

**DESCRIPTION**

The MS1401 is a 7.5 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications. It withstands severe mismatch under operating conditions.

**IMPORTANT:** For the most current data, visit: <http://www.advancedpower.com>

**KEY FEATURES**

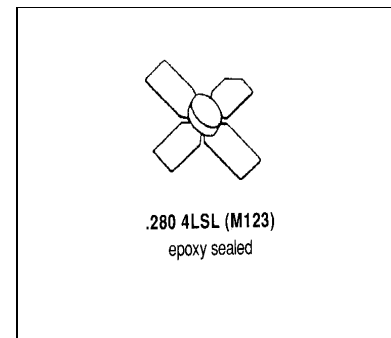
- 150 MHz
- 7.5 Volts
- Common Emitter
- $P_{OUT} = 2.5$  W Min.
- $G_P = 11.0$  dB Gain

**APPLICATIONS/BENEFITS**

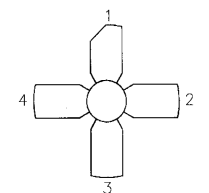
- VHF Portable/Mobile Applications

**ABSOLUTE MAXIMUM RATINGS ( $T_{CASE} = 25^{\circ}C$ )**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	36	V
$V_{CER}$	Collector-Emitter Voltage	16	V
$V_{CES}$	Collector-Emitter Voltage	36	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Device Current	1.7	A
$P_{DISS}$	Power Dissipation	15	W
$T_J$	Junction Temperature	+200	$^{\circ}C$
$T_{STG}$	Storage Temperature	-65 to +150	$^{\circ}C$


**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	11.6	$^{\circ}C/W$
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**PIN CONNECTION**


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

**STATIC ELECTRICAL SPECIFICATIONS (TCASE = 25°C)**

Symbol	Test Conditions		MS1401			Units
			Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 10 mA</b>	<b>V<sub>BE</sub> = 0 V</b>	36	—	—	V
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 50 mA</b>	<b>I<sub>B</sub> = 0 mA</b>	16	—	—	V
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 2 mA</b>	<b>I<sub>C</sub> = 0 mA</b>	4.0	—	—	V
<b>I<sub>CER</sub></b>	<b>V<sub>CE</sub> = 10 V</b>	<b>R<sub>BE</sub> = 50 Ω</b>	—	—	0.5	mA
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 15 V</b>	<b>I<sub>E</sub> = 0 mA</b>	—	—	1.0	mA
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V</b>	<b>I<sub>C</sub> = 200 mA</b>	20	—	100	—

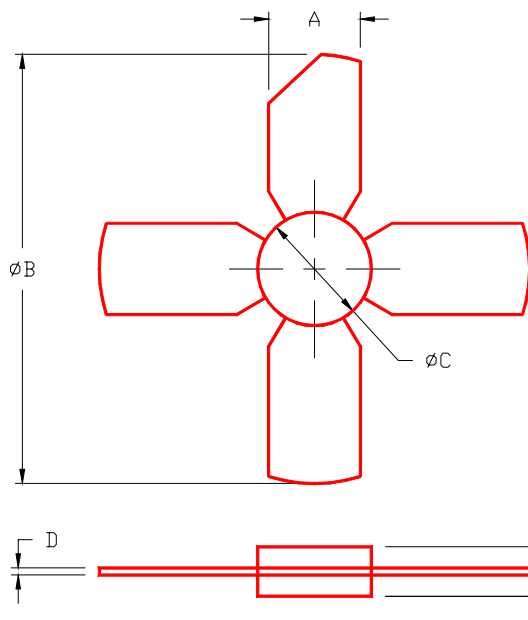
**DYNAMIC ELECTRICAL SPECIFICATIONS (TCASE = 25°C)**

Symbol	Test Conditions		MS1401			Units
			Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 150 MHz</b>	<b>V<sub>CC</sub> = 7.5 V</b>	2.5	—	—	W
<b>G<sub>p</sub></b>	<b>f = 150 MHz</b>	<b>V<sub>CC</sub> = 7.5 V</b>	11	—	—	dB
<b>C<sub>OB</sub></b>	<b>f = 150 MHz</b>	<b>V<sub>CB</sub> = 7.5 V</b>	—	—	23	pF

**IMPEDANCE DATA**

Freq.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
150 MHz	2.2 - j 0.4	7.9 + j 8.4
160 MHz	1.9 - j 0.8	7.6 + j 8.2
170 MHz	1.0 - j 1.0	6.0 + j 8.3

PACKAGE STYLE M123



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84			
B	-----	1.055/26,8			
C	.275/6,99	.285/7,24			
D	.004/0,10	.006/0,15			
E	.050/1,27	.060/1,52			
F	.118/3,00	.130/3,30			