

SACA
— europe —

RF & microwave solutions

RF and microwave components are specifically engineered to handle and transmit radio frequency (RF) and microwave signals with minimal loss and distortion. They enable the seamless integration of various devices, such as amplifiers, filters, antennas, and transmitters, ensuring efficient signal transmission and reception. With the ever-increasing demand for faster and more reliable wireless communication, RF and microwave component and connector solutions have become vital in telecommunications, aerospace, defense, and other industries, enabling the development of advanced wireless networks, satellite systems, and electronic devices.

manufacturers



low-loss coax cables

A1 Microwave

waveguide solutions

mac technologies
ceramic filters

AmpliVisionS
power amplifiers



frequency solutions, RF filters,
power amplifiers



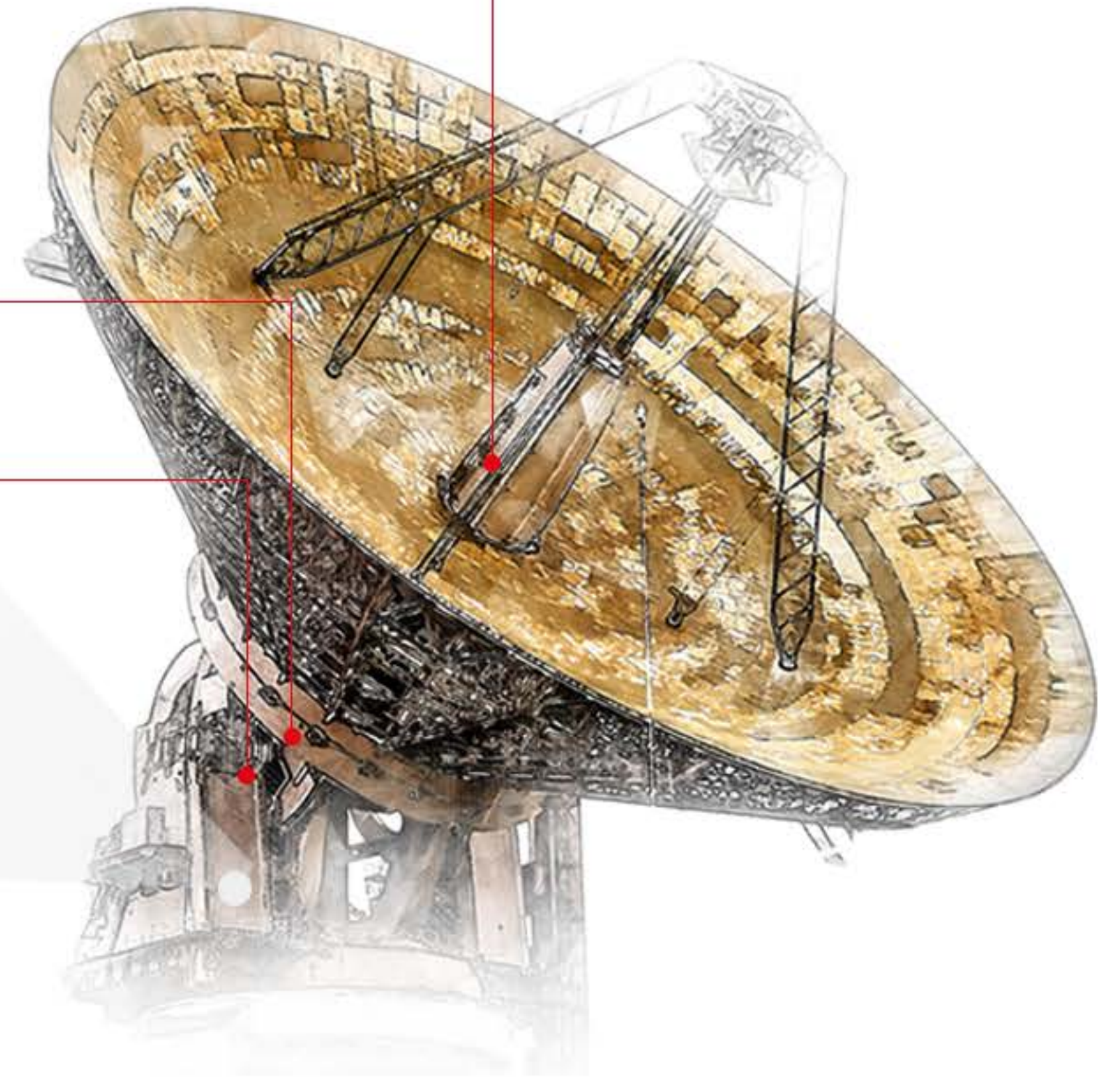
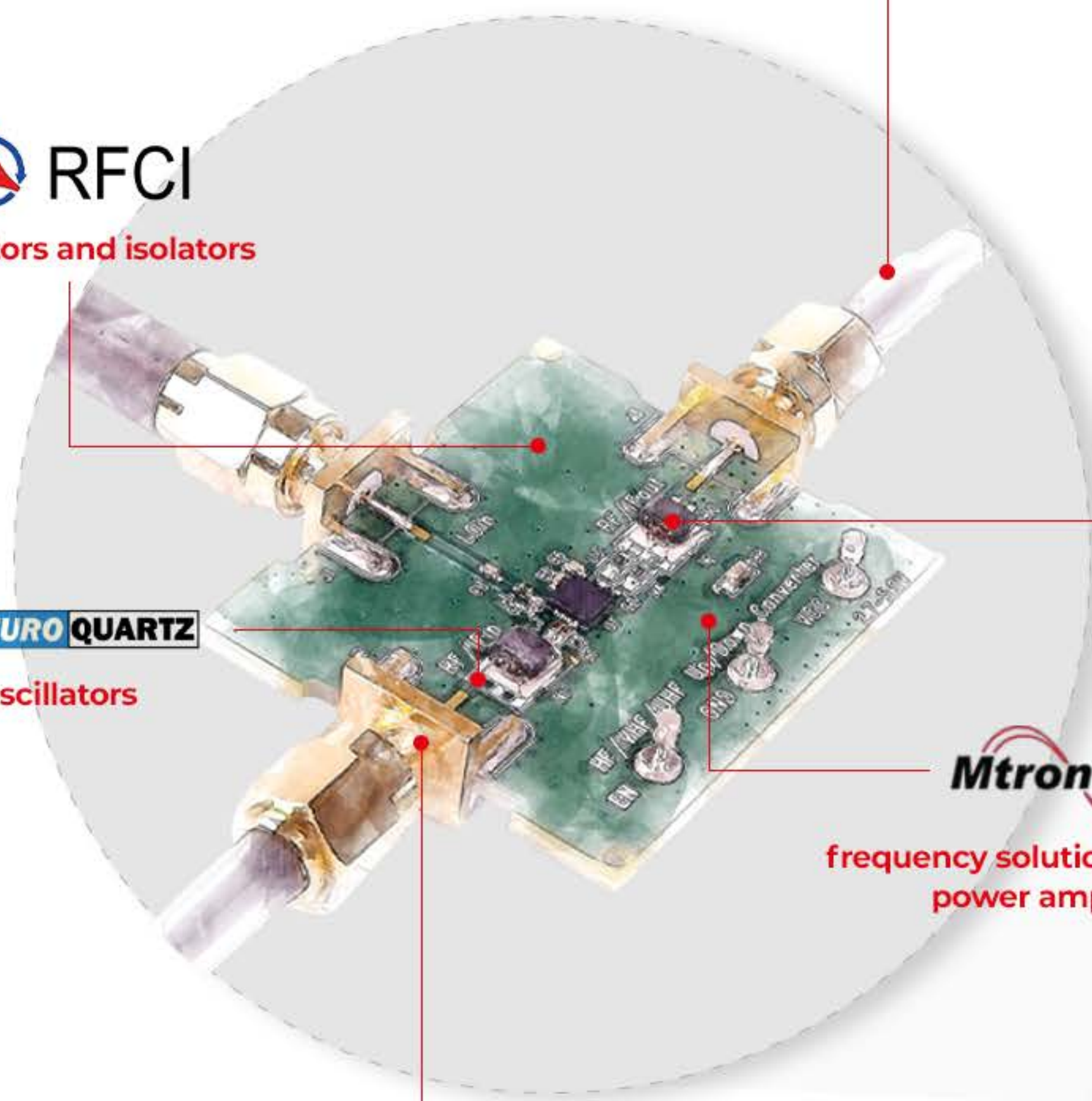
circulators and isolators



crystals & oscillators



RF connector, cable, harness &
modular component solutions



EUROQUARTZ

www.euroquartz.co.uk

COMPANY OVERVIEW

For over 50 years, we have supported military programs with state-of-the-art crystal resonators and oscillators. We offer a complete portfolio of frequency control products manufactured and tested to military standards: oscillators to MIL-PRF-55310 Product Level B and crystals to MIL-PRF-3098. Our dedicated servicing of the demanding requirements of the military market makes us a preferred supplier to most major defense contractors.

● Low Current Applications Standard

CLOCKS

Standard Clock Oscillator – Ultra Low Current

Frequency Range	156kHz – 160MHz
Supply Voltage	1V /2.5V and 3.3V
Current Consumption	1.1mA – 5.0mA
Package Sizes	7x5 mm

XOA Series - Real time clock and precision timing

Current Consumption	32µA - 36µA
Frequencies	27.3kHz – 100kHz
Package Sizes	3.2x2 /5x3.2mm/7x5mm

XOK Series - Standard Clock Oscillator – Ultra Low Current

Current Consumption	1.1mA – 5mA
Frequencies	156kHz – 160MHz
Package Sizes	5x3.2mm/7x5mm

TCXO - EME32T - Real time clock, GPS and Smart metering

Current Consumption	1.5µA
Frequencies	32.768kHz
Package Sizes	3.2x2.5mm

● Differential Outputs

LVPECL VCXO'S

GPQF Series - Differential LVPECL Output VCXO

Frequency Range	10 – 1500MHz
Pulling Range	±90ppm min
Current consumption	16mA Typical
Package Sizes	7x5mm

GPQN Series - Differential LVPECL Output VCXO

Frequency Range	8 – 165MHz
Supply Voltage	10mA - 44mA (Typical)
Current Consumption	-1% Ctre ±0.5%
Package Sizes	Package Sizes 7x5mm and 5x3.2mm

● Low EMI Applications Standard

SPREAD SPECTRUM

HM R Group - Reduces Electromagnetic Interference

Frequency Range	3.5 – 165MHz
Spread Down	-0.5% Ctre-±0.25
Current consumption	10mA - 35mA (Typical)
Package Sizes	7x5mm and 5x3.2mm

HM Y Group - Reduces Electromagnetic Interference

Frequency Range	8 – 165MHz
Supply Voltage	10mA - 44mA (Typical)
Current Consumption	-1% Ctre ±0.5%
Package Sizes	Package Sizes 7x5mm and 5x3.2mm

HM P Group - Reduces Electromagnetic Interference

Frequency Range	8 – 165MHz
Supply Voltage	10mA - 44mA (Typical)
Current Consumption	-1% Ctre ±0.5%
Package Sizes	7x5mm and 5x3.2mm

HM B Group - Reduces Electromagnetic Interference

Frequency Range	3.0 – 200MHz
Supply Voltage	-1.0% Ctre ±3.0%
Current Consumption	10 -25mA Typical
Package Sizes	7x5mm and 5x3.2mm

● Differential Outputs

LVDS VCXO

Differential LVDS VCXO

Frequency Range	10.0 – 1450MHz
Integrated Jitter	0.2nS Typical
Current consumption	25mA Typical
Package Sizes	7x5 , 5x3.2 and 3.2x2.5

Differential LVDS VCXO

Frequency Range	10.0 – 1450MHz
Pulling Range	100ppm Min
Current consumption	16mA Typical
Package Sizes	7x5, 5x3.2 and 3.2x2.5

● Voltage Controlled

VCXO SERIES

G Series - Voltage Controlled Oscillator CMOS Output

Frequency Range	1.0 – 50.0MHz
Pulling Range	±80ppm Min
Phase Jitter	1.0pS Max
Package Sizes	7x5/ 5x3.2/3x2.2 mm

GTQF Series - Voltage Controlled Oscillator CMOS Output

Frequency Range	10 – 245.0MHz
Pulling Range	±90ppm Min
Phase Jitter	0.9pS Typical
Package Sizes	7x5and 5x3.2mm

GTQN Series - Voltage Controlled Oscillator CMOS Output

Frequency Range	10 – 245.0MHz
Pulling Range	±90ppm Min
Phase Jitter	0.6pS Typical
Package Sizes	7x5and 5x3.2mm

GPQN Series - Voltage Controlled Oscillator – PECL Output

Frequency Range	10MHz – 1450.0MHz
Pulling Range	±90 - 200ppm
Phase Jitter	0.6pS Typical
Package Sizes	7x5 and 5x3.2mm

HDQF Series - Differential LVDS Output Waveform

Frequency Range	10 – 1450MHz
Integrated Jitter	0.9pS Typical
Current consumption	16mA Typical
Package Sizes	7x5, 5x3.2

GDQF Series - Voltage Controlled Oscillator – LVDS Output

Frequency Range	10MHz – 1450.0MHz
Pulling Range	±100ppm
Phase Jitter	1.2 pS Typical
Package Sizes	7x5 and 5x3.2mm

GDQN Series - Voltage Controlled Oscillator – LVDS Output

Frequency Range	10MHz – 1450.0MHz
Pulling Range	±100ppm
Phase Jitter	0.6pS Typical
Package Sizes	7x5 and 5x3.2mm

Differential Outputs

LVDS CLOCKS

HDK Series - Differential LVDS Output Waveform

Frequency Range	10 – 220MHz
Integrated Jitter	0.2pS Typical
Current consumption	16mA Typical
Package Sizes	7x5 , 5x3.2 and 3.2x2.5

Military & Aerospace

1000BM Series - 14 pin DIL Clock CMOS

Frequency Range	10MHz – 40MHz
Input Voltage	3.3V/5V
Stability	±50ppm
Current Consumption	10 ~ 70 mA

75000 BM Series - 7x5mm smd Clock CMOS

Frequency Range	1MHz – 60MHz
Input Voltage	1.8V ~ 5V
Stability	±50 ~ ±100ppm
Current Consumption	7mA max (15pF)

STXO Series - 3.2x2.5mm High Shock smd Clock

Frequency Range	10MHz – 80MHz
Input Voltage	3.3V/5V
Current Consumption	3mA max
Phase Noise	-163 dBc/Hz

CXOLHG Series - 3.2x2.5mm High Shock smd Clock

Frequency Range	10MHz – 80MHz
Input Voltage	2.5V/3V/3.3V
Current Consumption	3mA max
Phase Noise	-163 dBc/Hz

T1307 Series - TCXO Ultra-low vibration sensitivity

Frequency Range	10MHz – 50MHz
Input Voltage	3.3V, 5V or 12V
Current Consumption	6mA max
Phase Noise	-157dBc/Hz

YH1300 Series - OCXO Ultra-low vibration sensitivity

Frequency Range	10MHz – 50MHz
Input Voltage	3.3V/5V
Low g sensitivity	5x10 ⁻¹¹ /g
Phase Noise	-165dBc/Hz

Differential Outputs

LVDS CLOCKS

HDQN Series - Differential LVDS Output Waveform

Frequency Range	10 – 1450MHz
Integrated Jitter	0.6pS Typical
Current consumption	15mA – 31mA
Package Sizes	7x5 , 5x3.2

HCK Series - Non-PLL Differential LVDS Output Waveform

Frequency Range	13.50 – 220MHz
Integrated Jitter	0.2pS Typical
Current consumption	25mA Typical
Package Sizes	7x5, 5x3.2 and 3.2x2.5



STATEK

www.statek.com

COMPANY OVERVIEW

For over 50 years, we have supported military programs with state-of-the-art crystal resonators and oscillators. We offer a complete portfolio of frequency control products manufactured and tested to military standards: oscillators to MIL-PRF-55310 Product Level B and crystals to MIL-PRF-3098. Our dedicated servicing of the demanding requirements of the military market makes us a preferred supplier to most major defense contractors.

- **Military Product Features**

- Extreme high shock survivability (highest in the industry)
- Ultra-miniature and low-profile packaging
- Excellent long-term aging
- Full product traceability
- Extended temperature ranges (-55°C to 225°C)

- **Surface Mount Quartz Crystals Key Features:**

- Ultra-Miniature
- Frequencies from 10 kHz to 250 MHz
- Highest Shock Survivability in the Industry
- Tight Frequency Stability
- Low Acceleration Sensitivity
- High Reliability
- Excellent Long-Term Aging

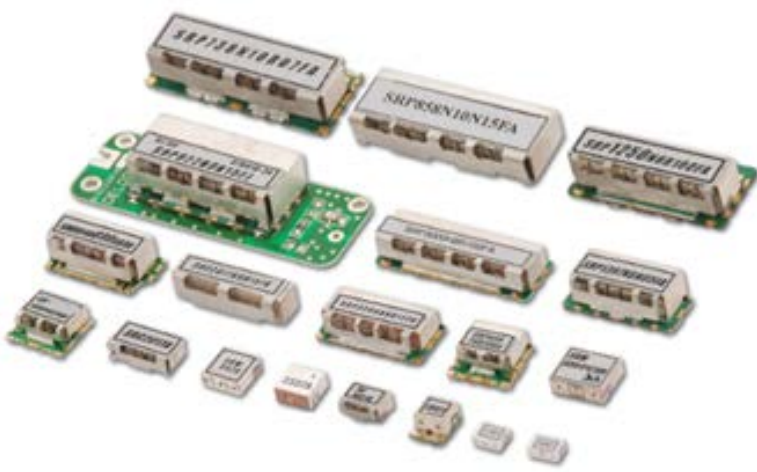
PRODUCT	PACKAGE(MM)	FREQUENCY RANGE	
CX20	2.5 x 1.2	16 kHz to 32.768 kHz	
CX18	1.6 x 1.0	30 MHz to 100 MHz	
CX17	4.8 x 3.0	12 MHz to 200 MHz	
CX16	2.0 x 1.2	24 MHz to 100 MHz	
		32 kHz to 180 kHz	
CX11	3.2 x 1.5	32 kHz to 240 kHz	
		16 MHz to 250 MHz	
CX11L	3.2 x 1.5	16 MHz to 250 MHz (Telemetry Crystal)	
CX11LHG High Shock	3.2 x 1.5	16 MHz to 50 MHz	
CX9HT High Temperature	4.1 x 1.5	32 kHz to 160 kHz	
		14 MHz to 250 MHz	
CX4	5.0 x 1.8	30 kHz to 250 kHz	
		600 kHz to 1.4 MHz	
		14 MHz to 250 MHz	
CX4HG High Shock	5.0 x 1.8	14 MHz to 50 MHz	
CX4HT High Temperature	5.0 x 1.8	30 kHz to 250 kHz	
		600 kHz to 2.5 MHz	
		14 MHz to 250 MHz	
CX1	8.0 x 3.6	10 kHz to 600 kHz	
		530 kHz to 2.1 MHz	
CX41HG High Shock	8.0 x 3.6	6 MHz to 250 MHz	
		6 MHz to 250 MHz	
CX1HT High Shock	8.0 x 3.6	6 MHz to 250 MHz	
SWCX1 Sweep Quartz	8.0 x 3.6	6 MHz to 250 MHz	

MAC TECHNOLOGIES

www.mactech.co.kr

COMPANY OVERVIEW

MAC technologies is a company that develops and produces varied selections of wireless communication components essential in this ever changing high tech era, based on its source technology.



CERAMIC FILTERS

- ▶ Low insertion loss for using high Q-value dielectric resonators
- ▶ Small and light for using high dielectric constant ceramics
- ▶ Excellent temperature stability for temperature
- ▶ Excellent mechanical stability without vibratile structure
- ▶ SMD and reflow soldering available
- ▶ Mountable by automatic placement machine



MULTIPLEXER

- ▶ Various size & wide frequency
- ▶ Temperature compensated
- ▶ Low insertion loss
- ▶ Low cost & custom design
- ▶ High mechanical stability

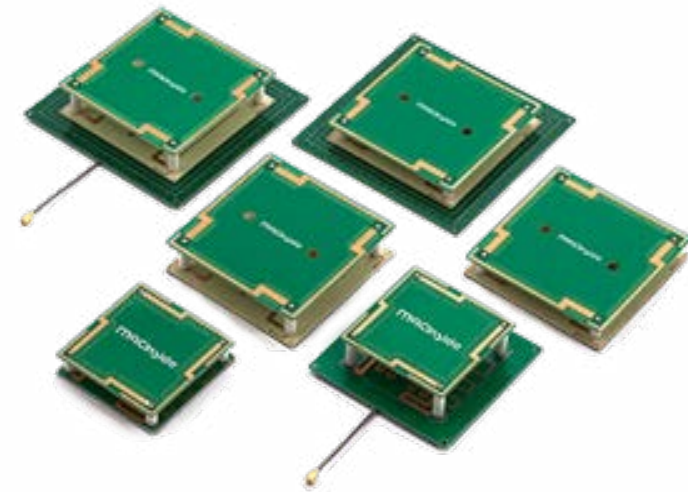


DIELECTRIC DUPLEXER

- ▶ Low insertion loss for using high Q-value dielectric resonators
- ▶ Small and light for using high dielectric constant ceramics
- ▶ Excellent temperature stability for temperature
- ▶ Excellent mechanical stability without vibratile structure
- ▶ SMD and reflow soldering available
- ▶ Mountable by automatic placement machine

● QUADRIFILAR WIDE-BAND ANTENNA

- Wide-band responsibility
- Lighter than Ceramic Antennas
- Circular Polarization Antenna
- Provide highly stabilized performance
- Better multi recognition performance
- 900 MHz ISM Band (FCC, ETSI, KCC, CCC & etc.)



QUADRIFILAR WIDE-BAND ANTENNA GAIN TABLE

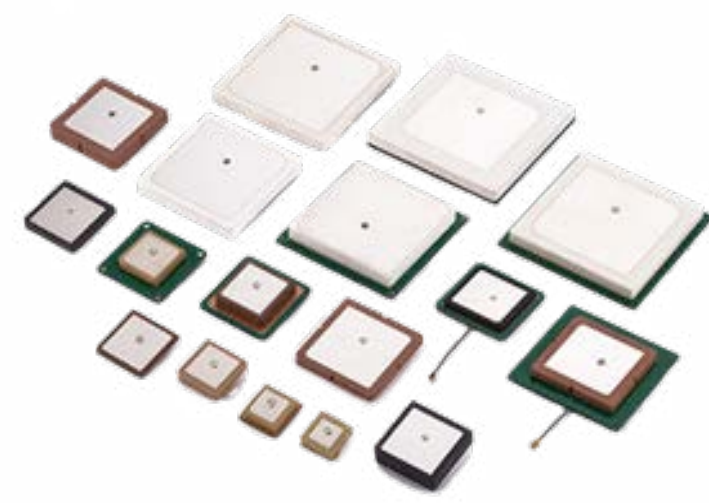
No.	Part No.	Antenna Weight (g)	Dimension (mm ²)	Frequency range(MHz)	Measurement Data (MAC technologies Chamber)					
					BandW (-10dB)(MHz)	BeamW (-3dB)(Deg)	Hor(dBiL)	Ver(dBiL)	RHCP(dBiC) AR(dB)	AR(dB)
1	MQWA45SH915-A	8	45x45x10	FCC ETSI KCC CCC & etc.	200 Typ.	110	-1.63	-0.66	27760	3.0 min
2	MQWA45SM915-A	9	45x45x15		200 Typ.	110	-0.51	0.65	34366	3.0 min
3	MQWA45SP915-A	19	45x45x18		200 Typ.	110	-0.40	0.75	45080	3.0 min
4	MQWA60F45SH915-A	11	60×60×10(F45×45)		200 Typ.	110	-1.25	-1.06	29221	3.0 min
5	MQWA60F45SM915-A	12	60×60×15(F45×45)		200 Typ.	110	-0.08	0.21	3.00	3.0 min
6	MQWA60F45SP915-A	12	60×60×18(F45×45)		200 Typ.	110	-0.16	0.95	11383	3.0 min
7	MQWA60SH915-A	13	60×60×10		200 Typ.	100	0.33	0.10	45202	3.0 min
8	MQWA60SM915-A	14	60x60x15		200 Typ.	100	0.71	0.56	18323	3.0 min
9	MQWA79SH915-A	18	79×79×10(F60×60)		200 Typ.	100	0.32	0.06	43891	3.0 min
10	MQWA79SM915-A	19	79×79×15(F60×60)		200 Typ.	100	1.Eki	0.86	34029	3.0 min

QUADRIFILAR WIDE-BAND RECOGNITION DISTANCE

No.	Part No.	Dimension (mm ²)	Card Tag (m)				Alien Tag (m)			
			Tag(H)	Tag(V)	Best(H)	Best(V)	Tag(H)	Tag(V)	Best(H)	Best(V)
1	MQWA45SH915-A	45x45x10	2.1	3.1	2.8	4.0	2.0	3.6	2.7	4.5
2	MQWA45SM915-A	45x45x15	3.0	4.0	3.0	4.4	2.1	4.4	3.0	6.6
3	MQMA45SP915-A	45x45x18	3.1	4.2	4.3	4.5	3.1	4.4	4.5	6.3
4	MQWA60F45SH915-A	60x60x10(F45x45)	3.1	3.4	4.0	4.2	3.2	4.0	4.8	4.6
5	MQWA60F45SM915-A	60x60x15(F45x45)	3.2	3.6	4.8	4.3	3.3	4.3	5.3	1.7
6	MQMA60F45SP915-A	60x60x18(F45x45)	3.2	4.4	4.6	6.3	3.3	4.6	5.2	6.7
7	MQWA60SH915-A	60x60x10	3.3	4.0	4.9	5.5	3.4	4.3	5.4	6.0
8	MQWA60SM915-A	60x60x15	3.4	4.2	5.3	5.8	4.8	4.4	6.3	6.6
9	MQWA79SH915-A	79x79x10(F60x60)	3.3	3.9	4.8	5.5	3.3	4.3	5.3	6.0
10	MQWA79SM915-A	79x79x15(F60x60)	3.4	4.2	5.8	5.8	4.8	4.4	6.8	6.7

CERAMIC ANTENNA

- Circular Polarization Antenna
- 900 MHz ISM Band (FCC, ETSI, KCC, CCC & etc.)
- Antenna dimension is as small as Teflon antenna
- Using high quality factor dielectric
- Better multi recognition performance
- Provide highly stabilized performance



CERAMIC ANTENNA GAIN TABLE

No.	Part No.	Ground Plane (mm)	Antenna Weight (g)	Dimension (mm ²)	Frequency range(MHz)	Measurement Data (MAC technologies Chamber)					
						BandW	BeamW	Hor(dBiL)	Ver(dBiL)	RHCP(dBic)	AR(dB)
						10dB (MHz)	(-3dB)(Deg)			AR(dB)	
1	MPAC18SA915P-TA	50x50	3	18.3x18.3x2	FCC ETSI KCC CCC & etc.	4 Typ.	125	-12.42	-12.01	-10.50	3.0 min
2	MPAC18SC915P-TA	50x50	7	18.3x18.3x4		5 Typ.	125	-9.81	-11.50	-8.77	3.0 min
3	MPAC24SA915P-TA	50x50	6	24.4x24.4x2		4 Typ.	120	-9.54	-8.85	-6.04	3.0 min
4	MPAC24SC915P-TA	50x50	12	24.4x24.4x4		5 Typ.	120	-6.00	-5.67	-2.77	3.0 min
5	MPAC34SA915P-TA	50x50	11	34x34x2		3 Typ.	120	-5.54	-4.46	-1.98	3.0 min
6	MPAC34SC915P-TA	50x50	21	34x34x4		4 Typ.	120	-1.47	-2.16	1.Kas	3.0 min
7	MPAC34SF915P-TA	50x50	37	34x34x7		5 Typ.	120	-0.70	-1.67	Oca.80	3.0 min

CERAMIC ANTENNA RECOGNITION DISTANCE

No.	Part No.	Ground Plane (mm)	Antenna Weight (g)	Dimension (mm ²)	Card Tag (m)				Alien Tag (m)			
					Tag(H)	Tag(V)	Best(H)	Best(V)	Tag(H)	Tag(V)	Best(H)	Best(V)
1	MPAC18SA915P-TA	50x50	18.3x18.3x2	0.4	0.7	0.7	1.0	0.3	0.5	0.5	0.6	
2	MPAC18SC915P-TA	50x50	18.3x18.3x4	0.6	0.9	0.9	1.2	0.5	0.6	0.7	0.8	
3	MPAC24SA915P-TA	50x50	24.4x24.4x2	0.7	0.9	0.8	1.1	0.6	0.8	0.7	1.0	
4	MPAC24SC915P-TA	50x50	24.4x24.4x4	1.1	1.3	1.4	1.6	0.8	1.0	1.1	1.4	
5	MPAC34SA915P-TA	50x50	34x34x2	1.2	1.6	1.6	2.2	0.9	1.2	1.3	1.7	
6	MPAC34SC915P-TA	50x50	34x34x4	1.2	1.6	1.6	2.2	0.9	1.2	1.3	1.7	
7	MPAC34SF915P-TA	50x50	34x34x7	1.5	1.9	2.1	2.8	1.2	1.6	1.4	2.0	
8	MPAC45SC915P-TA	78x78	45x45x4	1.7	2.2	4.1	4.4	1.6	2.2	4.1	4.4	
9	MPAC45SF915P-TA	78x78	45x45x7	2.0	3.1	4.8	5.4	1.9	3.0	4.8	5.4	
10	MPAC62SF915P-TA	78x78	61.5x61.5x7	2.4	3.4	5.7	6.0	2.4	3.4	5.7	6.0	
11	MPAC79SE915P-TA	78x78	78.7x78.7x6.35	2.9	3.8	6.0	7.0	2.9	3.9	6.2	7.5	

MTRON

www.mtronpti.com

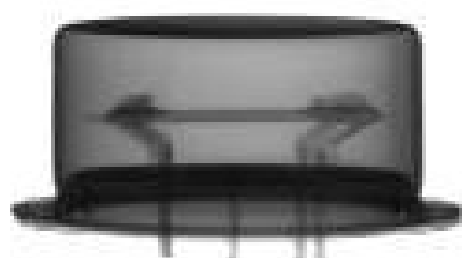
REFERENCES

Northrop Grumman Corporation
 General Dynamics Corporation
 Lockheed Martin Corporation
 L3Harris Technologies Inc.
 Collins Aerospace
 MDA Corporation
 NEC Corporation
 Boeing Co
 ISRO

COMPANY OVERVIEW

MtronPTI has over 70 design wins on satellite platforms and manned spacecraft. From Engineering Design Units to Flight hardware, MtronPTI has a proven team and track record to meet your demanding space needs.

Supporting military, commercial, and scientific space applications, MtronPTI delivers qualified solutions which fully meet the reliability and performance demands of space.



CAPABILITIES

- ▶ In House Crystal Resonator Processing
- ▶ Ultra-Lightweight and Compact Solutions
- ▶ Corona Discharge Analysis / Testing
- ▶ High Power Handling
- ▶ High Channel to Channel Isolation
- ▶ Very Low Insertion Loss

PRODUCT LINES

- ▶ Crystal Filters to 200 MHz
- ▶ LC Filters to 6 GHz
- ▶ Cavity / Waveguide Filters to 20 GHz
- ▶ N-plexers
- ▶ Precision Resonators to 200 MHz

SPACE LEVEL IN HOUSE TESTING

- ▶ Thermal Shock per MIL-STD-202, Method 107
- ▶ Terminal Strength per MIL-STD-202, Method 211
- ▶ Mechanical Shock per MIL-STD-202, Method 213
- ▶ Gross Leak Testing per MIL-STD-202, Method 112
- ▶ Random Vibration per MIL-STD-202, Method 214A
- ▶ Fine Leak Testing - Helium per MIL-STD-202, Method 112
- ▶ Sinusoidal Vibration per MIL-STD-202, Method 201 and 204
- ▶ PIND (Particle Impact Noise Detection) per MIL-STD-202, Method 217
- ▶ Other Miscellaneous Testing including: Life, Immersion, Barometric Pressure, Humidity, Solderability
- ▶ Dielectric withstanding voltage, Insulation Resistance

WORKMANSHIP STANDARTS

- ▶ In-House J-STD-001 Certified Trainer
- ▶ J-STD-001 Class 3 with Space
- ▶ Addendum

PRODUCTION CAPABILITIES

- ▶ Dedicated Clean Room
- ▶ World-class FOD Control
- ▶ In House Crystal Processing
- ▶ Internal Quartz Sweeping
- ▶ Laser Weld

FULL DC and RF TESTING

- ▶ Crystal Filters to 200 MHz
- ▶ LC Filters to 6 GHz
- ▶ Cavity / Waveguide Filters to 20 GHz
- ▶ N-plexers
- ▶ Precision Resonators to 200 MHz

AMPLIVISIONS

www.amplivisions.com

COMPANY OVERVIEW

AmpliVisionS is a high-new technology enterprise. AmpliVisionS design, develop and manufacture RF&Microwave products for commercial, defence and industrial systems.

The main Product line includes Broadband Power Amplifier module, Pulsed Power Amplifier module, Rack-mount Amplifier subsystem. According to requests of customer, AmpliVisionS develops wide range of RF&Microwave products from 1.5MHz to 60GHz.



AMPLIFIER MODULES UP TO 6 GHz

Model No.	Start (MHz)	Stop (MHz)	Pout (Watt)	Power Gain (dB)	Size (mm)
AVBR00205H53	20	520	200	53	180*120*25
AVBR00210H49	20	1000	80	50	150*90*25
AVBR00810H49	80	1000	80	50	150*90*25
AVBR0727H47	700	2700	50	48	162x86x25
AVBR0727H50	700	2700	100	50	180x140x25
AVBR0830H47	800	3000	50	48	162x86x25
AVBR1060H47	1000	6000	50	47	170*165*25
AVBR1060H50	1000	6000	100	50	240*240*25
AVBR2060H45	2000	6000	30	45	160*120*25
AVBR2060H47	2000	6000	50	47	170*165*25
AVBR2060H50	2000	6000	100	50	240*300*27
AVBR2560H47	2500	6000	50	48	140*120*23

AMPLIFIER MODULES & SUBSYSTEMS UP TO 18 GHz

Model No.	Start (GHz)	Stop (GHz)	Pout (Watt)	Power Gain (dB)	Size (mm)
AVBR20180H41	2	18	15	41	160*140*25
AVBR40190H40	4	19	10	40	160*140*25
AVBR60180H46	6	18	40	57	160*120*22
AVBR60180H50	6	18	100	50	340*340*40
AVBR60180U50	6	18	100	50	483 x 221 x 560 (5U)

AMPLIFIER MODULES UP TO 40 GHz

AVBR180270H37	18	26,5	5	37	160*120*27
AVBR180270H50	18	27	100	50	300x280x35
AVBR230300H35	23	30	3	35	160*120*27
AVBR260400H36	26,5	40	4	36	160*120*27
AVBR260400H37	26,5	40	5	37	160*120*27
AVBR270300H50	27	30	100	50	300x280x35

COMPANY OVERVIEW

RF Circulator Isolator, Inc. (RFCI) was incorporated in September 2012. RFCI acquired CIPL (Circulator/Isolator Product Line) business from RFMD, when RFMD decided to exit the CI business. Management, engineering team, support group, and oversea manufacturing were transferred intact to RFCI.

- **Product Features**

- Broad selection of frequency and Bandwidth (48MHz to 20GHz, narrow to 100% Bandwidth)
- High Reliability performance
- High Peak and CW Power Handling capability
- Wide Operation Temperature Range
- Communication Base Station Bands with excellent IMD performance
- Broadband width, Octave and Octave-plus Bandwidth
- Robust Construction
- Standards and Miniature package size
- Magnetically Shield
- RoHS Compliant
- No beryllium Oxide
- Clockwise (CW) and Counter-Clockwise rotation (CCW)
- Reflected power from 1 Watt to 200 Watts pending on Model Number (contact factory) for your particular requirement

DROP-IN CIRCULATORS / ISOLATORS

Single Drop-in Circulator, Communication Bands from 300MHz to 18 GHz



Single Drop-in Isolator (5W to 200W Power Handling) from 300MHz to 10 GHz



Dual Drop-in Isolator (5W to 150W Power Handling) from 300MHz to 10 GHz



Drop-in Iso-Attenuator (100W with 20dB, 30dB) from 700MHz to 4 GHz



Broadband, Octave Band Circulator/ Isolator from 500MHz to 20 GHz

COAXIAL CIRCULATORS / ISOLATORS

Type N Circulator from 300MHz to 10 GHz



Type N Dual Circulator from 300MHz to 10 GHz



Type N Single and Dual Isolator (10W to 250W Power Handling) from 300MHz to 10 GHz



SMA Circulator from 300MHz to 20 GHz



SMA Single and Dual Isolator (10W to 200W Power Handling) from 300MHz to 20 GHz

SMD CIRCULATORS/ ISOLATORS

SMD Circulator from 700MHz to 3800 MHz



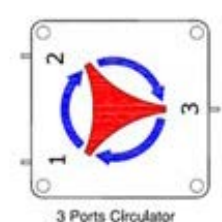
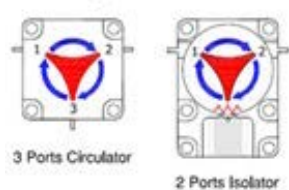
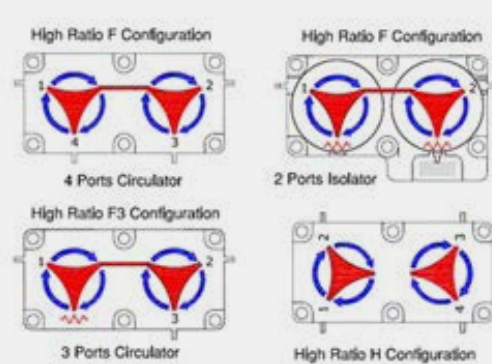
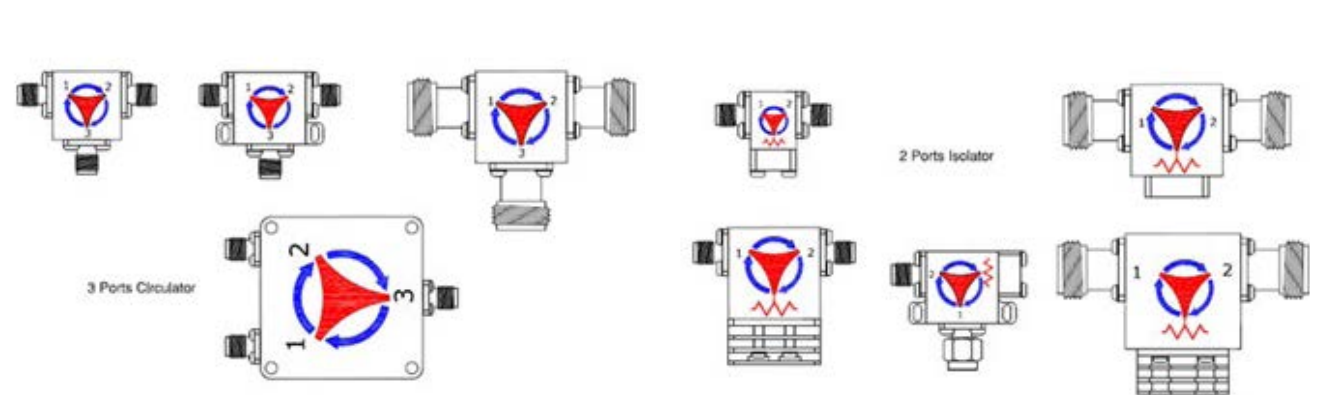
SMD Isolator (10 W to 100W Power Handling) from 700MHz to 3800 MHz

SMD CIRCULATORS/ ISOLATORS

Coaxial Type N, SMA Circulator/Isolator (50W to 100W Power Handling) from 49MHz to 174 MHz



Drop-in Circulator/ Isolator (50W to 100W Power Handling) from 49MHz to 174 MHz

DROP-IN FLANGE MOUNT DEVICE**Single Junction****Dual Junction****COAXIAL DEVICE****Single Junction**

KONNECT RF

www.konnectrf.com

COMPANY OVERVIEW

Konnect RF can provide lower-cost alternatives for almost any part in the industry. Whether you need domestically manufactured mil-spec equivalents or you can use high-quality internationally produced parts, they can save you money and grow your bottom line.

- Founded 2010
- Located in Southeast Florida
- Over 600 customers Worldwide
- Supplying Coaxial Connectors, Adapters, Cable Assemblies and Passive Components
- Global Network of Contract Manufacturers
- All products inspected, packaged, and warehoused in USA
- Rapid and Cost Effective development of
- custom products

• Connectors



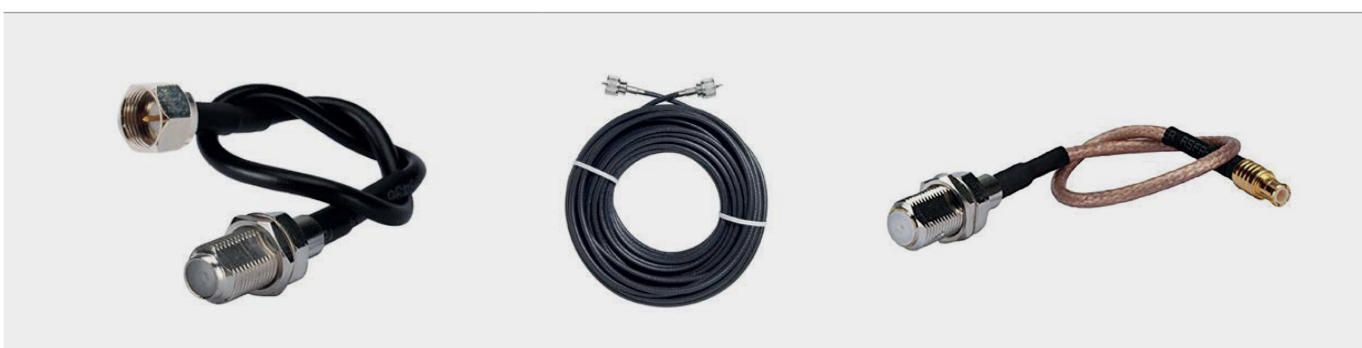
Coaxial cable connectors, PC board receptacles, standard receptacles, field replaceable receptacles, cable terminations.

• Adapters



In-Series, Between-Series

• Cable Assemblies



• RF & Microwave Components



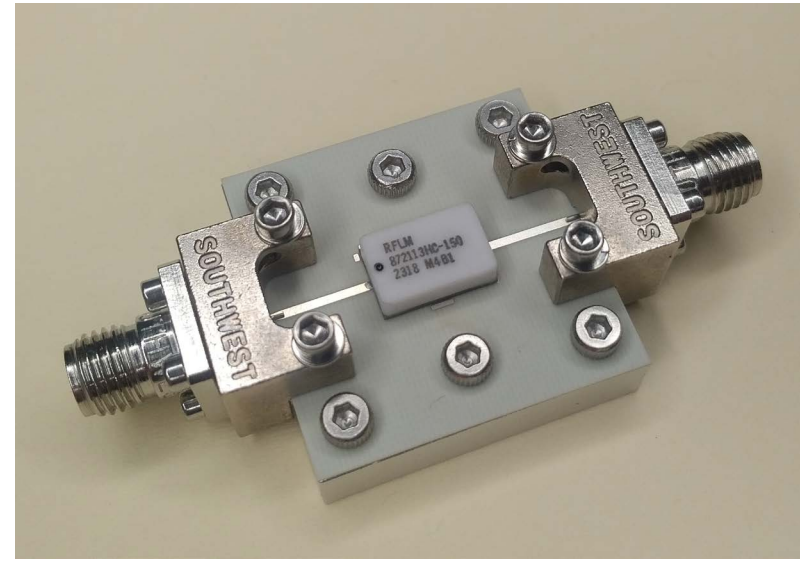
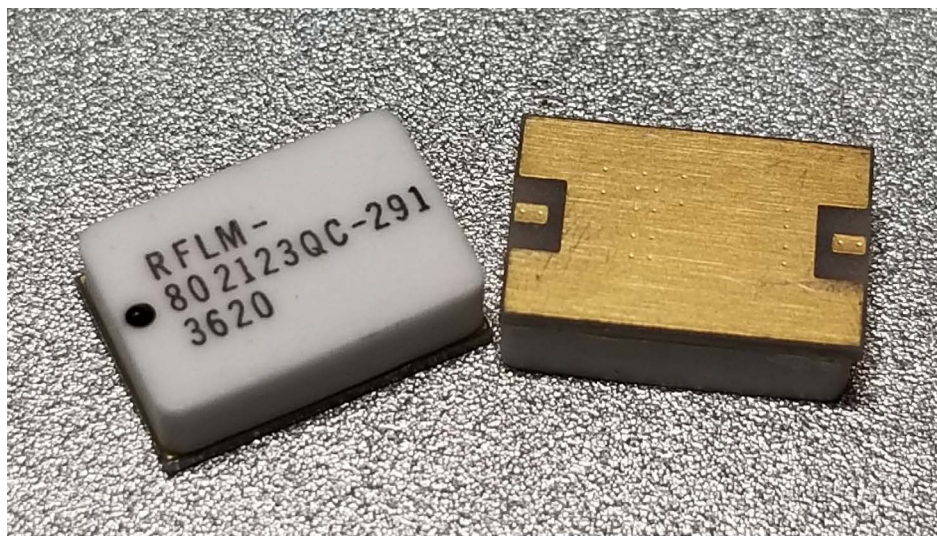
Circulators & isolators, DC blocks, dust caps, power dividers, waveguide products, attenuators

WEI BO

www.weiboassociates.com.hk

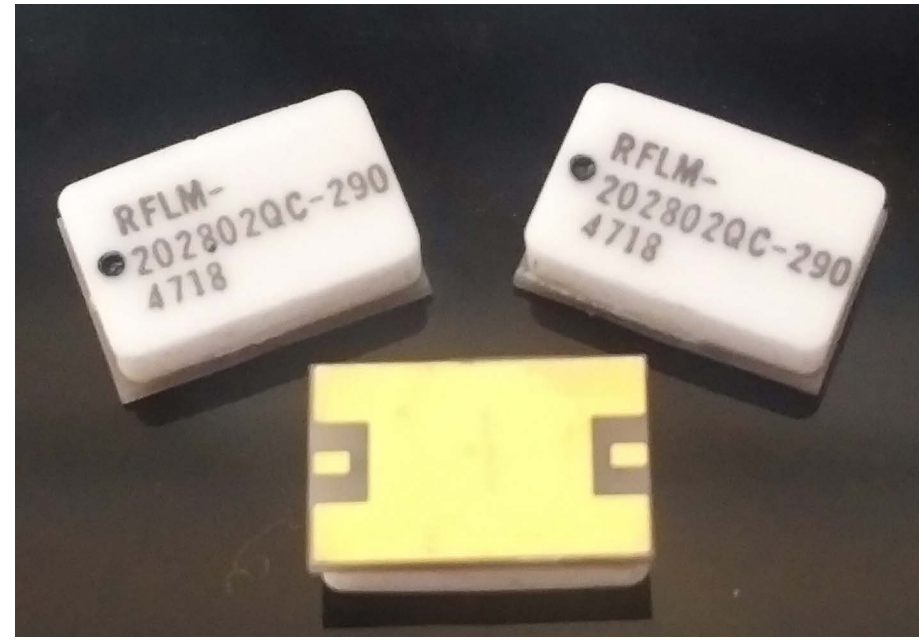
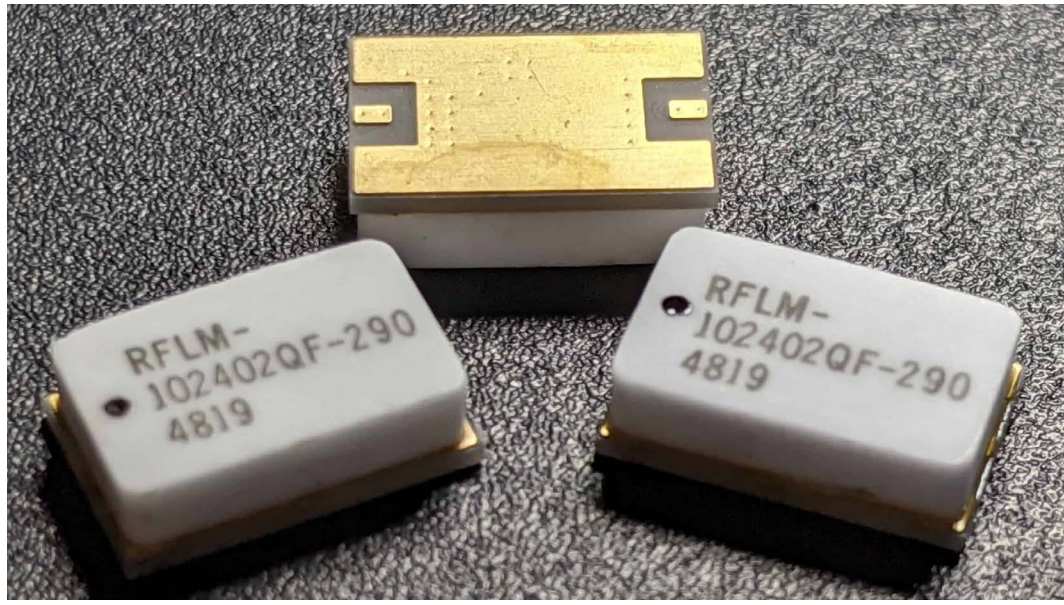
COMPANY OVERVIEW

Wei Bo Associates HK, Ltd. is a privately held, Hong Kong registered company, founded in 2014. Offer cutting edge, world class RF & Microwave products from the comfortable confines of the world's most customer friendly business environment.



RF SWITCHES

Part Number	Freq Range (GHz)	Switch Topology	Tx Average Power (CW) (dBm)	Tx Peak Power (dBm)	Tx - Ant Insertion Loss (dB)	Return Loss (dB)	ISO (dB)	IP3 (dBm)
MSW2T-020522-232	0.02 - 0.52	SP2T, symmetrical	60	60	0.7	15	40	65
MSW2T-2000-199	0.05 - 1.0	SP2T, asymmetrical	50	50	0.15	23	52	65
MSW2T-2001-199	0.4 - 4.0	SP2T, asymmetrical	50	50	0.3	17	46	65
MSW2T-2002-199	2.0 - 6.0	SP2T, asymmetrical	50	50	0.6	13	34	65
MSW2T-2030-192	0.05 - 1.0	SP2T, symmetrical	50	57	0.3	22	52	65
MSW2T-2031-192	0.4 - 4.0	SP2T, symmetrical	50	57	0.5	15	35	65
MSW2T-2032-192	2.0 - 6.0	SP2T, symmetrical	50	57	0.6	13	35	65
MSW2T-2040-193	0.05 - 4.0	SP2T, symmetrical	52	57	0.5	20	42	65
MSW2T-2040X-198	0.1 - 2.0	SP2T, symmetrical	56	60	0.25	15	45	65
MSW2T-2041-193	0.4 - 4.0	SP2T, symmetrical	52	57	0.7	20	30	65
MSW2T-2050-194	0.05 - 1.0	SP2T, asymmetrical	52	58	0.15	20	50	65
MSW2T-2051-194	0.4 - 4.0	SP2T, asymmetrical	52	58	0.3	17	34	65
MSW2T-2060-195	0.02 - 1.2	SP2T, symmetrical	50	57	0.25	23	53	65
MSW2T-2061-195	0.02 - 2.0	SP2T, symmetrical	50	57	0.25	13	40	65
MSW2T-2062-195	1.5 - 6.5	SP2T, symmetrical	50	57	0.7	13	34	65
MSW2T-0025-195	1.0 - 2.0	SP2T, asymmetrical	50	57	0.3	15	20/15	65
MSW2T-2022-191	0.05 - 1.0	SP2T, asymmetrical	52	57	0.2	20	40/23	65
MSW2T-2735-196	2.7 - 3.5	SP2T, asymmetrical-CW	57	60	0.4	16	37	65
MSW2T-8512-740	8.5 - 12.0	SP2T, symmetrical	50	53	0.75	15	35	65
MSW3T-3100-209	0.05 - 1.0	SP3T, symmetrical	50	53	0.4	20	53	65
MSW3T-3101-209	0.2 - 4.0	SP3T, symmetrical	50	53	0.6	15	34	65
MSW3T-3200-150	0.05 - 3.0	SP3T, symmetrical	50	53	0.4	15	30	65
MSW3T-402103-332	0.4 - 1.0	SP3T, symmetrical	53	59	1.0	15	30	65
MSW5T-0310-505	0.03 - 1.0	SP5T, symmetrical	50	53	0.5	15	30	65
MSW6T-6000-600	0.03 - 0.5	SP6T, symmetrical	53	57	0.5	15	25	65
MSW6T-6100-600	0.002 - 0.03	SP6T, symmetrical	53	53	0.25	15	40	65
MSW6T-6040-600	0.03 - 0.5	SP6T, symmetrical	56	58	0.5	15	25	60



RF LIMETERS

Part Number	Limiter Description	Freq. (GHz)	Insertion Loss (dB)	Return Loss (dB)	CW Input Power (dBm)	Peak Input Power (dBm)	Flat Leakage Power (dBm)	Spike Leakage (ergs)	Recovery Time (nsec)
RFLM-200802MA-299	Passive, SMT	0.020 - 8.0	1.4	15	43	50	20	0.2	500
RFLM-300301QC-290	Quasi-Active, SMT	0.03 - 0.3	0.7	15	56	56	19	0.5	7,5
RFLM-300511QA-392	Quasi-Active, SMT	0.03 - 0.5	0.7	15	56	60	19	0.5	7
RFLM-301511QC-290	Quasi-Active, SMT	0.3 - 0.5	0.7	15	56	56	19	0.5	5
RFLM-301511QC-392	Quasi-Active, SMT	0.3 - 0.5	0.7	15	56	56	19	0.5	5
RFLM-401102QA-290	Quasi-Active, SMT	0.4 - 1.0	1.4	15	43	50	20	0.2	5
RFLM-401102QC-290	Quasi-Active	0.4 - 1.0	0.3	17	50	60	18	0.5	5
RFLM-501202LC-299	Passive, SMT	0.4 - 2.5	0.4	20	36	51	21	0.2	750
RFLM-501202MC-299	Passive, SMT	0.25 - 3.5	0.4	20	45	54	21	0.3	500
RFLM-052402QC-290	Quasi-Active, SMT	0.5 - 4.0	0.5	18	53	63	17	0.5	1,5
RFLM-961122MC-299	Passive, SMT	0.96 - 1.2	0.2	17	48	60	14	0.3	200
RFLM-961122XC-392	Quasi-Active, SMT	0.96 - 1.2	0.7	15	53	63	14	0.5	1
RFLM-011014QC-290	Quasi-Active, SMT	1.0 - 2.0	0.25	20	53	55	17	0.5	1,5
RFLM-102202HC-290	Quasi-Active, SMT	1.0 - 2.0	0.7	15	47	53	17	0.3	3
RFLM-102202QA-290	Quasi-Active, SMT	1.0 - 2.0	0.25	20	50	60	17	0.5	1,5
RFLM-102202XA-290	Quasi-Active, SMT	0.5 - 2.0	0.7	15	57	60	20	0.5	1
RFLM-011015QF-290	Quasi-Active, SMT	2.0 - 4.0	0.5	14	50	56	15	0.5	750
RFLM-102402QE-290	Quasi-Active, SMT	1.0 - 4.0	0.35	16	50	60	15	0.5	1
RFLM-102402QF-290	Quasi-Active, SMT	1.0 - 4.0	0.35	16	50	60	15	0.5	1
RFLM-252352QA-290	Quasi-Active, SMT	2.5 - 3.5	0.6	15	47	62	23	0.3	1,5
RFLM-262322HC-151	Quasi-Active, SMT	2.6 - 3.2	0.65	18	48	57	13	0.5	100
RFLM-202402QA-290	Quasi-Active, SMT	2.0 - 4.0	0.5	14	50	60	20	0.5	750
RFLM-202402QC-290	Quasi-Active, SMT	2.0 - 4.0	0.5	14	50	60	20	0.5	750
RFLM-202602HA-299	Passive, SMT	2.0 - 6.0	0.85	14	35	50	18	0.1	1
RFLM-202602HC-299	Passive, SMT	2.0 - 6.0	0.85	14	35	50	18	0.1	1
RFLM-502602HC-491	Passive, SMT	5.0 - 6.0	0.6	15	48	57	14	0.5	700
RFLM-202802LC-299	Passive, SMT	2.0 - 8.0	1.1	15	36	50	19	0.2	750
RFLM-202802MC-299	Passive, SMT	2.0 - 8.0	0.6	15	45	53	20	0.3	1,5
RFLM-202802QA-290	Quasi-Active, SMT	2.0 - 8.0	1.1	13	50	60	21	0.5	5
RFLM-202802QC-290	Quasi-Active, SMT	2.0 - 8.0	1.1	13	50	60	21	0.5	5
RFLM-872113HC-150	Passive, SMT	8.7 - 10.7	1.5	15	42	46	14	0.5	500
RFLM-802123QC-291	Passive, SMT	8.7 - 10.7	1.3	15	49	53	20	0.5	3
RFLM-143173HC-150	Passive, SMT	14.0 - 17.0	1.2	15	46	50	14	0.5	700

KONNECT RF

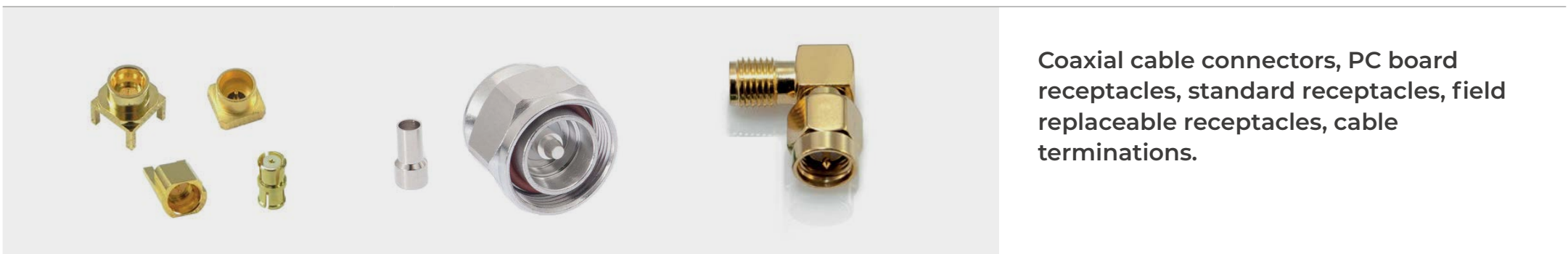
www.konnectrf.com

COMPANY OVERVIEW

Konnect RF can provide lower-cost alternatives for almost any part in the industry. Whether you need domestically manufactured mil-spec equivalents or you can use high-quality internationally produced parts, they can save you money and grow your bottom line.

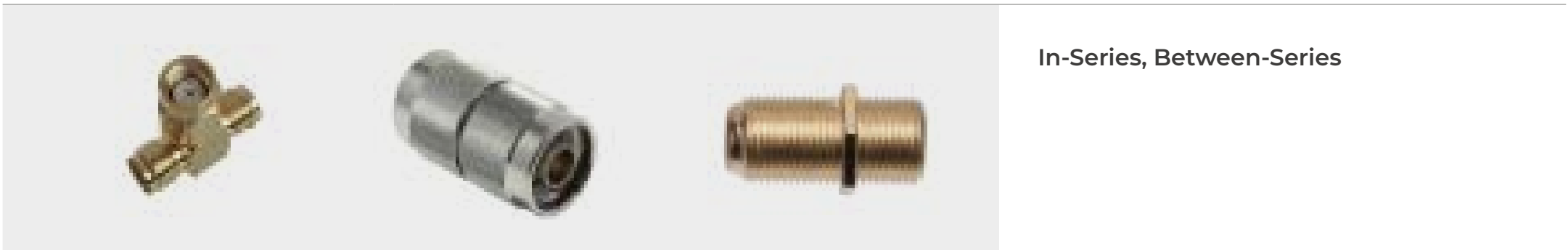
- Founded 2010
- Located in Southeast Florida
- Over 600 customers Worldwide
- Supplying Coaxial Connectors, Adapters, Cable Assemblies and Passive Components
- Global Network of Contract Manufacturers
- All products inspected, packaged, and warehoused in USA
- Rapid and Cost Effective development of
- custom products

• Connectors



Coaxial cable connectors, PC board receptacles, standard receptacles, field replaceable receptacles, cable terminations.

• Adapters

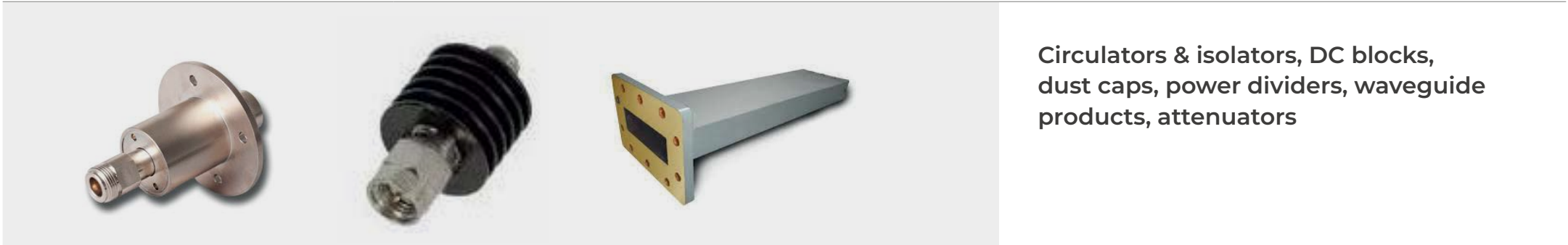


In-Series, Between-Series

• Cable Assemblies



• RF & Microwave Components



Circulators & isolators, DC blocks, dust caps, power dividers, waveguide products, attenuators

A1 MICROWAVE

www.a1microwave.com

COMPANY OVERVIEW

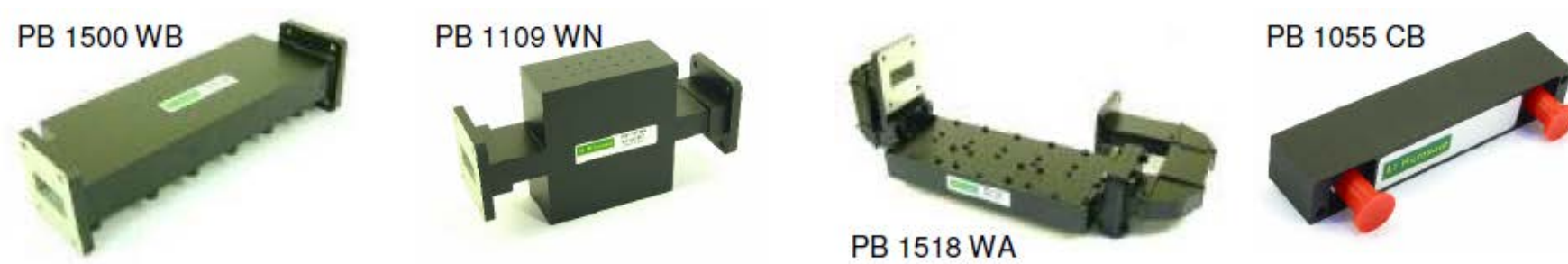
A1 Microwave was founded in 2001 in United Kingdom, and is a leading designer and manufacturer of passive RF and microwave components and sub-assemblies for satcoms, telecoms, defence, radar and scientific applications. Products and services are free from ITAR restrictions and many of our commercial off the shelf products (COTs) can be tailored to meet precise customer requirements.

The company acquired JMD Technologies in 2010 which had an established credibility in Precision Waveguide Component and Sub-Assembly production WG 6 (WR 650) to WG 22 (WR 28), and has been manufacturing since 1990. A1 Microwave also provides build to print of precision waveguide components and sub-assemblies from WG6 (WR650) to WG22 (WR28). A1 Microwave can supply specialist items to the Defence, Aerospace, Marine, Satellite Communications, Commercial and High Power segments of the markets.

TRANSMIT ARMS



RECEIVE FILTERS



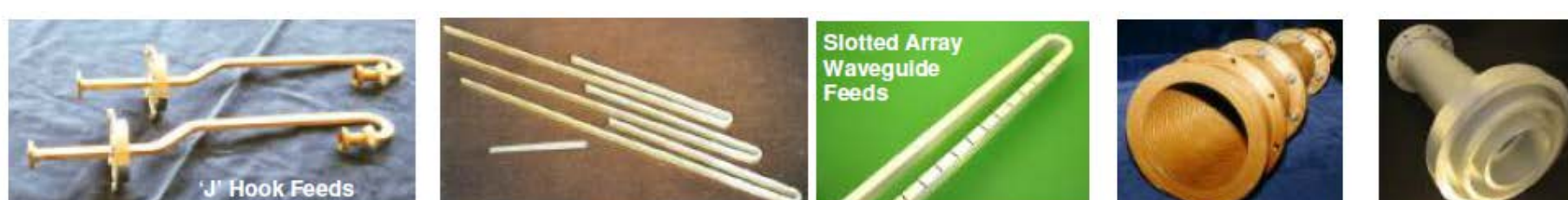
TRANSMIT FILTERS



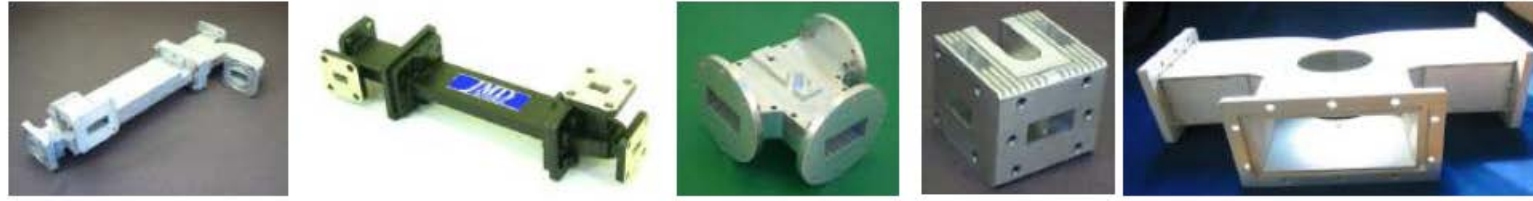
DIPLEXERS



ANTENNA FEEDS



CIRCULATOR HOUSINGS



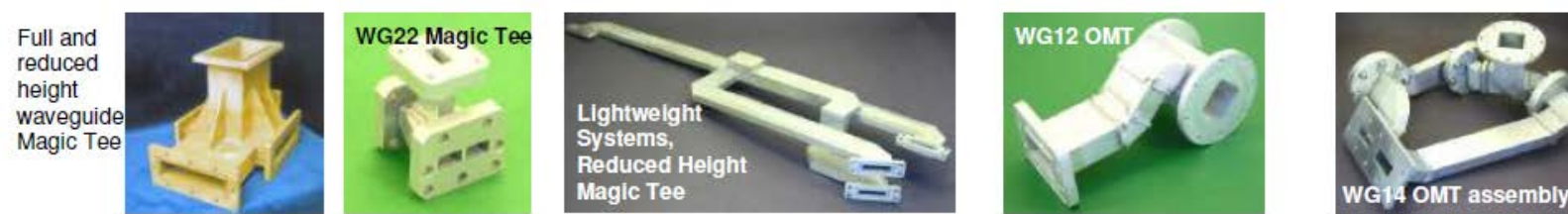
TERMINATION HOUSINGS



BENDS AND TWISTS



MAGIC TEES AND OMT'S



COMBINERS



GENERAL COMPONENTS



Since 2001 AI Microwave's Filter division has brought high quality technically advanced microwave filtering products to the Satcom, Radar and Fixed Link communications markets.

Fast delivery and No NRE (on standard designs) is achieved by using sophisticated in-house design and simulation software, all new designs are "right first time" allowing the design to move from the design computer to the machine shop without the need for prototyping.

With in house CNC machining, turning, brazing, hard and soft soldering and bending facilities AI Microwave can design or build to print a complete range of custom waveguide components and assemblies.

INSULATED WIRE

www.iw-microwave.com

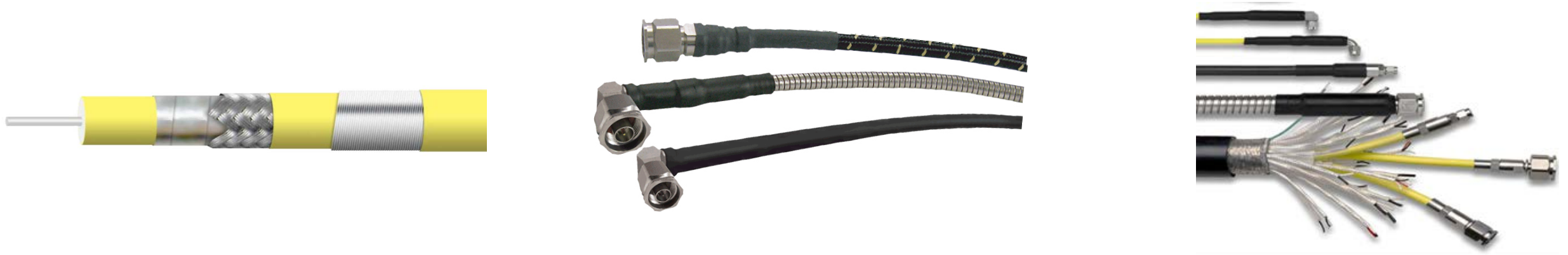
COMPANY OVERVIEW

Founded in 1970, IW developed a unique PTFE lamination process and applied it to manufacturing wire and cable. This process allowed IW to manufacture products of unprecedented reliability along with smaller diameters, from .050" to 0.500".

- Phase matching, amplitude matching, and time delay measurements up to 67 GHz are available when required.
- All assemblies are tested for VSWR and insertion loss before leaving the factory
- High Power cables:
 - 2801 – up to 1.9KW (c.w) @ 2 GHz
 - 4806 – up to 3.2KW (c.w) @ 1 GHz
 - customer proven to 15KW at 13.56MHz
 - 7506 – theoretical 5KW (c.w) @ 1 GHz
- 75ohm cables: 2801/75, 1801/75, 1151/75
- Low loss phase stable dielectric: 1571 cable 64dB/100ft. @ 40 GHz – 4dB/100ft. less than Micro Coax

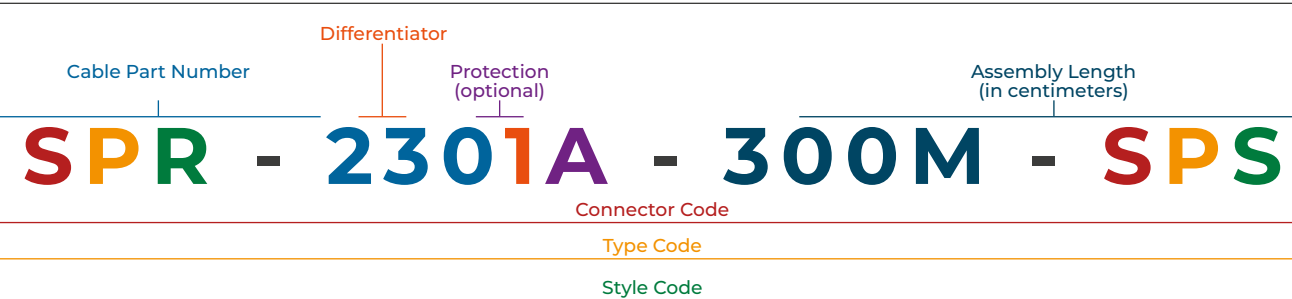
115	GPO/GPPO, 1.85mm (V™), 2.4mm, 2.92mm (K™)
125	GPO/GPPO, 1.85mm (V™)
140	2.4mm
150	SMA, TNCA, N, 3.5, 2.4, 2.92mm (K™)
160	N, SMA, TNCA, SMP, K™
170	2.92mm (K™)
180	N, SMA, TNCA, 3.5mm, 2.92mm (K™)
230	N, SMA, TNCA, SC, 3.5mm
280	N, SMA, TNCA, SC
480	N, 7/16, SC&C
RF047	SMA, 2.92mm (K™), 2.4mm, 1.85mm (V™), GPO/GPPO
RF085	Industry Standard 085 SR Connectors
RF141	Industry Standard 141 SR Connectors
RF250	SMA, TNC, N, SC

*Connector types listed are preferred matching for referenced cables. Additional connector types can be provided. Please consult factory.



CABLE ASSEMBLIES

METRIC PART NUMBER



Note: Metric part number format is XXX meters - 300M defines a 3m length assembly; a 10m assembly part number with the same connectors as shown above is SPR-2301A-1000M-SPS

● **Custom Solutions**

In addition to our internally ruggedized cables, IW has a wide range of materials and processes designed to protect the integrity of our cable assemblies. These include a variety of metallic and non-metallic external sheaths to address your specific application. Please contact us for details.

1	ZEL	Tefzel Jacket
2	LC	Low Smoke/ Zero Halogen Polyurethane
3	NX	Fire resistant NOMEX* braid *Nomex is a registered trademark of the DuPont Corporation
4	A	Interlocked stainless steel armor, crush resistant up to 400 lbs per linear inch
5	N	Neoprene weather proof jacket
6	ALC	Armor with extruded Polyurethane jacket

● **Re-Flex**

To provide improved electrical and mechanical performance over traditional hand-formable designs, Insulated Wire presents **Re-Flex™**.

Both RF085 and RF141 are industry standard line sizes, consequently a wide range of connector types and styles can be used with these cables, including: SMA, TNC, N, GPO™, GPPO™, **2.92mm/K™**, **2.4mm** and **1.85mm/V™**, with performance up to 60GHz. **RF250** is commonly used for higher power applications with SMA, TNC, N, SC and HN connectors available.

Cable part numbers are TPRFEP085, TPRFEP141 and TPRFEP250.



CABLE TYPE	MAXIMUM FREQUENCY (CABLE ONLY)	ATTENUATION (DB/FT., MAX)				BEND RADIUS (INCH)	REPLACES
		10 GHZ	18 GHZ	32 GHZ	60 GHZ		
RF085	62 GHz	0.60	0.91	1.28	2.01	0.125	RG405
RF141	32 GHz	0.41	0.60	0.88	-	0.250	RG402
RF250	19.5 GHz	0.29	0.44	-	-	0.375	RG401



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