

HC65

WR-6.5 hybrid circulator



MicroHarmonics

Superior mm-Wave Components

Specifications

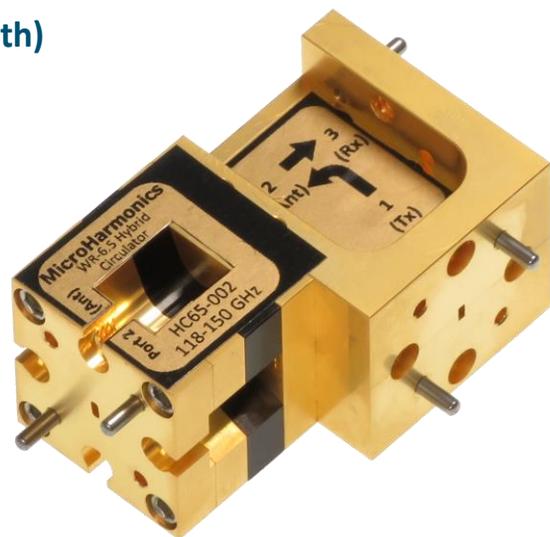
Flange	WR-6.5
Frequency (GHz)	118-150
Insertion Loss (dB, avg)	1.0
Insertion Loss (dB, max)	1.8
Isolation [S_{12}] (dB, typ min)	23
Isolation [S_{23}] (dB, typ min)	23
Isolation [S_{31}] (dB, typ min)	18
Return Loss (dB, typ min)	16
VSWR (typ max)	1.4:1
Maximum Power (W)	3

WR-6.5 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 seven times 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.

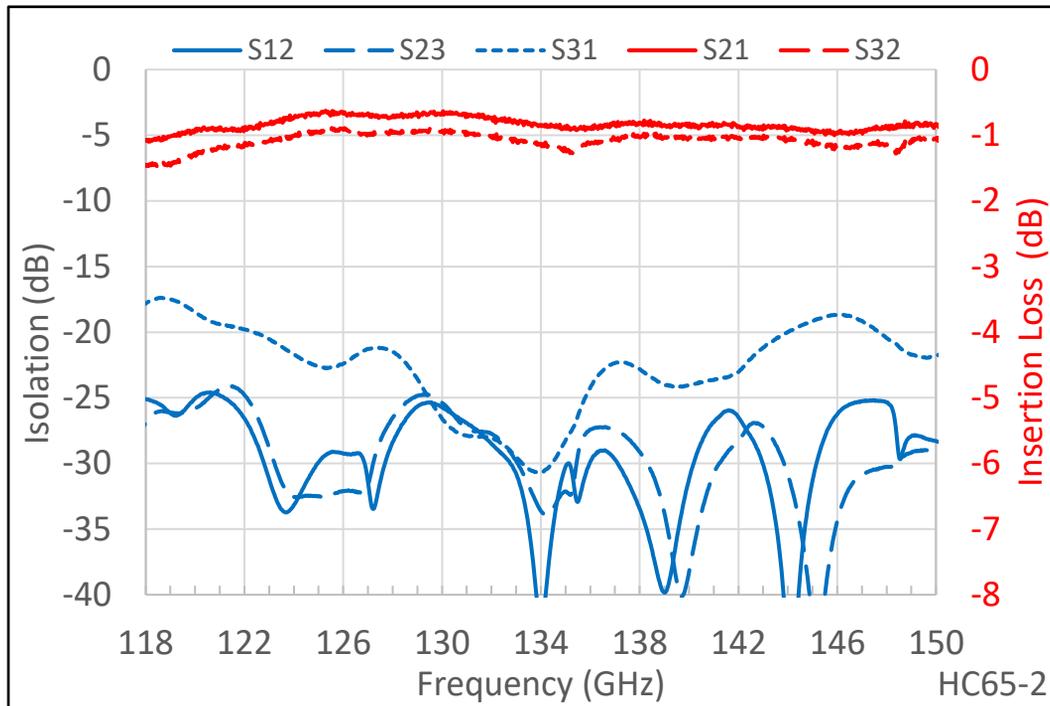
118-150 GHz Bandwidth

- ◆ 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

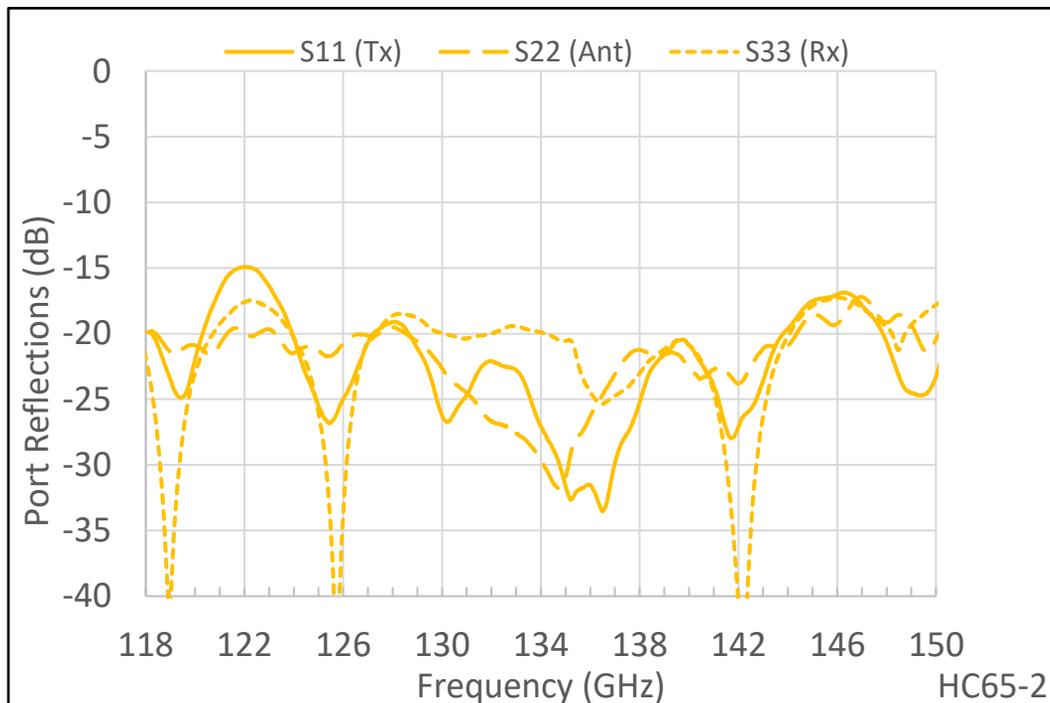




Insertion Loss and Isolation



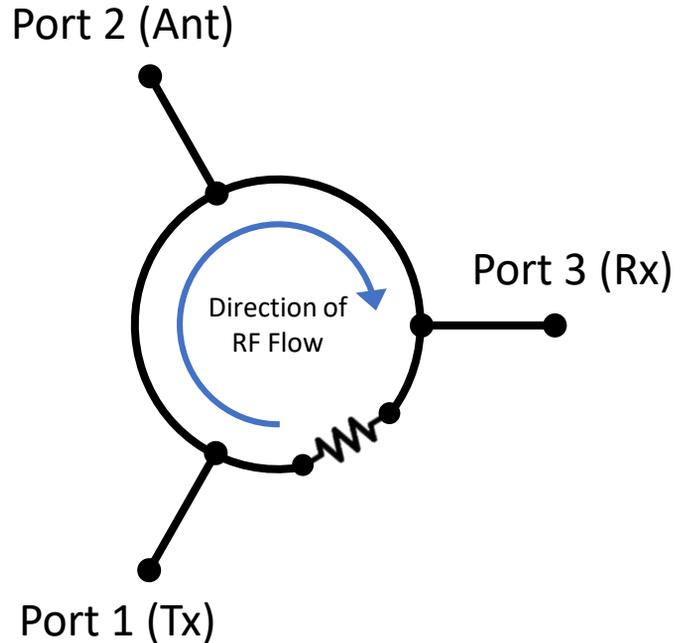
Port Reflections



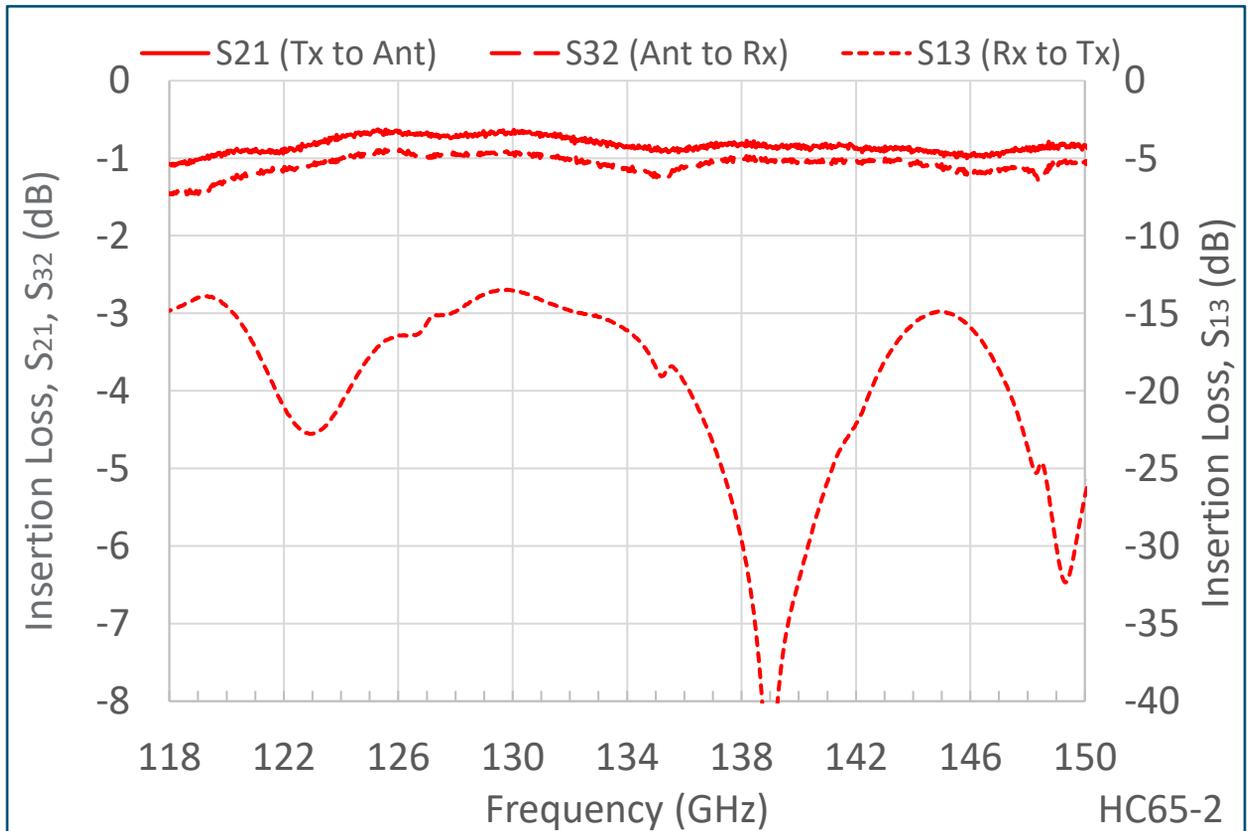


Asymmetry

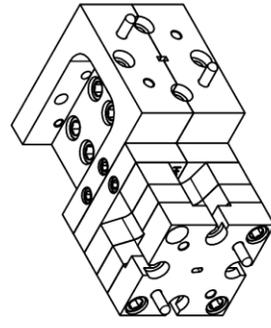
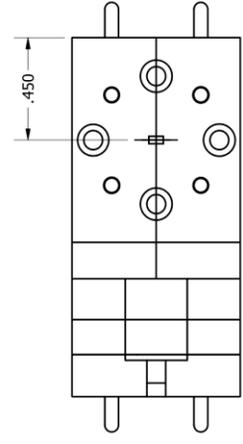
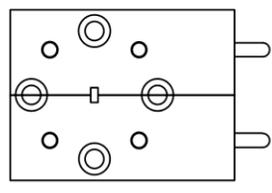
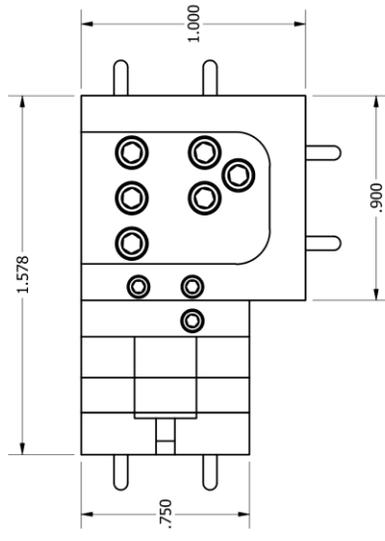
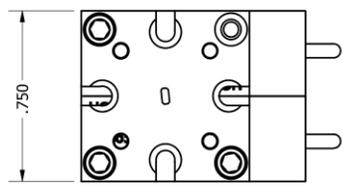
Unlike the Y-junction circulator, the hybrid circulator is asymmetric. The path from port 3 to port 1 is internally attenuated as shown in the schematic to the right and verified by the S_{13} trace in the measured data below. On request, the hybrid circulator can be assembled in a way that restores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



Asymmetric Insertion Loss



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		Date 4/21/2023		Date 4/21/2023		2	
5	A	ZONE REV -		REVISION HISTORY		3	
		APPROVED SCS		DESCRIPTION		4	
		RELEASE FOR CUSTOMER		DATE 4/21/2023		5	



PART NUMBER - DESCRIPTION		MATERIAL & FINISH		1	
HC65 Dimension Drawing		HC65		2	
FLANGES:	UG-383/U	DWG. UNITS:	INCHES	SCS	3
DRAWN BY:	JTK	SIZE:	B	PAGE NUMBER:	1 of 1
APPROVAL:	JTK - 4/21/2023			4	
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