

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
- $P_{OUT} = 15$ W Min.
- $G_P = 6.3$ dB Gain

APPLICATIONS/BENEFITS

- VHF FM Mobile Applications

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

| Symbol | Parameter | Value | Unit |
|-------------------|---------------------------|-------------|------|
| V _{CBO} | Collector-Base Voltage | 36 | V |
| V _{CEO} | Collector-Emitter Voltage | 18 | V |
| V _{EBO} | Emitter-Base Voltage | 4.0 | V |
| I _C | Device Current | 2.5 | A |
| P _{DISS} | Power Dissipation | 31 | W |
| T _J | Junction Temperature | +200 | °C |
| T _{STG} | Storage Temperature | -65 to +150 | °C |

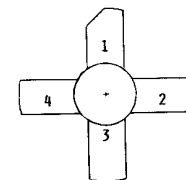


.380 4LSTUD(M135)
epoxy sealed

THERMAL DATA

| | | | |
|----------------------|----------------------------------|-----|------|
| R _{TH(j-c)} | Junction-Case Thermal Resistance | 5.6 | °C/W |
|----------------------|----------------------------------|-----|------|

PIN CONNECTION



1 collector 3 base
2 emitter 4 emitter

STATIC ELECTRICAL SPECIFICATIONS (T_{CASE} = 25°C)

| Symbol | Test Conditions | | SD1014-02 | | | Units |
|-------------------------|------------------------------|-------------------------------|-----------|------|------|-------|
| | | | Min. | Typ. | Max. | |
| BV_{CES} | I_C = 10 mA | V_{BE} = 0 V | 36 | — | — | V |
| BV_{CEO} | I_C = 20 mA | I_B = 0 mA | 18 | — | — | V |
| BV_{EBO} | I_E = 2 mA | I_C = 0 mA | 4.0 | — | — | V |
| I_{CBO} | V_{CB} = 15 V | I_E = 0 mA | — | — | 0.5 | mA |
| h_{FE} | V_{CE} = 5 V | I_C = 500 mA | 5 | — | 200 | — |

DYNAMIC ELECTRICAL SPECIFICATIONS (T_{CASE} = 25°C)

| Symbol | Test Conditions | | | SD1014-02 | | | Units |
|------------------------|--------------------|--------------------------------|--------------------------------|-----------|------|------|-------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | f = 175 MHz | P_{IN} = 3.5 W | V_{CE} = 12.5 V | 15 | — | — | W |
| G_p | f = 175 MHz | P_{IN} = 3.5 W | V_{CE} = 12.5 V | 6.3 | — | — | dB |
| η_C | f = 175 MHz | P_{OUT} = 3.5 W | V_{CE} = 12.5 V | 60 | — | — | % |
| C_{OB} | f = 1 MHz | V_{CB} = 15 V | | — | — | 85 | pF |

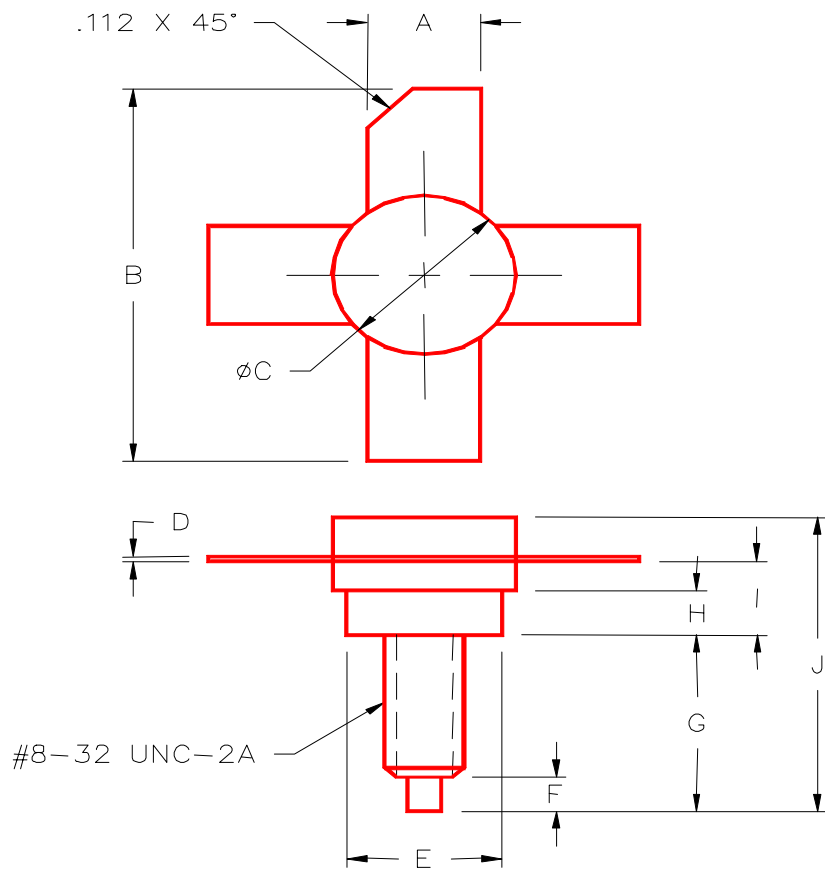
IMPEDANCE DATA

| P _{IN} (W) | P _{OUT} (W) | Z _{IN} (Ω) | Z _{OUT} (Ω) |
|---------------------|----------------------|---------------------|----------------------|
| 5 | 27.6 | 1.0 - j 1.4 | 3.3 + j 1.2 |

P_{IN} = 3.0 W

V_{CC} = 12.5 V

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 | | | |



SD1014-02

RF & MICROWAVE TRANSISTORS

PRODUCT PREVIEW

www.Microsemi.com

NOTES