

Passive Frequency Multipliers, SFP Series

FEATURES:

- ◆ Frequency coverage: 26.5 to 110 GHz
- ◆ Balanced configuration for high efficiency
- ◆ Full waveguide operation
- ◆ Low harmonic components
- ◆ No external bias required



APPLICATIONS:

- ◆ Frequency extenders
- ◆ Source modules
- ◆ Communication systems
- ◆ Radar systems

DESCRIPTION:

SFP series passive frequency multipliers are GaAs beam lead Schottky diode- or MMIC device-based multipliers. The multipliers employ a broadband circuitry and balanced structure to offer higher conversion efficiency and continuous frequency coverage for up to full waveguide band operations. The balanced design enhances the desired harmonic output and suppresses unwanted components. The waveguide output filters out the fundamental frequency naturally, which guarantees an excellent input and output signal isolation. Based on the large-signal, nonlinear characteristics of the resistive device, rich harmonics are generated once the RF power is applied. Hence, no external bias is required. The below standard offering covers the frequency range from 26.5 to 110 GHz. While full band models offer moderate output power, higher output powers with narrow bandwidths are available as custom models. Check the website for more models.

CATALOG MODELS:

Band	Model Number	Output Frequency Range (GHz)	M	Input Frequency Range (GHz)	Output Power (dBm)	Input Power (dBm)	Input/Output Connectors	Outline
Ka	SFP-282SF-S1	26.5 to 40.0	2	13.25 to 20.00	+5.0	+19.0	SMA(F)/WR-28	FP-AS2
Ka	SFP-283SF-S1	26.5 to 40.0	3	8.83 to 13.33	+4.0	+23.0	SMA(F)/WR-28	FP-AS3
Q	SFP-222SF-S1	33.0 to 50.0	2	16.50 to 25.00	+7.0	+20.0	K(F)/WR-22	FP-QK3
Q	SFP-223SF-S1	33.0 to 50.0	3	11.00 to 16.67	+3.0	+22.0	SMA(F)/WR-22	FP-QS3
U	SFP-192KF-S1	40.0 to 60.0	2	20.00 to 30.00	+5.0	+20.0	K(F)/WR-19	FP-UK2
U	SFP-193SF-S1	40.0 to 60.0	3	13.33 to 20.00	+2.0	+20.0	SMA(F)/WR-19	FP-UK3
V	SFP-152KF-S1	50.0 to 75.0	2	25.00 to 37.50	+5.0	+20.0	K(F)/WR-15	FP-VK2
V	SFP-15228-S1	50.0 to 75.0	2	25.00 to 37.50	+4.0	+20.0	WR-28/WR-15	FP-VA2
V	SFP-153KF-S1	50.0 to 75.0	3	16.67 to 25.00	+1.0	+20.0	K(F)/WR-15	FP-VK3
E	SFP-1222F-S1	60.0 to 90.0	2	30.00 to 45.00	+5.0	+17.0	2.4 mm(F)/WR-12	FP-E22
E	SFP-123KF-S1	60.0 to 90.0	3	20.00 to 30.00	+3.0	+20.0	K(F)/WR-12	FP-EK3
W	SFP-1022F-S1	75.0 to 110.0	2	37.50 to 55.00	+3.0	+16.0	2.4 mm(F)/WR-10	FP-W22
W	SFP-10328-S1	75.0 to 110.0	3	25.00 to 36.67	+0.0	+20.0	WR-28/WR-10	FP-WA3

CUSTOM MODELS:

SAGE Millimeter's passive frequency multiplier model numbers are configured per the following format. Customers may refer to the format and specify their own model numbers accordingly when placing an order.

SFP - F1N F2N M PO - CO CI - XY

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

F2N is the output stop frequency in MHz x 10N. For example: 40.0 GHz = 403

M is the multiplying factor. For example: X3 = 3

PO is the output power in dBm. For example: 2 dBm = 02

CO is the output connector type and CI is the input connector type. For example: WR-15 = 15

X is the package type. "S" is for a standard package and finish and "C" is for a custom design.

Y is for factory reserve.

Example: SFP-703903305-12KF-S1 is a X3 passive frequency multiplier with an output frequency range of 70 to 90 GHz and output power of +5 dBm. The passive multiplier has a WR-12 waveguide at the output, a female K connector at the input and a standard package and finish. "1" is a factory assigned number.

Active Frequency Multipliers, SFA Series

FEATURES:

- ◆ Frequency coverage: 26.5 to 98 GHz
- ◆ High efficiency and higher output power
- ◆ Up to full waveguide operation
- ◆ Low harmonic components



APPLICATIONS:

- ◆ Frequency extenders
- ◆ Source modules
- ◆ Communication systems
- ◆ Radar systems

DESCRIPTION:

SFA series active frequency multipliers are GaAs beam lead Schottky diode- or MMIC device-based multipliers. The multipliers employ a broadband circuitry design to offer continuous frequency coverage for up to full waveguide band operations. These multipliers are designed and constructed to enhance the desired harmonic output and suppress unwanted components. The waveguide output filters out the fundamental and lower frequency components naturally, which guarantees an excellent input and output signal isolation. The below standard offering covers the frequency range of 26.5 to 98 GHz and requires a bias voltage of +8.0 Volts. While full band or broadband models offer moderate output power, models with a higher output power or narrow bandwidth are available as custom designs. Check the website for more models.

CATALOG MODELS:

Band	Model Number	Output Frequency Range (GHz)	M	Input Frequency Range (GHz)	Output Power (dBm)	Input Power (dBm)	Input/Output Connectors	Outline
Ka	SFA-282SF-S1	26.5 to 40.0	2	13.25 to 20.00	20.0	+0.0	SMA(F)/WR-28	FA-SC-4
Ka	SFA-283SF-S1	26.5 to 40.0	3	8.67 to 13.33	20.0	+5.0	SMA(F)/WR-28	FA-SC-4
Ka	SFA-284SF-S1	26.5 to 40.0	4	6.63 to 10.00	20.0	+5.0	SMA(F)/WR-28	FA-SC-4
Q	SFA-222KF-S1	37.0 to 45.0	2	18.50 to 22.25	20.0	+5.0	K(F)/WR-22	FA-SQ-1
Q	SFA-224SF-S1	37.0 to 45.0	4	9.25 to 11.25	20.0	+5.0	SMA(F)/WR-22	FA-SQ-1
U	SFA-192KF-S1	45.0 to 55.0	2	22.50 to 27.50	18.0	+5.0	K(F)/WR-19	FA-SU-4
U	SFA-194SF-S1	45.0 to 55.0	4	11.25 to 13.75	18.0	+5.0	SMA(F)/WR-19	FA-SU-4
V	SFA-152KF-S1	50.0 to 66.0	2	25.00 to 33.00	16.0	+5.0	K(F)/WR-15	FA-SV-1-1.8
V	SFA-154KF-S1	50.0 to 66.0	4	12.50 to 16.50	16.0	+0.0	K(F)/WR-15	FA-SV-1-1.8
E	SFA-123KF-S1	72.0 to 90.0	3	24.00 to 30.00	8.0	+5.0	K(F)/WR-12	FA-SE-1-1.8
E	SFA-126SF-S1	72.0 to 90.0	6	12.00 to 15.00	9.0	+0.0	SMA(F)/WR-12	FA-SE-1-1.8
W	SFA-104KF-S1	90.0 to 98.0	4	22.50 to 24.50	18.0	+5.0	K(F)/WR-10	FA-SW-1-1.8
W	SFA-106SF-S1	90.0 to 98.0	6	15.00 to 16.33	18.0	+5.0	SMA(F)/WR-10	FA-SW-1-1.8

CUSTOM MODELS:

SAGE Millimeter's active frequency multiplier model numbers are configured per the following format. Customers may refer to the format and specify their own model numbers accordingly when placing an order.

SFA - F1N F2N M PO - CO CI - XY

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

F2N is the output stop frequency in MHz x 10N. For example: 40.0 GHz = 403

M is the multiplying factor. For example: X3 = 3

PO is the output power in dBm. For example: 20 dBm = 20

CO is the output connector type and CI is the input connector type. For example: WR-15 = 15

X is the package type. "S" is for a standard package and finish and "C" is for a custom design.

Y is for factory reserve.

Example: SFA-503603420-15SF-S1 is a X4 active frequency with an output frequency range of 50 to 60 GHz and output power of 20 dBm. The active multiplier has a WR-15 waveguide at the output, female SMA connector at the input port, and a standard package and finish. "1" is a factory assigned number.