



SD1014-02

**RF & MICROWAVE TRANSISTORS**

**PRODUCT PREVIEW**

**DESCRIPTION**

The SD1014-02 is an epitaxial silicon NPN planar transistor designed primarily for VHF mobile and marine transmitters. The device utilizes emitter ballasting resistors and improved metallization systems to achieve extreme ruggedness under severe operating conditions.

**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

**KEY FEATURES**

- 175 MHz
- 12.5 Volts
- Common Emitter
- $P_{OUT} = 15 \text{ W Min.}$
- $G_P = 6.3 \text{ dB Gain}$

**APPLICATIONS/BENEFITS**

- VHF FM Mobile Applications

**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>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Device Current	2.5	A
P <sub>DISS</sub>	Power Dissipation	31	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	-65 to +150	°C

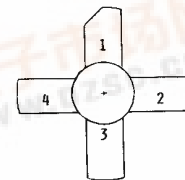


.380 4LSTUD(M135)  
epoxy sealed

**THERMAL DATA**

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	5.6	°C/W
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**PIN CONNECTION**



- |             |           |
|-------------|-----------|
| 1 collector | 3 base    |
| 2 emitter   | 4 emitter |





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

Symbol	Test Conditions	SD1014-02			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> = 20 mA</b> <b>I<sub>B</sub> = 0 mA</b>	18	—	—	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>CBO</sub></b>	<b>V<sub>CB</sub> = 15 V</b> <b>I<sub>E</sub> = 0 mA</b>	—	—	0.5	mA
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V</b> <b>I<sub>C</sub> = 500 mA</b>	5	—	200	—

**DYNAMIC ELECTRICAL SPECIFICATIONS (T<sub>CASE</sub> = 25°C)**

Symbol	Test Conditions	SD1014-02			Units
		Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 175 MHz</b> <b>P<sub>IN</sub> = 3.5 W</b> <b>V<sub>CE</sub> = 12.5 V</b>	15	—	—	W
<b>G<sub>p</sub></b>	<b>f = 175 MHz</b> <b>P<sub>IN</sub> = 3.5 W</b> <b>V<sub>CE</sub> = 12.5 V</b>	6.3	—	—	dB
<b>η<sub>C</sub></b>	<b>f = 175 MHz</b> <b>P<sub>OUT</sub> = 3.5 W</b> <b>V<sub>CE</sub> = 12.5 V</b>	60	—	—	%
<b>C<sub>OB</sub></b>	<b>f = 1 MHz</b> <b>V<sub>CB</sub> = 15 V</b>	—	—	85	pF

**IMPEDANCE DATA**

P <sub>IN</sub> (W)	P <sub>OUT</sub> (W)	Z <sub>IN</sub> (Ω)	Z <sub>OUT</sub> (Ω)
5	27.6	1.0 - j 1.4	3.3 + j 1.2

**P<sub>IN</sub>** = 3.0 W  
**V<sub>CC</sub>** = 12.5 V



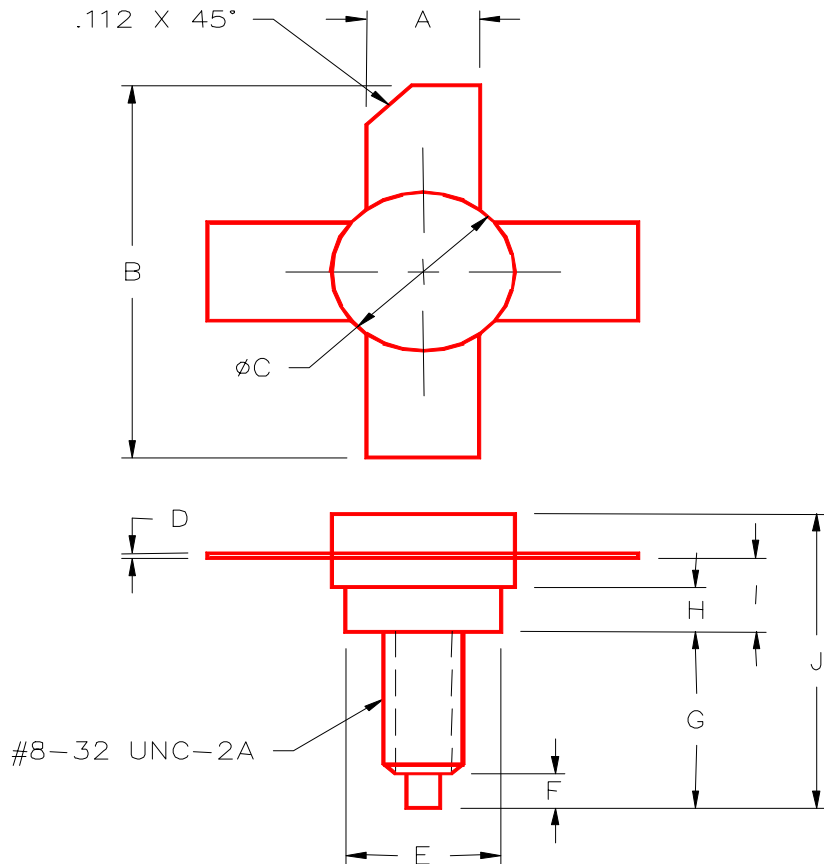
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PACKAGE STYLE M135



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.155/3,94	.175/4,45
B	.980/24,89		J		.750/19,05
C	.370/9,40	.385/9,78			
D	.004/0,10	.007/0,18			
E	.320/8,13	.330/8,38			
F	.100/2,54	.130/3,30			
G	.450/11,43	.490/12,45			
H	.090/2,29	.100/2,54			



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NOTES