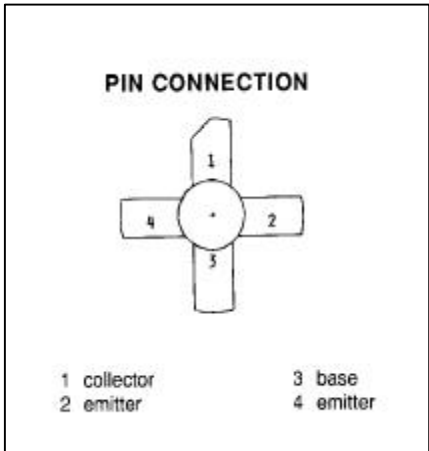
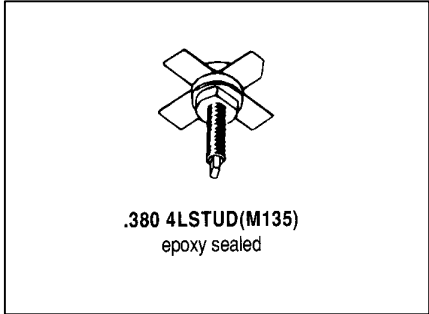


MS1504

**RF AND MICROWAVE TRANSISTORS  
VHF MOBILE APPLICATIONS**

**Features**

- **160 MHz**
- **13.6 Volts**
- **Common Emitter**
- **P<sub>OUT</sub> = 30 W Min.**
- **G<sub>P</sub> = 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<sub>case</sub> = 25°C)**

Symbol	Parameter	Value	Unit
<b>V<sub>CBO</sub></b>	<b>Collector-Base Voltage</b>	<b>36</b>	<b>V</b>
<b>V<sub>CEO</sub></b>	<b>Collector-Emitter Voltage</b>	<b>18</b>	<b>V</b>
<b>V<sub>CES</sub></b>	<b>Collector-Emitter Voltage</b>	<b>36</b>	<b>V</b>
<b>V<sub>EBO</sub></b>	<b>Emitter-Base Voltage</b>	<b>4.0</b>	<b>V</b>
<b>I<sub>C</sub></b>	<b>Device Current</b>	<b>8.0</b>	<b>A</b>
<b>P<sub>DISS</sub></b>	<b>Power Dissipation</b>	<b>70</b>	<b>W</b>
<b>T<sub>J</sub></b>	<b>Junction Temperature</b>	<b>+200</b>	<b>°C</b>
<b>T<sub>STG</sub></b>	<b>Storage Temperature</b>	<b>-65 to +150</b>	<b>°C</b>

**Thermal Data**

<b>R<sub>TH(j-c)</sub></b>	<b>Junction-Case Thermal Resistance</b>	<b>1.2</b>	<b>°C/W</b>
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 15 mA    V<sub>BE</sub> = 0 mA</b>	<b>36</b>	—	—	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 50 mA    I<sub>B</sub> = 0 mA</b>	<b>18</b>	—	—	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 5 mA    I<sub>C</sub> = 0 mA</b>	<b>4.0</b>	—	—	<b>V</b>
<b>I<sub>CB0</sub></b>	<b>V<sub>CB</sub> = 15 V    I<sub>E</sub> = 0 mA</b>	—	—	<b>5</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V    I<sub>C</sub> = 250 mA</b>	<b>20</b>	—	<b>200</b>	—

**DYNAMIC**

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 160 MHz    P<sub>IN</sub> = 3.0 W    V<sub>CE</sub> = 13.6 V</b>	<b>30</b>	—	—	<b>W</b>
<b>G<sub>P</sub></b>	<b>f = 160 MHz    P<sub>IN</sub> = 3.0 W    V<sub>CE</sub> = 13.6 V</b>	<b>10</b>	—	—	<b>dB</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz    V<sub>CB</sub> = 15 V</b>	—	—	<b>95</b>	<b>pF</b>

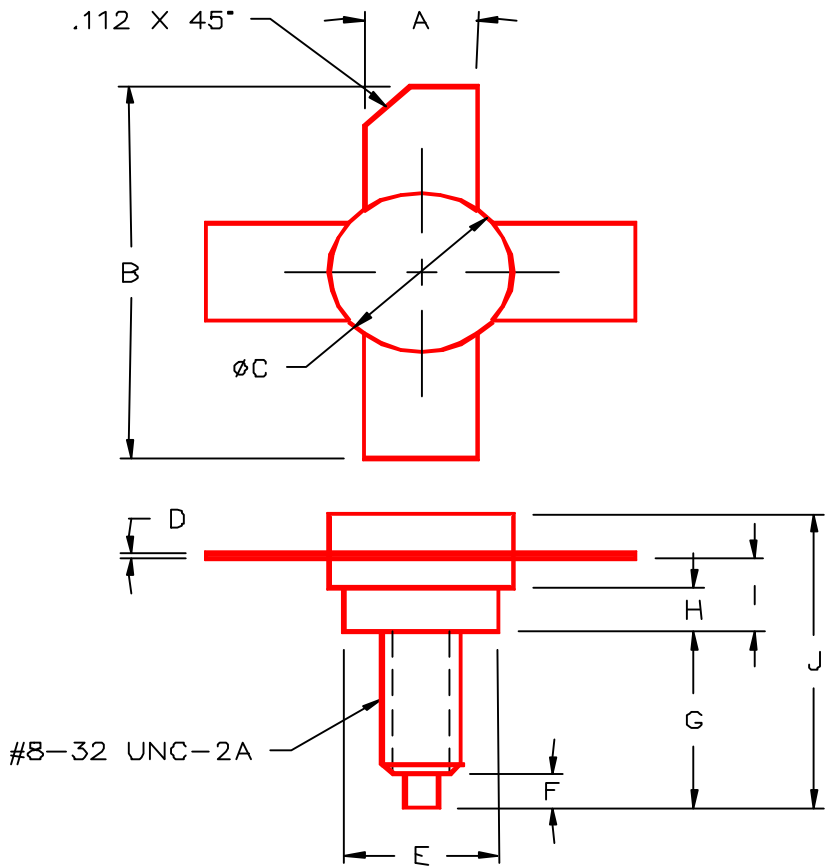
**IMPEDANCE DATA**

Freq.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
<b>175 MHz</b>	<b>1.0 + j 0.4</b>	<b>2.3 + j 0.1</b>

**P<sub>IN</sub> = 3.0 W**  
**V<sub>CE</sub> = 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			