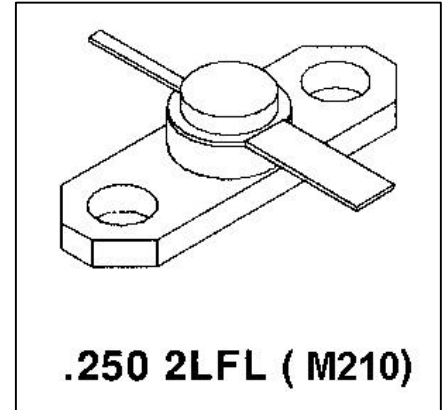
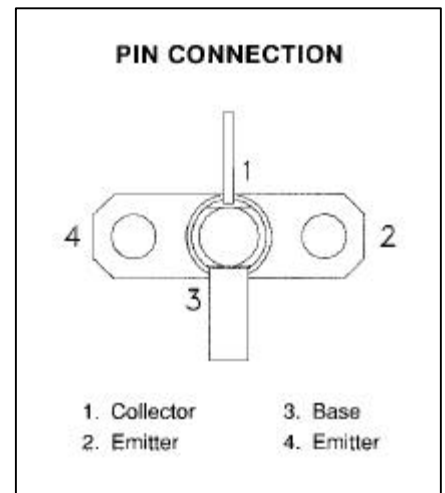


**MSC80064**
**RF & MICROWAVE TRANSISTORS  
GENERAL PURPOSE LINEAR APPLICATIONS**
**Features**

- 2.0 GHz
- CLASS A LINEAR OPERATION
- 20:1 VSWR CAPABILITY @ RATED CONDITIONS
- P<sub>OUT</sub> = 20.5 dBm MINIMUM
- COMMON EMITTER CONFIGURATION


**DESCRIPTION:**

The MSC80064 is a hermetically sealed NPN power transistor specifically designed for Class A linear applications requiring high gain and high output power at the 1.0 dB compression point.


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

| Symbol            | Parameter                         | Value        | Unit |
|-------------------|-----------------------------------|--------------|------|
| P <sub>DISS</sub> | Power Dissipation (see Safe Area) | ---          | W    |
| I <sub>C</sub>    | Device Bias Current               | 100          | mA   |
| V <sub>CE</sub>   | Collector-Supply Bias Voltage*    | 20           | V    |
| 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* | 45 | °C/W |
|----------------------|-----------------------------------|----|------|

\*Applies only to 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> = 1 mA</b> <b>I<sub>E</sub> = 0 mA</b>  | <b>50</b>  | ---  | ---        | <b>V</b>  |
| <b>BV<sub>EBO</sub></b> | <b>I<sub>E</sub> = 1 mA</b> <b>I<sub>C</sub> = 0 mA</b>  | <b>3.5</b> | ---  | ---        | <b>V</b>  |
| <b>BV<sub>CEO</sub></b> | <b>I<sub>C</sub> = 5 mA</b> <b>I<sub>B</sub> = 0 mA</b>  | <b>20</b>  | ---  | ---        | <b>V</b>  |
| <b>I<sub>CEO</sub></b>  | <b>V<sub>CE</sub> = 18 V</b>                             | ---        | ---  | <b>0.5</b> | <b>mA</b> |
| <b>H<sub>FE</sub></b>   | <b>V<sub>CE</sub> = 5 V</b> <b>I<sub>C</sub> = 50 mA</b> | <b>15</b>  | ---  | <b>120</b> | ---       |

### DYNAMIC

| Symbol                | Test Conditions   | Value      |             |            | Unit      |
|-----------------------|---|------------|-------------|------------|-----------|
|                       |   | Min.       | Typ.        | Max.       |           |
| <b>G<sub>P</sub></b>  | <b>f = 2.0 GHz</b> <b>P<sub>OUT</sub> = 20.5 dBm</b>                                  | <b>9.0</b> | <b>10.0</b> | ---        | <b>dB</b> |
| <b>ΔG<sub>P</sub></b> | <b>f = 2.0 GHz</b> <b>P<sub>OUT</sub> = 20.5 dBm</b> <b>Δ P<sub>OUT</sub> = 10 dB</b> | ---        | ---         | <b>1</b>   | <b>dB</b> |
| <b>C<sub>OB</sub></b> | <b>f = 1 MHz</b> <b>V<sub>CB</sub> = 28 V</b>   | ---        | ---         | <b>2.5</b> | <b>pf</b> |

Conditions:    **V<sub>CE</sub> = 18V**    **I<sub>E</sub> = 50 mA**

**Table 1. Common Emitter S-Parameters, @ V<sub>CE</sub> = 18 V, I<sub>C</sub> = 50 mA**

| f<br>(MHz) | S11  |     | S21 |     | S12    |     | S22  |      |
|------------|------|-----|-----|-----|--------|-----|------|------|
|            | S11  | ∠ φ | S21 | ∠ φ | S12    | ∠ φ | S22  | ∠ φ  |
| 1.0        | 0.68 | 168 | 3.8 | 43  | 0.04   | 45  | 0.03 | -70  |
| 2.0        | 0.60 | 139 | 2.0 | 18  | 0.065  | 42  | 0.04 | -100 |
| 3.0        | 0.40 | 72  | 1.0 | -47 | 0.1051 | 18  | 0.60 | -133 |

**PACKAGE MECHANICAL DATA**

