

HC51

WR-5.1 hybrid circulator



MicroHarmonics

Superior mm-Wave Components

Specifications

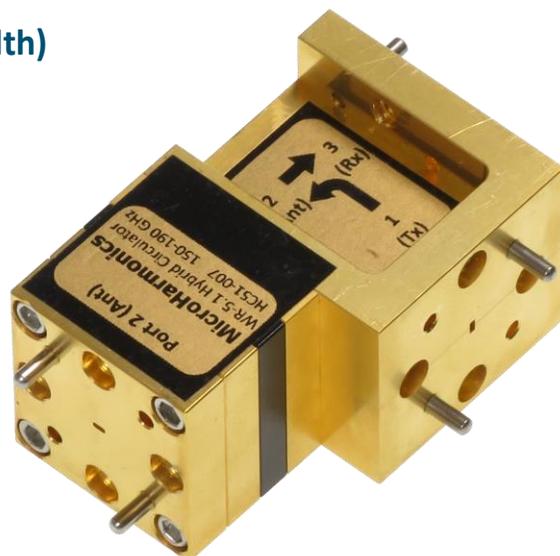
Flange	WR-5.1
Frequency (GHz)	150-190
Insertion Loss (dB, avg)	1.8
Insertion Loss (dB, max)	3.7
Isolation [S_{12}] (dB, typ min)	20
Isolation [S_{23}] (dB, typ min)	20
Isolation [S_{31}] (dB, typ min)	16
Return Loss (dB, typ min)	13
VSWR (typ max)	1.6:1
Maximum Power (W)	2

WR-5.1 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 an order of magnitude greater bandwidth than 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.

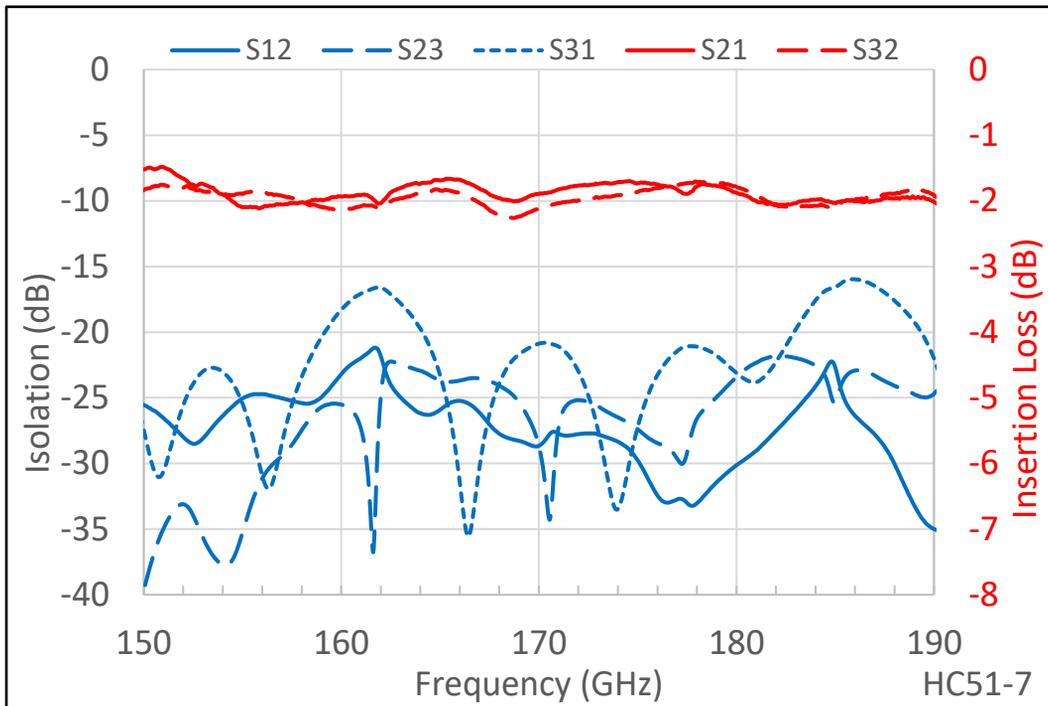
150-190 GHz Bandwidth

- ◆ 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

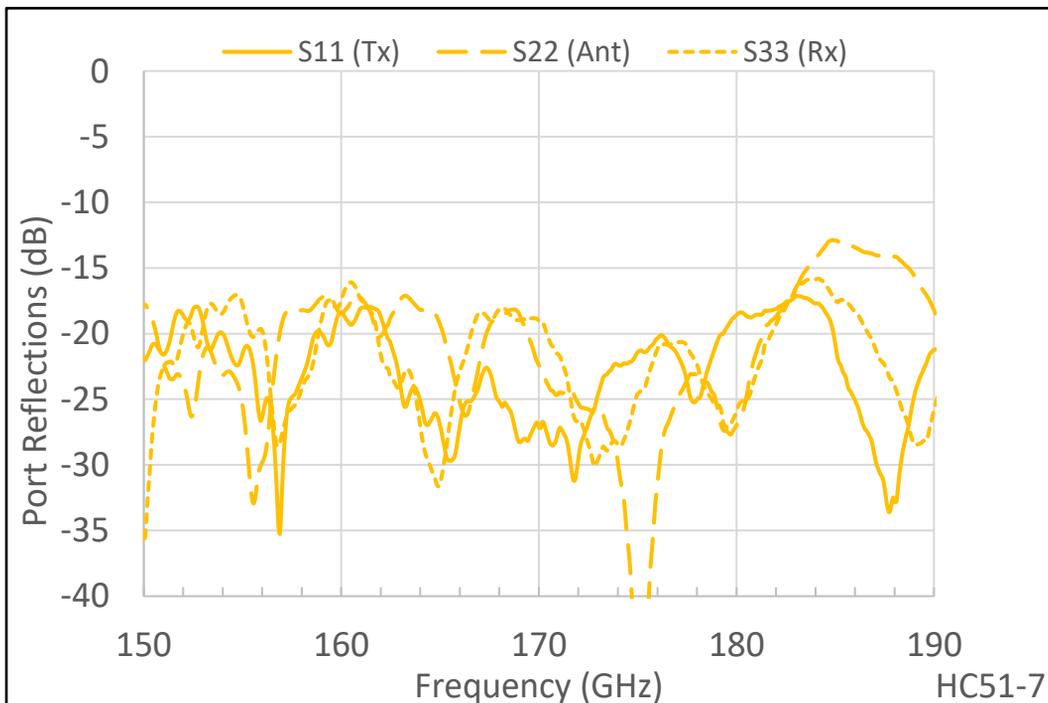




Insertion Loss and Isolation



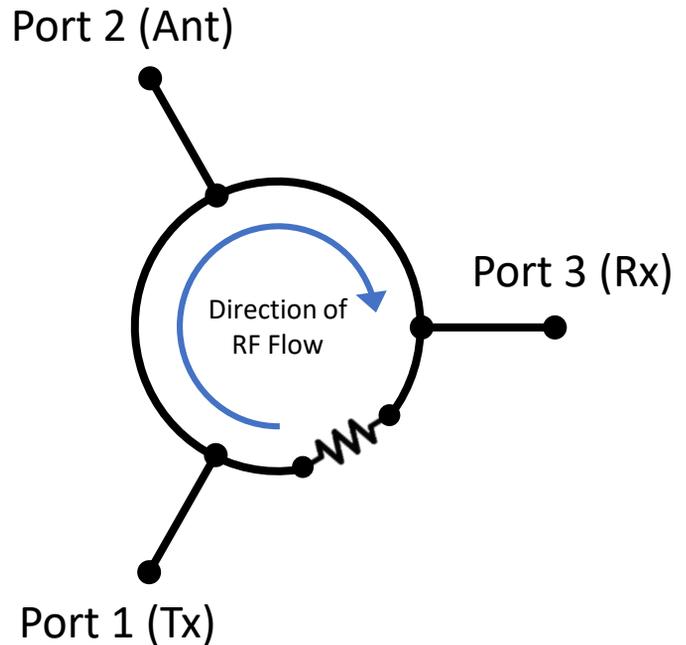
Port Reflections



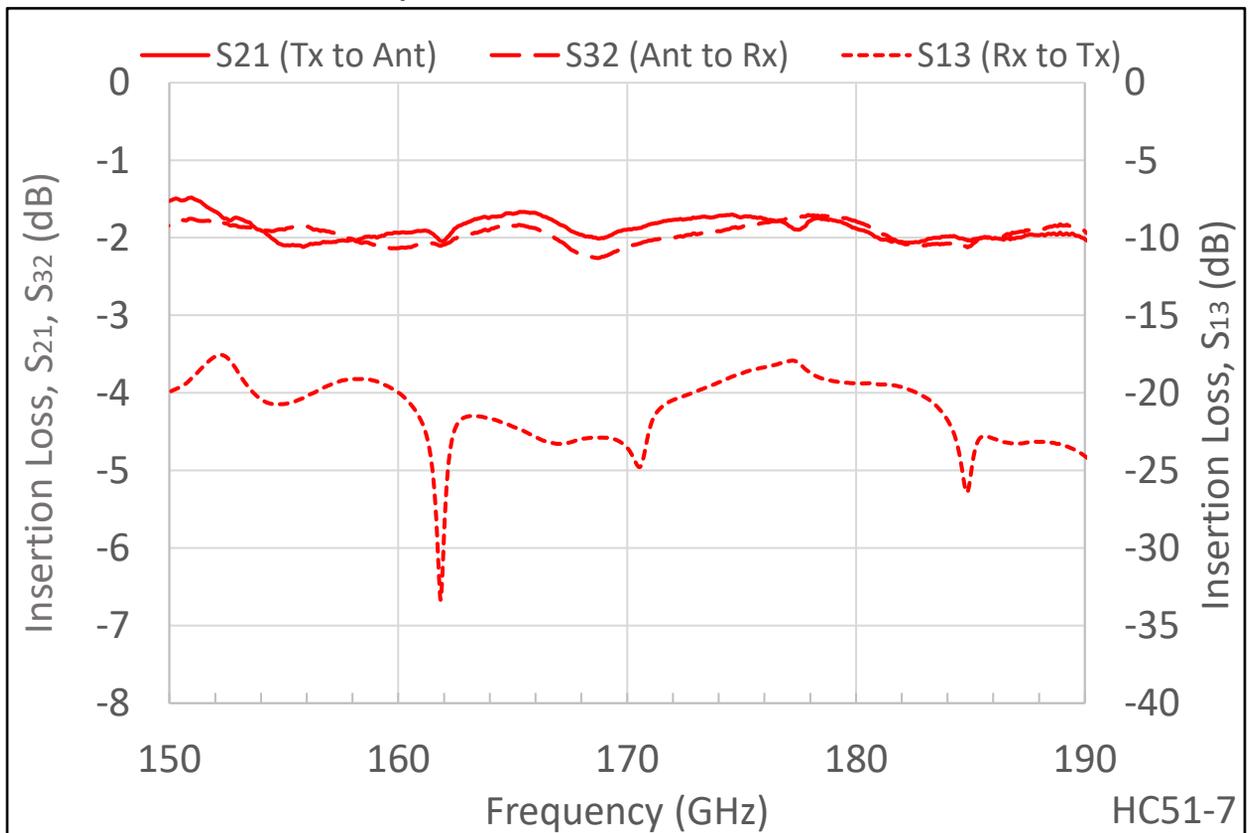


Asymmetry

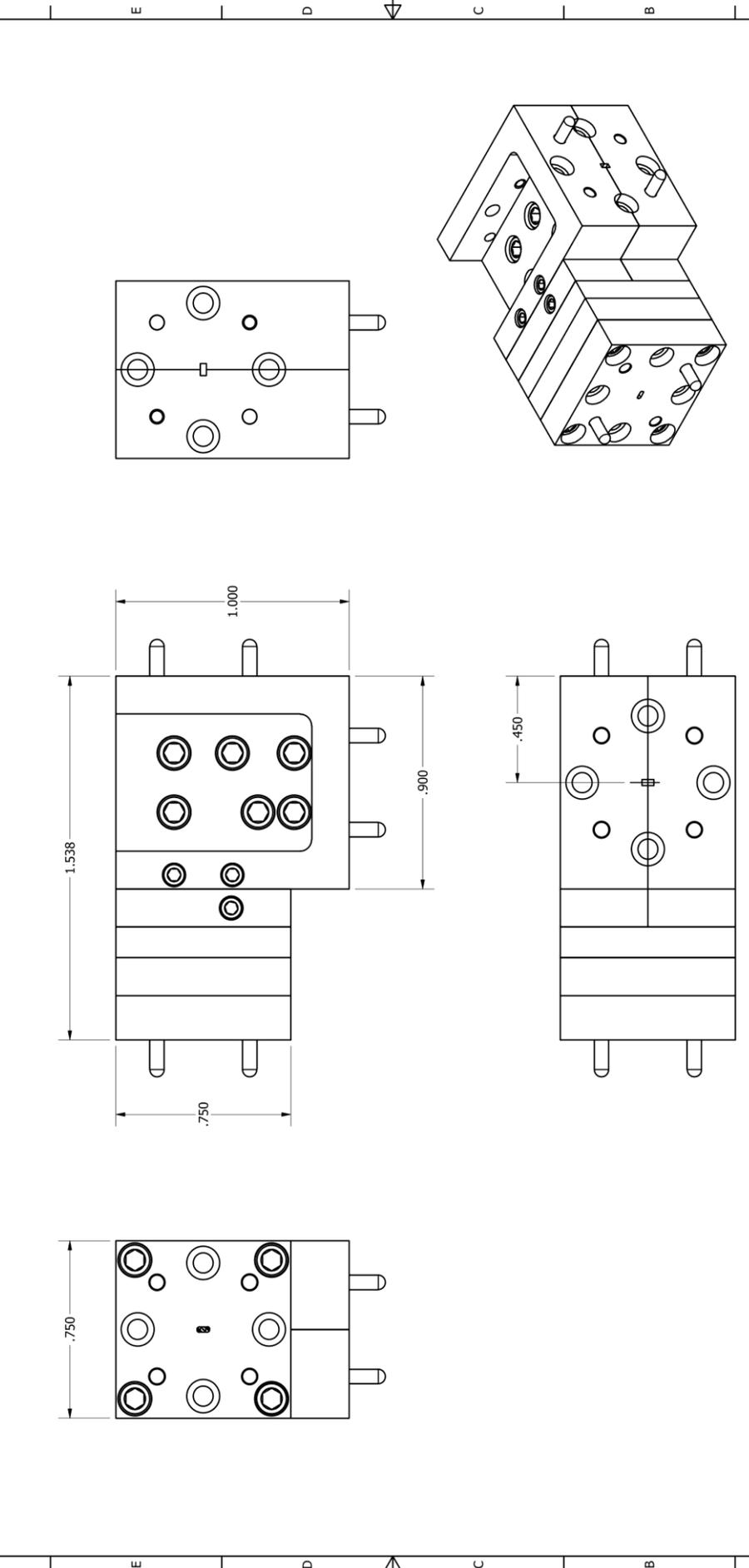
Unlike the Y-junction circulator, the hybrid circulator is asymmetric. The path from port 3 to port 1 is internally attenuated as shown in the schematic to the right and verified by the S_{13} trace in the measured data below. On request, the hybrid circulator can be assembled in a way that restores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



Asymmetric Insertion Loss



Micro Harmonics	Proprietary - Micro Harmonics Corporation		REVISION HISTORY		DATE		APPROVED		
	Date		DESCRIPTION		11/8/2022		SCS		
				RELEASE FOR CUSTOMER					



PART NUMBER - DESCRIPTION		Micro Harmonics Corporation		DATE		APPROVED	
HCS1 Dimension Drawing		20 S Roanoke St. Ste 202		11/8/2022		SCS	
DEVICE: HCS1		Fincastle, VA 24090					
DRAWING UNITS: INCHES		DRAWN BY: SCS		PH: 540-473-9983		REV: -	
SIZE: B		PAGE NUMBER: 1 of 1		FAX: 844-449-1561			
APPROVAL: JTK - 11/8/2022							