

**MS1649**

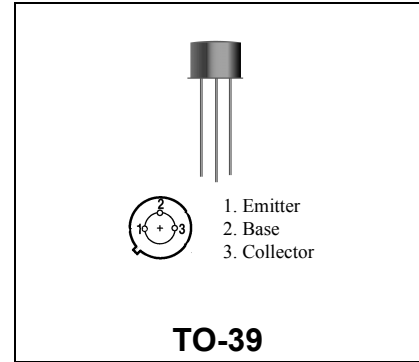
**RF & MICROWAVE TRANSISTORS  
UHF CLASS C MOBILE APPLICATIONS**

**Features**

- 470 MHz
- $P_{OUT} = 3W$
- $G_P = 9.5dB$  MINIMUM
- COMMON EMITTER CONFIGURATION

**DESCRIPTION:**

The MS1649 is a 12.5V epitaxial NPN planar transistor designed primarily for UHF communications. This device is packaged in a grounded emitter TO-39 package for increased power gain and optimum heat dissipation.



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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	36	V
$V_{CEO}$	Collector-Emitter Voltage	16	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Collector Current	1.0	A
$P_{TOT}$	Total Power Dissipation	7.8	W
$T_{STG}$	Storage Temperature	-65 to +200	°C
$T_J$	Junction Temperature	+200	°C

**Thermal Data**

$R_{TH(J-C)}$	Thermal Resistance Junction-Case	35.0	°C/W
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 50mA</b>	<b>V<sub>BE</sub> = 0</b>	<b>36</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 50mA</b>	<b>I<sub>B</sub> = 0</b>	<b>16</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 1mA</b>	<b>I<sub>C</sub> = 0</b>	<b>3.5</b>	---	---	<b>V</b>
<b>I<sub>CES</sub></b>	<b>V<sub>CB</sub> = 12.5V</b>	<b>V<sub>BE</sub> = 0</b>	---	---	<b>1.0</b>	<b>mA</b>
<b>H<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5.0V</b>	<b>I<sub>C</sub> = 100mA</b>	<b>20</b>	---	<b>150</b>	---

**DYNAMIC**

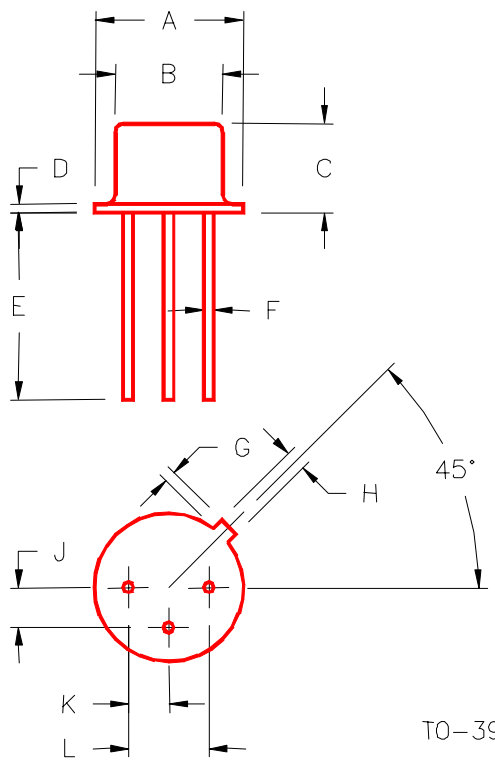
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>G<sub>PE</sub></b>	<b>f = 470MHz</b>	<b>P<sub>OUT</sub> = 3.0W</b>	<b>V<sub>CC</sub> = 12.5V</b>	<b>9.5</b>	---	---	<b>dB</b>
<b>η</b>	<b>f = 470MHz</b>	<b>P<sub>OUT</sub> = 3.0W</b>	<b>V<sub>CC</sub> = 12.5V</b>	<b>50</b>	---	---	<b>%</b>
<b>C<sub>OB</sub></b>	<b>f = 1.0MHz</b>	<b>V<sub>CB</sub> = 12.5 V</b>		---	---	<b>12</b>	<b>pf</b>

**IMPEDANCE DATA**

FREQ	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
173 MHz	3.5 + j1.2	14.0 + j10.0
458 MHz	3.3 + j3.2	11.0 + j5.7

**PACKAGE MECHANICAL DATA**

PACKAGE STYLE M246



TO-39

	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.350/8,89	.370/9,40	J	.095/2,41	.105/2,67
B	.315/8,00	.335/8,51	K	.095/2,41	.105/2,67
C	.240/6,10	.260/6,60	L	.190/4,83	.210/5,33
D	.015/0,38	.045/1,14			
E	.500/12,70				
F	.016/0,41	.019/0,48			
G	.029/0,74	.040/1,02			
H	.028/0,71	.034/0,86			