# FM-107 / -108 / FMS-109



**Broadband Frequency Doubler,** 10—4800 MHz Output

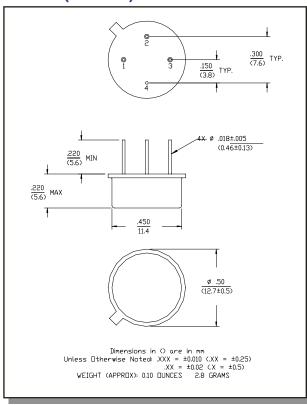
Rev. V5

#### **Features**

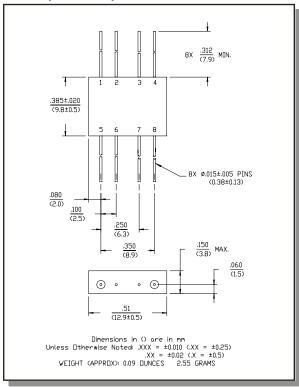
- Operates Over Full AMPS/PCN PCS/PHS Bands
- Low Conversion Loss
- Two Hermetic Package Options
- Typical Midband VSWR 1.5:1
- High Fundamental and Third Order Suppression

## **Description**

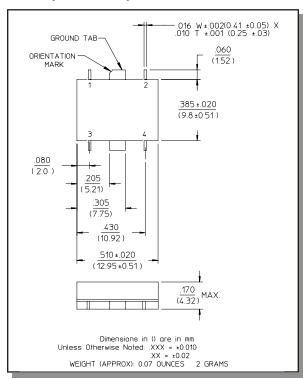
### TO-8-1 (FM-108)



### FP-2 (FM-107)



# SF-1 (FMS-109)



ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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# Electrical Specifications: T<sub>A</sub> = 25°C, Input Frequency: 5-2400 MHz, Output Frequency: 10-4800 MHz, Input Power: +10 dBm

| Parameter          | Test Conditions | Frequency                                     | Units          | Min.           | Тур.           | Max.  |
|--------------------|-----------------|---|----------------|----------------|----------------|-------|
| Conversion Loss    | Input: +10 dBm  |   | dB             | _              | 11             | 13    |
| F1 Suppression     | Input: +10 dBm  | 5-750 MHz<br>750-1000 MHz<br>1000-2400 MHz    | dB<br>dB<br>dB | 30<br>25<br>20 | 40<br>30<br>25 |       |
| F3 Suppression     | Input: +10 dBm  | 15-1500 MHz<br>1500-3000 MHz<br>3000-7200 MHz | dB<br>dB<br>dB | 35<br>25<br>20 | 40<br>35<br>25 |       |
| VSWR               | Input: +10 dBm  |   | Ratio          | _              | 1.5:1          | 2.0:1 |
| Loss as Quadrupler | Input: +10 dBm  |   | dB             | _              | 27             | _     |

## **Pin Configuration (FM-107)**

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | GND      | 5       | GND      |
| 2       | GND      | 6       | GND      |
| 3       | GND      | 7       | GND      |
| 4       | RF IN    | 8       | RF OUT   |

# Pin Configuration (FM-108)

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | RF IN    | 3       | RF OUT   |
| 2       | N/C      | 4       | GND      |

## **Pin Configuration (FMS-109)**

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | GND      | 3       | GND      |
| 2       | RF OUT   | 4       | RF IN    |

# Absolute Maximum Ratings 1

| Parameter                    | Absolute Maximum                           |  |  |
|------------------------------|--|--|--|
| Max Input Power <sup>2</sup> |  |  |  |
| Total Power                  | 300 mW Max.<br>Derated to 85°C @ 3.2 mW/°C |  |  |

- 1. Operation of this device above any one of these parameters may cause permanent damage.
- 2. Ambient Temperature  $(T_A) = +25^{\circ}C$

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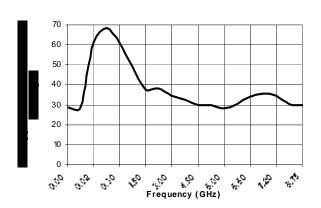
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## **Typical Performance Curves**

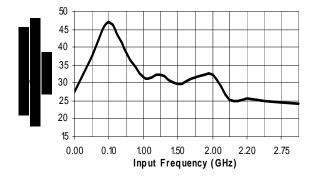
#### Conversion Loss vs. Input Freq.

# 18 16 14 12 10 8 6 0.00 0.05 0.25 0.75 1.25 1.75 2.10 2.40 3.00 Input Frequency (GHz)

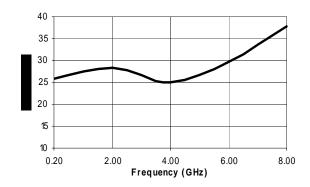
#### Spurious Response: F3 Suppression



#### Spurious Response: F1 Suppression



#### Loss as a Quadrupler



# **Ordering Information**

| Part Number | Package                               |
|-------------|---------------------------------------|
| FM-107-PIN  | Hermetic Flatpack Package (FP-2)      |
| FM-108-PIN  | Hermetic Package (TO-8-1)             |
| FMS-109-PIN | Hermetic Surface Mount package (SF-1) |

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