HC51

WR-5.1 hybrid circulator

MicroHarmonics
Superior mm-Wave Components

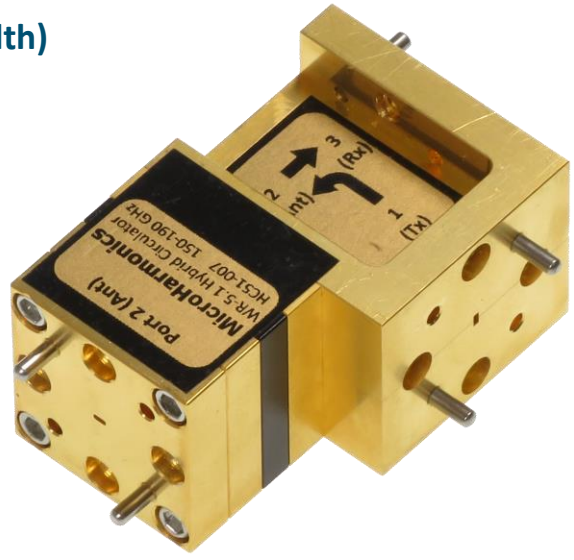
Specifications	
Flange	WR-5.1
Frequency (GHz)	150-190
Insertion Loss (dB, typ)	2.2
Insertion Loss (dB, max)	3
Isolation (dB, typ)	21
Return Loss (dB, typ)	21
VSWR (max)	1.6:1
Maximum Power (W)	1.0
Diamond Heatsink	Yes

WR-5.1 Hybrid Circulator

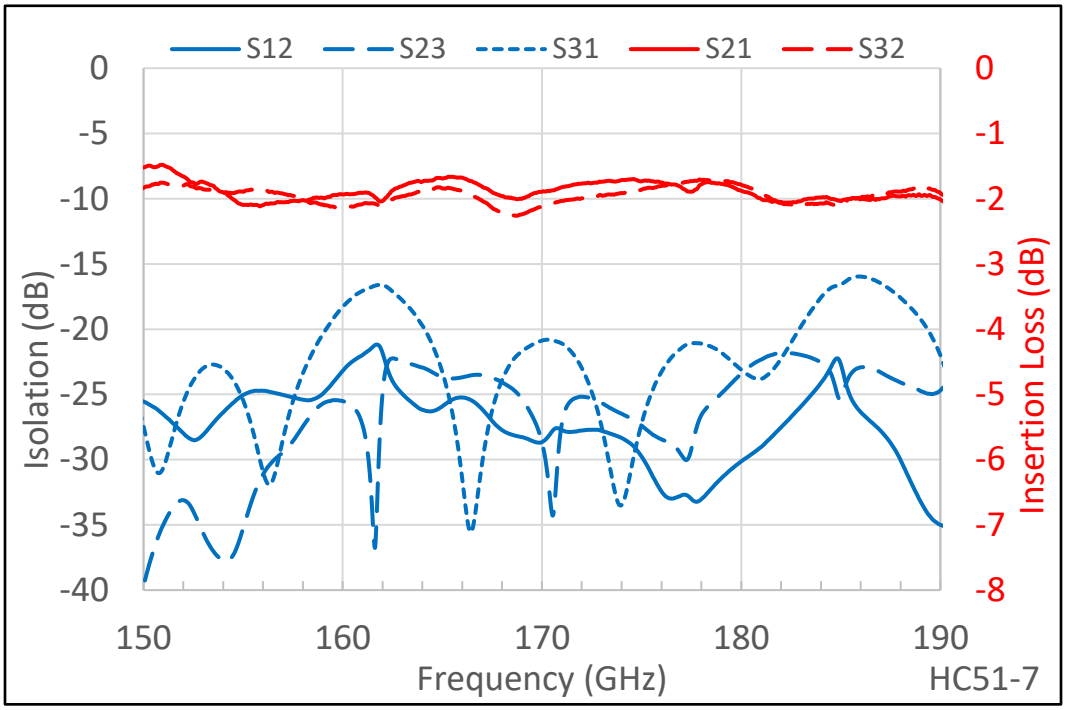
The patent-pending hybrid circulator is designed for wideband millimeter wave transmit/receive systems. The hybrid circulator is an innovative technology, combining an orthomode transducer with a Faraday rotator to achieve an order of magnitude of the bandwidth of the traditional Y-junction design. Every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

150-190 GHz Bandwidth

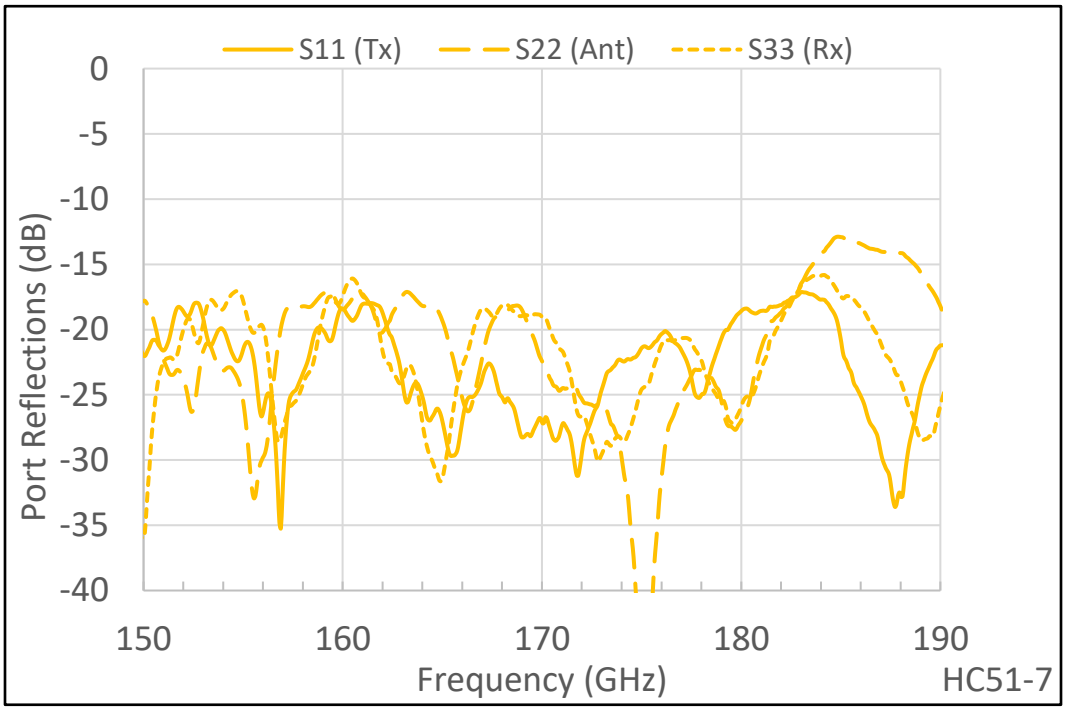
- **Wideband (24% fractional bandwidth)**
- **Internal waveguide screw access**
- **Anti-cocking waveguide flanges**
- **Resists stray magnetic fields**
- **Comprehensive test data**
- **Low insertion loss**
- **Patent pending**



Insertion Loss and Isolation

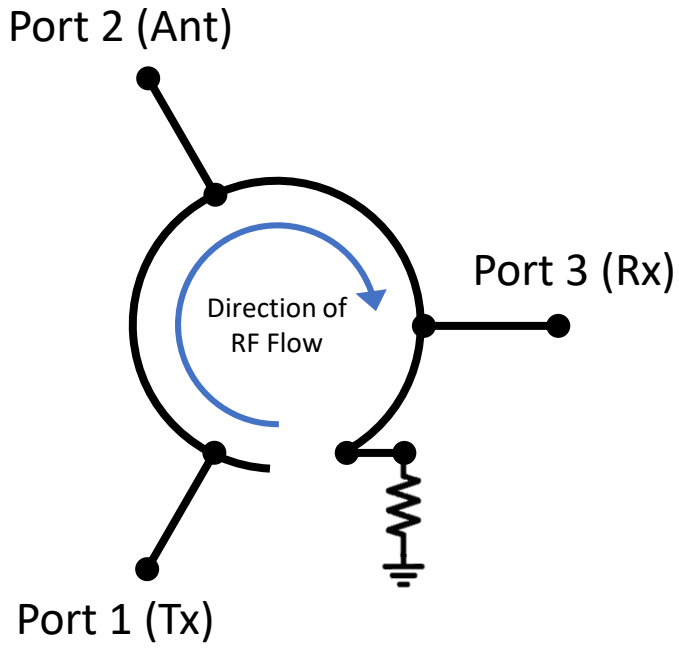


Port Reflections

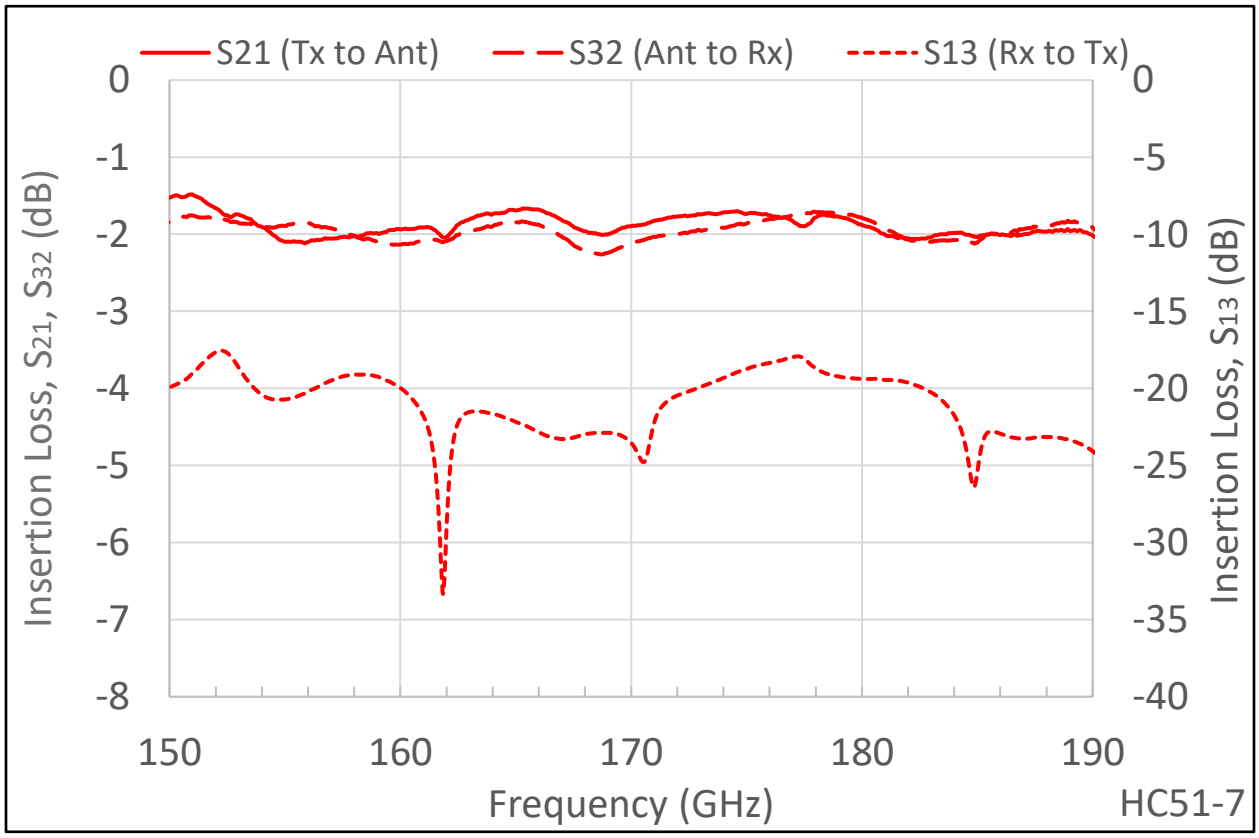


Asymmetry

Unlike the Y-junction circulator, the hybrid circulator is asymmetric. The path from port 3 to port 1 is internally terminated 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.



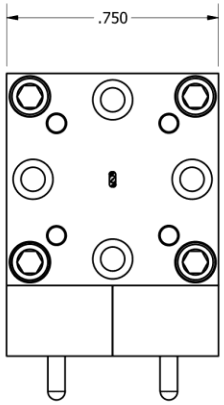
Asymmetric Insertion Loss

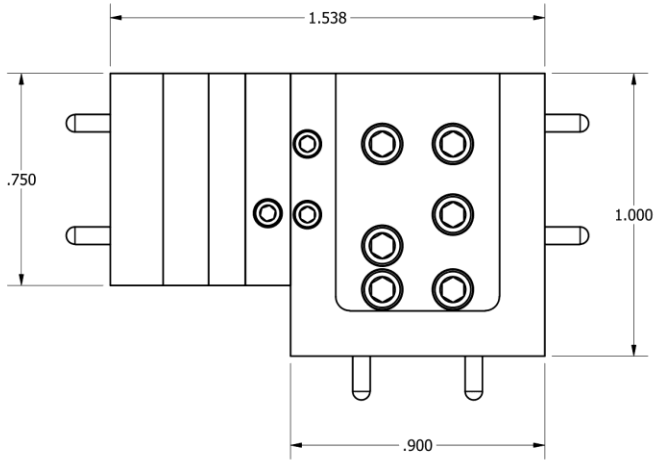


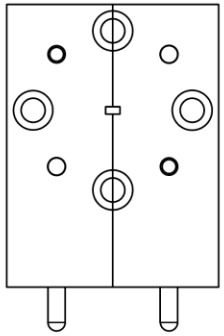
Micro Harmonics	Proprietary - Micro Harmonics Corporation
	Date 11/8/2022

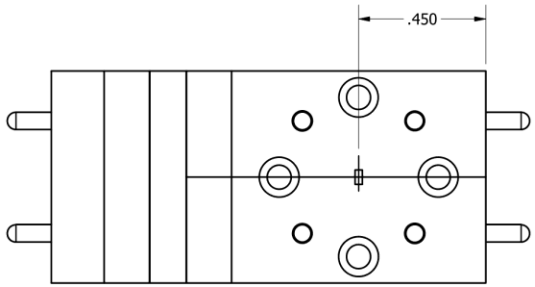
REVISION HISTORY

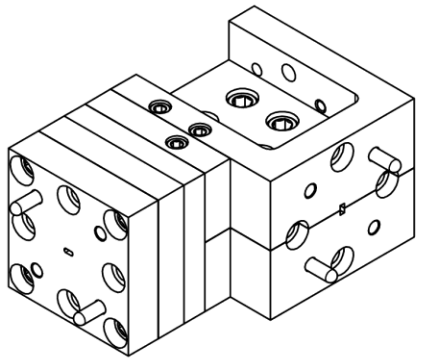
ZONE	REV	DESCRIPTION	DATE	APPROVED
	-	RELEASE FOR CUSTOMER	11/8/2022	SCS











PART NUMBER - DESCRIPTION					
HC51 Dimension Drawing					
DEVICE:	DWG. UNITS:	DRAWN BY:	SIZE:	PAGE NUMBER:	
HC51	INCHES	SCS	B	1 of 1	
APPROVAL	JTK - 11/8/2022				

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REV: -