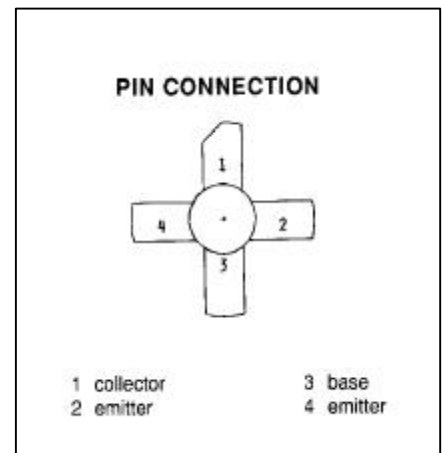
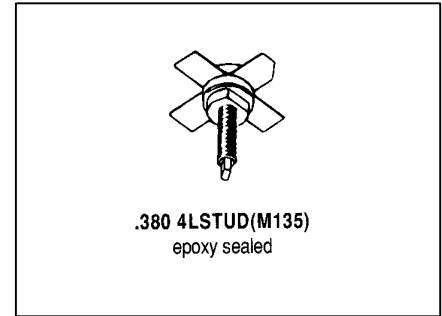


MS1504

RF AND MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

Features

- **160 MHz**
- **13.6 Volts**
- **Common Emitter**
- **P_{OUT} = 30 W Min.**
- **G_P = 10.0 dB Gain**



DESCRIPTION:

The MS1504 is a 13.6 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications. The MS1504 utilizes an emitter ballasted die geometry to withstand severe load mismatch conditions.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 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 | 8.0 | A |
| P _{DISS} | Power Dissipation | 70 | 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 (T_{case} = 25°C)
STATIC

| Symbol | Test Conditions | Value | | | Units |
|-------------------------|---|------------|------|------------|-----------|
| | | Min. | Typ. | Max. | |
| BV_{CES} | I_C = 15 mA V_{BE} = 0 mA | 36 | — | — | V |
| BV_{CEO} | I_C = 50 mA I_B = 0 mA | 18 | — | — | V |
| BV_{EBO} | I_E = 5 mA I_C = 0 mA | 4.0 | — | — | V |
| I_{CB0} | V_{CB} = 15 V I_E = 0 mA | — | — | 5 | mA |
| h_{FE} | V_{CE} = 5 V I_C = 250 mA | 20 | — | 200 | — |

DYNAMIC

| Symbol | Test Conditions | Value | | | Units |
|------------------------|---|-----------|------|-----------|-----------|
| | | Min. | Typ. | Max. | |
| P_{OUT} | f = 160 MHz P_{IN} = 3.0 W V_{CE} = 13.6 V | 30 | — | — | W |
| G_P | f = 160 MHz P_{IN} = 3.0 W V_{CE} = 13.6 V | 10 | — | — | dB |
| C_{OB} | f = 1 MHz V_{CB} = 15 V | — | — | 95 | pF |

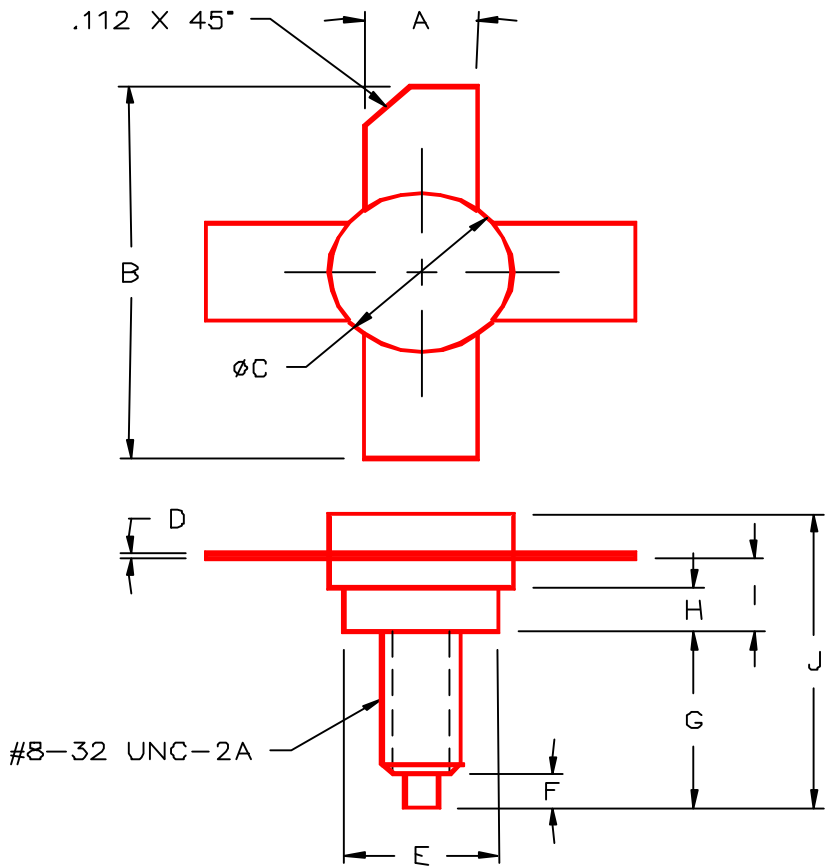
IMPEDANCE DATA

| Freq. | Z _{IN} (Ω) | Z _{CL} (Ω) |
|----------------|---------------------|---------------------|
| 175 MHz | 1.0 + j 0.4 | 2.3 + j 0.1 |

P_{IN} = 3.0 W
V_{CE} = 12.5 V

PACKAGE MECHANICAL DATA

PACKAGE STYLE M135



| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .220/5,59 | .230/5,84 | I | .155/3,94 | .175/4,45 |
| B | .980/24,89 | | J | | .750/19,05 |
| C | .370/9,40 | .385/9,78 | | | |
| D | .004/0,10 | .007/0,18 | | | |
| E | .320/8,13 | .330/8,38 | | | |
| F | .100/2,54 | .130/3,30 | | | |
| G | .450/11,43 | .490/12,45 | | | |
| H | .090/2,29 | .100/2,54 | | | |