

## MS2203

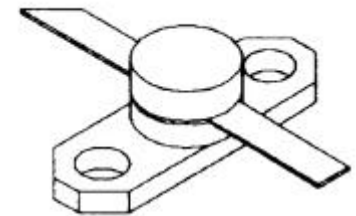
### RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

#### Features

- 1090 MHz
- 18 VOLTS
- $P_{OUT} = 0.6$  WATTS
- $G_P = 10.8$  dB MINIMUM
- CLASS A OPERATION
- INFINITE VSWR CAPABILITY @ RATED CONDITIONS
- COMMON EMITTER CONFIGURATION

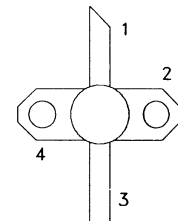
#### DESCRIPTION:

The MS2203 is a common emitter, silicon NPN, microwave transistor designed for Class A driver applications under DME or IFF pulse conditions. This device is capable of withstanding an infinite load VSWR at any phase angle under rated conditions.



**.280 2LFL M220  
epoxy sealed**

#### PIN CONNECTION



- |              |            |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base      | 4. Base    |

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

| Symbol           | Parameter                 | Value     | Unit |
|------------------|---------------------------|-----------|------|
| V <sub>CE</sub>  | Collector-Emitter         | 20        | V    |
| I <sub>C</sub>   | Collector Current         | 300       | mA   |
| P <sub>D</sub>   | Total Device Dissipation  | 5         | W    |
| T <sub>J</sub>   | Junction Temperature      | 200       | °C   |
| T <sub>stg</sub> | Storage Temperature Range | -65 + 150 | °C   |

#### Thermal Data

|                      |                                  |    |      |
|----------------------|----------------------------------|----|------|
| R <sub>TH(J-C)</sub> | Thermal Resistance Junction-case | 35 | °C/W |
|----------------------|----------------------------------|----|------|

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

### STATIC

| Symbol                  | Test Conditions                                      | Value |      |      | Unit |
|-------------------------|------------------------------------------------------|-------|------|------|------|
|                         |                                                      | Min.  | Typ. | Max. |      |
| <b>BV<sub>CEO</sub></b> | I <sub>C</sub> = 5.0 mA      I <sub>B</sub> = 0 mA   | 20    | ---  | ---  | V    |
| <b>BV<sub>CBO</sub></b> | I <sub>C</sub> = 1.0 mA      I <sub>E</sub> = 0 mA   | 50    | ---  | ---  | V    |
| <b>BV<sub>EBO</sub></b> | I <sub>E</sub> = 1.0 mA      I <sub>C</sub> = 0 mA   | 3.5   | ---  | ---  | V    |
| <b>I<sub>CES</sub></b>  | V <sub>CE</sub> = 28 V                               | ---   | ---  | 1.0  | mA   |
| <b>h<sub>FE</sub></b>   | V <sub>CE</sub> = 5.0 V      I <sub>C</sub> = 100 mA | 15    | ---  | 120  | ---  |

### DYNAMIC

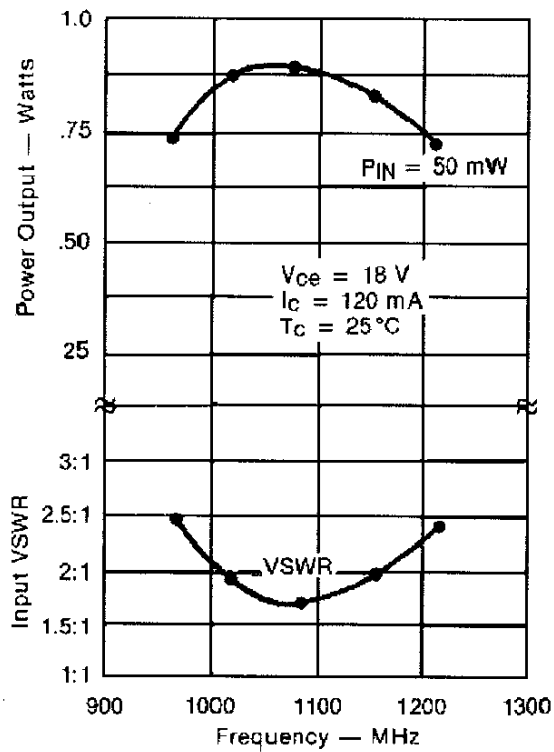
| Symbol                 | Test Conditions                                  | Value |      |      | Unit |
|------------------------|--------------------------------------------------|-------|------|------|------|
|                        |                                                  | Min.  | Typ. | Max. |      |
| <b>P<sub>OUT</sub></b> | f = 1025 – 1150 MHz      P <sub>IN</sub> = 50mW  | 0.6   | 0.85 | ---  | W    |
| <b>G<sub>PE</sub></b>  | f = 1025 – 1150 MHz      P <sub>IN</sub> = 50 mW | 10.8  | 12.3 | ---  | dB   |

Conditions: V<sub>CE</sub> = 18V

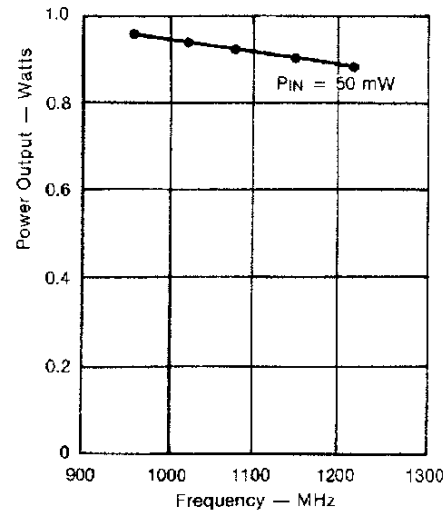
Pulse width = 10μS      Duty Cycle = 1%

## TYPICAL PERFORMANCE

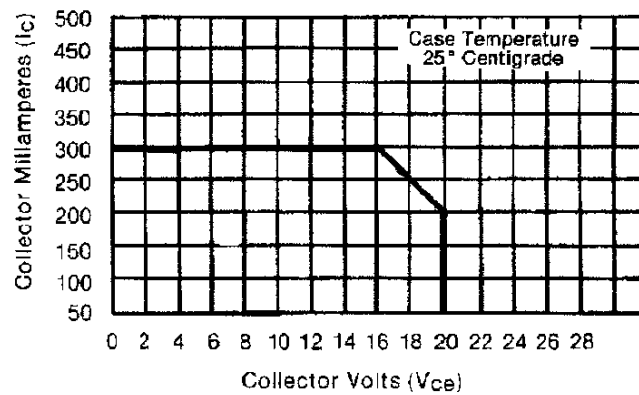
### BROADBAND POWER AMPLIFIER



### NARROWBAND POWER OUTPUT vs FREQUENCY

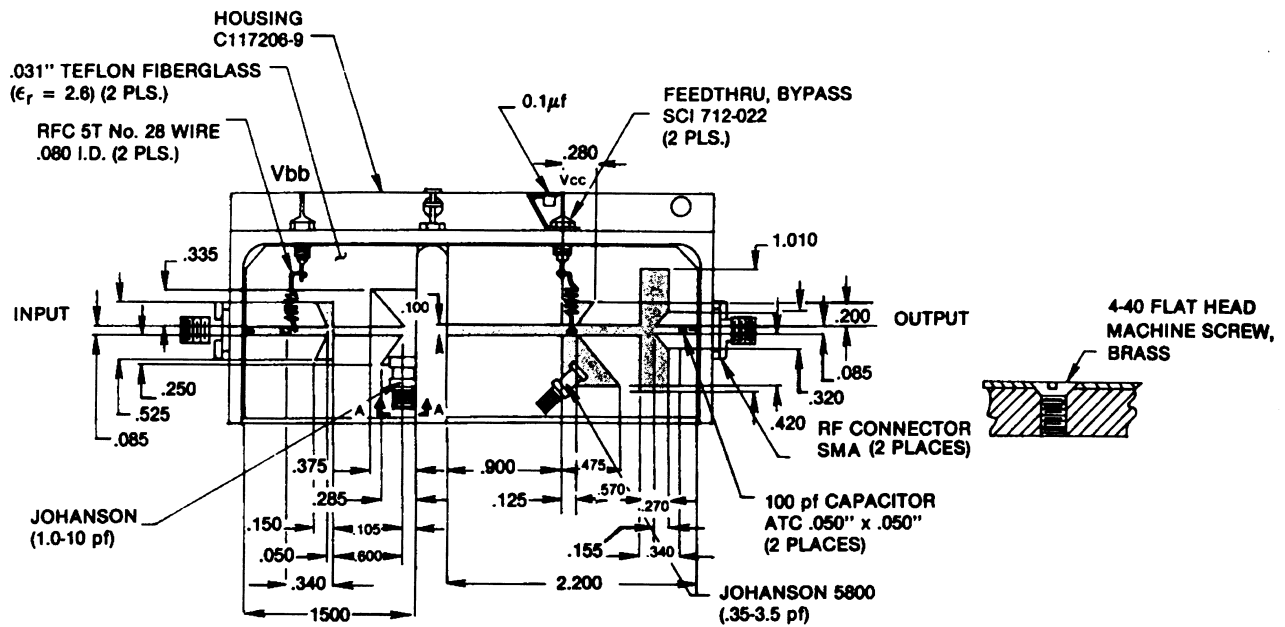


### MAXIMUM OPERATING AREA for FORWARD BIAS OPERATION



## TEST CIRCUIT

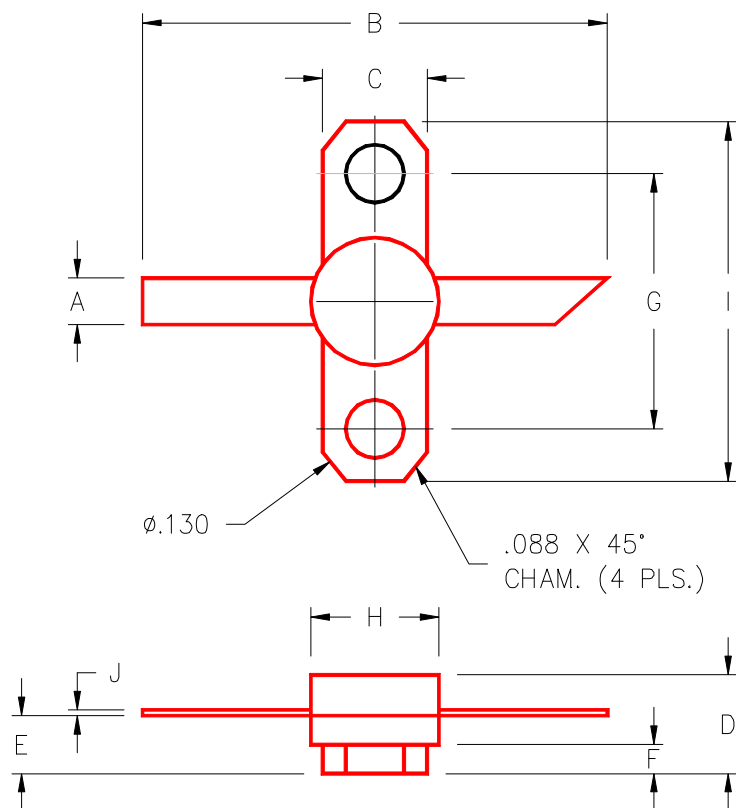
Ref.: Dwg No. C127297



All dimensions are in inches.

## PACKAGE MECHANICAL DATA

### PACKAGE STYLE M220



|   | MINIMUM<br>INCHES/MM | MAXIMUM<br>INCHES/MM |   | MINIMUM<br>INCHES/MM | MAXIMUM<br>INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .100/2,54            |                      | J | .003/0,08            | .006/0,15            |
| B | 1.050/26,67          |                      |   |                      |                      |
| C | .250/6,35            |                      |   |                      |                      |
| D |                      | .210/5,33            |   |                      |                      |
| E | .120/3,05            | .130/3,30            |   |                      |                      |
| F | .062/1,58            |                      |   |                      |                      |
| G | .562/14,28           |                      |   |                      |                      |
| H |                      | .285/7,24            |   |                      |                      |
| I | .800/20,32           |                      |   |                      |                      |