

## MS1404

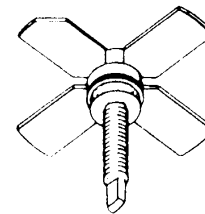
### RF & MICROWAVE TRANSISTORS UHF MOBILE APPLICATIONS

#### Features

- 470 MHz
- 12.5 VOLTS
- $P_{OUT} = 5.0$  WATT
- $G_P = 8.5$  dB MINIMUM
- COMMON EMITTER CONFIGURATION

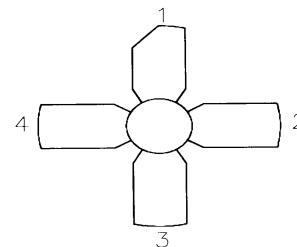
#### DESCRIPTION:

The MS1404 is a 12.5V Class C epitaxial silicon NPN planar transistor designed primarily for UHF communications. This device utilizes improved metallization to achieve infinite VSWR at rated operating conditions.



**.280 4L STUD (M122)**  
epoxy sealed

#### PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector - Base Voltage	36	V
$V_{CER}$	Collector - Emitter Voltage	18	V
$V_{CES}$	Collector - Emitter Voltage	36	V
$V_{EBO}$	Emitter- Base Voltage	4.0	V
$P_{DISS}$	Power Dissipation	37	W
$I_C$	Device Current*	2.0	A
$T_J$	Junction Temperature	+200	°C
$T_{STG}$	Storage Temperature	-65 to +150	°C

#### Thermal Data

$R_{TH(J-C)}$	Thermal Resistance Junction-case	11.6	°C/W
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## ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 10 mA</b>	<b>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</b>	<b>I<sub>B</sub> = 0 mA</b>	<b>16</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 2 mA</b>	<b>I<sub>C</sub> = 0 mA</b>	<b>4.0</b>	---	---	<b>V</b>
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 15 V</b>	<b>I<sub>E</sub> = 0 mA</b>	---	---	<b>1</b>	<b>mA</b>
<b>HFE</b>	<b>V<sub>CE</sub> = 5 V</b>	<b>I<sub>C</sub> = 200 mA</b>	<b>20</b>	---	---	---

### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 470 MHz</b>	<b>P<sub>IN</sub> = 0.70 W</b>	<b>V<sub>CC</sub> = 12.5V</b>	<b>5.0</b>	---	---	<b>W</b>
<b>G<sub>p</sub></b>	<b>f = 470 MHz</b>	<b>P<sub>IN</sub> = 0.70 W</b>	<b>V<sub>CC</sub> = 12.5V</b>	<b>8.5</b>	---	---	<b>dB</b>
<b>C<sub>OR</sub></b>	<b>f = 1 MHz</b>	<b>V<sub>CB</sub> = 12 V</b>		---	<b>19</b>	---	<b>pF</b>

### IMPEDANCE DATA:

FREQUENCY	Z <sub>in</sub> (Ω)	Z <sub>cl</sub> (Ω)
<b>450 MHz</b>	<b>1.4 + j 2.0</b>	<b>10.4 - j 6.9</b>
<b>470 MHz</b>	<b>1.4 + j 2.9</b>	<b>11.4 + j 5.8</b>
<b>512 MHz</b>	<b>1.5 + j 3.4</b>	<b>11.9 + j 3.2</b>

**PACKAGE MECHANICAL DATA**

