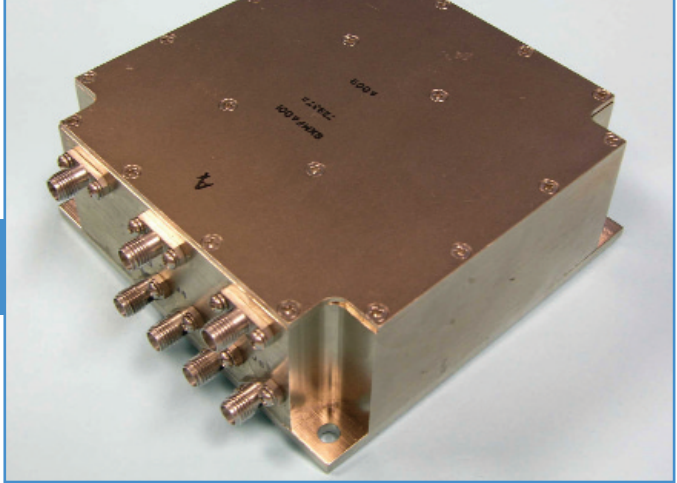


# Frequency Multipliers

## X4, X8 Multiplication

### SPECTRUM MICROWAVE



Spectrum Microwave offers a line of low noise frequency multipliers based on multiple passive doubler/amplifier combinations. These custom designed assemblies cover input frequency ranges of 5 to 500 MHz with output frequencies in the range of 100 to 1000 MHz. Narrowband or broadband devices are available. Additive phase noise testing ensures low phase noise/jitter performance. All internal amplifiers and doublers are contained in rugged TO-8 hermetic packages for excellent performance over military environmental conditions.

#### Features

- Low additive noise (-146 dBc/Hz 10 KHz offset X8 multiplication)
- Low harmonic and sub harmonic content (-60 dBc)
- Low discrete Spurious (-75 dBc integrated over a 10 MHz Bandwidth)
- High reliability (200,000 hour MTBF Naval Sheltered)

#### Optional Features

- Output filtering
- Digital ECL outputs (single or differential)
- Built in test power detectors
- Internal voltage regulation

#### Typical Performance Characteristics

<i>Input Frequency Range</i>	.....	5 – 500 MHz
<i>Output Frequency Range</i>	.....	100 – 1000 MHz
<i>Bandwidth</i>	.....	2%
<i>Pin</i>	.....	10 dBm
<i>Pout</i>	.....	0 dBm
<i>ECL Differential Delay</i>	.....	≥ 100 ps
<i>Harmonics</i>	.....	≤ -50 dBc
<i>Sub-Harmonics</i>	.....	≤ -70 dBc
<i>Phase Noise</i>	.....	1 KHz ..... -146 dBc/Hz
(Referenced to Input)	10 KHz	..... - 158 dBc/Hz
	100 KHz	..... -158 dBc/Hz
<i>Input Power</i>	.....	+5 VDC and +15 VDC @ 60 mA
<i>Package Size</i>	.....	4" x 4" x 1.5"

