

# Plug-In Frequency Doubler, 20 - 1500 MHz Output

FM-105

## Features

- Relay Header Case
- Multioctave Frequency Coverage
- Conversion Loss: 12 dB Midband
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 300 mW Max.
- MIL-STD-883 Screening Available

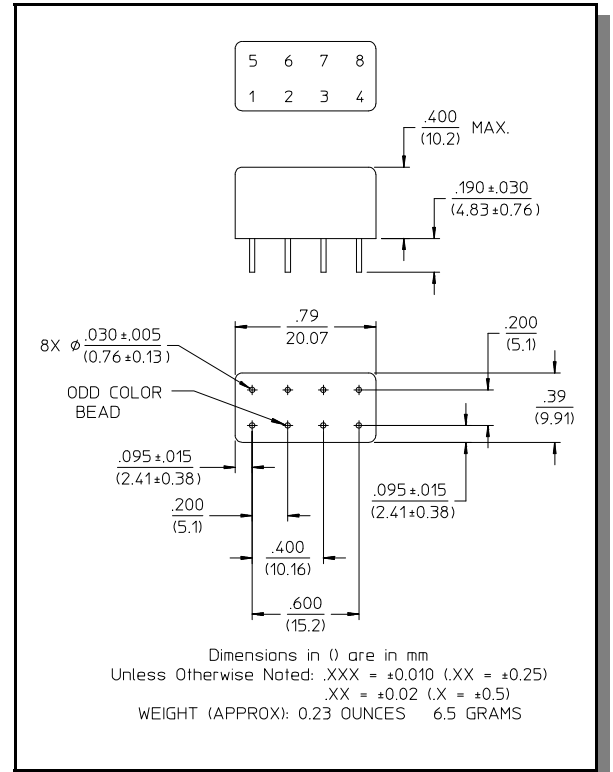
## Description

A transmission line balun transformer connects to Schottky diodes arranged in a bridge configuration. This design allows balanced activation of all diodes, and yields excellent conversion loss, and odd-order term suppression.

## Pin Configuration

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | Input    | 5       | GND      |
| 2       | GND      | 6       | GND      |
| 3       | GND      | 7       | GND      |
| 4       | GND      | 8       | Output   |

## RH-3



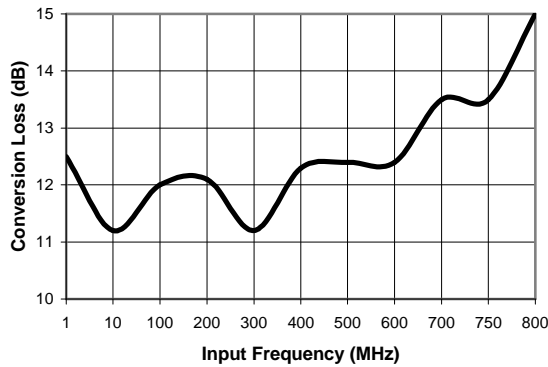
## Electrical Specifications<sup>1</sup>: T<sub>A</sub> = -55°C to +85°C

| Parameter  | Test Conditions | Frequency       | Units | Min | Typ    | Max  |
|--|-----------------|-----------------|-------|-----|--------|------|
| Frequency Range                                    | Input           | 10 - 750        | MHz   | —   | —      | —    |
|  | Output          | 20 - 1500       | MHz   | —   | —      | —    |
| Conversion Loss                                    |                 | 10 - 500 MHz    | dB    | —   | —      | 14.5 |
|  |                 | 500 - 750 MHz   | dB    | —   | —      | 15.5 |
| Spurious (Referred to Output F <sub>2</sub> Level) | F <sub>1</sub>  | 10 - 100 MHz    | dB    | 25  | —      | —    |
|  |                 | 100 - 300 MHz   | dB    | 20  | —      | —    |
|  |                 | 300 - 500 MHz   | dB    | 15  | —      | —    |
|  |                 | 500 - 750 MHz   | dB    | 10  | —      | —    |
|  | F <sub>3</sub>  | 30 - 300 MHz    | dB    | 35  | —      | —    |
|  |                 | 300 - 900 MHz   | dB    | 30  | —      | —    |
|  |                 | 900 - 1500 MHz  | dB    | 25  | —      | —    |
|  |                 | 1500 - 2250 MHz | dB+   | 20  | —      | —    |
| VSWR   | Input           | —               | Ratio | —   | <2.0:1 | —    |
| Conversion Loss as Quadrupler                      | —               | —               | dB    | —   | 30     | —    |

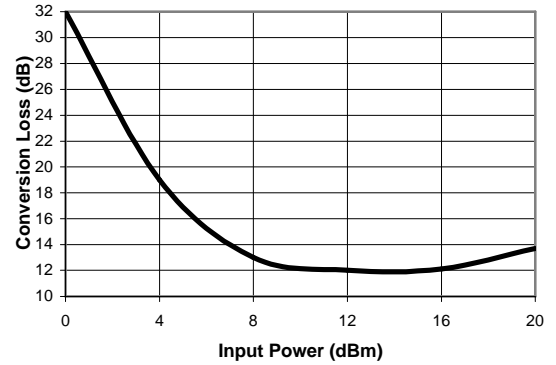
1. All specifications apply when operated at +13 dBm input power with 50 ohm source and load impedance.

Typical Performance Curves

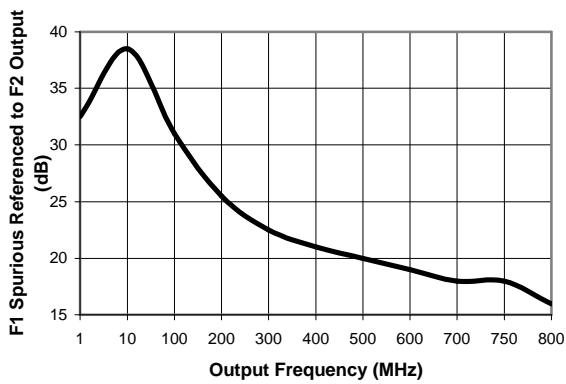
Conversion Loss



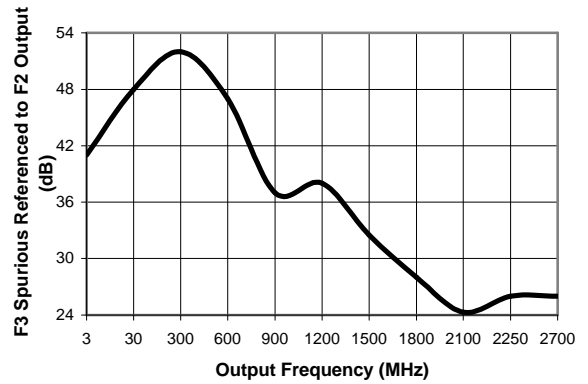
Conversion Loss vs. Input Power



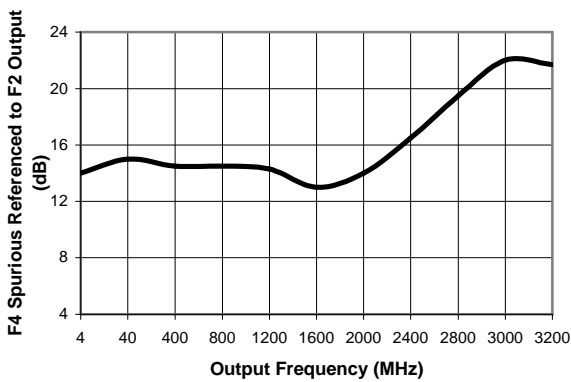
Spurious Response



Spurious Response



Spurious Response



Ordering Information

| Part Number | Package |
|-------------|---------|
| FM-105 PIN  | RH-3    |

Specifications subject to change without notice.

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