

# 3Rwave

Robust, Reliable & Rational

## Company Presentation



Distribution  
Partner



November 2022



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630.208.2200



rellpower.com  
rellpower@rell.com

# Company Profile

2012	February	3Rwave established
	May	Registered as a venture company
2013	March	ISO9001 certified
	September	ISO14001 certified
	October	Registered as a partner company of KITECH
2016	September	A certified R&D Center Established
2017	January	Filter and Passive business launched
2018	October	RF Module business launched
2019	May	Registered as a Inno-Biz Company
2020	December	Certified as a Promising Exporting Small and Medium Enterprise by Ministry of SME
2021	November	Certified as a specialized company in materials, parts, equipment by KEIT
	December	Relocated to the new location in Seoul, Korea
2022	November	AS9100D Certified Presently holding 12 patents (Korea, USA & China)



- Pursuing in Innovation, Quality and Commitment
- Specialized in designing and manufacturing RF devices and Modules
- Engineered by 25-year experienced engineers in design, manufacturing and troubleshooting

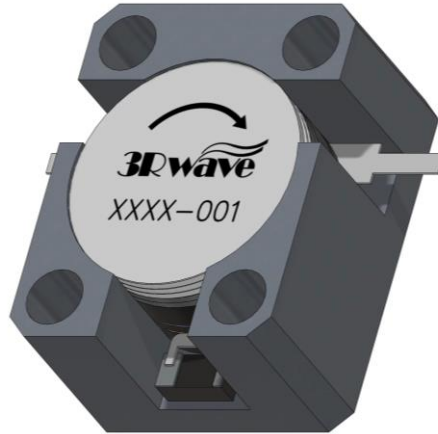
# Standard Dropin Isolators

IPA14701540AA



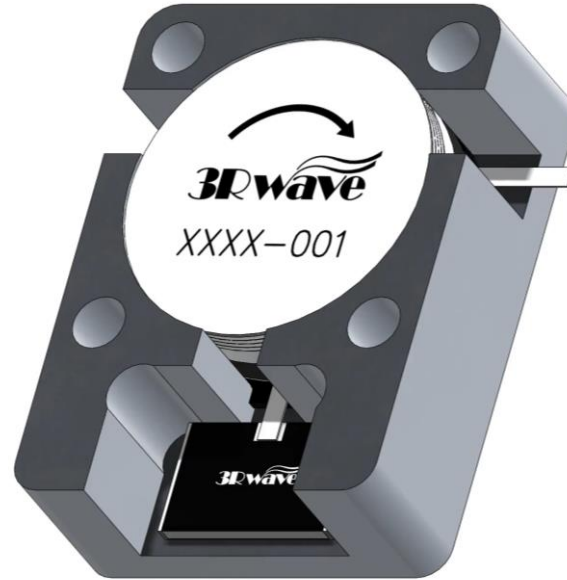
0.25inch Isolator

IQA08001100AA



0.4inch Isolator

IHA092096AC



0.75inch Isolator

Series	Product Width	Frequency Range
ITA Series	3.0 inch	0.15 GHz~
ISA Series	2.0 inch	0.2 GHz~
IBA Series	1.5 inch	0.3 GHz ~
IDA Series	1.25 inch	0.4 GHz~
IFA Series	1.0 inch	0.5 GHz ~
IHA Series	0.75 inch	0.6 GHz ~
IMA Series	0.5 inch	1.2 GHz ~
IQA Series	0.4 inch	2.0 GHz ~
IPA Series	0.25~0.3 inch	4.0 GHz ~

- Robust and Reliable
- Universal Standard Dimensions from 0.25 to 3.0 inch in Width
- Frequency Range available from 150MHz to 18GHz

# Robust SMD Circulators

CPB525555AA



5mm Circulator

CQB249269AS



7mm Circulator

CHB100110BS



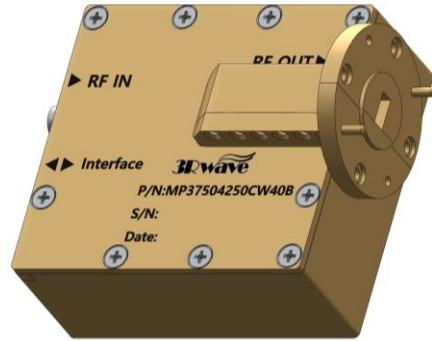
18mm Circulator

Series	Product Diameter	Frequency Range
CHB Series	18mm	0.7 GHz~
CKB Series	14mm	1.2 GHz~
CQB Series	10mm	1.8 GHz ~
CPB Series	7mm	2.4 GHz~
CAB Series	5mm	3.0 GHz ~

- Robust & Low Cost
- 5G MMU Base Station
- Radars for S-Band, C-Band, X-Band
- Patented in US, China and Korea

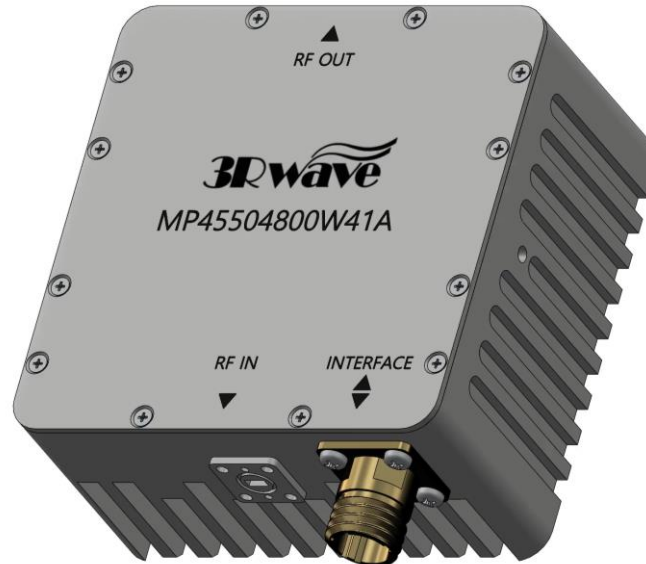
# Power Amplifiers and Low Noise Amplifiers

MP3504250CW40B



**Q-Band Downlink SSPA**  
**38dBm Output Power**  
**for Satellite Communication**

MP45504800W41A



**V-Band uplink SSPA**  
**41dBm Output Power**  
**for Satellite Communication**

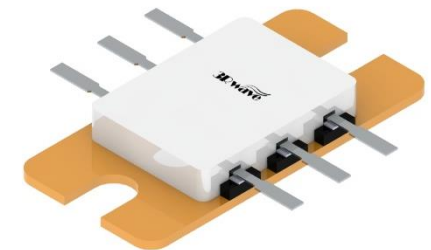
- Available from DC to V Band
- From Devices to Systems
- Capable to Develop Customized Broadband Device and Module

ML01001800S20JA



**1~18GHz Broadband**  
**Switch Amplifier**

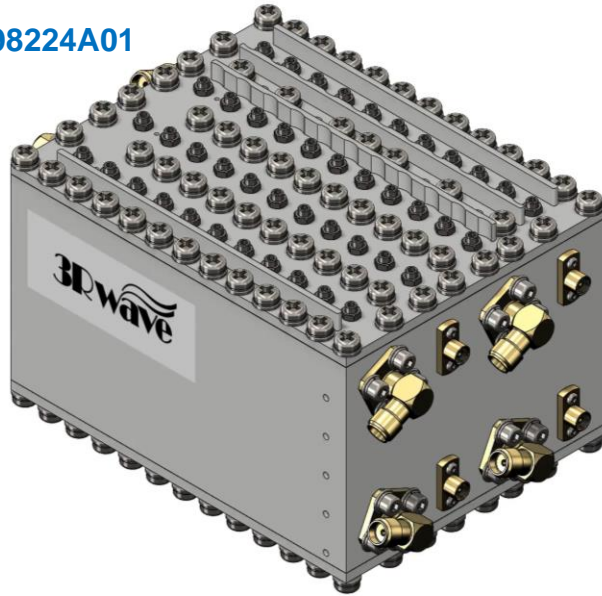
PD02000600P44A



**2~6GHz 44dBm**  
**Amplifier Device**

# Filters

FAX198224A01



**S-Band Multi-Channel Duplexer for Satellite**

FLB0400554A01



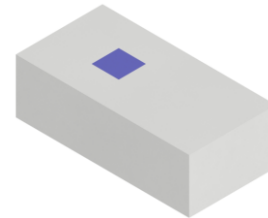
**LC Filter for VHF**

FCB228242A01



**Ceramic Filter for S-Band**

FT13501850A01



**LTCC Filter for Ku-Band**

## Available Filter Types

- Cavity Filters
- Waveguide Filters (Air filled & Ceramic filled)
- Ceramic Filters
- LC Filters
- LTCC Filters
- Microstrip Filters
- SSL (Suspended Stripline) Filters

## Available Filter Configurations

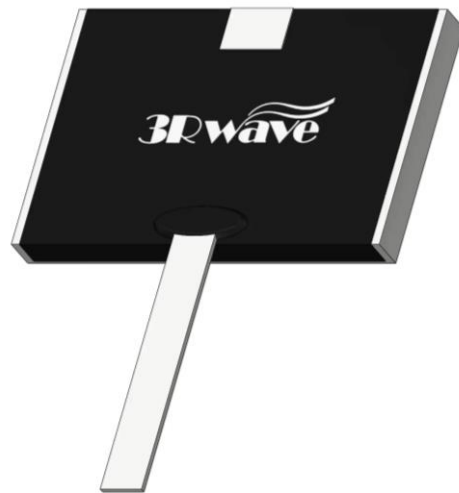
- BPF / LPF / HPF / BRF
- Duplexer / Diplexer / Multiplexer
- RF Modules based on Filters

# Resistive Components

## Product Types

- Terminations
- Attenuators
- Resistors

AS100L30A



100W 30dB Attenuator

TS100CA



100W Termination



- Robust Thick Film Technology
- Handling Power from 1/8 to 500W
- Available from DC to Ku Band
- Available in SMT, Leaded and Flange Mounted Types
- For Telecommunication, RF Energy and Military applications

# Waveguide Products

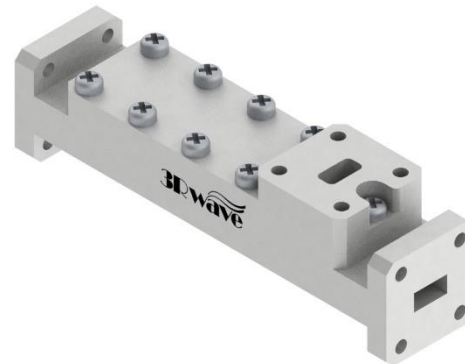
WI27253025B1



Waveguide Isolator with coupler for Ka Band

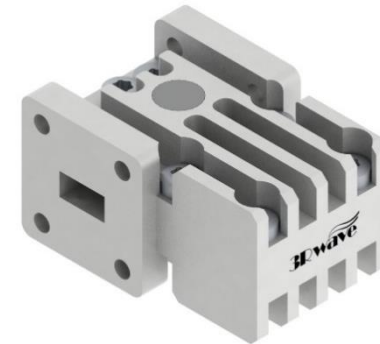
- Isolator / Circulator / Filters / Couplers
- Available From L Band to W Band
- Capable to Develop Customized Waveguide Assemblies

WDC27253025A30



Waveguide Coupler for Ka Band

WI27253025A1

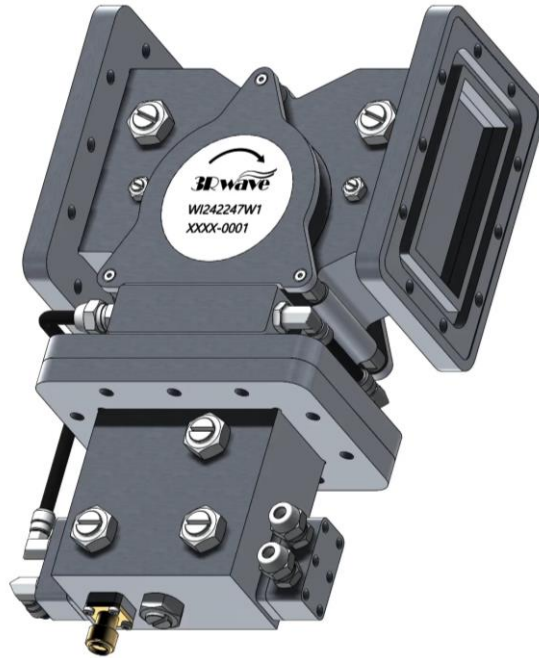


Waveguide Isolator for Ka Band



# High power Circulators/Isolators

WI242247W1



2.45GHz 6.5KW CW Isolator  
for RF Energy System

DVC032033WE1



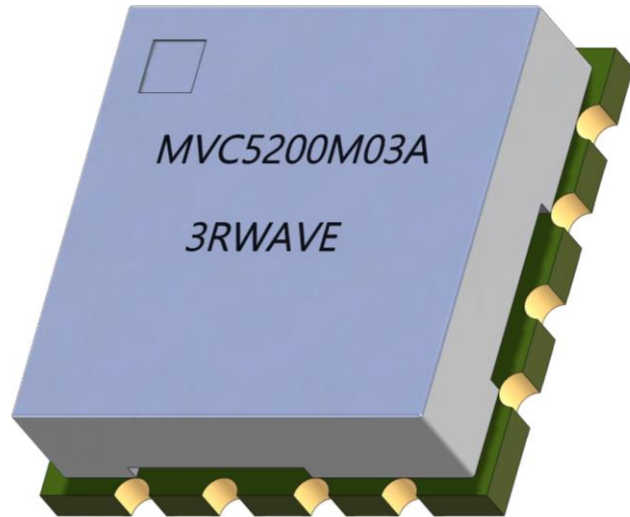
325MHz 6KW CW Circulator  
for Particle Accelerator System

## Applications

- RF Energy Systems
- Particle Accelerator Systems
- Medical MRI Systems

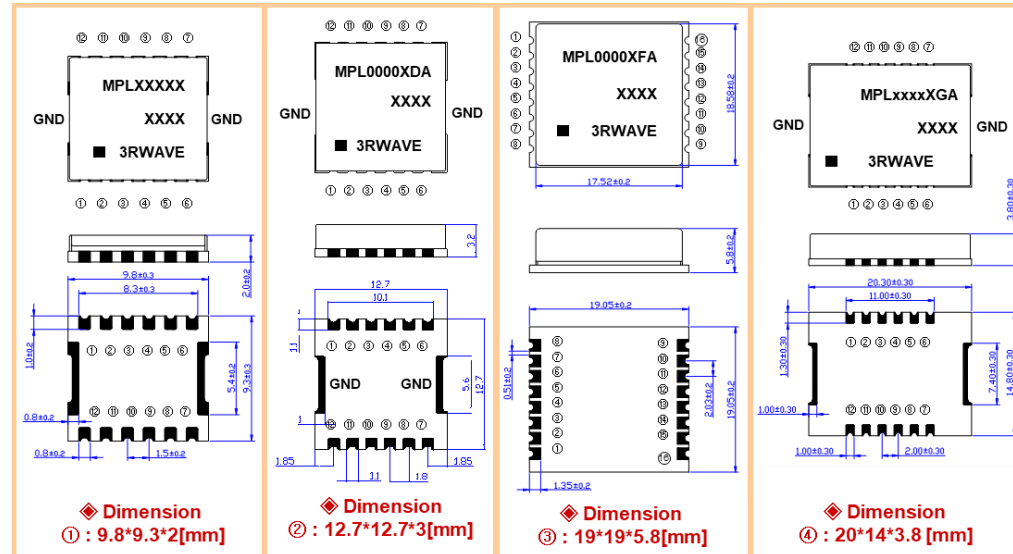
# VCO / PLL

MVC5200M03A



5.2GHz VCO for WIFI

## Available Dimensions for PLL



## Features

- Low Phase Noise
- Available from DC to X Band
- Compact SMD type

# AS9100 & ISO9001/ISO14001 Certificates



**kiwa**

Registration no. KA 22191 IAF Code 19, 21  
 First issue date 2022-11-22 Issue date 2022-11-22  
 Expiry date 2025-11-21 Reissue date 2022-11-22

**Aerospace Quality Management System Certificate**  
**KS Q 9100:2018**  
 Technically equivalent to AS9100D, EN 9100:2018 and JIS Q 9100:2016  
**ISO 9001:2015**

We certify that the Aerospace Quality Management System of the Organization:  
**3Rwave Co., Ltd.**

Certification structure : single site

Has been audited in accordance with KAIK 9104-1:2012 requirements and it is in compliance with the standard KS Q 9100:2018 for the following products/services:

**Design, development and manufacture of telecommunication devices for aerospace application**

General Manager  
 Seung-Chan Lee

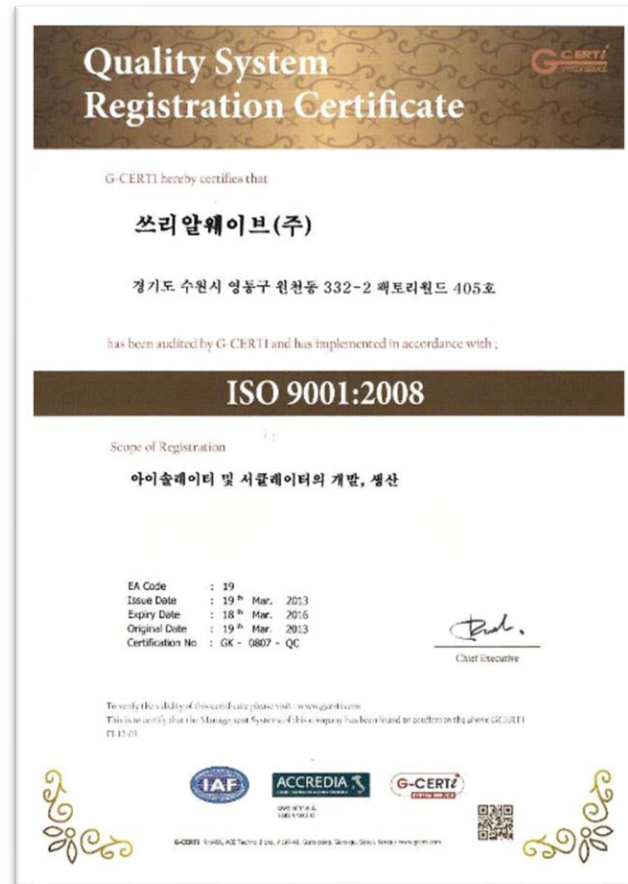
Kiwa Korea is accredited under the Industry Controlled Other Party (ICOP) scheme. Maintenance of this certification is subject to continual surveillance audit and dependent upon the observance of Kiwa Korea's certification criteria.

**Certified Sites**  
 910ho, 25, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea

Kiwa Korea Ltd.  
 411, SJ Technoville,  
 278, Beotkkot-ro,  
 Geumcheon-gu,  
 Seoul, Korea  
 Tel : +82.2.3397.0101  
 Fax : +82.2.3397.0105  
 URL : www.kiwa.kr

**ICAG**  
 KAB-AG-01

AS 9100



**Quality System Registration Certificate**

G-CERTI hereby certifies that

**쓰리알웨이브(주)**

경기도 수원시 영통구 원천동 332-2 팻토리월드 405호

has been audited by G-CERTI and has implemented in accordance with ;

**ISO 9001:2008**

Scope of Registration

**아이슬레이터 및 서플라이터의 개발, 생산**

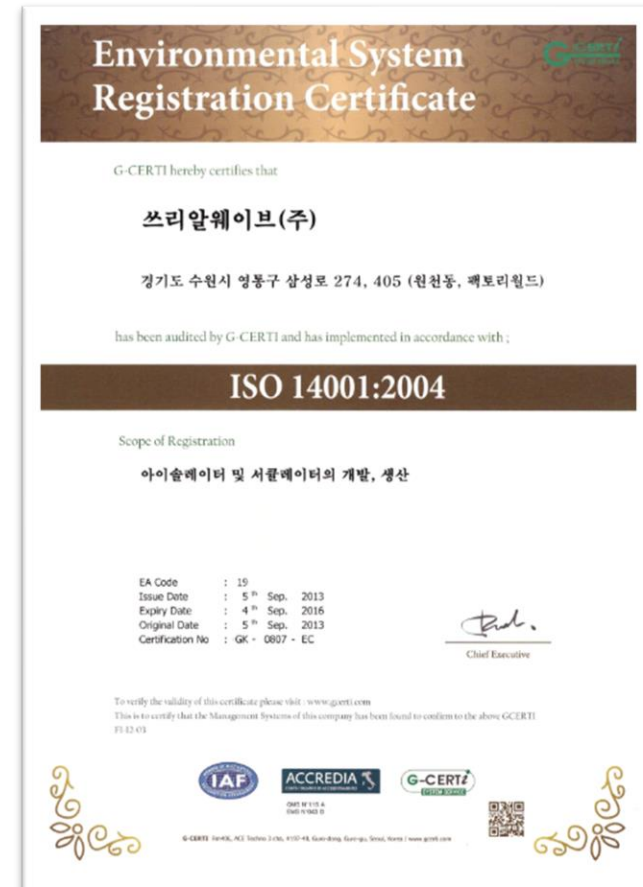
EA Code : 19  
 Issue Date : 19<sup>th</sup> Mar, 2013  
 Expiry Date : 18<sup>th</sup> Mar, 2016  
 Original Date : 19<sup>th</sup> Mar, 2013  
 Certification No : GK - 0807 - QC

Chief Executive

To verify the validity of this certificate please visit : www.gcerti.com  
 This is to certify that the Management Systems of this company has been found to conform to the above GCERTI PI 12-03.

**IAF ACCREDIA G-CERTI**

ISO 9001



**Environmental System Registration Certificate**

G-CERTI hereby certifies that

**쓰리알웨이브(주)**

경기도 수원시 영통구 삼성로 274, 405 (원천동, 팻토리월드)

has been audited by G-CERTI and has implemented in accordance with ;

**ISO 14001:2004**

Scope of Registration

**아이슬레이터 및 서플라이터의 개발, 생산**

EA Code : 19  
 Issue Date : 5<sup>th</sup> Sep, 2013  
 Expiry Date : 4<sup>th</sup> Sep, 2016  
 Original Date : 5<sup>th</sup> Sep, 2013  
 Certification No : GK - 0807 - EC

Chief Executive

To verify the validity of this certificate please visit : www.gcerti.com  
 This is to certify that the Management Systems of this company has been found to conform to the above GCERTI PI 12-03.

**IAF ACCREDIA G-CERTI**

ISO 14001

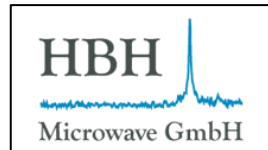
# Patents



Country	Patent Registered	Patent Pending
Korea	9	2
USA	2	1
China	1	1

# Major Customers

Official Distributor





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We are proud to announce our new partnerships with manufacturers of leading edge and disruptive technologies. These technologies drive the latest innovations for our customers.