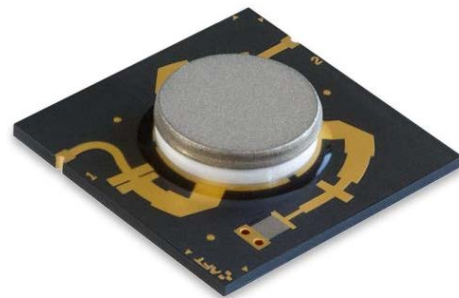


AFT Thin-Film Circulators & Isolators

➤ All from one source

- Sophisticated design, engineering, production and measurement made in German HQ
- AFT-own ferrites which excel in performance, world class leadership by in-house recipes and full production control of key parameters
- Thin-film processing: precise & repeatable
- Hybrid assembly: reliable processes
- Standard designs with fast delivery time
- Customized design following specific needs
- From small- to large-scale production with quantities > 20.000 per year



➤ High-performance characteristics

- Compact size, low profile, light weight
- Low insertion loss, high isolation
- Broadband design
- Wide operational temperature range
- Robust and reliable

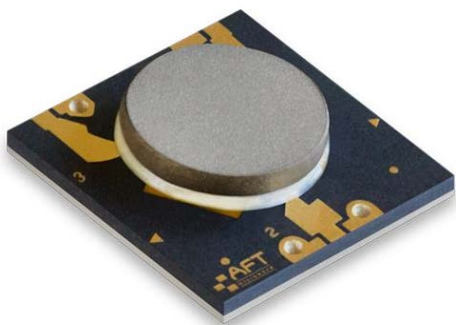
➤ SMD Technology

- Reflow soldering to PCB
- Tape & reel packaging
- Automated pick & place

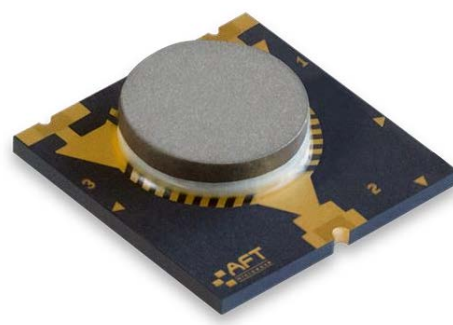
➤ Designed, produced and tested to exceed requirements of MIL & aerospace

➤ Used in radar applications e.g. T/R modules for more than a decade

Drop-In Circulator



SMD Circulator



- Drop-in assembly to PCB by using conductive gluing & wire/ribbon bonding
- Thin-film substrate based microstrip design
- Gold-plated magnetic backplane

- True SMT device for reflow soldering PCB
- Thin-film substrate based microstrip design
- Magnetic backplane optional

- Monolithic isolators
 - Circulator and thin-film resistor on a single ferrite substrate
 - Laser trimming of resistor to $\pm 1\%$ tolerance

Catalog of Compact Circulators & Isolators

Frequency [GHz]	Model No.	Type	Power [W] Peak/Avg	Insertion Loss [dB]	Return Loss [dB]	Isolation [dB]	Temp. Range [°C]	Size [mm]
L-Band								
Circulator								
0.96 - 1.215	C3-SL-L-01	Drop-in Stripline	300 / 75	≤ 0.5	≥ 20	≥ 18	-35 to +85	32 x 32 x 7.6
C-Band								
Isolator								
5.2- 6.0	I3-MS-C-01	SMD Microstrip	20 / 2	≤ 0.5	≥ 18	≥ 18	-35 to +71	13 x 13 x 2.5
X-Band								
Circulator								
8 - 12	C3-MS-X-01	SMD Microstrip	2 / 2	≤ 0.5	≥ 15	≥ 15	-35 to +71	7 x 7 x 2
8 - 12	C3-MD-X-01	Drop-in Microstrip	20 / 7	≤ 0.6	≥ 15	≥ 15	-35 to +71	7 x 7 x 2
8.5 - 10.5	C3-MS-X-02	SMD Microstrip	10 / 3	≤ 0.6	≥ 20	≥ 18	-35 to +71	7 x 7 x 2
8.5 - 10.5	C3-MD-X-02	Drop-in Microstrip	20 / 7	≤ 0.5	≥ 20	≥ 18	-35 to +71	7 x 7 x 2
Isolator								
8.8 - 10.4	I3-MD-X-01	Drop-in Microstrip	3 / 3	≤ 0.7	≥ 20	≥ 20	-30 to +75	11.9 x 10.7 x 2
Ku-Band								
Isolator								
11.3 - 13.5	I3-MD-X-03	Drop-In Microstrip	3 / 3	≤ 0.7	≥ 16	≥ 16	-30 to +75	11.9 x 10.7 x 2.5
K-Band								
Circulator								
23 – 27	C3-MS-K-01	SMD Microstrip	1 / 1	≤ 1.0	≥ 18	≥ 18	-40 to +85	4 x 4 x 2
Ka-Band								
Circulator								
27 - 31	C3-MS-Ka-01	SMD Microstrip	1 / 1	≤ 1.2	≥ 18	≥ 18	-40 to +85	4 x 4 x 2

For product details see data sheet of particular part no. on www.aft-microwave.com

Please contact us on sales@aft-microwave.com for your specific/ customized request.

Typical MIL-Standard compliance

Test	Standard	Method	Remarks
Temperature Cycling	MIL-STD 883	1010.7	e.g. -55°C to +150°C
Mechanical Shock	MIL-STD 883	2002.4	Cond. B
Acceleration	MIL-STD 883	2001	Y1 direction 3000g
Vibration	MIL-STD 202	214A	
Wire Bond	MIL-STD 883	2011	
Shear Test	MIL-STD 883	2019.9	
Visual Inspection	MIL-STD 883	2032	
	IEC 60748-23-2		

Note:

The listed test conditions are typically applied for qualification of AFT compact circulators and isolators, but in total may not apply to all products shown above.

We offer various customer specific environmental test and qualification procedures as well as lot-based FM screening on request.