

HC148

WR-15 hybrid circulator



MicroHarmonics

Superior mm-Wave Components

Specifications

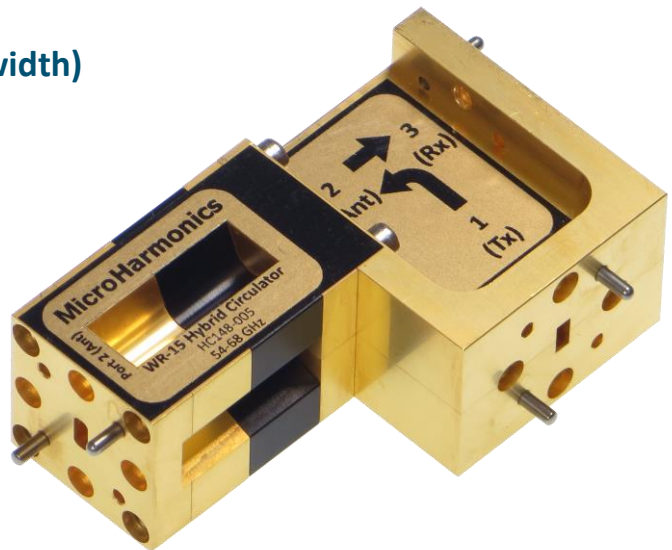
Flange	WR-15
Frequency (GHz)	54-68
Insertion Loss (dB, avg)	0.6
Insertion Loss (dB, max)	1.3
Isolation [S_{12}] (dB, typ min)	21
Isolation [S_{23}] (dB, typ min)	22
Isolation [S_{31}] (dB, typ min)	19
Return Loss (dB, typ min)	17
VSWR (typ max)	1.35:1
Maximum Power (W)	5

WR-15 Hybrid Circulator

The patent-pending hybrid circulator is designed for wideband millimeter wave applications. The hybrid circulator is an innovative technology, combining an orthomode transducer with a Faraday rotator to achieve more than twice the bandwidth of the traditional Y-junction. Every circulator is tested on a vector network analyzer to ensure conformity and the test data is provided to the customer.

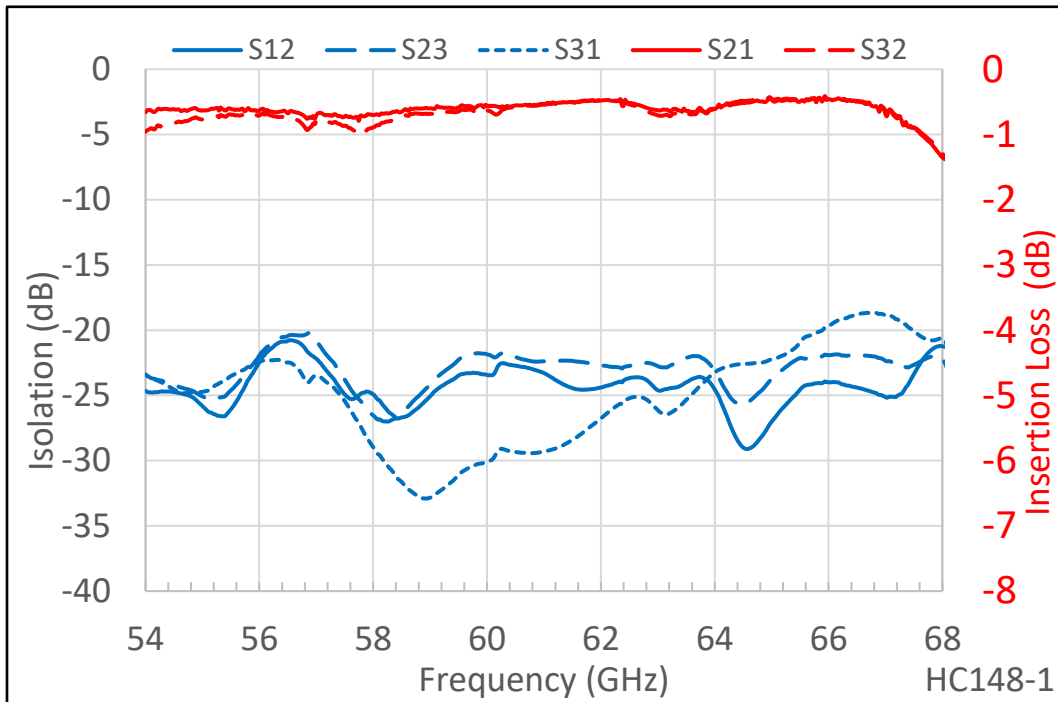
54-68 GHz Bandwidth

- ◆ Wideband (24% fractional bandwidth)
- ◆ Internal waveguide screw access
- ◆ Anti-cocking waveguide flanges
- ◆ Resists stray magnetic fields
- ◆ Comprehensive test data
- ◆ Low insertion loss
- ◆ Diamond heatsink
- ◆ Patent pending

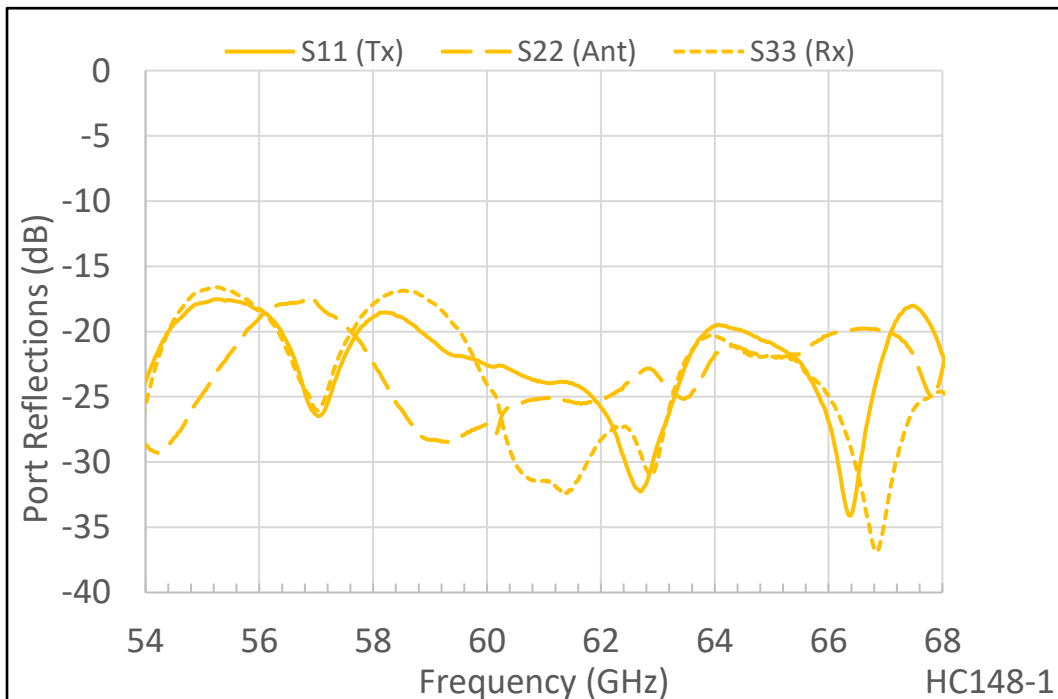




Insertion Loss and Isolation



Port Reflections



HC148

WR-15 hybrid circulator

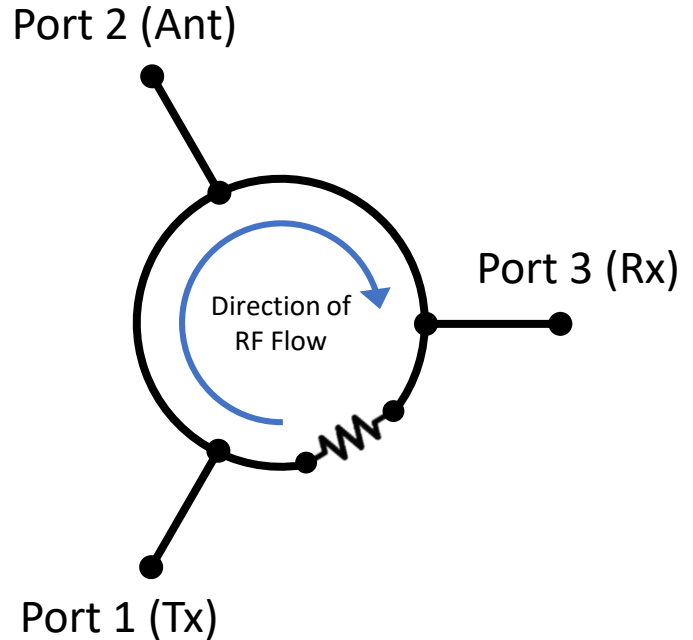


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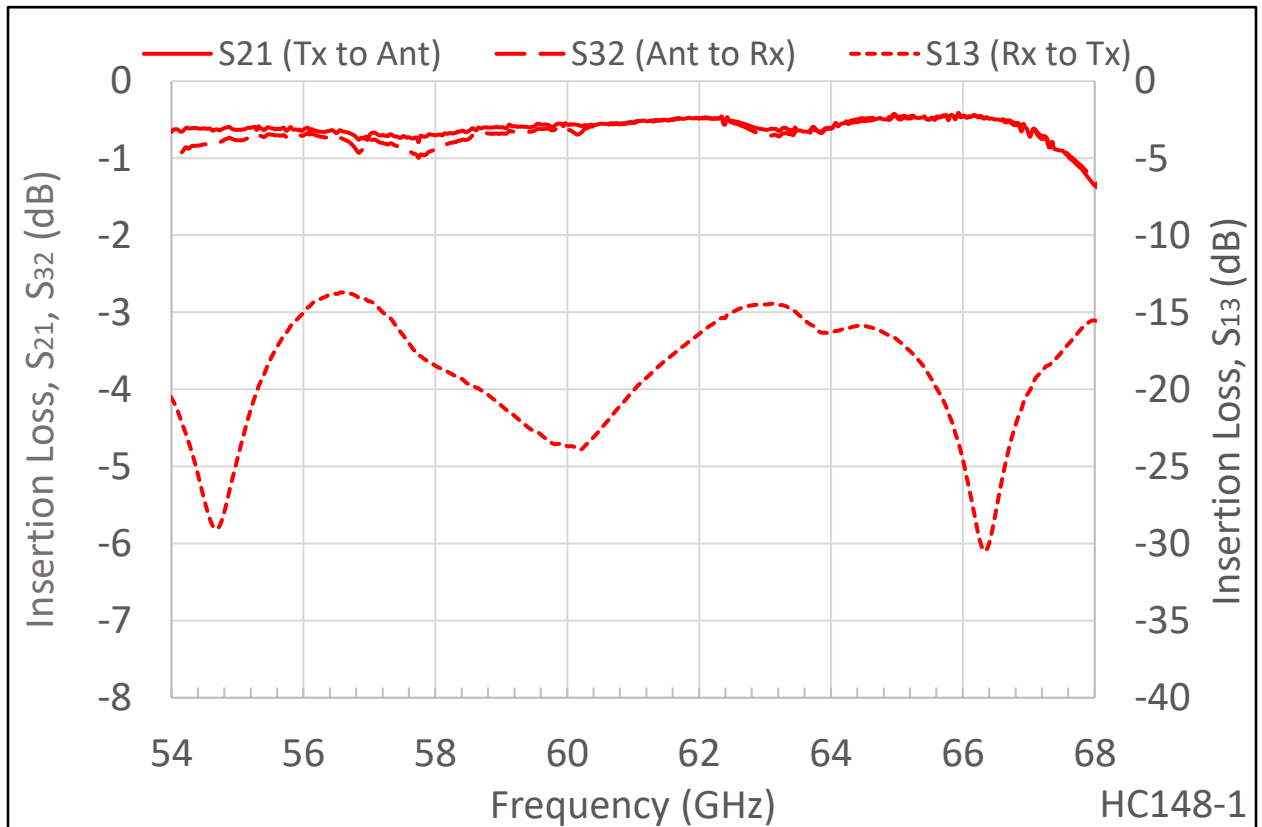
Superior mm-Wave Components

Asymmetry

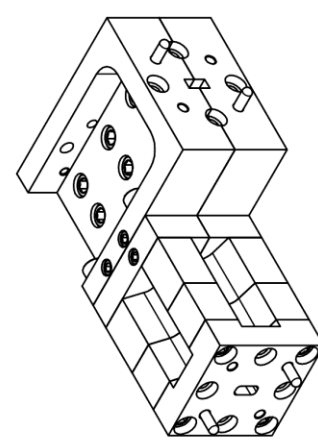
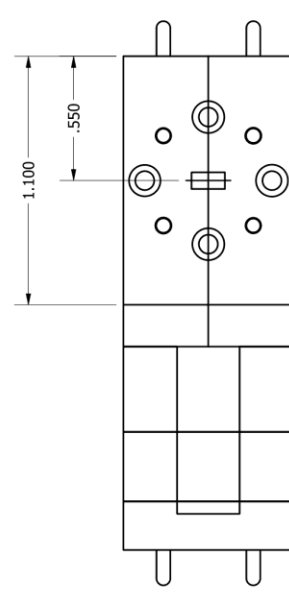
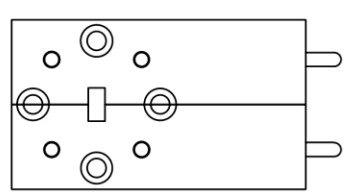
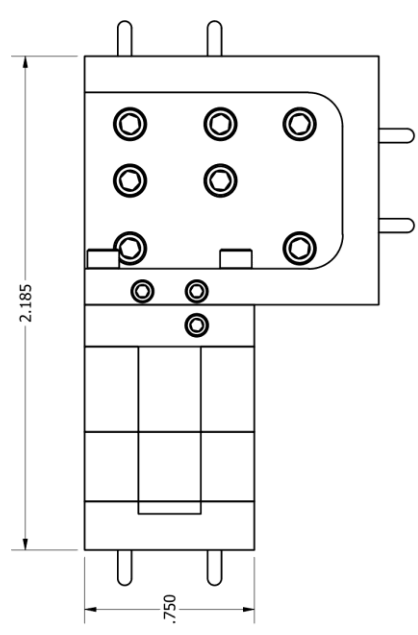
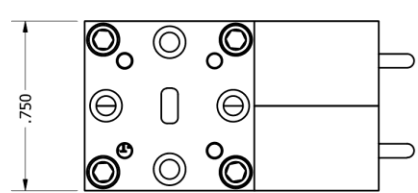
Unlike the Y-junction circulator, the hybrid circulator is asymmetric. The path from port 3 to port 1 is internally attenuated as shown in the schematic to the right and verified by the S_{13} trace in the measured data below. On request, the hybrid circulator can be assembled in a way that restores the symmetry if needed.



Asymmetric Insertion Loss



Micro Harmonics	Proprietary - Micro Harmonics Corporation		REVISION HISTORY		1	
	Date	10/28/2022	ZONE	REV		DATE
					10/28/2022	SCS
				DESCRIPTION		
				RELEASE FOR CUSTOMER		



PART NUMBER - DESCRIPTION		MATERIAL & FINISH:		1	
HC148 Dimension Drawing		HC148			
FLANGES:	UG-383/U	DWG. UNITS:	INCHES	2	
		DRAWN BY:	SCS		
		SIZE:	B	3	
		PAGE NUMBER:	1 of 1		
		APPROVAL:	JTK - 10/28/2022	4	
Micro Harmonics Corporation 20 S Roanoke St. Ste 202 Fincastle, VA 24090 ph. 540.473.9983 fax 844.449.1561				REV:	5