



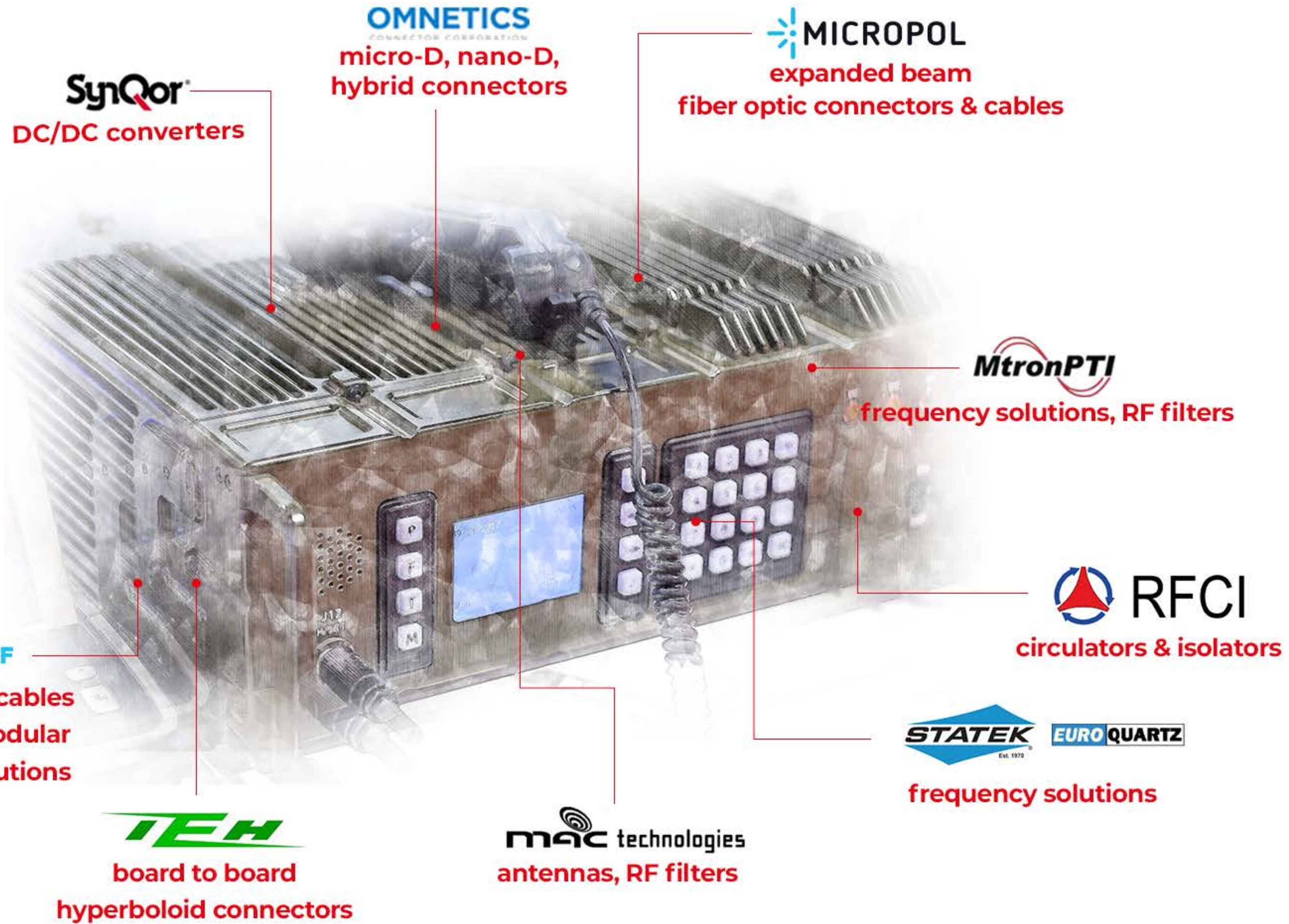
SACA
— europe —

tactical communications

Tactical communication involves clear and concise communication between team members to achieve mission objectives, while also ensuring the safety of all involved. Tactical communication includes the use of specific codes, terminology, and protocols to relay information quickly and accurately.

manufacturers

 **Konnect RF**



SynQor
DC/DC converters

OMNETICS
CONNECTOR CORPORATION
micro-D, nano-D,
hybrid connectors

MICROPOL
expanded beam
fiber optic connectors & cables

MtronPTI
frequency solutions, RF filters

RFCI
circulators & isolators

STATEK **EUROQUARTZ**
Est. 1970
frequency solutions

Konnect RF
RF connectors, cables
harness and modular
component solutions

TEH
board to board
hyperboloid connectors

mac technologies
antennas, RF filters

SYNQOR

www.synqor.com

COMPANY OVERVIEW

SynQor® is a leading supplier of power conversion solutions to the military, industrial, rail transportation, commercial avionics, medical and telecom/datacom markets. SynQor's innovative products are designed to exceed the demanding performance, quality, and reliability requirements of today's power electronic engineers and system integrators who develop leading-edge infrastructure hardware.

MCOTS DC-DC CONVERTER



MCOTS PRODUCT FEATURES

- ▶ High efficiency, up to 95% at full rated load current
- ▶ Fixed frequency switching provides predictable EMI
- ▶ No minimum load requirement
- ▶ Rugged design for harsh environments
- ▶ Full Feature option on some models
- ▶ Flanged baseplate available
- ▶ Industry standard pin-out configurations and standard footprints.
- ▶ Available: High-capacitance option for very large output capacitance and extreme transient applications
- ▶ -55 °C to +100 °C Operating Temperature

COMPLIANCE FEATURES

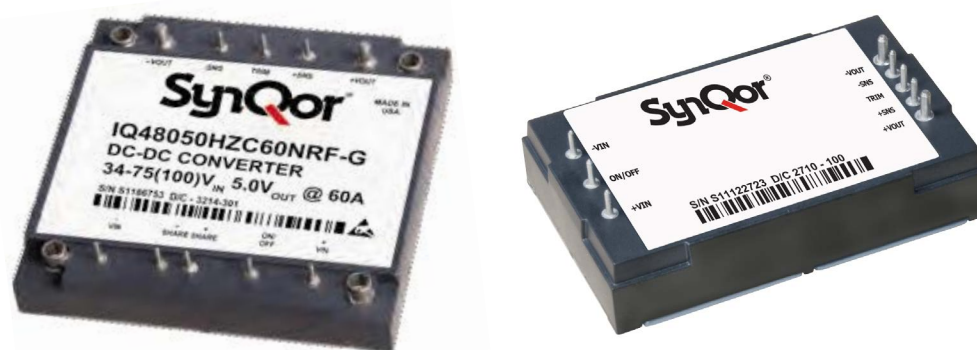
MilCOTS converters with MilCOTS filters are designed to meet:

- ▶ MIL-HDBK-704
- ▶ RTCA/DO-160 Section 16, 17, 18
- ▶ MIL-STD-1275
- ▶ MIL-STD-461
- ▶ DEF-STAN 61-5 (part 6)/(5, 6)

PROTECTION/CONTROL FEATURES

- ▶ Input under-voltage lockout
- ▶ Output current limit and short circuit protection
- ▶ Active back bias limit
- ▶ Output over-voltage protection
- ▶ Thermal shutdown (not on DM Package Size)
- ▶ On/Off control referenced to input side (ON/OFF control isolated in Full Bricks)
- ▶ Remote sense for the output voltage
- ▶ Digital Output Current Sharing (HZ & HY only)
- ▶ Output voltage trim range of:
 - (Half-Brick Zeta/Yota) **+10% to -20%**
 - (Quarter-Brick Exa) **+10% to -50%**
 - (Sixteenth Brick) **+10% to -10%**

INQOR DC-DC CONVERTER



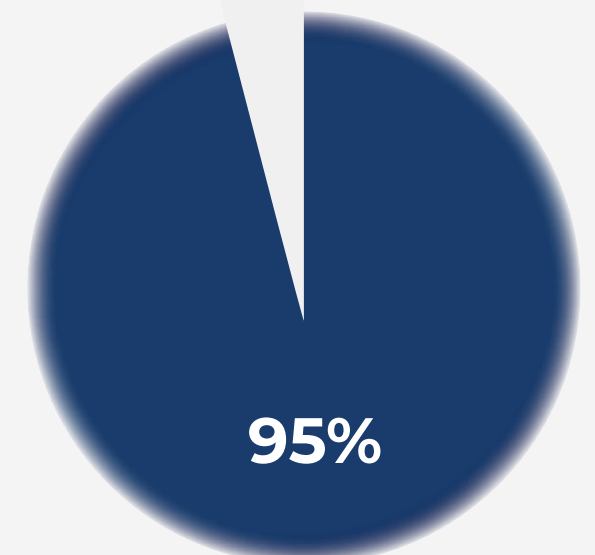
OPERATIONAL FEATURES

- ▶ High efficiency up to 95%
- ▶ Input voltage ranges from 9 V to 425 V
- ▶ Output power up to 600 W
- ▶ Fixed frequency switching, low output noise
- ▶ No minimum load requirement
- ▶ Full Feature option on some models
- ▶ Industry standard pin-out configurations and standard footprints
- ▶ Operating Temperature -40 °C to +100 °C
- ▶ Output Voltage Set Point ±1.0%
- ▶ Output Voltage Ripple <1% of Vout (typ.) pk-pk
- ▶ Isolation Voltage Up to 4250 Vdc

PROTECTION/CONTROL FEATURES

- ▶ Input under-voltage lockout
- ▶ Output current limit and short circuit protection
- ▶ Active back bias limit prevents damage to converter from external load induced pre-bias
- ▶ Digital output current sharing (Half Brick Zeta only)
- ▶ Output over-voltage protection
- ▶ Thermal shutdown
- ▶ Trimmable output voltages

EFFICIENCY



Continuous Input	34-160 V
Output	1.8-48 V
Max Power	120 W
Reinforced Isolation	3000 Vdc
Quarter Brick	DC/DC Converter



ISOLATED DC-DC CONVERTERS

12 VDC INPUT (9-22 VDC INPUT RANGE, TRANSIENT 25 V)

	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V
Half Brick	HPC	60 A 108 W	50 A 165 W	36 A 180 W		15 A 180 W	12 A 180 W	7.5 A 180 W	6.5 A 182 W		4.5 A 180 W	3.7 A 178 W
	HTC	50 A 90 W	40 A 132 W	28 A 140 W		12 A 144 W	9.5 A 143 W	6 A 144 W	5 A 140 W		3.5 A 140 W	3 A 144 W
Quarter Brick	QTC	40 A 72 W	30 A 99 W	20 A 100 W	14 A 98 W	8 A 96 W	7 A 105 W	4 A 96 W		3 A 90 W		2 A 96 W
	QGC	30 A 54 W	20 A 66 W	15 A 75 W	10 A 70 W	6 A 72 W	5 A 75 W	3 A 72 W		2.4 A 72 W		1.5 A 72 W

24 VDC INPUT (18-36 VDC INPUT RANGE, TRANSIENT 50 V)

	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V	50 V
Half Brick	HZC			60 A 300 W		42 A 504 W	34 A 510 W	21 A 504 W	18 A 504 W		12.5 A 500 W		10 A 500 W
	HEC								14 A 392 W				8 A 400 W
	HPC	60 A 108 W	50 A 165 W	40 A 200 W		8 A 216 W	8 A 216 W	9 A 216 W	7.5 A 210 W		10 A 500 W	4.5 A 216 W	
	HTC	50 A 90 W	40 A 132 W	30 A 150 W		13 A 156 W	10 A 150 W	6.5 A 156 W	5.5 A 154 W		4 A 160 W	3.3 A 158 W	
Quarter Brick	QTC	40 A 72 W	30 A 99 W	20 A 100 W	14 A 98 W	8 A 96 W	8 A 120 W	5 A 120 W		4 A 120 W		2.5 A 120 W	
	QGC	32 A 58 W	25 A 83 W	18 A 90 W	13 A 91 W	7.5 A 90 W	6 A 90 W	3.7 A 89 W		3 A 90 W		1.8 A 91 W	
	QMC									2 A 60 W		1.2 A 58 W	
Sixteenth Brick	SGC		15 A 50 W	10 A 50 W	7 A 49 W	4 A 48 W	3.3 A 48 W	2 A 48 W	1.8 A 50 W			1 A 48 W	

48 VDC INPUT (34-75 VDC INPUT RANGE, TRANSIENT 100 V)

	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V	50 V
Half Brick	HZC			60 A 300 W		50 A 600 W	40 A 600 W	25 A 600 W	21.5 A 602 W		15 A 600 W		12 A 600 W
	HPC	60 A 108 W	60 A 198 W	46 A 230 W		21 A 252 W	17 A 255 W	10.5 A 252 W	9 A 252 W		6.3 A 252 W	5.2 A 250 W	
	HTC	50 A 90 W	45 A 149 W	34 A 170 W		16 A 192 W	13 A 195 W	8 A 192 W	7 A 196 W		5 A 200 W	4 A 192 W	
Quarter Brick	QTC	40 A 72 W	30 A 99 W	25 A 125 W	20 A 140 W	12 A 144 W	10 A 150 W	6 A 144 W		5 A 150 W		3 A 144 W	
	QGC	32 A 58 W	25 A 83 W	21 A 105 W	15 A 105 W	9 A 108 W	7 A 105 W	4.5 A 108 W		3.5 A 105 W		2.2 A 106 W	
Sixteenth Brick	SGC	28 A 50 W	15 A 50 W	10 A 50 W	7 A 50 W	4.1 A 50 W	3.3 A 50 W		1.8 A 50 W				

72 VDC INPUT (42-110 VDC INPUT RANGE)

	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V
Half Brick	HPC	60 A 108 W	60 A 198 W	46 A 230 W		21 A 252 W	17 A 255 W	10.4 A 250 W	9 A 252 W		6.3 A 252 W	5.2 A 250 W
	HTC	50 A 90 W	45 A 149 W	34 A 170 W		16 A 192 W	13 A 195 W	8 A 192 W	7 A 196 W		5 A 200 W	4 A 192 W
Quarter Brick	QTC		30 A 99 W	25 A 125 W	20 A 140 W	12 A 144 W	10 A 150 W	6 A 144 W		5 A 150 W		3 A 144 W
	QGC		5 A 83 W	20 A 100 W	15 A 105 W	9 A 108 W	7 A 105 W	4.5 A 108 W		3.5 A 105 W		2 A 96 W

110 VDC INPUT (66-160 VDC INPUT RANGE, TRANSIENT 170 V)

	VOUT	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V
Half Brick	HPC	60 A 198 W	48 A 240 W		21 A 252 W	17 A 255 W	10 A 240 W	9 A 252 W			
	HTC	45 A 149 W	34 A 170 W		16 A 192 W	13 A 195 W	8 A 192 W	7 A 196 W			
Quarter Brick	QTC	30 A 99 W	25 A 125 W	20 A 140 W	12 A 144 W	10 A 150 W	6 A 144 W		5 A 150 W		
	QGC	23 A 76 W	18 A 90 W	15 A 105 W	9 A 108 W	7 A 105 W	4.5 A 108 W		3.5 A 105 W		

PRODUCT FAMILY MATRIX

		2:1 INPUT RATIO		8:1 INPUT RATIO		
Input Voltage Range	9 V	IQ12 Input Range: 34-75 V Transient: 100 V Max Power: 602 W Eff: Up to 95%				
	18 V					
	25 V	IQ48 Input Range: 34-75 V Transient: 100 V Max Power: 602 W Eff: Up to 95%	IQ24 Input Range: 18-36 V Transient: 50 V Max Power: 510 W Eff: Up to 95%	IQ24 Input Range: 18-36 V Transient: 50 V Max Power: 510 W Eff: Up to 95%	IQ32 Input Range: 9-75 V Transient: 100 V Max Power: 255 W Eff: Up to 92%	IQ64 Input Range: 18-135 V Max Power: 200 W Eff: Up to 91%
	34 V					
	75 V	IQ42H Input Range: 90-210 V Transient: 250 V Max Power: 150 W Eff: Up to 90%	IQ1B Input Range: 66-160 V Transient: 170 V Max Power: 255 W Eff: Up to 93%	IQ4H Input Range: 18-36 V Transient: 50 V Max Power: 510 W Eff: Up to 95%		
	100 V					
	170 V					
475						

PRODUCT FAMILY MATRIX

		4:1 INPUT RATIO		12:1 INPUT RATIO		
Input Voltage Range	9 V	IQ12 Input Range: 9-36 V Transient: 40 V Max Power: 182 W Eff: Up to 92%				
	18 V					
	25 V	IQ36 Input Range: 18-75 V Max Power: 220 W Eff: Up to 93%	IQ70 Input Range: 34-135 V Max Power: 240 W Eff: Up to 93%	IQ90 Input Range: 34-160 V Max Power: 228 W Eff: Up to 94%	IQ68 Input Range: 12-150 V Transient: 170 V Max Power: 53 W Eff: Up to 90%	
	34 V					
	75 V					
170 V						

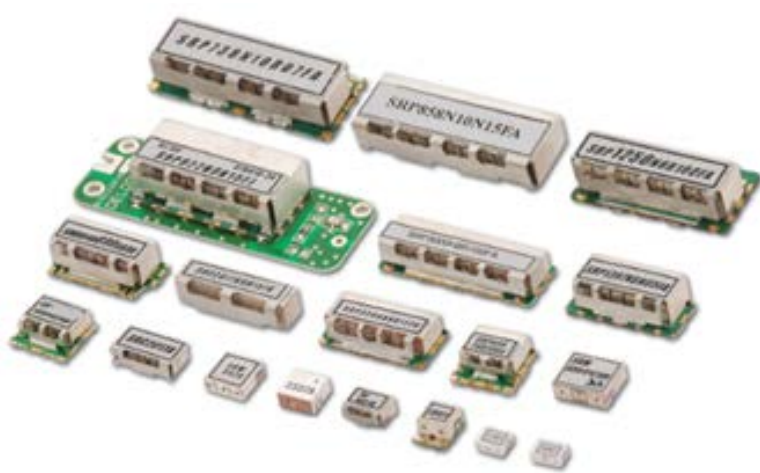
Input Voltage	Mode	Output Voltage	Package Size	Series	Thermal Design	Maximum Current	Options Description:		
							Enable Logic	Pin Length	Feature Set
IQ	12: 9-22 V	012: 1.2 V	S: Sixteenth Brick Q: Quarter Brick H: Half Brick F: Full Brick	K: Kilo M: Mega G: Giga T: Tera P: Peta E: Exa Z: Zeta	C: Encased D: Encased, Non-threaded Baseplate V: Encased, Flanged Baseplate	60: 60 A 50: 50 A 30: 30 A 10: 10 A 06: 6 A 02: 2 A (not all shown)	N: Negative	K: 0.110" N: 0.145" R: 0.180" Y: 0.250"	S: Standard (1/8 & 3/4 only) C: Current monitor output/trimmable current limit (1/8 & 3/4 only) F: Current share/trimmable current limit (half brick only)
	18: 9-36 V	015: 1.5 V							
	24: 18-36 V	018: 1.8 V							
	32: 9-75 V	025: 2.5 V							
	36: 18-75 V	033: 3.3 V							
	48: 34-75 V	050: 5 V							
	64: 18-135 V	070: 7 V							
	68: 12-150 V	120: 12 V							
	70: 34-135 V	150: 15 V							
	72: 42-110 V	240: 24 V							
	90: 34-160 V	280: 28 V							
	1B: 66-160 V	300: 30 V							
	2H: 90-210 V	400: 40 V							
	4H: 180-425 V	480: 48 V							
		500: 50 V							

MAC TECHNOLOGIES

www.mactech.co.kr

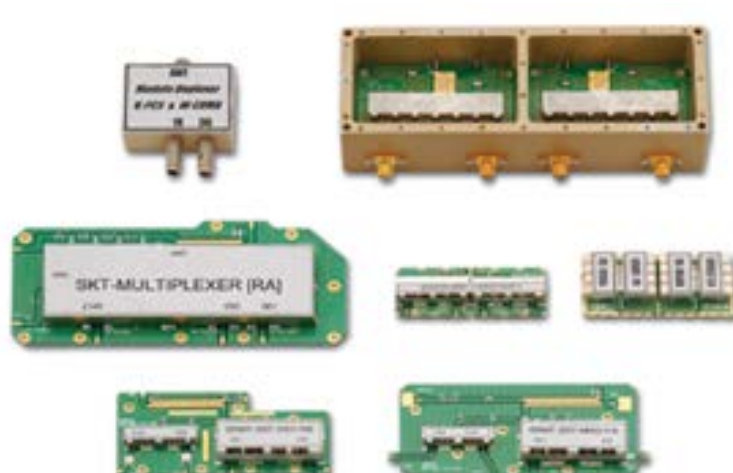
COMPANY OVERVIEW

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

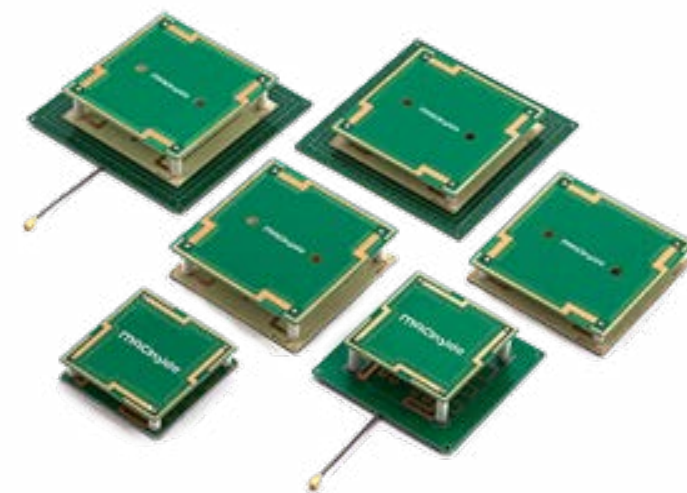


DIELECTRIC DUPLEXER

- ▶ 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

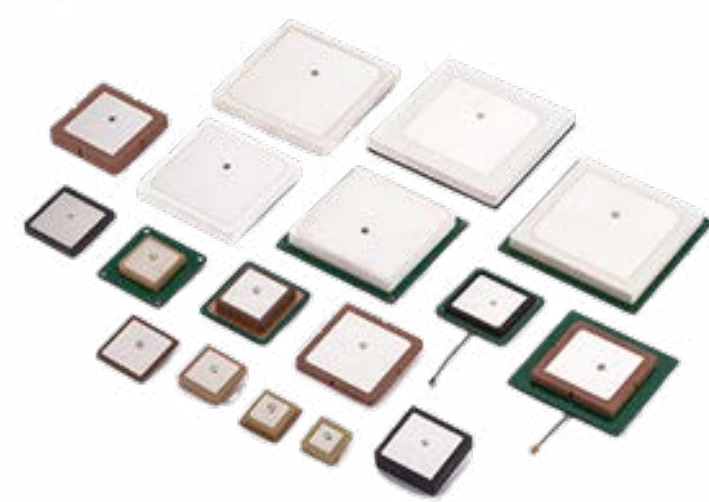
No.	Part No.	Antenna Weight (g)	Dimension (mm ²)	Frequency range(MHz)	Measurement Data (MAC technologies Chamber)					
					BandW (-10dB)(MHz)	BeamW (-3dB)(Deg)	Hor(dBIL)	Ver(dBIL)	RHCP(dBic) AR(dB)	AR(dB)
1	MQWA45SH915-A	8	45x45x10	FCC ETSI KCC CCC & etc.	200 Typ.	110	-1.63	-0.66	27760	3.0 min
2	MQWA45SM915-A	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	60x60x10(F45x45)		200 Typ.	110	-1.25	-1.06	29221	3.0 min
5	MQWA60F45SM915-A	12	60x60x15(F45x45)		200 Typ.	110	-0.08	0.21	3.00	3.0 min
6	MQWA60F45SP915-A	12	60x60x18(F45x45)		200 Typ.	110	-0.16	0.95	11383	3.0 min
7	MQWA60SH915-A	13	60x60x10		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	79x79x10(F60x60)		200 Typ.	100	0.32	0.06	43891	3.0 min
10	MQWA79SM915-A	19	79x79x15(F60x60)		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

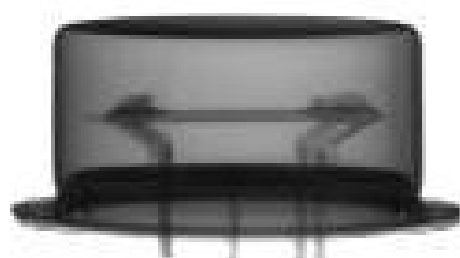
REFERENCES

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



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.

• CXOXLPRN Oscillators

Statek's ultra-miniature Low Earth Orbit (LEO) applicable oscillators are 100,000 g shock and 30 kRad survivable. These oscillators deliver a low voltage CMOS output with ultra-low phase noise, jitter, and acceleration sensitivity. At 50 MHz the typical RMS phase jitter from 12 kHz to 20 MHz is only 150fs.

Frequency	20 to 125MHz
Supply Voltage	1.8 to 3.3V
Frequency-Temperature Stability²	±100 ppm to ±25 ppm (Industrial) ±100 ppm to ±50 ppm (Military)
Calibration Tolerance¹	±100 ppm to ±50 ppm
Output Load (CMOS)	15 pF
Radiation Tolerance	30 kRad
Temperature Range	-55°C to 125°C



PRODUCT	PACKAGE(MM)	FREQUENCY RANGE	
CXOLHG Shock to 100,000g	3.2 x 1.5	16 kHz to 32.768 kHz	
CXOMKHG Shock to 100,000g	6.5 x 5.0	200 kHz to 200 MHz	
CXOQHG Shock to 75,000g	2.5 x 2.0	16 kHz to 100 MHz	
LHGAT Shock to 30,000g	7.0 x 5.0	320 kHz to 50 MHz	
HGXO Shock to 100,000g	7.0 x 5.0	32.768 kHz to 50 MHz	
STXOHG Shock to 100,000g Tight Frequency Stability	3.2 x 2.5	10 MHz to 70 MHz	
CXOXLPN Shock to 100,000g	3.2 x 2.5	10 MHz to 125 MHz	
CX1HG Shock to 100,000g	8.0 x 3.6	6 MHz to 250 MHz	
CX4HG Shock to 100,000g	5.0 x 1.8	14 MHz to 50 MHz	
CX16HG Shock to 50,000g	2.0 x 1.2	24 MHz to 50 MHz Contact Factory	
CX18HG Shock to 75,000g	1.6 x 1.0	30 MHz to 50 MHz Contact Factory	
CX11HG Shock to 75,000g	3.2 x 1.5	16 MHz to 50 MHz	

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

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

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



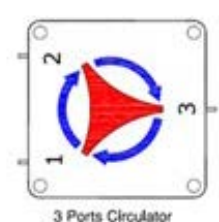
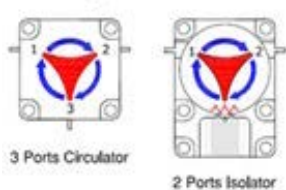
Coaxial Type N, SMA Circulator/Isolator (50W to 100W Power Handling) from 49MHz to 174 MHz



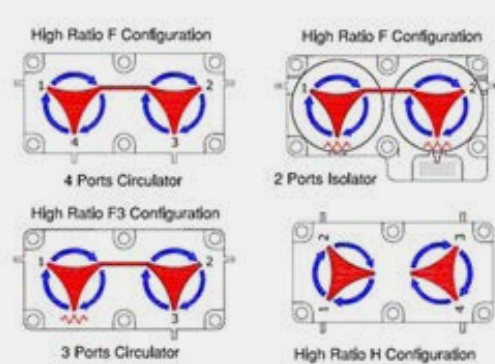
Drop-in Circulator/ Isolator (50W to 100W Power Handling) from 49MHz to 174 MHz

DROP-IN FLANGE MOUNT DEVICE

Single Junction

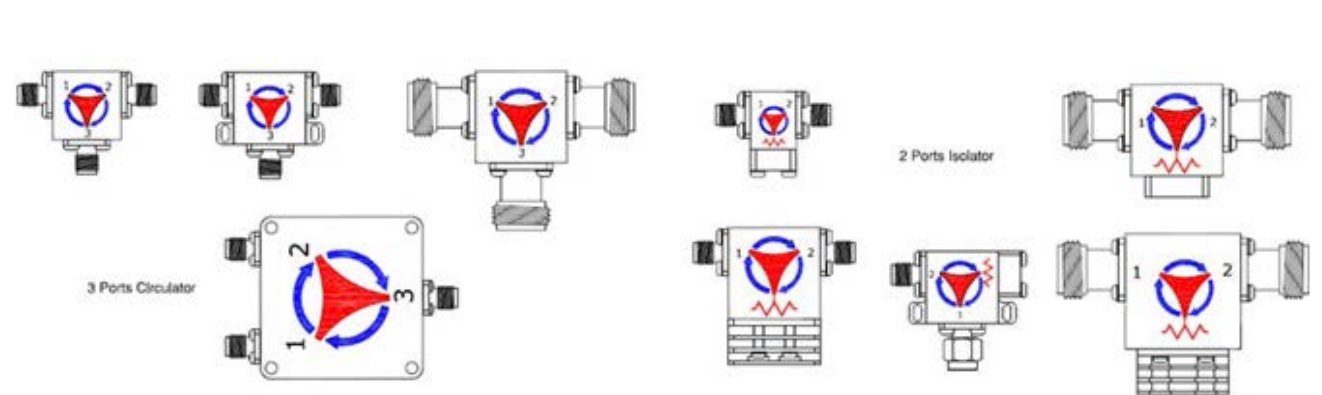


Dual Junction



COAXIAL DEVICE

Single Junction



OMNETICS

www.omnetics.com

COMPANY OVERVIEW

Omnetics is a world-class miniature connector design and manufacturing company with over 30 years of experience, focused on Micro-miniature and Nano-miniature highly reliable electronic connectors and interconnection systems. Our miniature connectors are designed and assembled in a single location at our plant in Minneapolis, Minnesota.

SINGLE ROW NANO-D

Horizontal SMT (AA)	Vertical SMT (VV)	Straight Tails (DD)	Thru-Hole Horizontal (H2)	Thru-Hole Vertical (V2)	Pre-Wired (W2)	Jumpers (JU)	MILDTL-32139 QPL

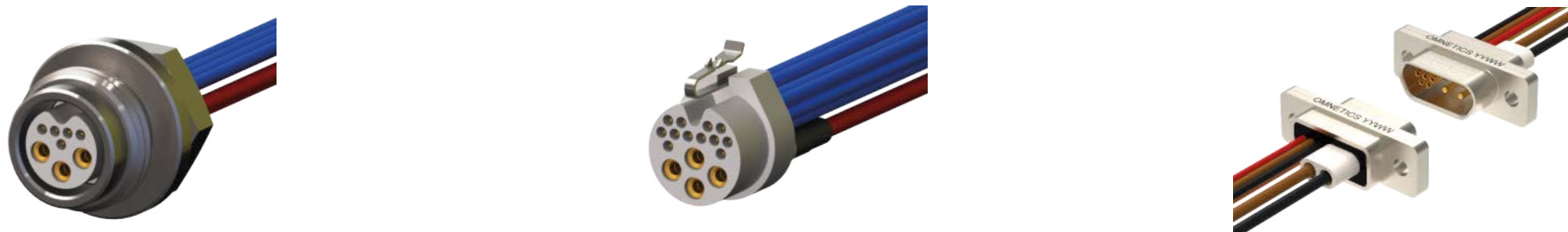
LATCHING NANO-D

Surface Mount (AA)	Flex Mount (FF)	Straight Thru-Hole (DD)	Pre-Wired (WD)

LOW PROFILE MICRO-D

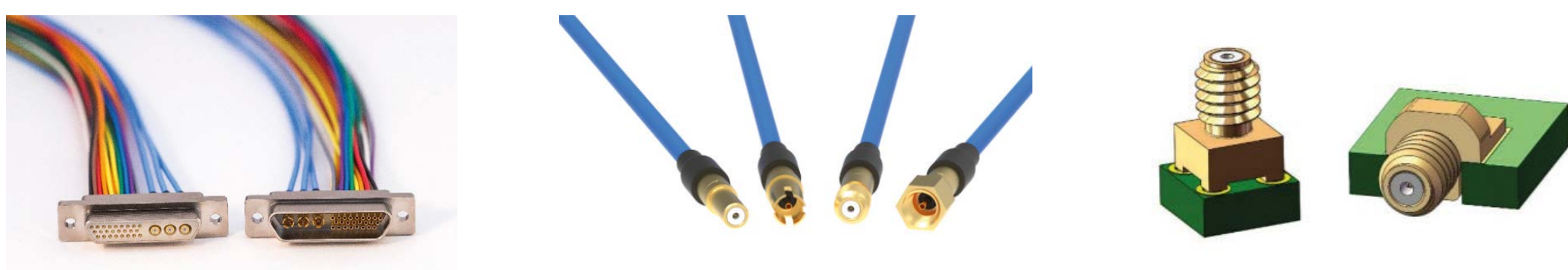
Discrete Wired (WD)	Right Angle Thru-Hole (H1)	Right Angle Thru-Hole (R2)	Solder Cup (SS)	Straight Thru-Hole (S2)

● Power and Signal Micro Hybrids: 10A, 5A, 3A



● Nano Coax Connectors

Omnetics Nano Coax contacts are available either in a Hybrid Micro-D or as a standalone contact... The standalone version provides optimal performance in one of the lowest form factors on the market. The Nano Coax contacts are designed to be terminated to a low-loss 29 AWG (.047") 50 coax cable. Cable-Cable: 20GHz / Edge Launch: 20GHz / Thru Hole: 10GHz



● **Micro 360® Circular Connectors**

Omnetics' Micro Circular Connector Series utilizes Omnetics' rugged and reliable Flex-Pin contact system, is spaced on 50 mil (1.27mm) centerlines, features a mated length of less than 12.4 mm, and is specified to MIL-DTL-83513.



Discrete Wired (WD)



Right Angle Thru-Hole (H1)



Right Angle Thru-Hole (R2)



Solder Cup (SS)



Straight Thru-Hole (S2)

● **IP68 Nano Circularity**

Omnetics' Micro Circular Connector Series utilizes Omnetics' rugged and reliable Flex-Pin contact system, is spaced on 50 mil (1.27mm) centerlines, features a mated length of less than 12.4 mm, and is specified to MIL-DTL-83513.



Full Keyed Breakaway (M)



Full Keyed Breakaway (F)



Ratcheting - RMCP



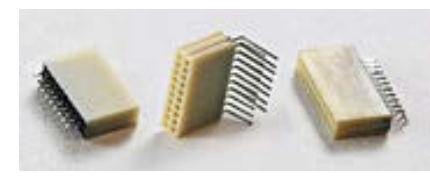
Ratcheting - RMCS

● **Micro Strip Connectors**



Single row: pin count changes up to 48
Dual row: pin count changes up to 97 available with latch

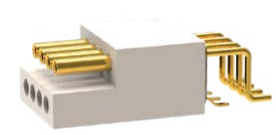
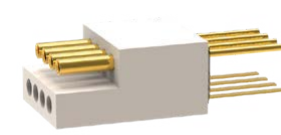
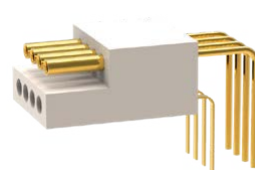
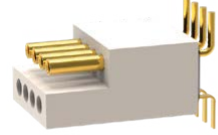
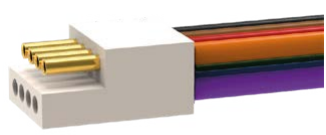
● **Nano Strip Connectors**



2-60 positions for single row
2-48 for dual row

● **Polarized Nano Connector (PZN)**

This configuration effectively polarizes the connector without the additional space required for guide pins. Termination options include: Pre-Wiring, Straight tail, Horizontal SMT, and Vertical SMT. Up to 24 positions.



● **Capabilities**

LATCHING NANO-D



EMI SHIELDING



CUSTOM HARNESSING



CUSTOM METAL SHELL





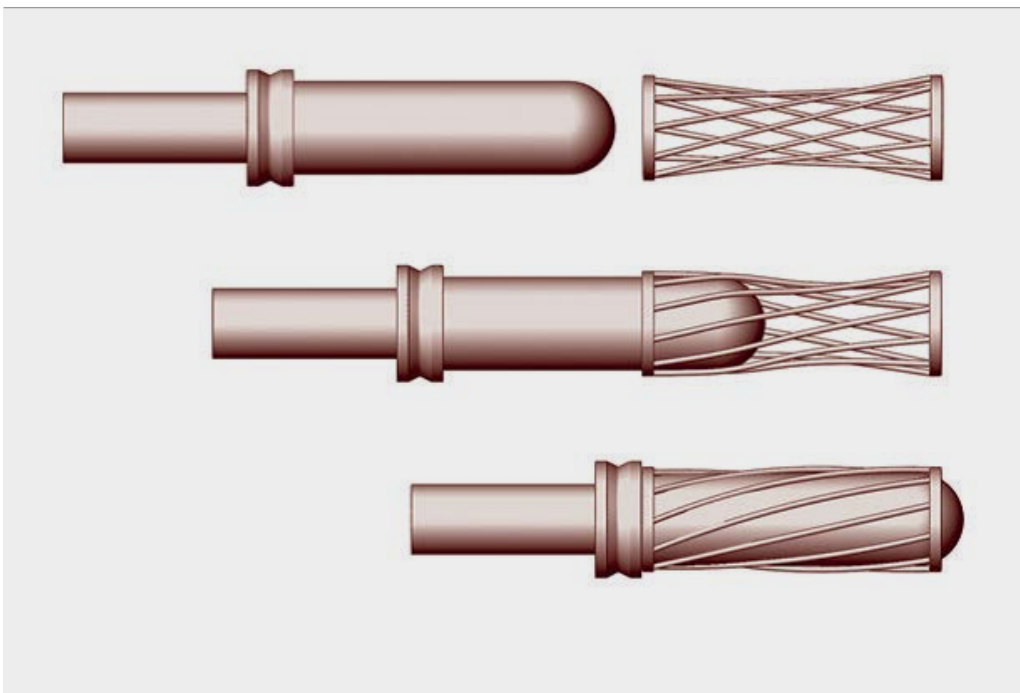
IEH

www.iehcorp.com

COMPANY OVERVIEW

Since 1941, IEH has been manufacturing superior products for demanding applications. Whether it's printed circuit board connectors, signal or power contacts, or custom interconnects, focus is delivering the right connector solution.

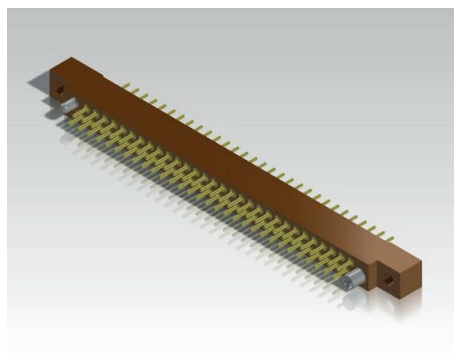
● Hyperboloid Technology



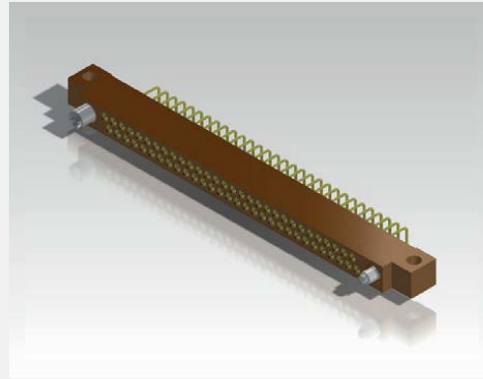
Utilized in all of our receptacle connectors, this unique design offers superior capability in every critical parameter of connector performance:

- ▶ Very low insertion force
- ▶ All but impervious to shock & vibration (Test exceed 300 g's without discontinuity.)
- ▶ 100,000 minimum duty cycles
- ▶ Extremely low contact resistance
- ▶ Improved current carrying capacity (The low contact resistance gives a lower °C rise from ambient under load. This feature often allows the user to operate the same size contact under higher load.)
- ▶ High reliability

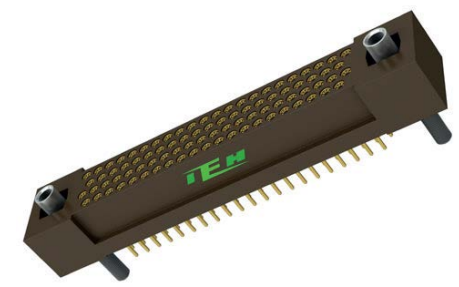
PCB CONNECTORS



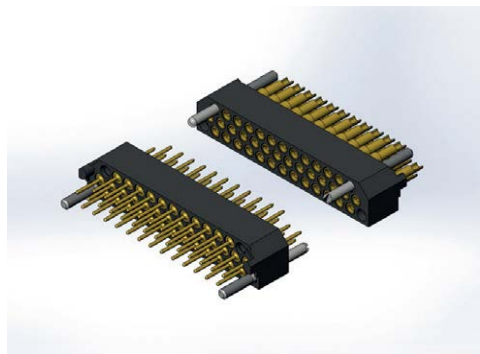
Type N Circulator from
300MHz to 10 GHz



HRM Series - .075" centers
2 & 3 row 10-206pos
M55302 /190 /193



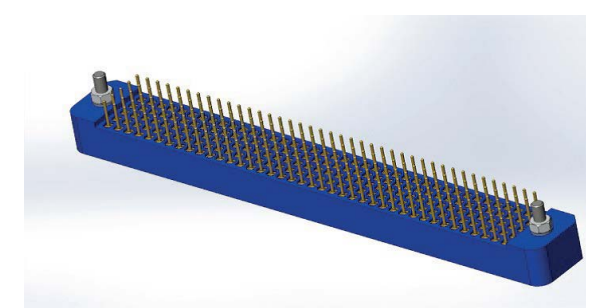
HMM Series - .075" centers
4, 6 & 8 row 58-604pos



HGC/HGS Series
Low-Profile for parallel boards
22-90pos



HVM Series - .050" centers
2-row
10-100pos



HMK Series - .100" centers,
2, 3, 4 & 5 row
17-490pos

HYPERKINETIC® CONNECTORS - HIGH SPEED, HIGH DENSITY MODULAR



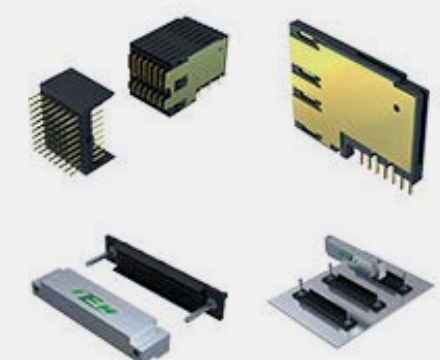
HKC (cPCI Series)

- ▶ Interchangeable with COTS board layout but with Hyperboloid Contact System
- ▶ 2mm Footprint of cPCI PICMG 2.0
- ▶ LCP Insulator Meets Outgassing Requirements
- ▶ Press-fit or Solder tail Terminations



HKX (VPX-Compatible Series)

- ▶ VITA-46 Platform
- ▶ Data Rates up to 10 Gbps
- ▶ 3U, 6U and Custom Configurations
- ▶ Custom Wafer Design for Mixing
- ▶ Differential and Single-ended Circuits
- ▶ Press-fit or Solder tail Terminations



MICROPOL

www.micropol.com

COMPANY OVERVIEW

Our name "Micropol" is generated from "micro polishing" which is our mark – we polish fiber at a precision that few can copy. For this reason, our products have lower reflections and losses and can transfer higher data speed than our competitors, without additional cost. We pride ourselves for being the most innovative player in the market. This is why customers from all over the world turn to us for their fiber optical challenges. Micropol's know-how in micro polishing is also what forms the foundation of our core Areas of Expertise.

FALCON™ Expanded Beam Connector



Micropol was born through innovation and the Swedish Armed Force's increasing demand for secure, compact and fast communication. One of the results is the FALCON expanded beam technology, which has the best optical performance on the market. Customer ranges from national armed forces to small and to multi national defence material suppliers like Saab, BAE Systems and Diehl Defence to whom we deliver built to specification components and systems. Our products and solutions are present below, on and above the surface.

- Insertion loss <1,2 dB
- Only expanded beam approved for 40G transmission per channel (optional)
- Only 12-channel junior connector in the world with collimated light beam according to MILDTL-83526/20&21
- Temperature range -570C +850C (+1000C optional)
- Rugged connector design
- Keyed boot for 'blind mating'
- No adaptors needed
- Easy clean, no special tools
- FALCON™ Mini 1 to 4 channels
- FALCON™ Junior 1 to 12 channels
- FALCON™ Senior 1 to 16 channels

MECHANICAL

Coupling Type: Hermaphroditic
Compliant: ROHS & REACH
Material: Hard anodized aluminum
Alternative Material: Marine bronze & stainless steel or titanium
Colour: Grey
Durability: 3000 mating cycles
Free Fall: 500 falls from 1,2 meters height
Vibration: 5-500Hz, 0,75mm amplitude at 10 g
Shaking: 390 m/s numbers of shakes 3x4000
Shock Pulse Length: 11ms, half sine at 35g Numbers of axis: 3 (x, y, z)
Recommended wall thickness: 2-3 mm

ENVIRONMENTAL

Operating Temperature: -57°C to +85°C, +100°C optional
Water Immersion: IP67
Air Pressure : <25kPa -550C during 4h
Corrosion Resistance: 500h salt spray
Flammability: DOD-STD-1678, method 5010

OPTICAL

Type: Single mode (SM), multimode (MM) or hybrid
Transmission: 10Gbit/s (40Gbit/s optional)
Insertion loss (SM): Typical Insertion Loss -0,8dB (1310 nm)
Maximum Insertion Loss -1,2dB (1310 nm)
Insertion loss (MM): Typical Insertion Loss -0,8dB (1300 nm)
Maximum Insertion Loss -1,0dB (1300 nm)
Return loss: >35dB at 1310nm or 1550nm
Polarization Dependent Loss less than 0,35dB

STANDARD CONFIGURATIONS

FALCON™ MINI: 1 to 4 channels
FALCON™ JUNIOR: 1 to 12 channels
FALCON™ SENIOR: 1 to 16 channels

COMPATIBLE CHART

Model	FALCON™ MINI	FALCON™ JUNIOR	FALCON™ SENIOR
FIBRECO JUNIOR		X	
FIBRECO MINI 2	X		
QPC Q-MICRO	X		
QPC Q-MINI		X	
TE PRO-BEAM	X	X	X
TELECAST MX - MINI	X		
Amphenol TacBeam		X	
Fibreco F900			X
Amphenol TacBeam			X
Stratos HMA		X	

KONNECT RF

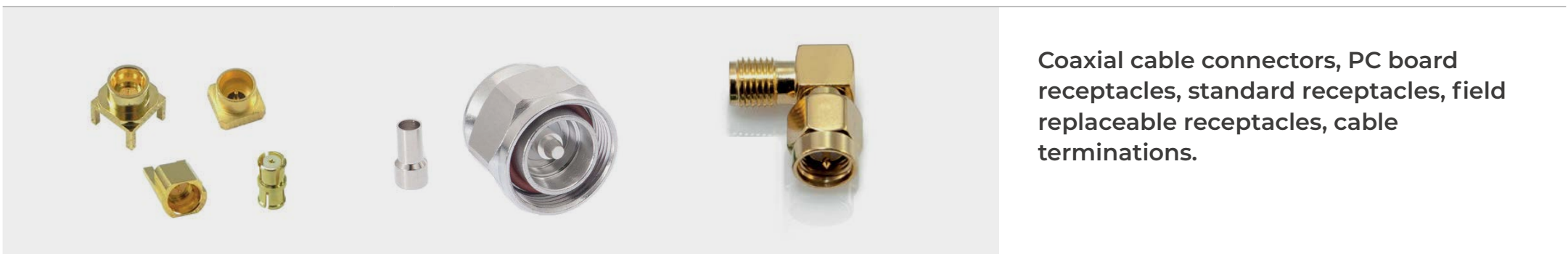
www.konnectrf.com

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.

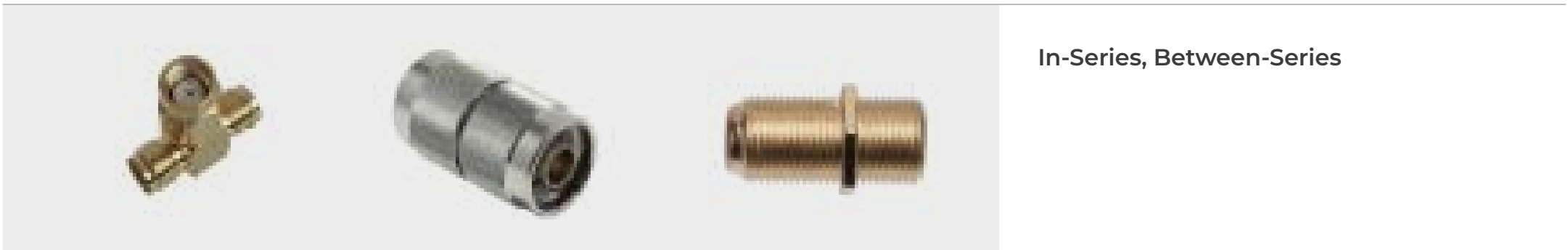
- Founded 2010
- Located in Southeast Florida
- Over 600 customers Worldwide
- Supplying Coaxial Connectors, Adapters, Cable Assemblies and Passive Components
- Global Network of Contract Manufacturers
- All products inspected, packaged, and warehoused in USA
- Rapid and Cost Effective development of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

• Connectors



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

• Adapters

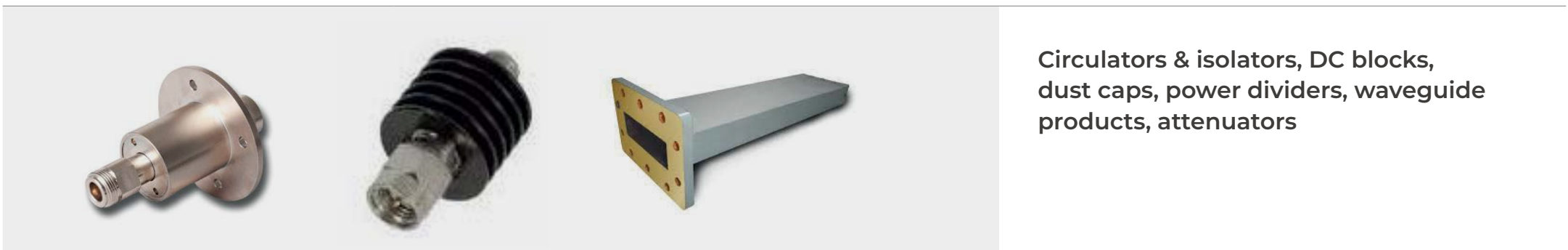


In-Series, Between-Series

• Cable Assemblies



• RF & Microwave Components



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



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