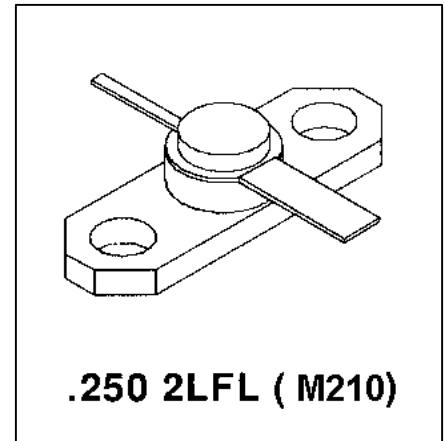


MS3024

## RF AND MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

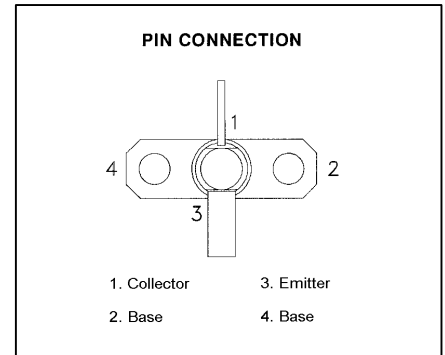
### Features

- **EMITTER BALLASTED**
- **INFINITE VSWR CAPABILITY AT RATED CONDITIONS**
- **REFRACTORY/GOLD METALLIZATION**
- **HERMETIC STRIPAC® PACKAGE**
- **P<sub>OUT</sub> = 5.0 W MIN. WITH 7.0 dB GAIN AT 2.0 GHz**



### DESCRIPTION:

The MS3024 is a common base hermetically sealed silicon NPN microwave transistor that utilizes a fishbone emitter ballasted geometry with a refractory/gold metallization system. This device is capable of withstanding an infinite load VSWR at any phase angle under rated conditions. The MS3024 was designed for Class C amplifier applications in the 1.0 – 2.0 GHz frequency range.



### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Collector-Supply Voltage	35	V
I <sub>C</sub>	Device Current	1	A
P <sub>DISS</sub>	Power Dissipation	29	W
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>STG</sub>	Storage Temperature	-65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	6	°C/W
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>BV<sub>CBO</sub></b>	<b>I<sub>C</sub> = 1 mA    I<sub>E</sub> = 0 mA</b>	<b>45</b>			<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 1 mA    I<sub>C</sub> = 0 mA</b>	<b>3.5</b>			<b>V</b>
<b>BV<sub>CER</sub></b>	<b>I<sub>C</sub> = 5 mA    R<sub>BE</sub> = 10 Ω</b>	<b>45</b>			<b>V</b>
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 28V</b>			<b>2.5</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V    I<sub>C</sub> = 500 mA</b>	<b>15</b>		<b>120</b>	

**DYNAMIC**

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 2 GHz    P<sub>IN</sub> = 1 W    V<sub>CE</sub> = 28 V</b>	<b>5</b>	<b>6</b>		<b>W</b>
<b>ζ<sub>C</sub>*</b>	<b>f = 2 GHz    P<sub>IN</sub> = 1 W    V<sub>CE</sub> = 28 V</b>	<b>35</b>	<b>40</b>		<b>%</b>
<b>G<sub>P</sub>*</b>	<b>f = 2 GHz    P<sub>IN</sub> = 1 W    V<sub>CE</sub> = 28 V</b>	<b>7</b>	<b>7.8</b>		<b>dB</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz    V<sub>CB</sub> = 28 V</b>			<b>10</b>	<b>PF</b>

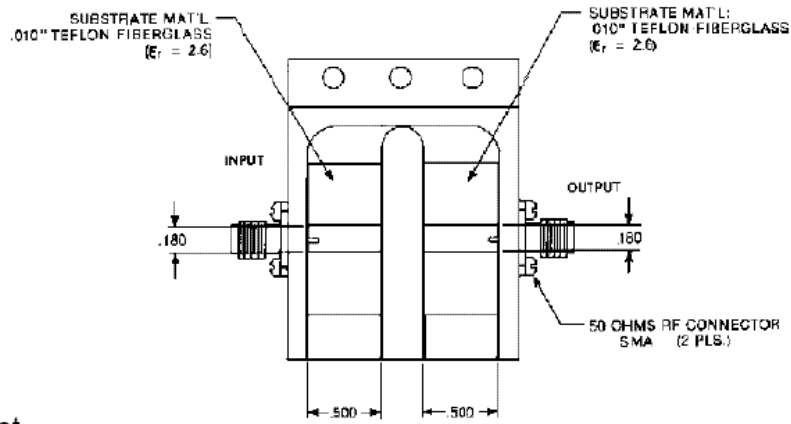
**IMPEDANCE DATA**

Freq.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
<b>1.0 GHz</b>	<b>3.0 + j 6.0</b>	<b>7.2 + j 6.0</b>
<b>1.5 GHz</b>	<b>3.5 + j 8.0</b>	<b>3.7 - j 0.2</b>
<b>1.7 GHz</b>	<b>4.0 + j 9.0</b>	<b>2.8 - j 2.3</b>
<b>2.0 GHz</b>	<b>4.8 + j 10.5</b>	<b>2.3 - j 4.5</b>

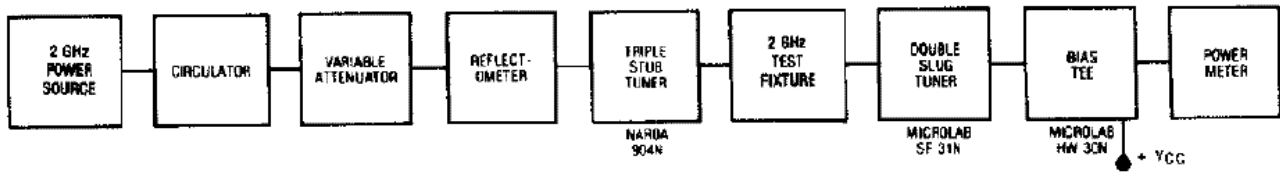
**TEST CIRCUIT**

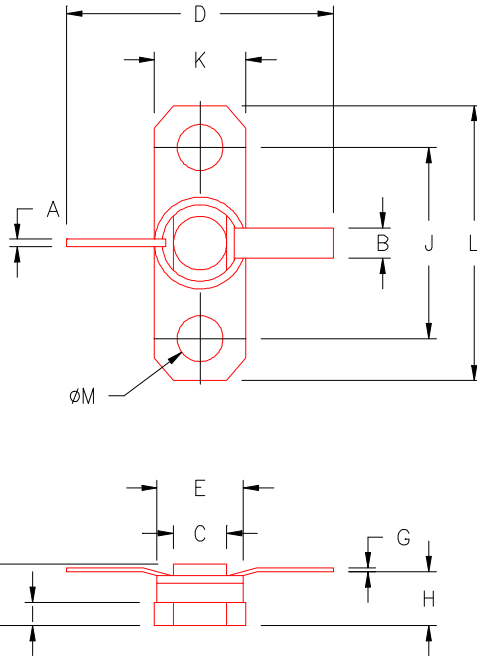
Ref.: Dwg. No. C125518

All dimensions are in inches.  
Frequency 2.0 GHz



**RF Amplifier Power Output Test**



**PACKAGE MECHANICAL DATA**
**PACKAGE STYLE M210**


	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.028/0,71	.032/0,81	J	.560/14,22	.570/14,48
B	.110/2,80	.117/2,97	K	.245/6,22	.255/6,48
C	.165/4,19	.185/4,70	L	.790/20,07	.810/20,57
D	.740/18,80		M	.128/3,25	.132/3,35
E	.225/5,72	.235/5,97			
F	.149/2,30	.187/4,75			
G	.003/0,08	.007/0,18			
H	.117/2,97	.133/3,38			
I	.058/1,47	.068/1,73			