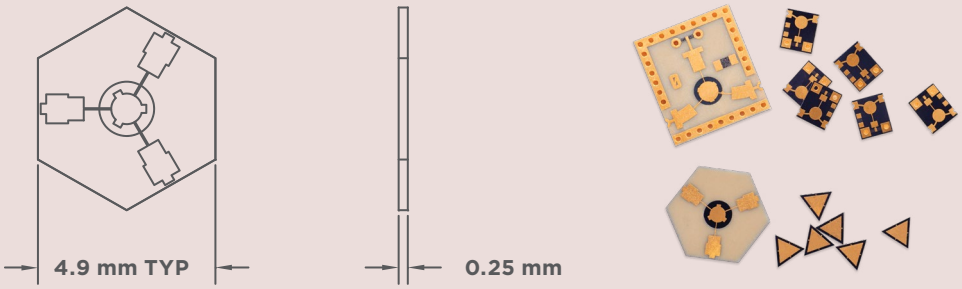
METAMAGNETICS

KA-BAND SELF BIASED CIRCULATORS AND ISOLATORS

Typical Circulator Dimensions



Features

PROBLEM	SOLUTION
Size: The biasing magnet of traditional circulators and isolators can be up to 90% of the component size.	Metamagnetics circulators have no magnet, producing smaller components, allowing more space to adapt circulators and isolators for higher frequency.
Weight: Missiles, UAV's, and space systems are weight-sensitive to the gram, and the magnets associated with traditional circulators exacerbate this problem.	Metamagnetics has achieved a 95% reduction in component weight with the self-biased design by eliminating the dependency of the rare-earth biasing magnet.
Resistance: To avoid interference with the circuitry, a traditional circulator has its magnet attached by a weak epoxy. This creates a significant problem in any application with high shock or vibration.	Metamagnetics self-biased circulators have been tested to survive over 50,000 Gs enabling new communication platforms for small form factor munitions.
Economical: The manufacturing process can be inefficient and costly.	Metamagnetics has re-engineered the product design enabling the removal of the costly steps in the manufacturing process.

Options

- Lower center frequencies with slightly reduced performance
- Rectangular footprint with Y or T port configurations
- Termination options for isolators include small integrated termination or high-power dc-isolated meander-line terminations
- Ground vias for coplanar waveguide launches
- Surface mount or connectorized

Mounting

These self-biased circulators and isolators can be mounted to a housing or printed circuit board using conductive epoxy or solder. Metamagnetics works with your specific process temperature profiles ensuring magnetic stability of the devices.

Electrical interconnects can be implemented using wire bonds or ribbons. Metamagnetics can design your circulator or isolator to absorb some or all of your bond wire or ribbon inductance.

Self-biased High Frequency Circulators/Isolators

	Frequency Range (GHz)	BW	Insertion Loss (dB)	Isolation (dB)	Avg. Power (W)	I/O	Production or Development	Operating Temp (°C)	Storage Temp (°C)	Hex Layout Size Dimension C and D		Square Layout Size Dimension A and B	
										C	D	A	B
Circulator	27-29	full	0.8	15	4	GSG chip+wire	Production	-25 to +65	-55 to +145	0.060"	0.120"		
Circulator	33-37	full	0.8	15	4	GSG chip+wire	Production	-25 to +65	-55 to +145	0.060"	0.120"		
Circulator or Isolator	38.4-40	full	1.2	15	4	SMT	Production	-25 to +55	-55 to +145			0.080"	0.070"
Circulator or Isolator	26.5-40	up to 15%	Call for info										
Circulator or Isolator	65-110	up to 20%	Call for info										
Circulator or Isolator	26.6-29.2	full	1.2	15	10	SMT	Production	-40 to +85	-55 to +145			0.120"	0.120"
Circulator	34-36	full	1.5	15	10	MS chip+wire	Production	-40 to +85	-55 to +145			0.110"	0.100"
Circulator or Isolator	26.5-40	up to 20%	Call for info										

Disclaimer: The information outlined above are not final specifications. The information outlined above is provided as example specifications and are not the extent of our full capabilities, nor does Metamagnetics believe that the specifications list above will work with every application. Metamagnetics takes pride in working with each customer's exact specifications and meeting those needs to benefit your project.

Our team of experts can help you find the best fit with a pre-existing component or a custom designed solution to meet the most rigorous specifications of both DOD and commercial customers.

Contact us today to learn more about our self-biased circulators and insulators.

ABOUT METAMAGNETICS

U.S. based and veteran owned, Metamagnetics develops and markets advanced RF and microwave solutions to enhance the performance and effectiveness of mission-critical security, surveillance and communication systems. Our unparalleled knowledge of electromagnetism and materials science empowers break-through technologies that can bring significant value to defense and commercial projects. Efficient and agile, our team can help you rapidly design and deploy innovative solutions for current and next-generation radar, sensing and related systems.

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