



Micro Commercial Components

Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

**MMS9012-L**

**MMS9012-H**

## Features

- Halogen free available upon request by adding suffix "-HF"
- SOT-23 Plastic-Encapsulate Transistors
- Capable of 0.3Watts(Tamb=25°C) of Power Dissipation.
- Collector-current 0.5A
- Collector-base Voltage 40V
- Operating and storage junction temperature range: -55°C to +150°C
- Marking : 2T1
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

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

Symbol	Parameter	Min	Max	Units
<b>OFF CHARACTERISTICS</b>				
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=100\mu A_{dc}$ , $I_E=0$ )	40	---	Vdc
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=0.1mA_{dc}$ , $I_B=0$ )	25	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=100\mu A_{dc}$ , $I_C=0$ )	5.0	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=40V_{dc}$ , $I_E=0$ )	---	0.1	$\mu A_{dc}$
$I_{CEO}$	Collector Cutoff Current ( $V_{CE}=20V_{dc}$ , $I_B=0$ )	---	0.1	$\mu A_{dc}$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=5.0V_{dc}$ , $I_C=0$ )	---	0.1	$\mu A_{dc}$

### ON CHARACTERISTICS

$h_{FE(1)}$	DC Current Gain ( $I_C=50mA_{dc}$ , $V_{CE}=1.0V_{dc}$ )	120	350	---
$h_{FE(2)}$	DC Current Gain ( $I_C=500mA_{dc}$ , $V_{CE}=1.0V_{dc}$ )	40	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=500mA_{dc}$ , $I_B=50mA_{dc}$ )	---	0.6	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=500mA_{dc}$ , $I_B=50mA_{dc}$ )	---	1.2	Vdc
$V_{EB}$	Base- Emitter Voltage ( $I_E=100mA_{dc}$ )	---	1.4	Vdc

### SMALL-SIGNAL CHARACTERISTICS

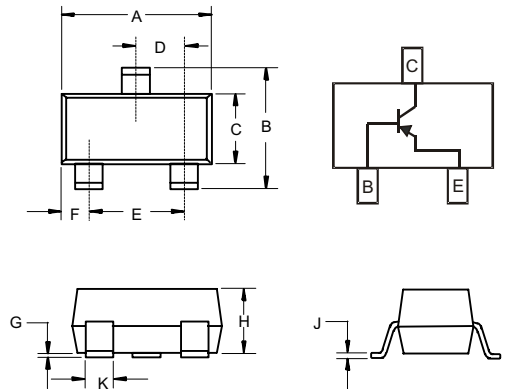
$f_T$	Transistor Frequency ( $I_C=20mA_{dc}$ , $V_{CE}=6.0V_{dc}$ , $f=30MHz$ )	150	---	MHz
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### CLASSIFICATION OF $h_{FE(1)}$

Rank	L	H
Range	120-200	200-350

## PNP Silicon Plastic-Encapsulate Transistor

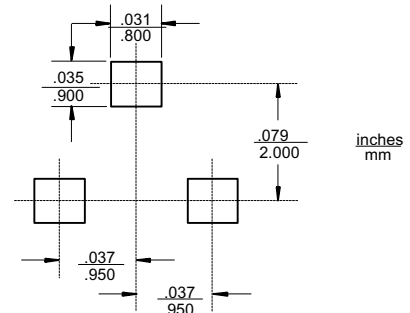
### SOT-23



#### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

### 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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