

Rev:A00

Cryogenic Circulator (single junction)



The cryogenic circulator is a ferrite device that operate in the 4-8 GHz frequency range. Its design meets the strict requirements of ultra-low temperature physics research, exhibiting excellent performance down to 10mK. The circulator loss is kept as low as possible to ensure the generation of minimal thermal noise.

Technical requirements

Item	Specifications
Model	CIRG00811A005
Frequency range	4-8GHz
Return loss	$\geq 20\text{dB}@6.5-7.5\text{GHz}(300\text{K})$ $\geq 18\text{dB}@4-8\text{GHz}(300\text{K})$ $\geq 18\text{dB}@6.5-7.5\text{GHz}(77\text{K})$ $\geq 16\text{dB}@4-8\text{GHz}(77\text{K})$
Insertion loss	$\leq 0.4\text{dB}@300\text{K}$ $\leq 0.8\text{dB}@77\text{K}$
Isolation	$\geq 18\text{dB}@6.5-7.5\text{GHz}(300\text{K})$ $\geq 16\text{dB}@4-8\text{GHz}(300\text{K})$ $\geq 17\text{dB}@6.5-7.5\text{GHz}(77\text{K})$ $\geq 15\text{dB}@4-8\text{GHz}(77\text{K})$
Temperature	10mK-300K
Connector	SMA-F

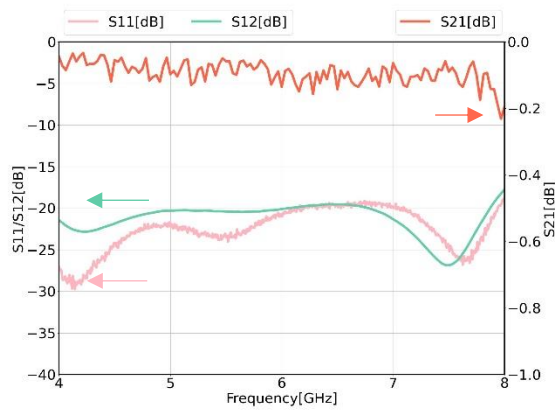
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Material and surface

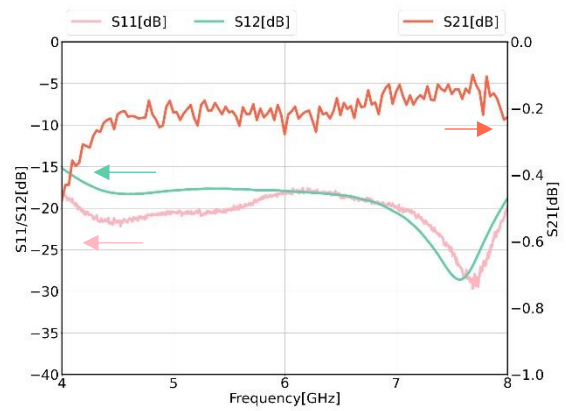
	Item	Material	Surface
SMA connector	Outer connector	Brass	Gold plated
	Center conductor	Beryllium bronze	Gold plated
	Connector-dielectric	PTFE	/
	Cavity	Brass	Gold plated
	Shielding shell	Mumetal alloy	Non-magnetic gold plated

Test Results

Measure data, $T_{amb}=300K$



Measure data, $T_{amb}=77K$



Outline drawing (Unmarked tolerance: $\pm 0.1mm$)

