

## Balanced Harmonic Mixers, SFH Series



### FEATURES:

- ◆ Frequency coverage: 18 to 110 GHz
- ◆ Balanced configuration for low conversion loss
- ◆ Broad band operation
- ◆ Separate RF, LO and IF ports
- ◆ Standard temperature range: -10 to +60 °C

### APPLICATIONS:

- ◆ Frequency detections
- ◆ Phase lock loops
- ◆ Spectrum analyzers without built-in diplexer

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### DESCRIPTION:

**SFH series** balanced harmonic mixers are GaAs Schottky beamlead diode based mixers. The mixers employ broadband circuitry and balanced structure to offer low conversion loss and continuous frequency coverage for up to full waveguide band operations. These mixers are offered in seven common waveguide bands to cover the frequency range from 18 to 110 GHz. Unlike waveguide harmonic mixers (STH series), these mixers possess an integrated frequency diplexer internally so that the RF, LO and IF ports are separately configured. This feature allows a convenient connection ability when used with spectrum analyzer models without built-in diplexers, such as the models offered by Agilent Technologies.

### CATALOG MODELS:

Band	Model Number	RF Frequency Range (GHz)	Harmonic Number	IF Frequency Range (GHz)	LO Power (dBm)	Conversion Loss (dB)	Outline
K	SFH-42SFSF-S1	18.0 to 26.5	2, 4	DC to 4.0	13 to 16	15.0	FH-K1
Ka	SFH-28SFSF-S1	26.5 to 40.0	4, 6	DC to 4.0	13 to 16	20.0	FH-A1
Q	SFH-22SFSF-S1	33.0 to 50.0	4, 6, 8	DC to 4.0	13 to 16	25.0	FH-Q1
U	SFH-19SFSF-S1	40.0 to 60.0	6, 8, 10	DC to 4.0	13 to 16	25.0	FH-U1
V	SFH-15SFSF-S1	50.0 to 75.0	6, 8, 10, 12	DC to 4.0	13 to 16	30.0	FH-V1
E	SFH-12SFSF-S1	60.0 to 90.0	8, 10, 12, 14	DC to 4.0	13 to 16	35.0	FH-E1
W	SFH-10SFSF-S1	75.0 to 110	10, 12, 14, 16	DC to 4.0	13 to 16	40.0	FH-W1

### CUSTOM DESIGNED MODELS:

**Sage Millimeter's** custom designed balanced harmonic mixer model numbers are configured per following format. Customers may refer to the format and specify their own model numbers accordingly when placing the order.

**SFH- F1N F2N MM CL - CR CO CI - XY**

**F1N** is the start frequency of RF in MHz x 10N. For example: 26.0 GHz = 263

**F2N** is the end frequency of RF in MHz x 10N. For example: 40.0 GHz = 403

**MM** is the harmonic number. For example: 4th harmonic = 04

**CL** is the small signal conversion loss in dB. For example: 20 dB = 20

**CR** is the input connector type of RF port

**CO** is the connector type of LO port

**CI** is the connector type of IF port

**X** is for mixer type. "S" is for standard design and "C" is for custom designed.

**Y** is for factory reserve.

Example: SFB-2434030420-28SFSF-C1 is a custom designed harmonic mixer with RF frequency from 24.0 GHz to 40 GHz, harmonic number 4 and conversion loss 20 dB. The RF connector is WR-28 waveguide, LO connector is SMA(F) and IF connector is SMA(F). "1" is a factory assigned sequential number