

# 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

Symbol	Rating	Rating	Unit
$V_{CEO}$	Collector-Emitter Voltage	300	V
$V_{CBO}$	Collector-Base Voltage	300	V
$V_{EBO}$	Emitter-Base Voltage	6.0	V
$I_C$	Collector Current-Continuous <sup>(1) (3)</sup>	200	mA
$P_C$	Power dissipation <sup>(1)</sup>	200	mW
$T_J$	Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

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

Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=1.0mA$ , $I_B=0$ )	300	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=100\mu A$ , $I_E=0$ )	300	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ( $I_E=100\mu A$ , $I_C=0$ )	6.0	---	Vdc
$I_{CBO}$	Collector-Base Cutoff Current ( $V_{CB}=200Vdc$ , $I_E=0$ )	---	100	nAdc
$I_{EBO}$	Emitter-Base Cutoff Current ( $V_{CE}=6.0Vdc$ , $I_C=0$ )	---	100	nAdc

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

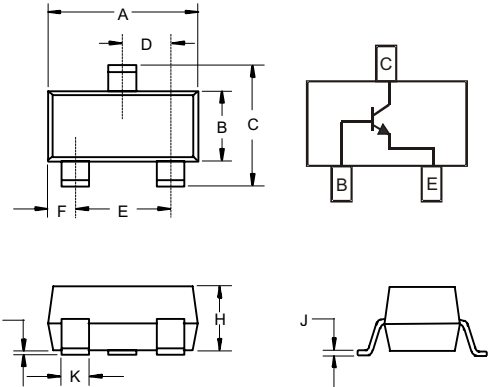
$h_{FE}$	DC Current Gain ( $I_C=1.0mA$ , $V_{CE}=10Vdc$ ) ( $I_C=10mA$ , $V_{CE}=10Vdc$ ) ( $I_C=30mA$ , $V_{CE}=10Vdc$ )	25 40 40	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=20mA$ , $I_B=2.0mA$ )	---	0.5	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=20mA$ , $I_B=2.0mA$ )	---	0.9	Vdc

#### SMALL SIGNAL CHARACTERISTICS

$f_T$	Current-Gain-Bandwidth Product ( $V_{CE}=20V$ , $f=100MHz$ , $I_C=10mA$ )	50	---	MHz
$C_{CB}$	Collector-Base Capacitance ( $V_{CB}=20V$ , $f=1.0MHz$ , $I_E=0$ )	---	3.0	pF

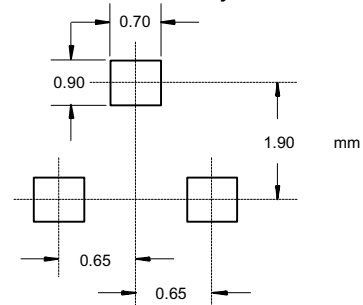
- Note: 1. Valid provided that terminals are kept at ambient temperature.  
2. Pulse test: Pulse width<300us, duty cycle<2%  
3. When operated within safe operating area constraints.

### 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	.079	.087	2.00	2.20	
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	.012	.016	.30	.40	

### Suggested Solder Pad Layout





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### Ordering Information :

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

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

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