

SFH-06SFSF-A3

D-Band Harmonic Mixer, Keysight Spectrum Analyzer

SFH-06SFSF-A3 is a D-Band balanced harmonic mixer that is specially designed for use with Keysight's 856X spectrum analyzer series. The mixer employs high performance, GaAs Schottky flip chip diodes and a balanced configuration to produce superior RF performance. With an IF range of DC to 1.3 GHz, the harmonic mixer uses the harmonic number 28 of a 3.0 to 6.1 GHz LO at +16 dBm to translate 110 to 170 GHz. The harmonic mixer has a typical conversion loss of 50 dB. The mixer can be used as other even harmonic numbers, such as 26, 30, 32, etc. with various conversion loss performance. In general, the lower the harmonics, the lower the conversion loss. Other models, such as SFH-06SFSF-A3-2 are offered for the spectrum models other than Keysight's 856X series are also offered in the our website [here](#).



Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	110 GHz		170 GHz
LO Frequency	3.0 GHz		6.1 GHz
IF Frequency	DC		1.3 GHz
RF Power		-20 dBm	+19 dBm
LO Power		+16 dBm	+19 dBm
Harmonic Number		28	
Conversion Loss		50 dB	
Specification Temperature		+25°C	
Operating Temperature	0°C		+50°C

Mechanical Specifications:

Item	Specification
RF Ports	WR-06 Waveguide with UG-387/U-M Anti-Cocking Flange
LO Port	SMA (F)
IF Port	SMA (F)
Case Material	Brass
Finish	Gold Plated
Weight	5.4 Oz
Outline	FH-D2-A

ECCN

3A001.b.7

FEATURES

- Full Waveguide Band Operation
- No External Bias Required
- Even Harmonic Detection
- Calibrated for 28th Harmonic Detection

APPLICATIONS

- Keysight Spectrum Analyzers
- Frequency Meters
- Phase Locked Loops

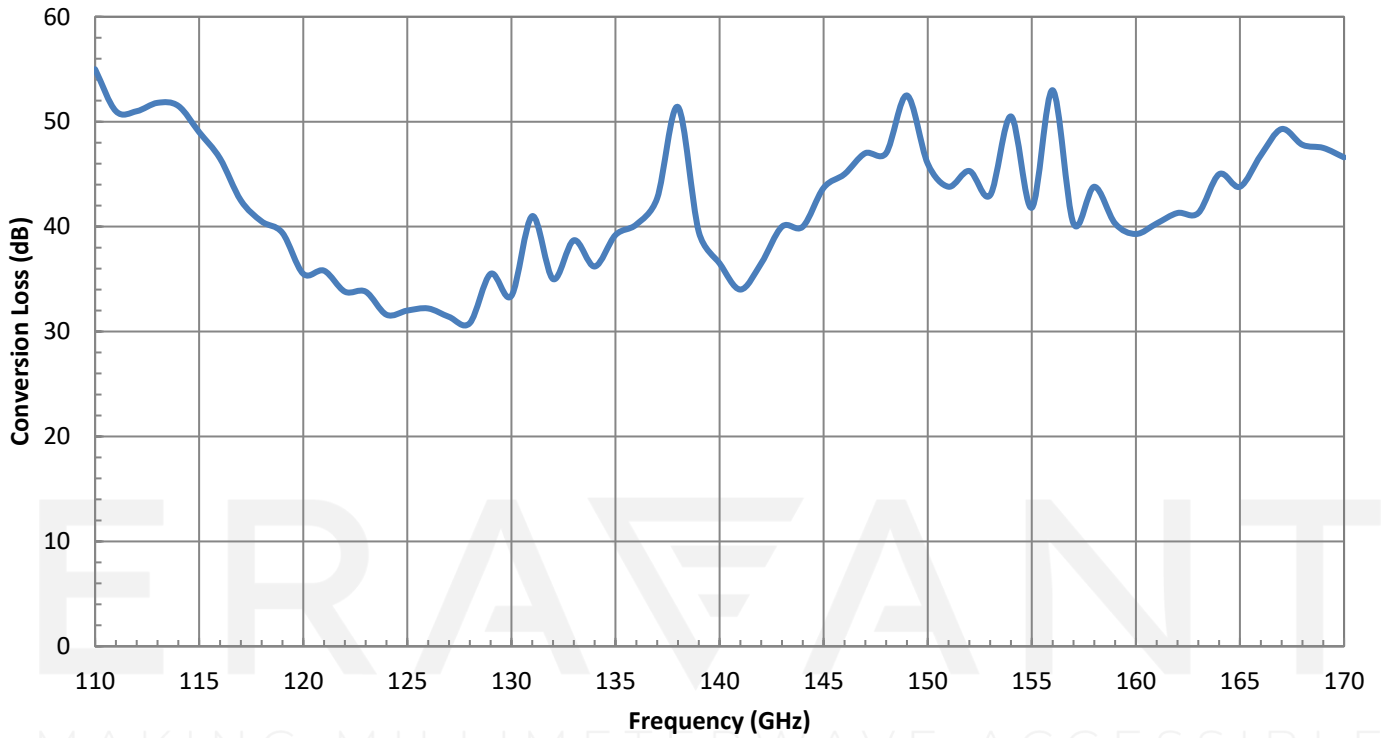
SUPPLEMENTAL DETAILS



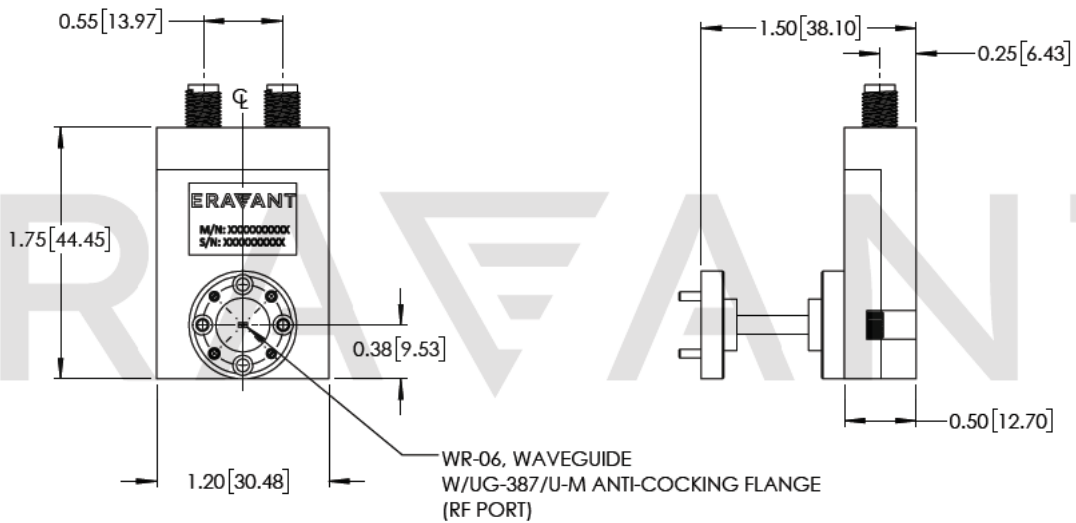
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Typical Conversion Loss vs. Frequency

$P_{RF} = -20$ dBm



Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



NOTE:

- All presented is collected from a sample lot. Actual data may vary from unit to unit slightly.
- All testing was performed under +25 °C.
- The harmonic mixer is for small signal detection. The recommended the RF power range is -10 dBm or below.
- The harmonic mixer work in any even harmonics of LO to yield the IF frequency in the range of DC to 1.3 GHz with different conversion loss.
- Eravant reserves the right to change the information presented without notice.

CAUTION:

- Exceeding absolute maximum ratings of the mixer will damage the device.
- Any foreign objects in the waveguide will degrade performance and/or damage the device.
- The mixer is a static sensitive device. Always follow ESD rules when working with the mixer.
- Eravant recommends the use of ESD wrist and ankle straps, grounded ESD dissipative surfaces, and air ionizers when handling the device
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). Torque wrench model [SCH-08008-S1](#) is highly recommended.

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