SFH-06SFSF-AB

D-Band Balanced Harmonic Mixer, 12th Harmonic

SFH-06SFSF-AB is a D-Band balanced harmonic mixer that is specially designed for use with separate LO and IF ports. The mixer employs high performance, GaAs Schottky diodes and a balanced configuration to produce a superior RF performance. With an IF range of DC to 1.6 GHz, the harmonic mixer uses the harmonic number 12 of a 9.17 to 14.17 GHz LO at +16 dBm to translate 110 to 170 GHz. The harmonic mixer has a typical conversion loss of 30 dB. The mixer can be used as other even harmonic numbers, such as 14, and 16 etc. with various conversion loss performance. In general, the lower the harmonics, the lower the conversion loss.

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	110 GHz		170 GHz
LO Frequency (12th Harmonic)	9.17 GHz		14.17 GHz
LO Frequency (14th Harmonic)	7.86 GHz		12.14 GHz
LO Frequency (16th Harmonic)	6.88 GHz		10.63 GHz
IF Frequency	DC		1.6 GHz
RF Power		-20 dBm	+19 dBm
LO Power		+16 dBm	+19 dBm
Harmonic Number		12	
Conversion Loss (12th Harmonic)		30 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
Outline	FH-D2-A-5

ECCN

3A001.b.7

FEATURES

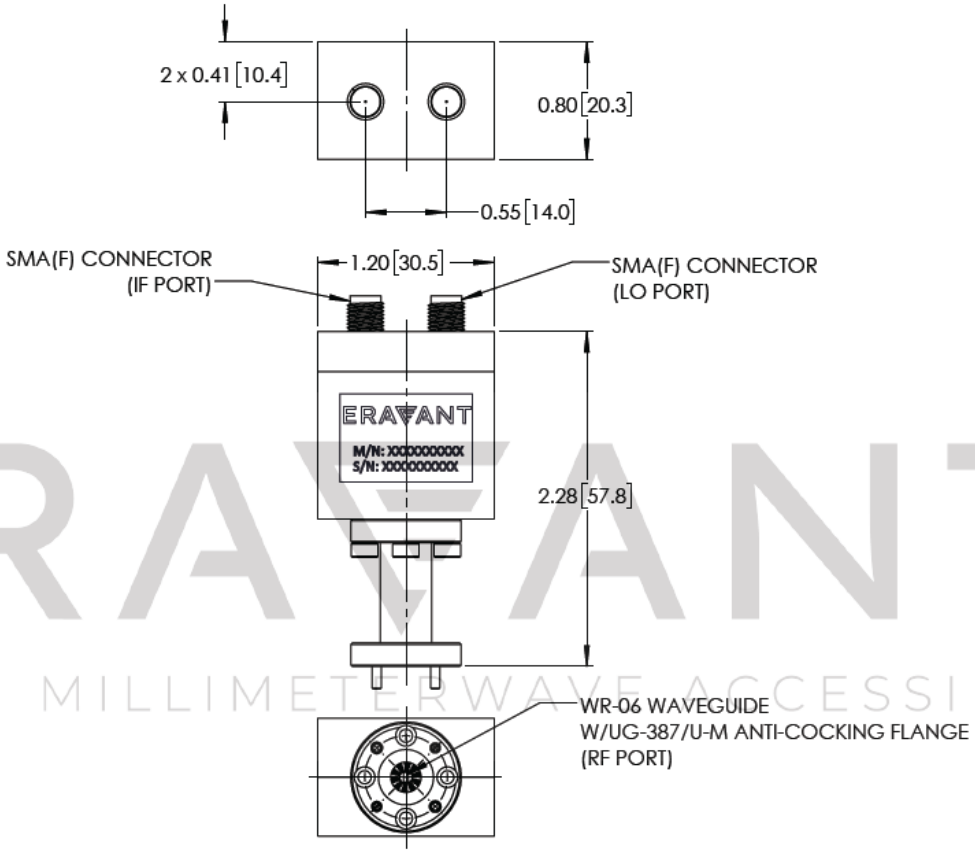
- Full Waveguide Band Operation
- No External Bias Required
- Even Harmonic Detection
- Calibrated for 12th Harmonic Detection

APPLICATIONS

- Spectrum Analyzers
- Frequency Meters
- Phase Locked Loops

SUPPLEMENTAL DETAILS

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



NOTE:

- The harmonic mixer is for small signal detection. The recommended the RF power range is -10 dBm or below.
- Conversion loss listed is for 12th harmonic. The harmonic mixer works in any even harmonics of LO to yield the IF frequency in the range of DC to 1.6 GHz with differing 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.