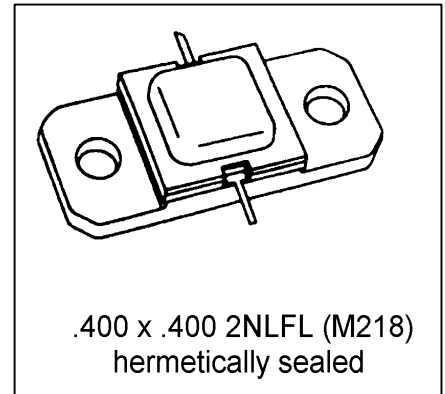


**MSC1300M**

**RF & MICROWAVE TRANSISTORS  
AVIONICS APPLICATIONS**

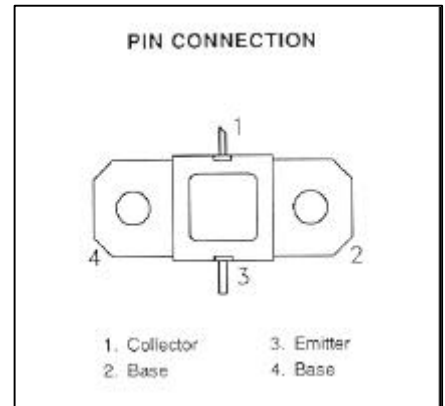
**Features**

- 1090 MHz
- COMMON BASE
- INTERNAL INPUT / OUTPUT MATCHING
- GOLD METALLIZATION
- CLASS C OPERATION
- POUT = 300 W MIN. WITH 6.3 dB GAIN
- RUGGEDIZED VSWR 20:1
- LOW THERMAL RESISTANCE
- METAL / CERAMIC HERMETIC PACKAGE



**DESCRIPTION:**

THE MS1300M IS A SILICON NPN BIPOLAR DEVICE SPECIFICALLY DESIGNED FOR IFF AVOICIS APPLICATIONS AT 1090 MHz. THE MS1300M IS DESIGNED TO WITHSTAND A 20:1 VSWR AT ALL PHASE ANGLES UNDER FULL LOAD CONDITIONS. GOLD METALLIZATION AND EMITTER BALLASTING ASSURE HIGH RELIABILITY UNDER CLASS C AMPLIFIER OPERATION.



**ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Collector-Supply Voltage <sup>8</sup>	55	V
I <sub>C</sub>	Device Current <sup>*</sup>	18.8	A
P <sub>DISS</sub>	Power Dissipation <sup>*</sup>	625	W
T <sub>J</sub>	Junction Temperature (Pulsed RF Operation)	+250	°C
T <sub>STG</sub>	Storage Temperature	-65 to +150	°C

**Thermal Data**

R <sub>TH(J-C)</sub>	Junction-case Thermal Resistance <sup>*</sup>	0.20	°C/W
----------------------	---	------	------

<sup>\*</sup>Applies only to rated RF Amplifier Operation

**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CBO</sub></b>	<b>I<sub>C</sub> = 10mA</b>	<b>I<sub>E</sub> = 0mA</b>	<b>65</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 20mA</b>	<b>I<sub>C</sub> = 0mA</b>	<b>3.5</b>	---	---	<b>V</b>
<b>BV<sub>CER</sub></b>	<b>I<sub>E</sub> = 20mA</b>	<b>R<sub>BE</sub> = 10Ω</b>	<b>553.5</b>	---	---	<b>V</b>
<b>I<sub>CES</sub></b>	<b>V<sub>CE</sub> = 50 V</b>		-----	---	<b>25</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V</b>	<b>I<sub>C</sub> = 100mA</b>	<b>15</b>	---	<b>120</b>	---

**DYNAMIC**

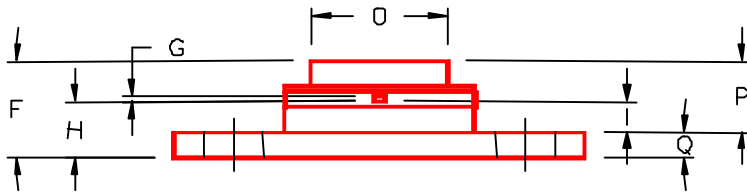
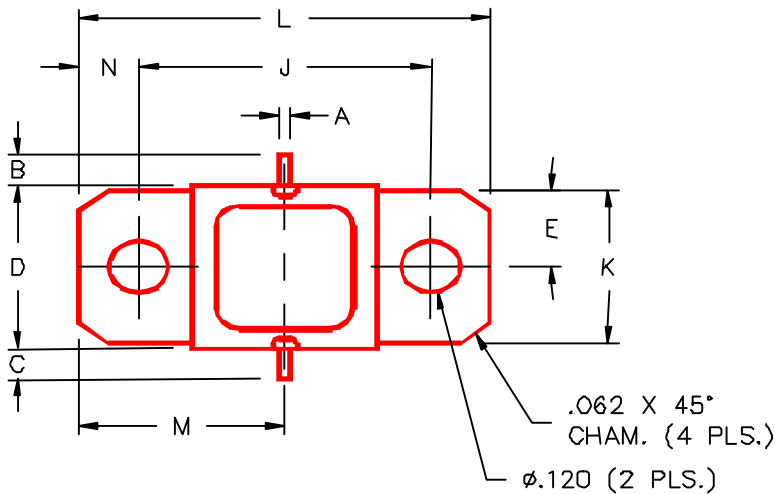
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 1090 MHz</b>	<b>P<sub>IN</sub> = 70W</b>	<b>V<sub>CC</sub> = 50V</b>	<b>300</b>	<b>350</b>	---	<b>W</b>
<b>η<sub>C</sub></b>	<b>f = 1090 MHz</b>	<b>P<sub>IN</sub> = 70W</b>	<b>V<sub>CC</sub> = 50V</b>	<b>35</b>	<b>42</b>	---	<b>%</b>
<b>G<sub>P</sub></b>	<b>f = 1090 MHz</b>	<b>V<sub>CE</sub> = 20V</b>	<b>I<sub>C</sub> = 220 mA</b>	<b>6.3</b>	<b>6.7</b>	---	<b>dB</b>

Pulse width = 10 μs

Duty cycle = 1 %

## PACKAGE MECHANICAL DATA

### PACKAGE STYLE M218



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.025/0,64		J	.650/16,51	
B	.100/2,54		K	.386/9,80	
C	.100/2,54		L	.900/22,86	
D	.395/10,03	.407/10,34	M	.450/11,43	
E	.193/4,90		N	.125/3,18	
F		.230/5,84	O	.405/10,29	
G	.004/0,10	.007/0,18	P		.170/4,32
H	.118/3,00	.131/3,33	Q	.062/1,58	
I	.063/1,60				