

Subharmonically Pumped Up-converters, SFV Series

FEATURES:

- ◆ Frequency coverage: 18 to 110 GHz
- ◆ Balanced configuration for low conversion loss
- ◆ Up to full waveguide band operation
- ◆ LO frequency at half of RF frequency
- ◆ Standard temperature range: -10 to +60 °C



APPLICATIONS:

- ◆ Communication systems
- ◆ Radar systems
- ◆ Test instrumentations

DESCRIPTION:

SFV series subharmonically pumped up-converters are GaAs Schottky beamlead diode and MMIC based mixers. The subharmonically pumped up-converters are widely used in many communication systems where superior harmonic and spurious performance are concerned. In addition, these up-converters have extremely low LO signal leakage at RF port. Furthermore, the LO frequency at the half of the RF frequency reduces the system cost tremendously.

The subharmonically pumped up-converters are offered in seven common waveguide bands to cover the frequency range from 18 to 110 GHz. The catalog models employ broadband circuitry and balanced structure to offer low conversion loss and harmonics products for close to the full waveguide band operation. The typical instantaneous RF bandwidth of these up-converters are 75% of the bandwidth of waveguide bands. Although non biased version is the baseline design, externally biased option is available upon request. While catalog models' focus is on broader bandwidth operation for the general applications, narrow bandwidth custom designed models are optimized to meet customers' specific applications needs.

CATALOG MODELS:

| Band | Model Number | RF Frequency Range (GHz) | LO Frequency Range (GHz) | IF Frequency Range (GHz) | C. L. (dB) | LO Power (dBm) | Port Isolation (dB) | RF/LO Connectors | Outline |
|------|--------------|--------------------------|--------------------------|--------------------------|------------|----------------|---------------------|------------------|---------|
| K | SFV-42-N1 | 18.0 to 26.5 | 9.0 to 13.25 | DC to 5.0 | 12.5 | 10 to 15 | 15.0 | WR-42/SMA(F) | FS-K1 |
| Ka | SFV-28-N1 | 26.5 to 40.0 | 12.25 to 20.0 | DC to 5.0 | 13.5 | 10 to 15 | 15.0 | WR-28/K(F) | FS-A1 |
| Q | SFV-22-N1 | 33.0 to 50.0 | 16.5 to 25.0 | DC to 5.0 | 14.5 | 10 to 15 | 15.0 | WR-22/K(F) | FS-Q1 |
| U | SFV-19-N1 | 40.0 to 60.0 | 20.0 to 30.0 | DC to 5.0 | 15.0 | 10 to 15 | 15.0 | WR-19/K(F) | FS-U1 |
| V | SFV-15-N1 | 50.0 to 75.0 | 25.0 to 37.5 | DC to 5.0 | 16.0 | 10 to 15 | 15.0 | WR-15/K(F) | FS-V1 |
| E | SFV-12-N1 | 60.0 to 90.0 | 30.0 to 45.0 | DC to 5.0 | 16.0 | 10 to 15 | 15.0 | WR-12/2.4(F) | FS-E1 |
| W | SFV-10-N1 | 75.0 to 110 | 37.5 to 55.0 | DC to 5.0 | 17.0 | 10 to 15 | 15.0 | WR-10/V(F) | FS-W1 |

Note: These models will operate in the frequency range indicated, but not full band operation. Order custom designed models when specific frequency range is concerned.

CUSTOM DESIGNED MODELS:

Sage Millimeter's custom designed subharmonically pumped 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.

SFV - RFN LON CL - CR CO CI - XY

RFN is the center frequency of RF in MHz x 10N. For example: 58.0 GHz = 583

LON is the center frequency of LO in MHz x 10N. For example: 29.0 GHz = 293

CL is the small signal conversion loss in dB. For example: 14 dB = 14

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. "N" is for non external biased and "E" is for external biased.

Y is for factory reserve.

Example: SFV-58329314-15KFSF-N1 is a custom designed subharmonically pumped up-converter with RF frequency centered at 58.0 GHz and LO frequency centered at 29.0 GHz, conversion loss 14 dB. The RF connector is WR-15 waveguide, LO connector is K(F) and IF connector is SMA(F) connector. It is a non external biased up-converter. "1" is a factory assigned sequential number.