

**DESCRIPTION**

The SD1474 is a Class C 28 V common emitter device optimized for pulsed applications in the 400-500MHz frequency range. Refractory gold metallization and emitter ballasting ensure long-term reliability as well as device ruggedness under severe load mismatch conditions.

SD1474 is characterized for both CW and pulsed operation and is provided in an industry-standard .400" Square hermetic package.

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

**KEY FEATURES**

- 425 MHz
- 28 Volts
- Common Emitter
- Gold Metallization
- Emitter Ballasted
- $P_{OUT} = 48 \text{ W Min.}$
- $G_P = 6.8 \text{ dB Gain}$

**APPLICATIONS/BENEFITS**

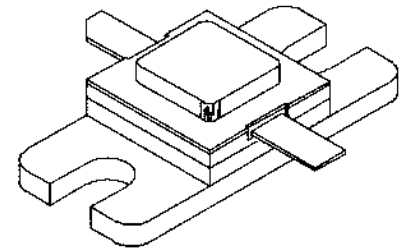
- UHF Pulsed Applications

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

| Symbol     | Parameter                 | Value       | Unit               |
|------------|---------------------------|-------------|--------------------|
| $V_{CBO}$  | Collector-Base Voltage    | 60          | V                  |
| $V_{CES}$  | Collector-Emitter Voltage | 60          | V                  |
| $V_{EBO}$  | Emitter-Base Voltage      | 4.0         | V                  |
| $I_C$      | Device Current            | 5           | A                  |
| $P_{DISS}$ | Power Dissipation         | 87.5        | W                  |
| $T_J$      | Junction Temperature      | +200        | $^{\circ}\text{C}$ |
| $T_{STG}$  | Storage Temperature       | -65 to +150 | $^{\circ}\text{C}$ |

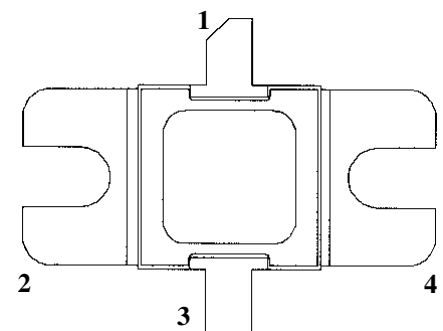
**THERMAL DATA**

|               |                                  |     |                      |
|---------------|----------------------------------|-----|----------------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance | 2.0 | $^{\circ}\text{C/W}$ |
|---------------|----------------------------------|-----|----------------------|



**.400 SQ. 2LFL (M138)**  
hermetically sealed

**PIN CONNECTION**



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



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**SD1474**

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**PRODUCT PREVIEW**

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

| Symbol                  | Test Conditions                                        | SD1474 |      |      | Units |
|-------------------------|--------------------------------------------------------|--------|------|------|-------|
|                         |                                                        | Min.   | Typ. | Max. |       |
| <b>BV<sub>CBO</sub></b> | <b>I<sub>C</sub> = 50 mA      I<sub>E</sub> = 0 mA</b> | 60     | —    | —    | V     |
| <b>BV<sub>CES</sub></b> | <b>I<sub>C</sub> = 50 mA      V<sub>BE</sub> = 0 V</b> | 60     | —    | —    | V     |
| <b>BV<sub>CEO</sub></b> | <b>I<sub>C</sub> = 50 mA      I<sub>B</sub> = 0 mA</b> | 32     | —    | —    | V     |
| <b>BV<sub>EBO</sub></b> | <b>I<sub>E</sub> = 5 mA      I<sub>C</sub> = 0 mA</b>  | 4.0    | —    | —    | V     |
| <b>I<sub>CBO</sub></b>  | <b>V<sub>CB</sub> = 30 V      I<sub>E</sub> = 0 mA</b> | —      | —    | 5    | mA    |
| <b>h<sub>FE</sub></b>   | <b>V<sub>CE</sub> = 5 V      I<sub>C</sub> = 1 A</b>   | 20     | —    | 100  | —     |

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

| Symbol                 | Test Conditions                                                          | SD1474 |      |      | Units |
|------------------------|--------------------------------------------------------------------------|--------|------|------|-------|
|                        |                                                                          | Min.   | Typ. | Max. |       |
| <b>P<sub>OUT</sub></b> | <b>f = 425 MHz      P<sub>IN</sub> = 10 W      V<sub>CE</sub> = 28 V</b> | 48     | —    | —    | W     |
| <b>G<sub>p</sub></b>   | <b>f = 425 MHz      P<sub>IN</sub> = 10 W      V<sub>CE</sub> = 28 V</b> | 6.8    | —    | —    | dB    |
| <b>η<sub>C</sub></b>   | <b>f = 425 MHz      P<sub>IN</sub> = 10 W      V<sub>CE</sub> = 28 V</b> | 50     | —    | —    | %     |
| <b>C<sub>OB</sub></b>  | <b>f = 1 MHz      V<sub>CB</sub> = 28 V</b>                              | —      | 42   | —    | pF    |

**IMPEDANCE DATA**

| Freq.   | Z <sub>IN</sub> (Ω) | Z <sub>CL</sub> (Ω) |
|---------|---------------------|---------------------|
| 420 MHz | 4.2 + j 3.8         | 3.2 - j 0.0         |
| 430 MHz | 4.2 + j 3.1         | 3.9 - j 0.6         |
| 440 MHz | 5.1 + j 2.8         | 4.4 - j 1.1         |
| 450 MHz | 5.0 + j 2.5         | 4.9 - j 1.5         |



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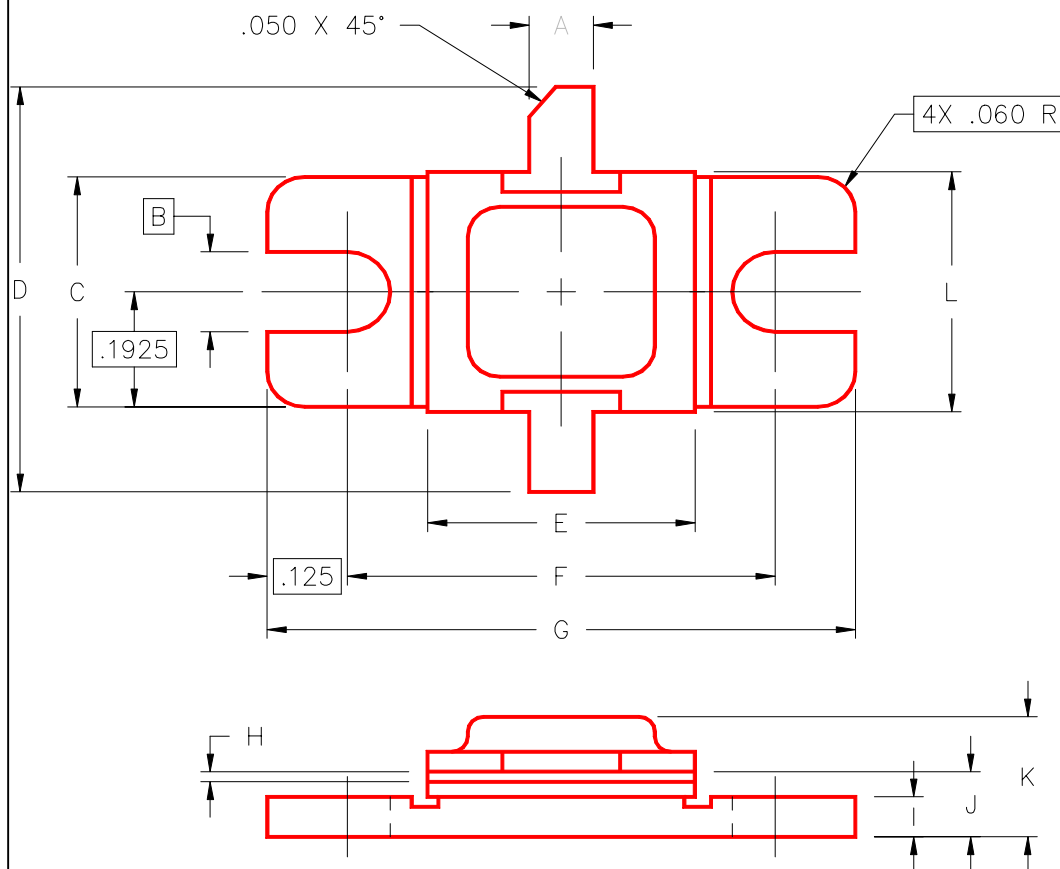
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**PRODUCT PREVIEW**

**PACKAGE STYLE M138**



|   | MINIMUM<br>INCHES/MM | MAXIMUM<br>INCHES/MM |   | MINIMUM<br>INCHES/MM | MAXIMUM<br>INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .095/2,41            | .105/2,67            | I | .055/1,40            | .065/1,65            |
| B | .125/3,18            |                      | J | .105/2,67            | .125/3,18            |
| C | .380/9,65            | .390/9,91            | K |                      | .230/5,84            |
| D | .790/20,07           |                      | L | .392/9,96            | .402/10,21           |
| E | .392/9,96            | .402/10,21           |   |                      |                      |
| F | .645/16,38           | .655/16,64           |   |                      |                      |
| G | .895/22,73           | .905/22,99           |   |                      |                      |
| H | .002/0,05            | .006/0,15            |   |                      |                      |



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NOTES