

**M·C·C**

Micro Commercial Components



Micro Commercial Components  
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**Features**

- Halogen free available upon request by adding suffix "-HF"
- SOT-23 Plastic-Encapsulate Transistors
- Capable of 0.3Watts( $T_{amb}=25^{\circ}\text{C}$ ) of Power Dissipation.
- Collector-current 0.5A
- Collector-base Voltage 40V
- Operating and storage junction temperature range:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- 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 @  $25^{\circ}\text{C}$  Unless Otherwise Specified**

Symbol	Parameter	Min	Max	Units
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**OFF CHARACTERISTICS**

$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_b=100\text{uA}\text{dc}$ , $I_e=0$ )	40	---	Vdc
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_b=0.1\text{mA}\text{dc}$ , $I_e=0$ )	25	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_b=100\text{uA}\text{dc}$ , $I_e=0$ )	5.0	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=40\text{Vdc}$ , $I_e=0$ )	---	0.1	$\text{uA}\text{dc}$
$I_{CEO}$	Collector Cutoff Current ( $V_{CE}=20\text{Vdc}$ , $I_b=0$ )	---	0.1	$\text{uA}\text{dc}$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=5.0\text{Vdc}$ , $I_b=0$ )	---	0.1	$\text{uA}\text{dc}$

**ON CHARACTERISTICS**

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

**SMALL-SIGNAL CHARACTERISTICS**

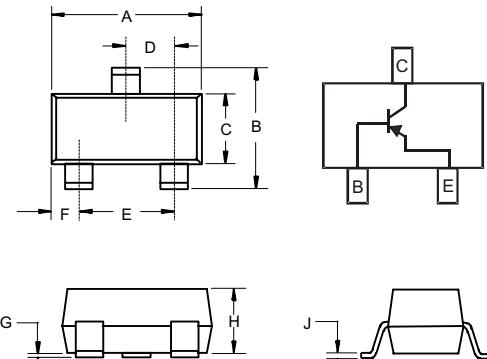
$f_T$	Transistor Frequency ( $I_b=20\text{mA}\text{dc}$ , $V_{CE}=6.0\text{Vdc}$ , $f=30\text{MHz}$ )	150	---	MHz
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**CLASSIFICATION OF  $h_{FE(1)}$** 

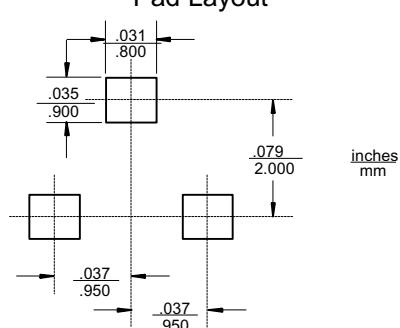
Rank	L	H
Range	120-200	200-350

**MMS9012-L****MMS9012-H**

**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****www.mccsemi.com**

## 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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