

# Surface Mount Monolithic Amplifier

## RAM-6+ RAM-6

50Ω DC to 2000 MHz



### Features

- wideband, DC to 2000 MHz
- cascadable ceramic package
- low noise figure, 2.8 dB typ.
- excellent repeatability

CASE STYLE: AF190  
PRICE: \$4.95 ea. QTY. (1-9)

**+ RoHS compliant in accordance  
with EU Directive (2002/95/EC)**

*The +Suffix identifies RoHS Compliance. See our web site  
for RoHS Compliance methodologies and qualifications.*

### Applications

- cellular
- UHF/VHF
- communication system
- transmission receivers

### Electrical Specifications

| FREQ. <sup>1</sup><br>(MHz) |                | GAIN (dB)<br>Typical at MHz |      |      |                   | MAXIMUM<br>POWER<br>(dBm)       |                      | DYNAMIC<br>RANGE <sup>3</sup> |                      | VSWR <sup>4</sup><br>(:1)<br>Typ. |     | ABSOLUTE<br>MAXIMUM<br>RATING <sup>6</sup><br>(25°C) |           | DC<br>OPERATING<br>POWER <sup>7</sup><br>at Pin 3 |                        | THERMAL<br>RESISTANCE <sup>5</sup> |
|-----------------------------|----------------|-----------------------------|------|------|-------------------|---------------------------------|----------------------|-------------------------------|----------------------|-----------------------------------|-----|--|-----------|---|------------------------|------------------------------------|
| f <sub>L</sub>              | f <sub>u</sub> | 100                         | 1000 | 2000 | Min. <sup>2</sup> | Output<br>(1 dB Compr.)<br>Typ. | Input<br>(no damage) | NF<br>(dB)<br>Typ.            | IP3<br>(dBm)<br>Typ. | In                                | Out | I<br>(mA)  | P<br>(mW) | Current<br>(mA)                                   | Device<br>Volt<br>Typ. | θ <sub>jc</sub><br>Typ.<br>°C/W    |
| DC                          | 2000           | 20.0                        | 16.0 | 11.0 | 9.0               | +2.0                            | +13                  | 2.8                           | +14.5                | 1.4                               | 1.3 | 50   | 200       | 16  | 3.5                    | 155                                |

1. Low frequency cutoff determined by external coupling capacitors.
2. Minimum gain at highest frequency. Full temperature range.
3. Frequency at which output power, NF and IP3 are specified: 500 MHz.
4. RAM-6(+) potentially unstable with very high VSWR terminations.  
RAM-6(+) conditionally stable, source and load VSWR < 5:1 required.
5. Thermal resistance θ<sub>jc</sub> is from hottest junction in device to mounting surface of leads.
6. Permanent damage may occur if any of these limits are exceeded.  
These ratings are not intended for continuous normal operation.
7. Supply voltage must be connected to pin 3 through a bias resistor in order to prevent damage. See "Biasing MMIC Amplifiers" in [minicircuits.com/application.html](http://minicircuits.com/application.html). Reliability predictions are applicable at specified current & normal operating conditions.

### Maximum Ratings

Operating Temperature -54°C to 100°C  
Storage Temperature -65°C to 150°C

### Pin Connections

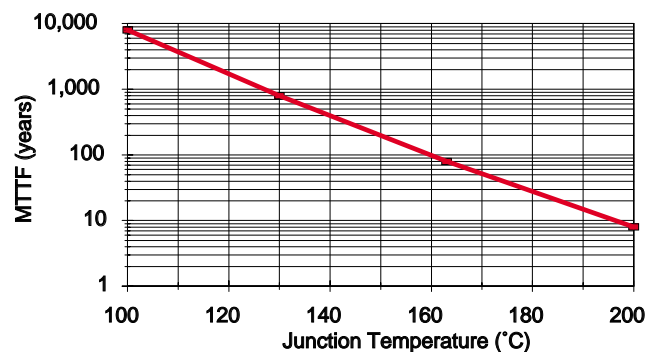
|        |     |
|--------|-----|
| RF IN  | 1   |
| RF OUT | 3   |
| DC     | 3   |
| GROUND | 2,4 |

### Model Identification

RAM-6(+) 6 or 06

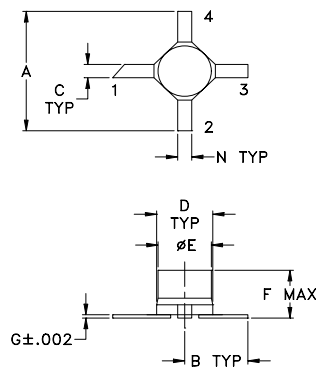
Prefix letter (optional) designates assembly location

MTTF vs. Junction Temp.

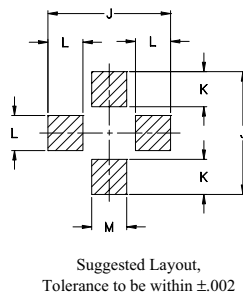


# RAM-6+ RAM-6

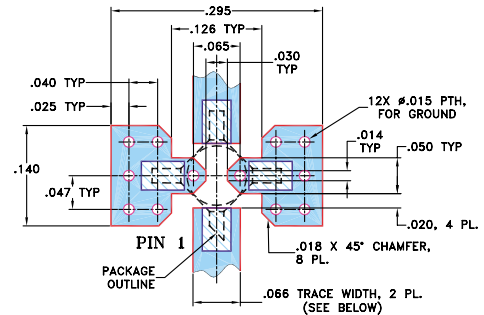
## Outline Drawing



## PCB Land Pattern



## Demo Board MCL P/N: TB-414-6+ Suggested PCB Layout (PL-254)



### NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS  $.030 \pm .002$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- IF PCB DESIGN RULES ALLOW, PLACE GROUND VIAS UNDER THE LAND PATTERN FOR BETTER RF PERFORMANCE. OTHERWISE PLACE GROUND VIAS AS CLOSE TO LAND PATTERN AS POSSIBLE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F    | G     |
|------|------|------|------|------|------|-------|
| .180 | .090 | .020 | .100 | .083 | .072 | .005  |
| 4.57 | 2.29 | 0.51 | 2.54 | 2.11 | 1.83 | 0.13  |
| H    | J    | K    | L    | M    | N    | wt    |
| --   | .210 | .060 | .060 | .06  | 0.20 | grams |
| --   | 5.33 | 1.52 | 1.52 | 1.52 | 5.08 | 0.04  |

## Typical Biasing Configuration

