

# FD25 / FD25C / FD25E / SFD25

## Frequency Doubler

Rev. V4

### Features

- Input 5 to 2400 MHz
- Output 10 to 4800 MHz
- Input Drive level +10 dBm (nominal)
- Hermetically-Sealed Package

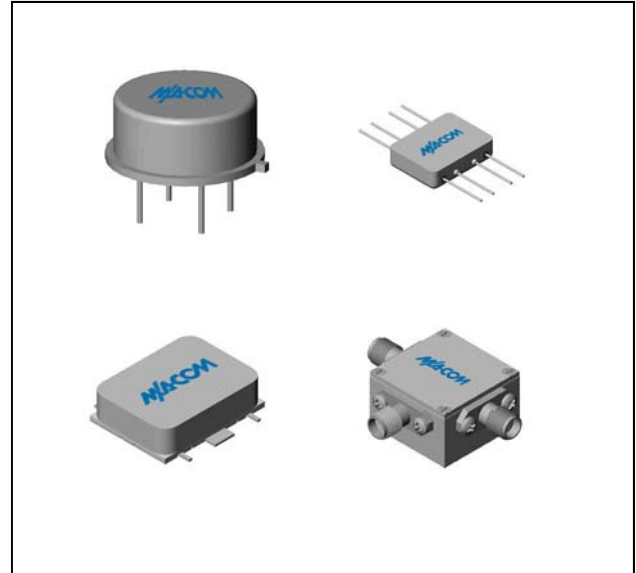
### Description

The FD25 is a passive bridge diode frequency doubler, designed for use in military, commercial and test equipment applications. The design utilizes Schottky bridge quad diodes and broadband soft dielectric and/or ferrite baluns to attain excellent performance. The use of high temperature solder assembly processes used internally makes it ideal for use in manual and semi-automated assembly. Environmental screening available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| FD25        | TO-8              |
| FD25C       | SMA Connectorized |
| FD25E       | Flatpack          |
| SFD25       | Surface Mount     |

### Product Image



### Electrical Specifications: $Z_0 = 50\Omega$ $P_{in} = +10$ dBm

| Parameter                     | Test Conditions                                                                        | Units | Typical        | Guaranteed     |                |
|-------------------------------|----------------------------------------------------------------------------------------|-------|----------------|----------------|----------------|
|                               |                                                                                        |       |                | +25°C          | -54° to +85°C* |
| SSB Conversion Loss (max)     | $f_{in} = 5$ to 30 MHz<br>$f_{in} = 30$ to 2400 MHz                                    | dB    | 12.0<br>11.5   | 13.0<br>13.0   | 15.0<br>13.5   |
| Fundamental Suppression (min) | $f_{in} = 5$ to 1000 MHz<br>$f_{in} = 1000$ to 2000 MHz<br>$f_{in} = 2000$ to 2400 MHz | dBc   | 35<br>25<br>20 | 25<br>20<br>16 | 23<br>18<br>14 |
| Third Harmonic Suppression    | $f_{in} = 5$ to 500 MHz<br>$f_{in} = 500$ to 1000 MHz<br>$f_{in} = 1000$ to 2400 MHz   | dBc   | 50<br>40<br>35 | 40<br>30<br>25 | 38<br>28<br>23 |
| Input VSWR                    | $f_{in} = 5$ to 2400 MHz                                                               |       | 1.5:1          |                |                |

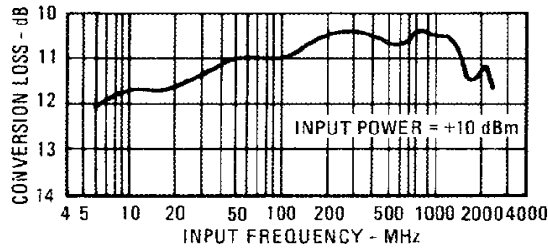
\* The FD25C specification limits apply at 0°C to +50°C.

## Frequency Doubler

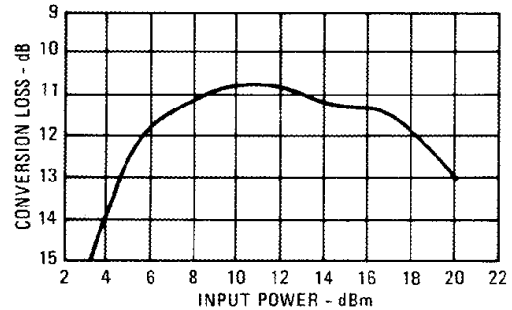
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### Typical Performance Curves

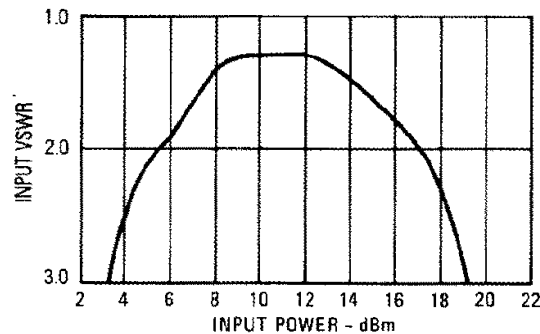
Conversion Loss vs. Frequency



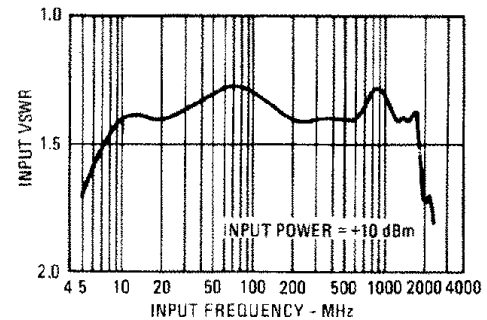
Conversion Loss vs. Input Power



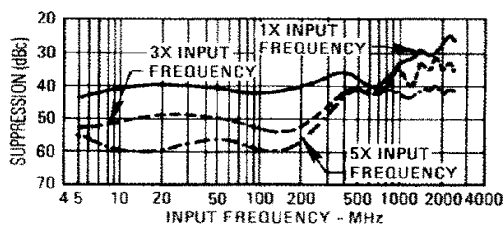
Input VSWR vs. Input Power



Input VSWR vs. Input Frequency



Suppression vs. Input Frequency



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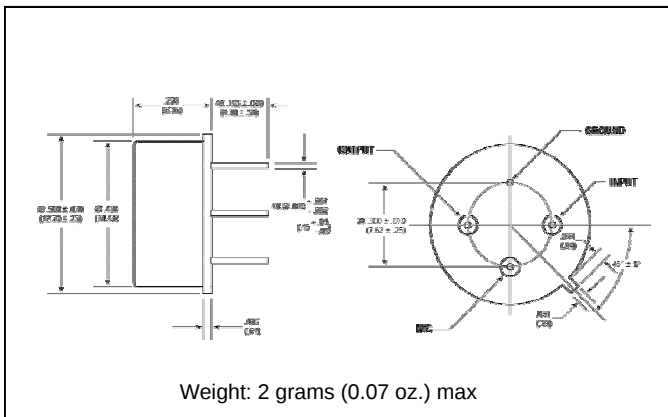
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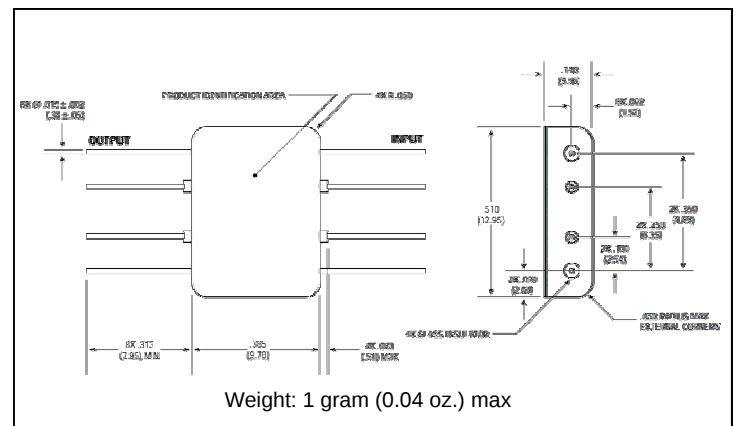
### Absolute Maximum Ratings

| Parameter             | Absolute Maximum                            |
|-----------------------|---------------------------------------------|
| Operating Temperature | -54°C to +100°C                             |
| Storage Temperature   | -65°C to +100°C                             |
| Peak Input Power      | +23 dBm max @ +25°C<br>+20 dBm max @ +100°C |
| Peak Input Current    | 50 mA DC                                    |

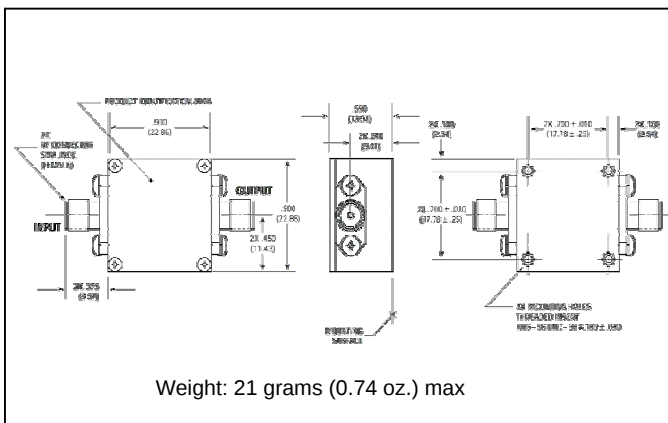
### Outline Drawing: TO-8 \*



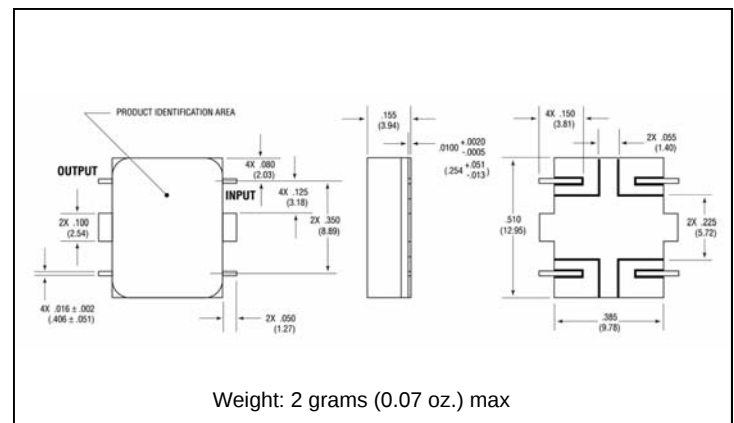
### Outline Drawing: Flatpack \*



### Outline Drawing: SMA Connectorized \*



### Outline Drawing: Surface Mount \*



\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.