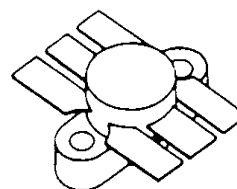


## MS1251

### RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

#### Features

- 175 MHz
- 12.5 VOLTS
- $P_{OUT} = 45$  WATTS
- $G_p = 6.5$  dB MINIMUM
- INPUT MATCHED
- COMMON EMITTER CONFIGURATION

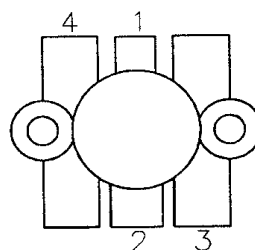


.500 6LFL (M111)  
 epoxy sealed

#### DESCRIPTION:

The MS1251 is an epitaxial silicon NPN planar transistor designed primarily for 12.5 V, Class C VHF communications. This device utilizes diffused emitter resistors to achieve infinite VSWR capability at rated operating conditions.

#### PIN CONNECTION



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

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

| Symbol     | Parameter                   | Value       | Unit |
|------------|-----------------------------|-------------|------|
| $V_{CBO}$  | Collector - Base Voltage    | 36          | V    |
| $V_{CEO}$  | Collector - Emitter Voltage | 18          | V    |
| $V_{CES}$  | Collector - Emitter Voltage | 36          | V    |
| $V_{EBO}$  | Emitter - Base Voltage      | 4.0         | V    |
| $I_C$      | Device Current              | 6.0         | A    |
| $P_{DISS}$ | Power Dissipation           | 145         | W    |
| $T_J$      | Junction Temperature        | +200        | °C   |
| $T_{STG}$  | Storage Temperature         | -65 to +150 | °C   |

#### Thermal Data

|               |                                  |     |      |
|---------------|----------------------------------|-----|------|
| $R_{TH(J-C)}$ | Junction-case Thermal Resistance | 1.2 | °C/W |
|---------------|----------------------------------|-----|------|

## ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

### STATIC

| Symbol                  | Test Conditions        |                       | Value |      |      | Unit |
|-------------------------|------------------------|-----------------------|-------|------|------|------|
|                         |                        |                       | Min.  | Typ. | Max. |      |
| <b>BV<sub>CBO</sub></b> | I <sub>C</sub> = 50 mA | I <sub>E</sub> = 0 mA | 36    | ---  | ---  | V    |
| <b>BV<sub>CES</sub></b> | I <sub>C</sub> = 50 mA | V <sub>BE</sub> = 0 V | 36    | ---  | ---  | V    |
| <b>BV<sub>CEO</sub></b> | I <sub>C</sub> = 50 mA | I <sub>B</sub> = 0 mA | 18    | ---  | ---  | V    |
| <b>BV<sub>EBO</sub></b> | I <sub>E</sub> = 10 mA | I <sub>C</sub> = 0 mA | 4.0   | ---  | ---  | V    |
| <b>I<sub>CES</sub></b>  | V <sub>CE</sub> = 15 V | I <sub>E</sub> = 0 mA | ---   | ---  | 5    | mA   |
| <b>H<sub>FE</sub></b>   | V <sub>CE</sub> = 5 V  | I <sub>C</sub> = 5 A  | 20    | ---  | 200  | ---  |

### DYNAMIC

| Symbol                 | Test Conditions   |                          |                          | Value |      |      | Unit |
|------------------------|-------------------|--------------------------|--------------------------|-------|------|------|------|
|                        |                   |                          |                          | Min.  | Typ. | Max. |      |
| <b>P<sub>OUT</sub></b> | f = 138 - 175 MHz | P <sub>IN</sub> = 10 W   | V <sub>CE</sub> = 12.5 V | 45    | ---  | ---  | W    |
| <b>G<sub>P</sub></b>   | f = 138 - 175 MHz | P <sub>IN</sub> = 10 W   | V <sub>CE</sub> = 12.5 V | 6.5   | ---  | ---  | dB   |
| <b>η<sub>C</sub></b>   | f = 138 - 175 MHz | P <sub>IN</sub> = 10 W   | V <sub>CE</sub> = 12.5 V | 50    | ---  | ---  | %    |
| <b>C<sub>OB</sub></b>  | f = 1 MHz         | V <sub>CB</sub> = 12.5 V |                          | ---   | ---  | 135  | pf   |

### IMPEDANCE DATA

| FREQ    | Z <sub>IN</sub> (Ω) | Z <sub>CL</sub> (Ω) |
|---------|---------------------|---------------------|
| 175 MHz | 1.38 + j0.44        | 1.70 + j0.48        |

P<sub>IN</sub> = 10 W  
V<sub>CE</sub> = 12.5 V

## PACKAGE MECHANICAL DATA

