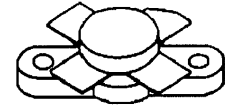


# MS1007

## RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

### Features

- 30 MHz
- 50 VOLTS
- $P_{OUT} = 150$  WATTS
- $G_P = 14$  dB MINIMUM
- COMMON EMITTER CONFIGURATION

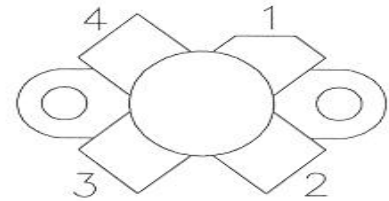


.500 4LFL (M174)  
epoxy sealed

### DESCRIPTION:

The MS1007 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.

### PIN CONNECTION



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

### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}C$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	110	V
$V_{CEO}$	Collector-Emitter Voltage	55	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Device Current	10	A
$P_{DISS}$	Power Dissipation	233	W
$T_J$	Junction Temperature	+200	$^{\circ}C$
$T_{STG}$	Storage Temperature	-65 to +150	$^{\circ}C$

### Thermal Data

$R_{TH(J-C)}$	Thermal Resistance Junction-case	0.75	$^{\circ}C/W$
---------------	----------------------------------	------	---------------

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

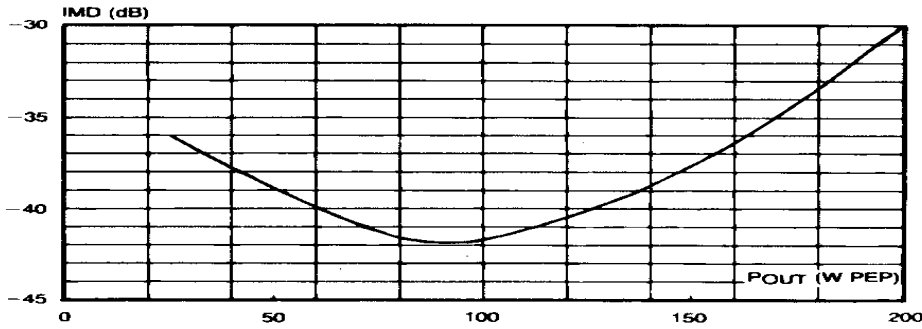
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CBO</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>I<sub>E</sub> = 0mA</b>	<b>110</b>	---	---	<b>V</b>
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 100mA</b>	<b>V<sub>BE</sub> = 0V</b>	<b>110</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<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>18</b>	---	<b>43.5</b>	---

**DYNAMIC**

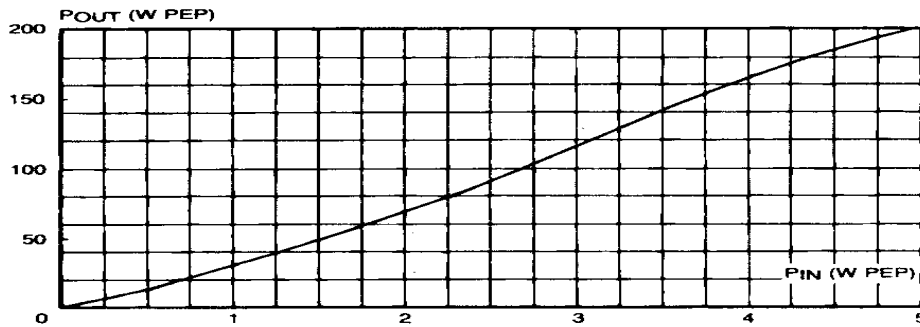
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 30 MHz</b>	<b>V<sub>CE</sub> = 50V</b>	<b>I<sub>CQ</sub> = 100mA</b>	<b>150</b>	---	---	<b>WPEP</b>
<b>G<sub>p</sub></b>	<b>P<sub>OUT</sub> = 150WPEP</b>	<b>V<sub>CE</sub> = 50V</b>	<b>I<sub>CQ</sub> = 100mA</b>	<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> = 100mA</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> = 100mA</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>
<b>Conditions</b>	<b>f1 = 30.000MHz</b>	<b>f2 = 30.001MHz</b>					

**TYPICAL PERFORMANCE**

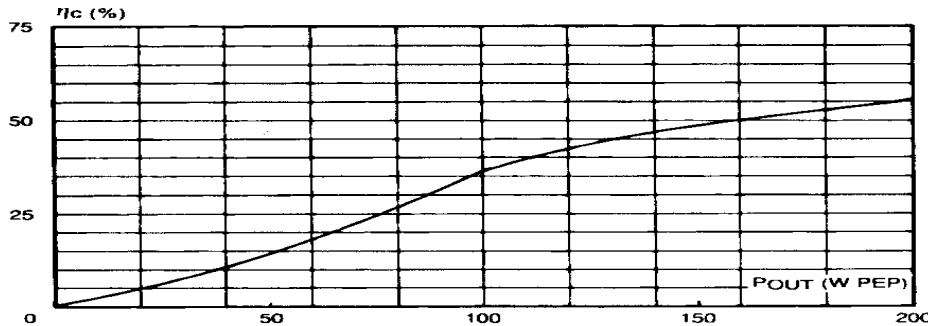
**INTERMODULATION DISTORTION vs POWER OUTPUT PEP**



**POWER OUTPUT PEP vs POWER INPUT**



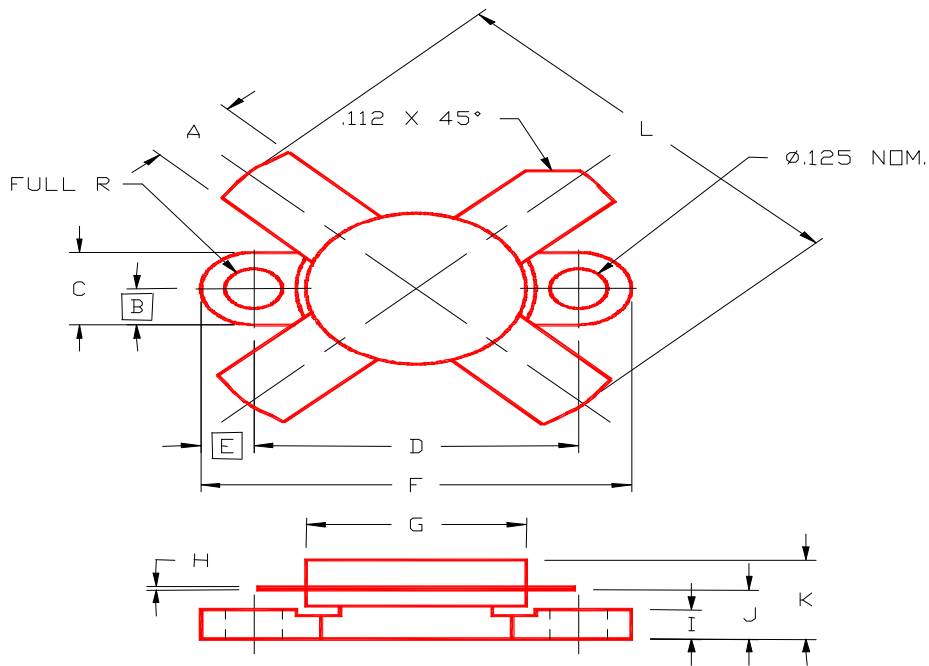
**COLLECTOR EFFICIENCY vs POWER OUTPUT PEP**



**MS1007**

**PACKAGE MECHANICAL DATA**

**PACKAGE STYLE M174**



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.090/2,29	.110/2,79
B	.125/3,18		J	.160/4,06	.175/4,45
C	.245/6,22	.255/6,48	K	.280/7,11	
D	.720/18,28	.730/18,54	L	1.050/26,67	
E	.125/3,18				
F	.970/24,64	.980/24,89			
G	.495/12,57	.505/12,83			
H	.003/0,08	.007/0,18			