

Surface Mount

# Monolithic Amplifier

50Ω, DC to 1000 MHz

**NEW!**

**MAR-8ASM**



CASE STYLE: WW107

## Features

- exact footprint substitute\*\* MAR-8SM and MSA-0886
- high gain, 31.5 dB at 100 MHz, reduces component count
- high power output, +12.5 dBm typ.
- low noise
- improved stability
- protection against power supply transients
- patent pending

## Applications

- cellular
- PCN & instrumentation

## Electrical Specifications @ 25°C

| MODEL NO. | FREQ. (MHz) | GAIN, dB          |                    |      | MAXIMUM POWER, dBm | DYNAMIC RANGE |              | VSWR (:1) Typ. |     | ABSOLUTE MAXIMUM RATING* |        | DC POWER @ Pin 3 |             |      |      | THERMAL RESISTANCE | PRICE \$ |      |
|-----------|-------------|-------------------|--------------------|------|--------------------|---------------|--------------|----------------|-----|--------------------------|--------|------------------|-------------|------|------|--------------------|----------|------|
|           |             | Typical @ 100 MHz | Typical @ 1000 MHz | Min. |                    | NF dB Typ.    | IP3 dBm Typ. | In             | Out | I (mA)                   | P (mW) | Current (mA)     | Device Volt | Min. | Typ. |                    |          | Max. |
| MAR-8ASM  | DC-1000     | 31.5              | 25                 | 20   | 12.5               | 13            | 3.1          | 25             | 1.4 | 1.8                      | 65     | 250              | 36          | 3.2  | 3.7  | 4.2                | 140      | 1.12 |

\*Permanent damage may occur if any of these limits are exceeded.  
Min. gain at 1000 MHz  
Output power, NF, and IP3 at 1000 MHz.

\*\* See Bias resistor table; resistor values are higher than MAR-8SM/MSA-0886  
how to replace: increase bias resistor (Rbias) by 110 ohms  
benefits: • lower device voltage, 3.7V typ.  
• lower power dissipation in the MMIC  
• may eliminate need for choke (RFC)

## Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| Junction Temperature  | 150°C          |

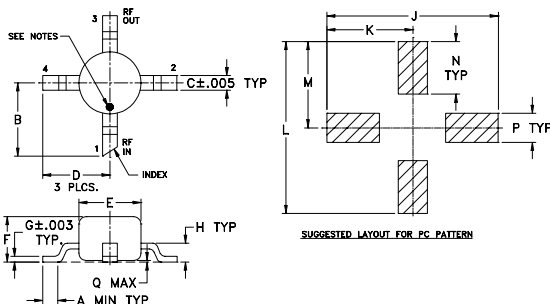
## Pin Configuration

|          |     |
|----------|-----|
| RF IN    | 1   |
| RF OUT   | 3   |
| DC       | 3   |
| GND EXT. | 2,4 |

## Model Identification

|          |         |
|----------|---------|
| Model    | marking |
| MAR-8ASM | 8A      |

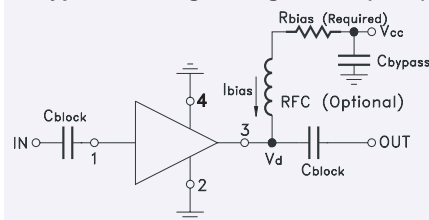
## Outline Drawing



## Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F    | G    | H    | J    | K    | L    | M    | N    | P    | Q    | wt. grams |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|
| .012 | .10  | .020 | .092 | .085 | .060 | .007 | .026 | .235 | .118 | .235 | .118 | .072 | .040 | .020 |           |
| .30  | 2.54 | .51  | 2.34 | 2.16 | 1.52 | .18  | .66  | 5.97 | 3.00 | 5.97 | 3.00 | 1.83 | 1.02 | 0.51 | .015      |

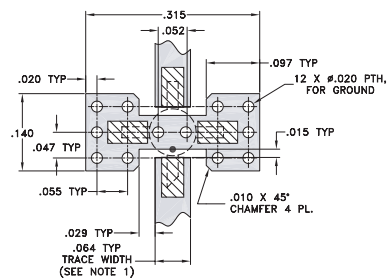
## Typical Biasing Configuration (MAR)



## Resistor Values

| Vcc | "1%" Res. |
|-----|-----------|
| 7   | 88.7      |
| 8   | 118       |
| 9   | 143       |
| 10  | 174       |
| 11  | 200       |
| 12  | 226       |
| 13  | 255       |
| 14  | 280       |
| 15  | 309       |

## Suggested PCB layout (PL-075)



## NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS 0.030" ± 0.002", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. IF YOUR PCB DESIGN RULES ALLOW, GROUND VIAS SHOULD BE PLACED UNDER THE LAND PATTERN FOR BETTER RF PERFORMANCE. OTHERWISE GROUND VIAS SHOULD BE PLACED AS CLOSE TO LAND PATTERN AS POSSIBLE.

- DENOTES PCB COPPER LAYOUT
- ▨ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

REV. A  
M91596  
ED-9366/12  
MAR-8ASM  
MM/FL/CP/AM  
040323  
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