



Characteristics

- ◆ Second and Third Harmonic of LO
- ◆ Low Conversion Loss

Product Description

QuinStar Series QHS mixers operate at second or third harmonic of the Local Oscillator frequency with a low conversion loss. Hence, the LO frequency is either one half or one third of the RF signal in the applicable waveguide band. These mixers offer the advantage of a relatively low frequency Local Oscillator (compared to a fundamental mixer) while providing a reasonably low conversion loss and/or noise figure, typically between 9 and 15 dB. They generally operate over full waveguide RF band, and over a considerable broad LO frequency range and wide IF range. These mixers are particularly suited for applications that employ a millimeter wave low-noise amplifier (LNA) at the front end of the receiver, thus establishing a low noise figure, which is not significantly influenced by the conversion loss of the mixer that follows. Subharmonic Local Oscillators are significantly lower in cost, and can be

more readily implemented using lower frequency sources. Typical subharmonic LO power is 10-15 dBm.

QuinStar provides an external diplexer as an integral part of the Series QHS mixers. However, QuinStar can provide customized configuration to suit specific needs. These mixers may be optimized over a narrow RF range and fixed LO to achieve better conversion loss. QuinStar can also produce mixers at higher frequencies (beyond 110 GHz) for high frequency subharmonic LO receivers.

QuinStar series QHS mixers find numerous applications in frequency extenders, broadband receivers, test equipment and instrumentation, EW receivers, and MMW communication links.

Specifications

Model Number	QHS-V2	QHS-V3	QHS-E2	QHS-E3	QHS-W2	QHS-W3
Waveguide Band	WR-15	WR-15	WR-12	WR-12	WR-10	WR-10
RF Frequency Range ¹ , GHz	50-75	50-75	60-90	60-90	75-110	75-110
LO Frequency Range ² , GHz	25-37.5	16.7-25	30-45	20-30	37.5-55	25-36.7
Harmonic Number ¹	2	3	2	3	2	3
Conversion Loss, dB	9-15	10-17	9-15	10-17	9-16	10-18
IF Range ³ , GHz	0.1 to 4 GHz					

¹ Other harmonic numbers and RF ranges are possible. Please contact QuinStar with your exact requirements.

² Typical LO power required is between 10 and 15 dBm. Conversion loss has some dependence on LO power level.

³ Higher IF frequency offered as an option.

Ordering Information

