

Frequency Doubler

Rev. V5

Features

- Input 5 - 2400 MHz
- Output 10 - 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.



TO-8



Flatpack



Surface Mount



SMA Connectorized

Electrical Specifications: $Z_0 = 50 \Omega$, $P_{IN} = 10 \text{ dBm}$

| Parameter | Test Conditions Input Frequency (MHz) | Units | Typical | Guaranteed | |
|--------------------------------|--|-------|---------|------------|----------------------------|
| | | | +25°C | +25°C | -54°C - +85°C ¹ |
| SSB Conversion Loss (max.) | 5 - 30 | dB | 12.0 | 13.0 | 15.0 |
| | 30 - 2400 | | 11.5 | 13.0 | 13.5 |
| Fundamental Suppression (min.) | 5 - 1000 | dBc | 35 | 25 | 23 |
| | 1000 - 2000 | | 25 | 20 | 18 |
| | 2000 - 2400 | | 20 | 16 | 14 |
| Third Harmonic Suppression | 5 - 500 | dBc | 50 | 40 | 38 |
| | 500 - 1000 | | 40 | 30 | 28 |
| | 1000 - 2400 | | 35 | 25 | 23 |
| Input VSWR | 5 - 2400 | ratio | 1.5:1 | — | — |

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

Ordering Information

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

Absolute Maximum Ratings

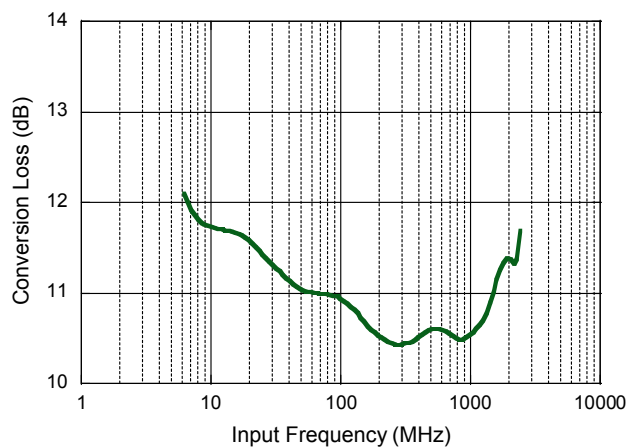
| Parameter | Absolute Maximum |
|-----------------------|-----------------------------------|
| Peak Input Power | 23 dBm @ +25°C 20 dBm @ +100°C |
| Peak Input Current | 50 mA DC |
| Operating Temperature | -54°C to +100°C |
| Storage Temperature | -65°C to +100°C |

Frequency Doubler

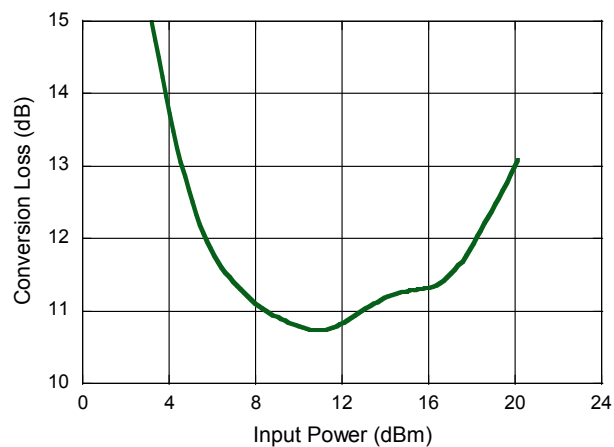
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Typical Performance Curves

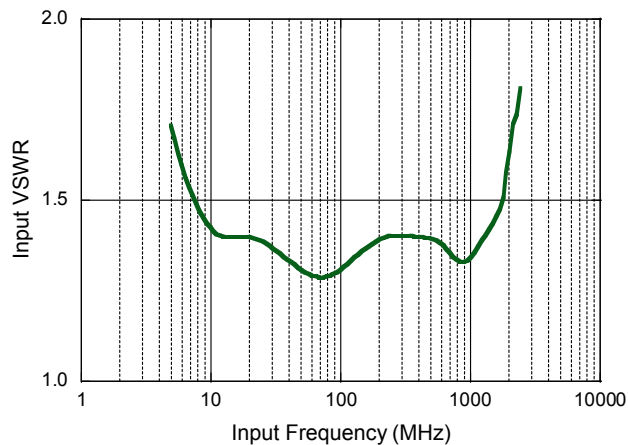
Conversion Loss vs. Input Frequency ($P_{IN} = 10$ dBm)



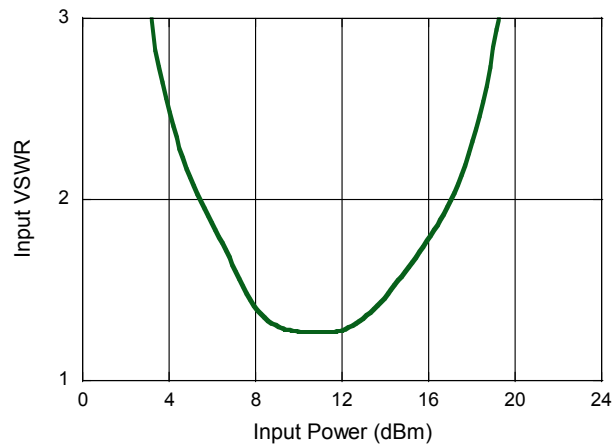
Conversion Loss vs. Input Power



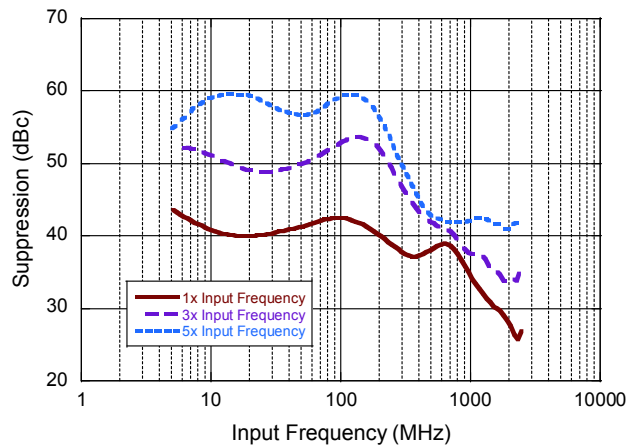
Input VSWR vs. Input Frequency ($P_{IN} = 10$ dBm)



Input VSWR vs. Input Power



Suppression vs. Input Frequency



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Outline Drawing*: TO-8



Outline Drawing*: SMA Connectorized



* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

Outline Drawing*: Flatpack



Outline Drawing*: Surface Mount



* Dimensions are inches (millimeters) ± 0.015 (0.38) unless otherwise specified.

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