

# MS1008

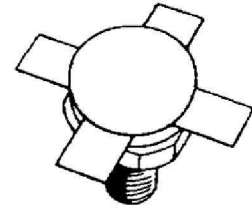
## RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

### Features

- 30 MHz
- 50 VOLTS
- IMD = -30 dB
- P<sub>OUT</sub> = 150 WATTS
- G<sub>p</sub> = 14 dB MINIMUM
- COMMON EMITTER CONFIGURATION

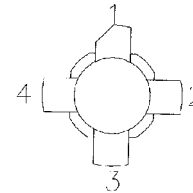
### DESCRIPTION

The MS1008 is a 50V epitaxial silicon NPN planar transistor designed primarily for SSB communications. This device utilizes emitter ballasting to achieve extreme ruggedness under severe operating conditions.



**.550 4L STUD (M164)**  
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 <sub>CBO</sub>	Collector-Base Voltage	110	V
V <sub>CEO</sub>	Collector-Emitter Voltage	55	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Device Current	10	A
P <sub>DISS</sub>	Power Dissipation	233	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	0.75	°C/W
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Rev A 11/2005

**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

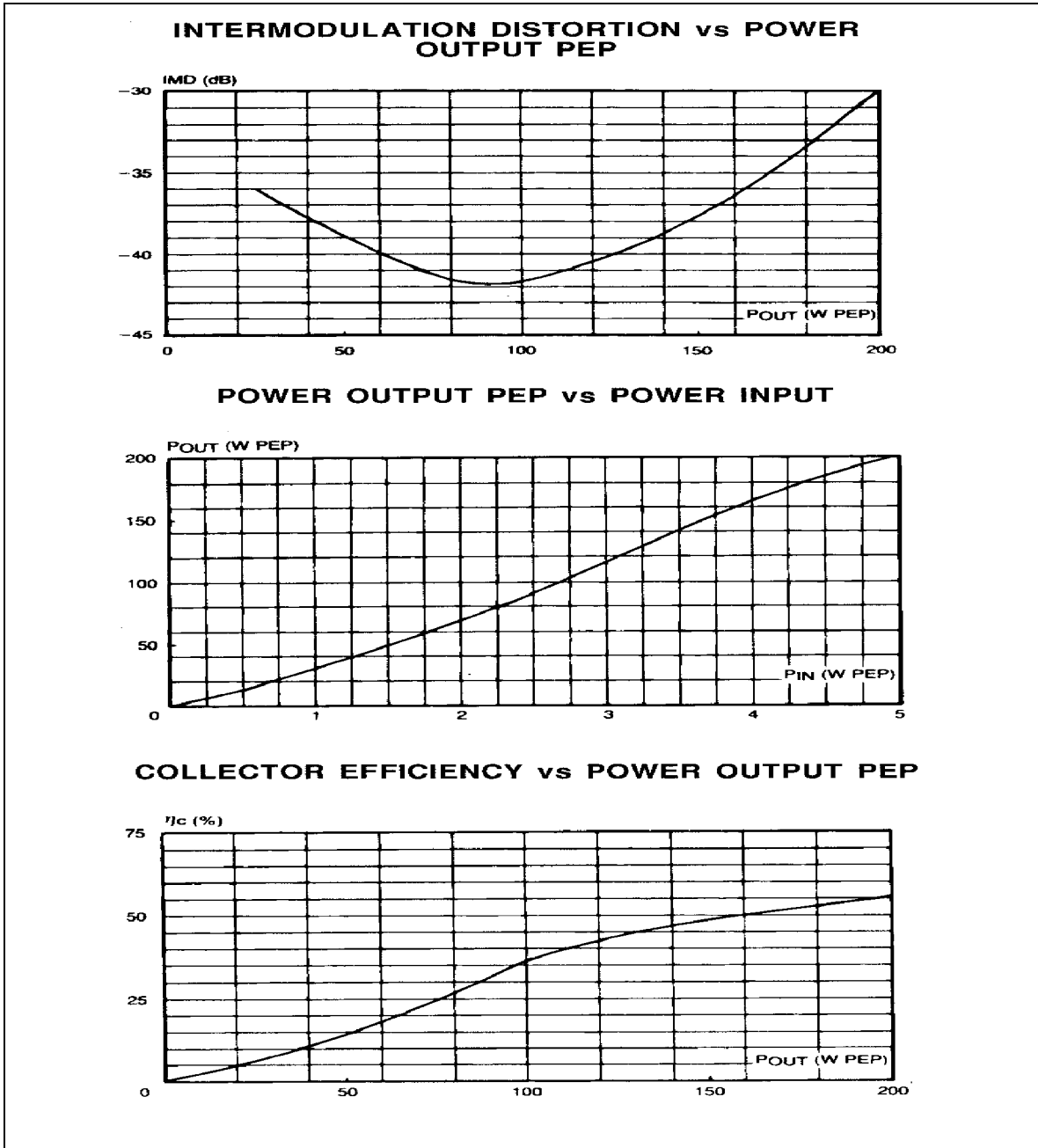
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CBO</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>I<sub>E</sub> = 0mA</b>	<b>110</b>	---	---	<b>V</b>
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>V<sub>BE</sub> = 0V</b>	<b>110</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>I<sub>B</sub> = 0mA</b>	<b>55</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>CEO</sub></b>	<b>V<sub>CE</sub> = 30V</b>	<b>I<sub>E</sub> = 0 mA</b>	---	---	<b>5</b>	<b>mA</b>
<b>I<sub>CES</sub></b>	<b>V<sub>CE</sub> = 60V</b>	<b>I<sub>E</sub> = 0mA</b>	---	---	<b>5</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 6V</b>	<b>I<sub>C</sub> = 1.4A</b>	<b>15</b>	---	<b>50</b>	---
<b>h<sub>FE, MS1008A</sub></b>	<b>V<sub>CE</sub> = 6V</b>	<b>I<sub>C</sub> = 1.4A</b>	<b>20</b>	---	<b>30</b>	---

**DYNAMIC**

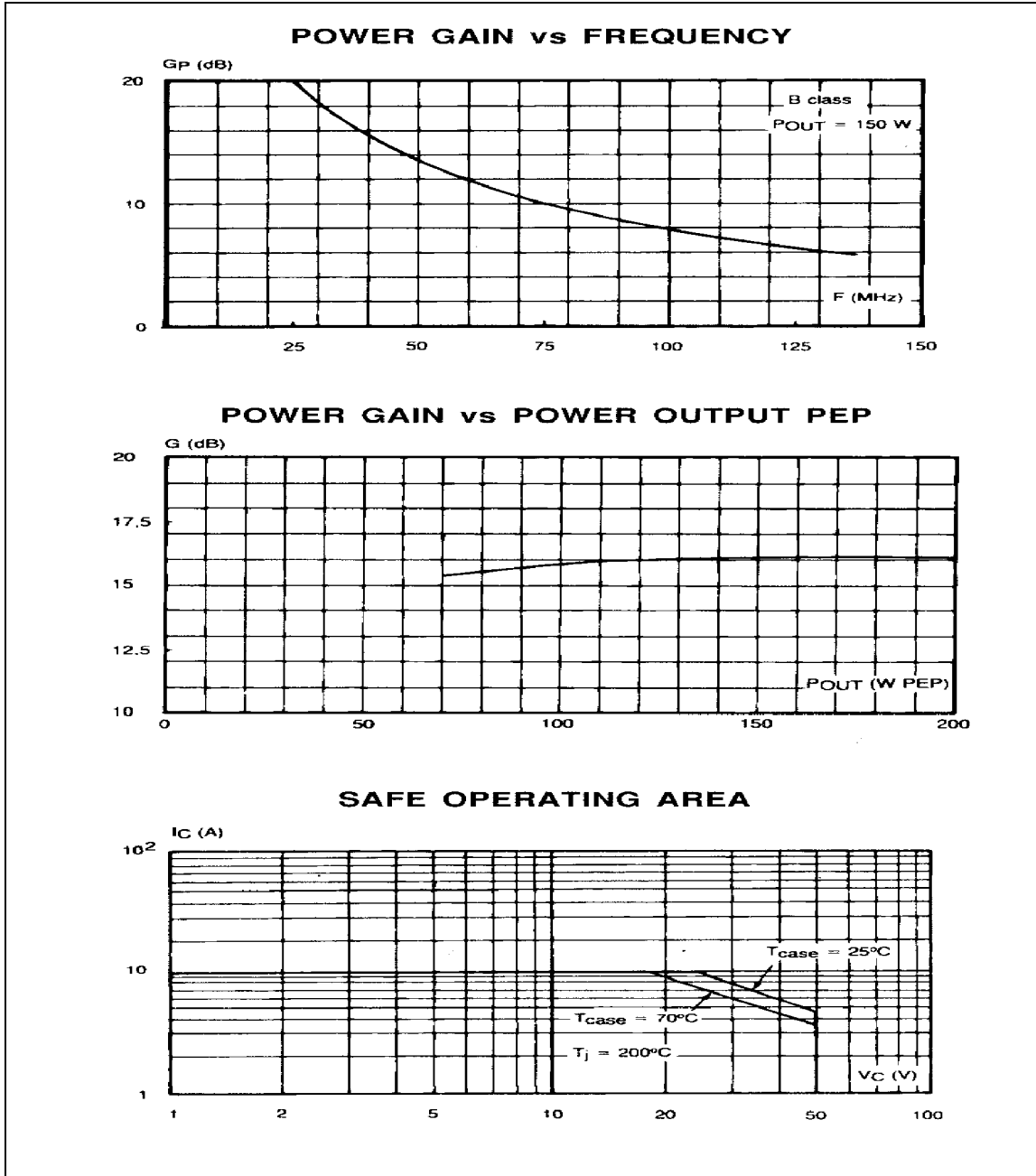
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 30 MHz</b>	<b>V<sub>CE</sub> = 50V</b>	<b>I<sub>CQ</sub> = 150mA</b>	<b>150</b>	---	---	<b>WPEP</b>
<b>G<sub>P</sub></b>	<b>P<sub>OUT</sub> = 150WPEP</b>	<b>V<sub>CE</sub> = 50V</b>	<b>I<sub>CQ</sub> = 150mA</b>	<b>14</b>	---	---	<b>dB</b>
<b>IMD</b>	<b>P<sub>OUT</sub> = 150WPEP</b>	<b>V<sub>CE</sub> = 50V</b>	<b>I<sub>CQ</sub> = 150mA</b>	---	---	<b>-30</b>	<b>dBc</b>
<b>η<sub>C</sub></b>	<b>P<sub>OUT</sub> = 150WPEP</b>	<b>V<sub>CE</sub> = 50V</b>	<b>I<sub>CQ</sub> = 150mA</b>	<b>37</b>	---	---	<b>%</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz</b>	<b>V<sub>CB</sub> = 50 V</b>		---	---	<b>220</b>	<b>pF</b>

**Conditions:**      **f<sub>1</sub> = 30.000MHz**      **f<sub>2</sub> = 30.001MHz**

**TYPICAL PERFORMANCE**



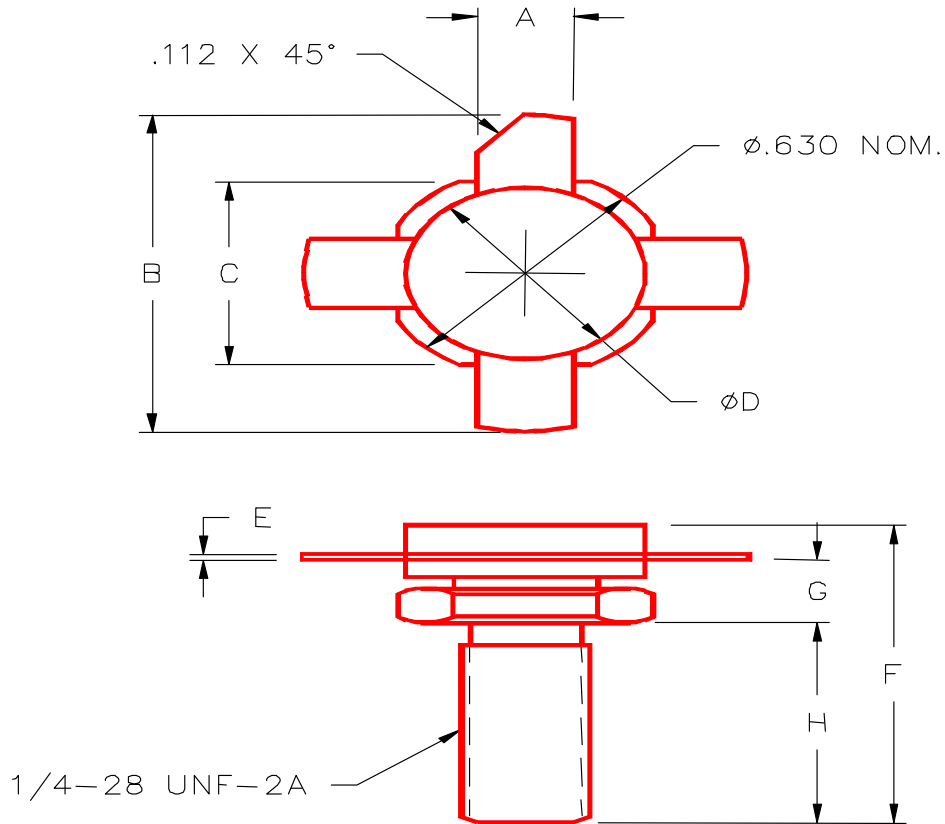
**TYPICAL PERFORMANCE**



MS1008

**PACKAGE MECHANICAL DATA**

**PACKAGE STYLE M164**



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84			
B		1.050/26,67			
C	.545/13,84	.555/14,10			
D	.495/12,57	.505/12,83			
E	.003/0,08	.007/0,18			
F		.810/20,57			
G	.185/4,70	.198/5,03			
H	.497/12,62	.530/13,46			