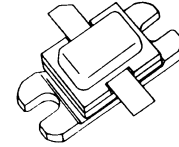


# MS2207

## RF & MICROWAVE TRANSISTORS L-BAND AVIONICS APPLICATIONS

### Features

- 1090 MHz
- 50 VOLTS
- 15:1 VSWR CAPABILITY
- INPUT / OUTPUT MATCHING
- $P_{OUT} = 400$  WATTS
- $G_p = 8.0$  dB MINIMUM
- COMMON BASE CONFIGURATION

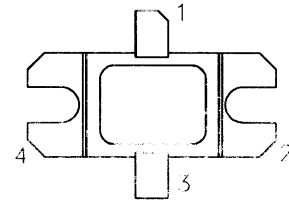


.400 x .500 2LFL (M216)  
hermetically sealed

### DESCRIPTION:

The MS2207 is a high power NPN bipolar transistor specifically designed for TCAS and Mode-S driver applications. This device is designed for operation under moderate pulse width and duty cycle pulse conditions and is capable of withstanding 15:1 output VSWR at rated conditions.

#### PIN CONNECTION



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

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

| Symbol     | Parameter                | Value       | Unit |
|------------|--------------------------|-------------|------|
| $P_{DISS}$ | Power Dissipation        | 880         | W    |
| $I_C$      | Device Current           | 24          | A    |
| $V_{CC}$   | Collector Supply Voltage | 55          | V    |
| $T_J$      | Junction Temperature     | 200         | °C   |
| $T_{STG}$  | Storage Temperature      | -65 to +200 | °C   |

### Thermal Data

|               |                                  |      |      |
|---------------|----------------------------------|------|------|
| $R_{TH(J-C)}$ | Junction-case Thermal Resistance | 0.17 | °C/W |
|---------------|----------------------------------|------|------|

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

### STATIC

| Symbol            | Test Conditions        |                       | Value |      |      | Unit |
|-------------------|------------------------|-----------------------|-------|------|------|------|
|                   |                        |                       | Min.  | Typ. | Max. |      |
| BV <sub>CBO</sub> | I <sub>C</sub> = 50 mA | I <sub>E</sub> = 0 mA | 65    | ---  | ---  | V    |
| BV <sub>EBO</sub> | I <sub>E</sub> = 15 mA | I <sub>C</sub> = 0 mA | 3.5   | ---  | ---  | V    |
| BV <sub>CER</sub> | I <sub>C</sub> = 50 mA | R <sub>BE</sub> = 10Ω | 65    | ---  | ---  | V    |
| I <sub>ces</sub>  | V <sub>BE</sub> = 50 V | V <sub>CE</sub> = 0 V | ---   | ---  | 30   | mA   |
| HFE               | V <sub>CE</sub> = 5 V  | I <sub>C</sub> = 5 A  | 10    | ---  | 200  | ---  |

### DYNAMIC

| Symbol           | Test Conditions                         |                       |                       | Value |      |      | Unit |
|------------------|---|-----------------------|-----------------------|-------|------|------|------|
|                  |   |                       |                       | Min.  | Typ. | Max. |      |
| P <sub>OUT</sub> | f = 1090 MHz                            | P <sub>IN</sub> = 63W | V <sub>CC</sub> = 50V | 400   | ---  | ---  | W    |
| η <sub>C</sub>   | f = 1090 MHz                            | P <sub>IN</sub> = 63W | V <sub>CC</sub> = 50V | 45    | ---  | ---  | %    |
| G <sub>P</sub>   | f = 1090 MHz                            | P <sub>IN</sub> = 63W | V <sub>CC</sub> = 50V | 8.0   | ---  | ---  | dB   |
| Conditions       | Pulse Width = 32μS      Duty Cycle = 2% |                       |                       |       |      |      |      |

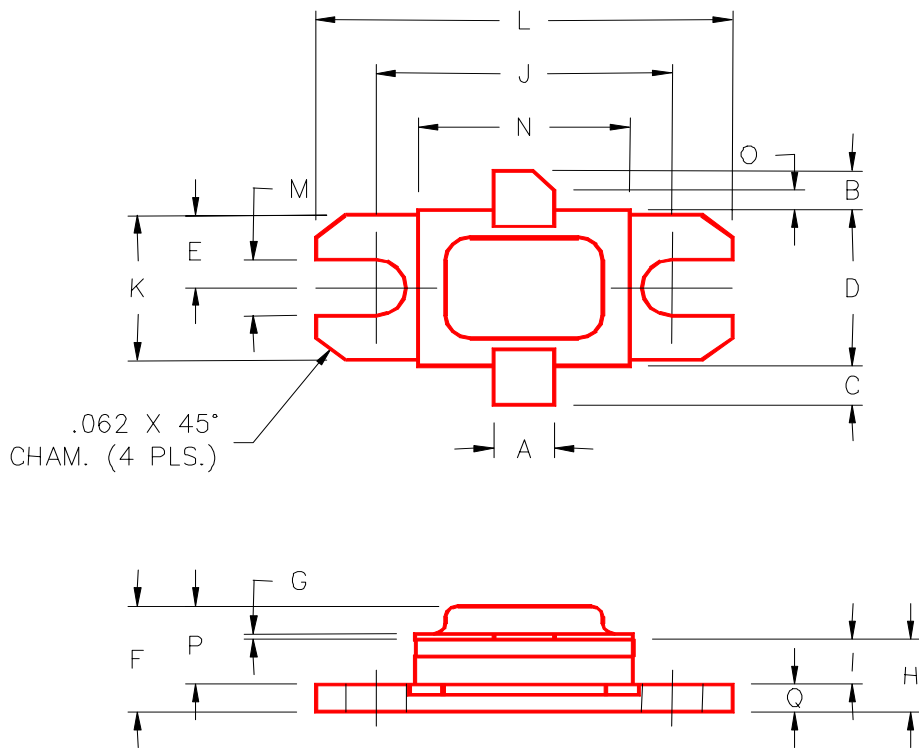
### IMPEDANCE DATA

| FREQ     | Z <sub>IN</sub> (Ω) | Z <sub>CL</sub> (Ω) |
|----------|---------------------|---------------------|
| 1025 MHz | 2.4 + j 3.2         | 1.4 - j 2.2         |
| 1090 MHz | 3.8 + j 2.5         | 1.6 - j 1.6         |
| 1150 MHz | 2.3 + j 1.3         | 1.2 - j 1.1         |

P<sub>IN</sub> = 63 W  
V<sub>CC</sub> = 50 V

**PACKAGE MECHANICAL DATA**

PACKAGE STYLE M216



|   | MINIMUM<br>INCHES/MM | MAXIMUM<br>INCHES/MM |   | MINIMUM<br>INCHES/MM | MAXIMUM<br>INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .140/3,56            |                      | J | .700/17,78           |                      |
| B | .110/2,80            |                      | K | .386/9,80            |                      |
| C | .110/2,80            |                      | L | .900/22,86           |                      |
| D | .395/10,03           | .407/10,34           | M | .120/3,05            |                      |
| E | .193/4,90            |                      | N | .500/12,70           |                      |
| F |                      | .230/5,84            | O | .050/1,27            |                      |
| G | .003/0,08            | .006/0,15            | P |                      | .170/4,32            |
| H | .118/3,00            | .131/3,33            | Q | .062/1,58            |                      |
| I | .063/1,60            |                      |   |                      |                      |