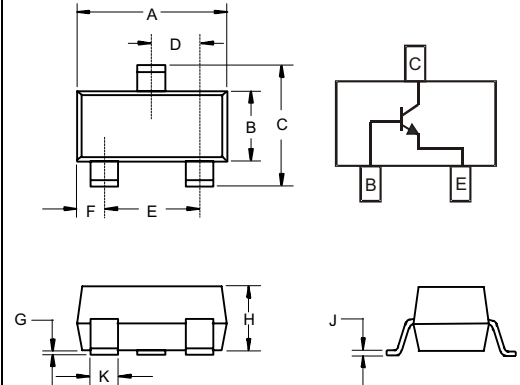
h <sub>FE</sub>	DC Current Gain (I <sub>C</sub> =1.0mA, V <sub>CE</sub> =10Vdc) (I <sub>C</sub> =10mA, V <sub>CE</sub> =10Vdc) (I <sub>C</sub> =30mA, V <sub>CE</sub> =10Vdc)	25 40 40	---	---
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage (I <sub>C</sub> =20mA, I <sub>B</sub> =2.0mA)	---	0.5	Vdc
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage (I <sub>C</sub> =20mA, I <sub>B</sub> =2.0mA)	---	0.9	Vdc

#### SMALL SIGNAL CHARACTERISTICS

f <sub>T</sub>	Current-Gain-Bandwidth Product (V <sub>CE</sub> =20V, f=100MHz, I <sub>C</sub> =10mA)	50	---	MHz
C <sub>CB</sub>	Collector-Base Capacitance (V <sub>CB</sub> =20V, f=1.0MHz, I <sub>E</sub> =0)	---	3.0	pF

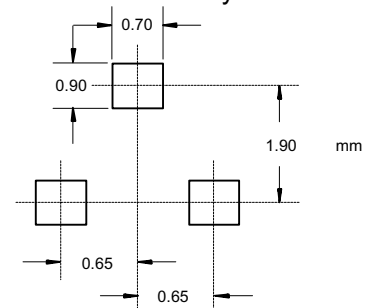
Note: 1. Valid provided that terminals are kept at ambient temperature.  
2. Pulse test: Pulse width<300us, duty cycle<2%  
3. When operated within safe operating area constraints.

### SOT-323



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	

#### Suggested Solder Pad Layout





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### Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel; 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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