

Revised November 2015

DESCRIPTION

The HBM series of broadband balanced mixers covers the waveguide bands from 26.5– 110 GHz. They utilize a low loss structure mated to a matched pair of GaAs Schottky beam lead diodes for minimum conversion loss and maximum bandwidth. Superior LO noise suppression and LO-RF isolation values are inherent design features.

Biased versions are available for use with lower LO drive levels. Related components also available from HXI include LO frequency multipliers and Gunn oscillators/VCOs. An upconverter version of this mixer is available as series HBUC. (These mixers are not reciprocal and cannot operate as upconverters.)



Applications

Frequency Converters

Signal Processing

General RF Detection

Receiver Front Ends

Frequency Measurement

Features

High IF Bands

Low LO Drive Level

Compact Design

Low Conversion Loss



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Model Number	Frequency* (GHz)	Waveguide	SSB Conversion Loss (typ) Narrowband, Fixed LO, Low IF		SSB Conversion Loss (typ) Wideband, Swept LO, High IF
			RF Bandwidth	Loss	Loss (typical)
HBM28	26.5 - 40.0	WR – 28	3 GHz	6.0 dB	8.0 dB
HBM22	33.0 - 50.0	WR – 22	3 GHz	6.0 dB	9.0 dB
HBM19	40.0 - 60.0	WR – 19	2 GHz	6.5 dB	9.5 dB
HBM15	50.0 - 75.0	WR – 15	7 GHz	6.5 dB	9.5 dB
HBM12	60.0 - 90.0	WR – 12	5 GHz	7.0 dB	10.0 dB
HBM10	75.0 – 110.0	WR – 10	4 GHz	7.0 dB	10.0dB

Specifications @ 35⁰C T_{CASE}. Specifications subject to change w/o notice.

*Please specify desired RF, LO and IF frequency ranges when inquiring about balanced mixers.



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Balanced Mixer Outlines



Ka-Band Balanced Mixer



V-Band Balanced Mixer

12 Lancaster County Road, Harvard, Massachusetts 01451 Tel: (978) 772-7774 FAX: (978) 772-7775 <u>MMWcomponents@hxi.com</u> Visit us on the web at <u>www.hxi.com</u>



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Balanced Mixer Outlines



E-Band Balanced Mixer



W-Band Balanced Mixer

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General Specifications

LO to RF Isolation	20 dB typical		
VSWR (RF, LO, IF)	2.0:1 typical		
LO Drive Level (P _{LO}) unbiased	+13 dBm nominal		
LO Drive Level, biased	+7 dBm nominal		
Input P _{1dB} compression point	+3 dBM @ 60 GHz		
P _{RF} Maximum	0 dBm @94 GHz		
Diode Bias (option)	+6.0 VDC @ 30 mA		

Requesting quotes

When requesting a quote for HBM Balanced Mixers, please specify required RF, LO and IF frequency ranges and any other required specifications. HBM mixers are built to order and will be optimized for the bandwidths specified by the customer. The part number guide below can also be used as a reference for requesting quotes.

HBM 28 05 B-XXX



For UG-383/U Flange in B & U bands - add /383 after options

IF Frequency Band Options:

01 (10-100 MHz)	02 (10-500 MHz)	03 (10-1000 MHz)	04 (10-1500 MHz)
05 (1-4 GHz)	06 (1-6 GHz)	08 (1-8 GHz)	L (1-2 GHz)
S (2-4 GHz)	C (4-8 GHz)	X (8-12.4 GHz)	

Others IF bands available upon request.

Please note that full band units (RF & LO) do not operate with an IF frequency above 100 MHz.