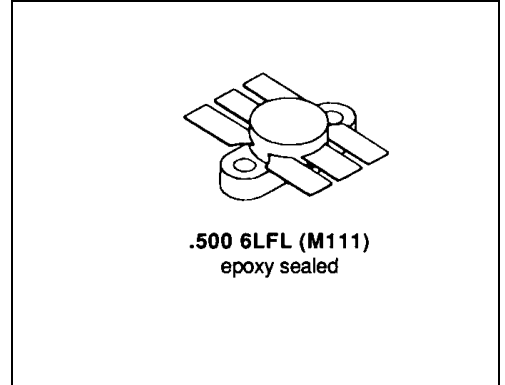


# MS1003

## RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

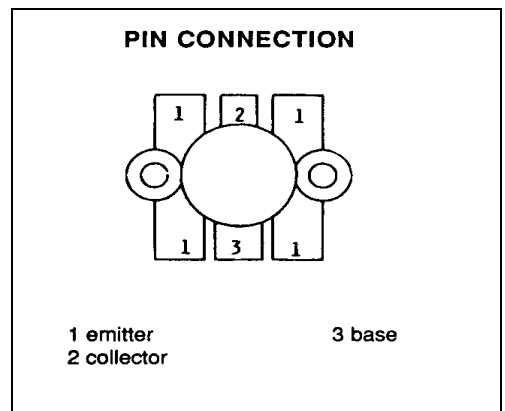
### Features

- 175 MHz
- 12.5 VOLTS
- $P_{OUT} = 100$  WATTS
- $G_P = 6.0$  dB MINIMUM
- COMMON EMITTER CONFIGURATION



### DESCRIPTION:

The MS1003 is a 12.5 V Class C epitaxial silicon NPN transistor designed primarily for VHF, FM communications. Diffused emitter resistors provide high VSWR capability under rated operating conditions. Internal impedance matching ensures optimum power gain and efficiency over the 136-175 MHz band.



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

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	36	V
V <sub>CEO</sub>	Collector-Emitter Voltage	18	V
V <sub>CES</sub>	Collector-Emitter Voltage	36	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Device Current	20	A
P <sub>DISS</sub>	Power Dissipation	270	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	-65 to +150	°C

### Thermal Data

R <sub>TH(J-C)</sub>	Junction-case Thermal Resistance	0.65	°C/W
----------------------	----------------------------------	------	------

**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> = 50mA</b>	<b>I<sub>E</sub> = 0mA</b>	<b>36</b>	---	---	<b>V</b>
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>V<sub>BE</sub> = 0V</b>	<b>36</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>I<sub>B</sub> = 0mA</b>	<b>18</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 10mA</b>	<b>I<sub>C</sub> = 0mA</b>	<b>4.0</b>	---	---	<b>V</b>
<b>I<sub>CES</sub></b>	<b>V<sub>CE</sub> = 15V</b>	<b>I<sub>E</sub> = 0mA</b>	---	---	<b>15</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5V</b>	<b>I<sub>C</sub> = 5A</b>	<b>10</b>	---	<b>100</b>	---

**DYNAMIC**

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 175 MHz</b>	<b>P<sub>IN</sub> = 25 W</b>	<b>V<sub>CC</sub> = 12.5V</b>	<b>100</b>	---	---	<b>W</b>
<b>G<sub>p</sub></b>	<b>f = 175 MHz</b>	<b>P<sub>IN</sub> = 25 W</b>	<b>V<sub>CC</sub> = 12.5V</b>	<b>6.0</b>	---	---	<b>dB</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz</b>	<b>V<sub>CB</sub> = 12.5 V</b>		---	---	<b>390</b>	<b>pF</b>

**IMPEDANCE DATA**

FREQ	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
<b>175 MHz</b>	<b>1.5 - j0.9</b>	<b>0.5 - j1.0</b>

MS1003

**PACKAGE MECHANICAL DATA**

