RF MORECOM
COREA

5G (3.5GHz, 28GHz mmWave) High-end Filter Solution

Technology Innovation of RF Microwave Industry

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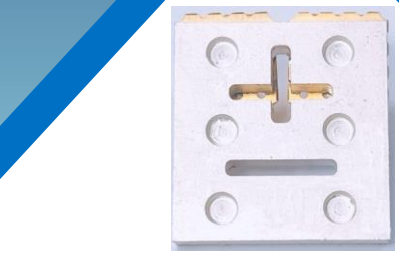
Ceramic waveguide filter 3.5GHz, 3.7GHz



<Ceramic Wave Filter>

PRODUCT STRONG POINTS

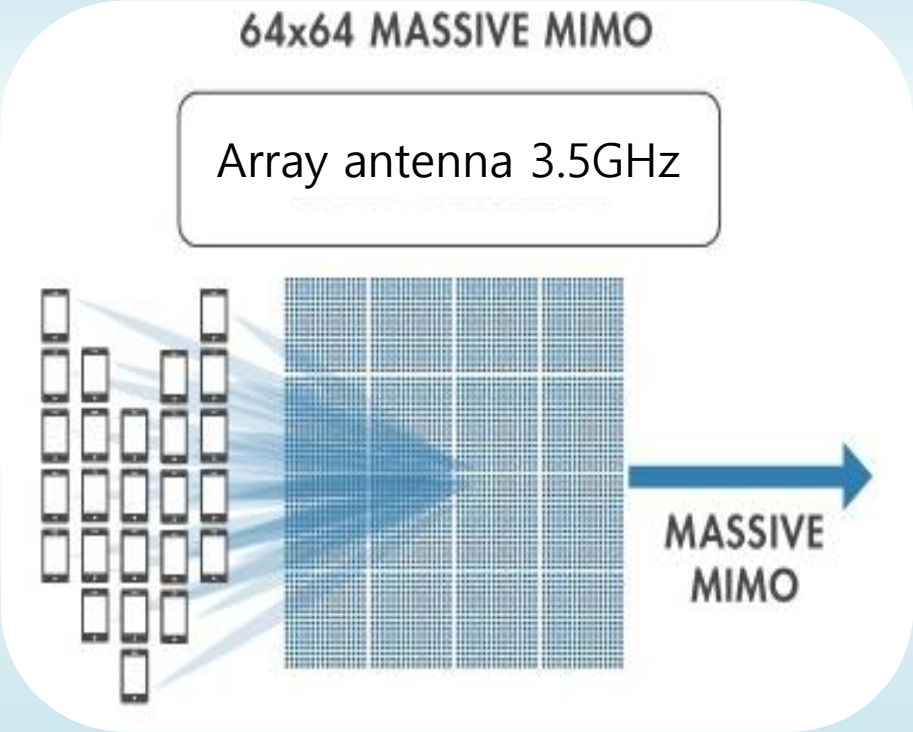
01 Same Performance as Cavity Connecterized Filter

02 Ultra Compact Size

03 Sharp Rejection and lowest Insertion loss

04 Surface Mounted Type

05 Lower cost than Cavity filter



Products Application

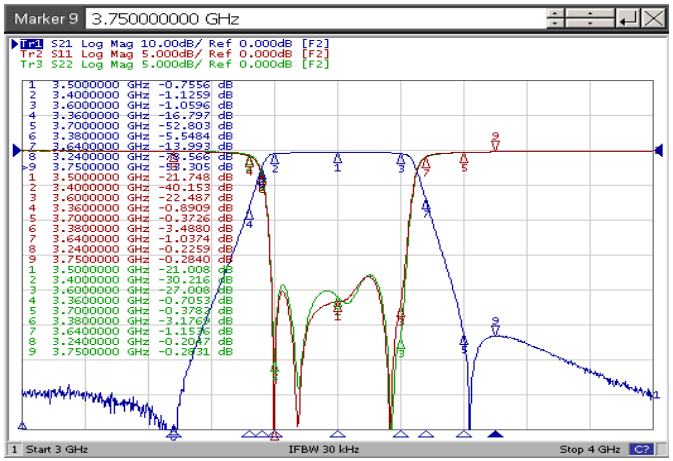
The Ceramic waveguide filter can use the 5G New Radio(NR) Massive MIMO base station. The Massive MIMO consist with 64 antennas (8x8) to dramatically improve wireless data speed and link reliability.

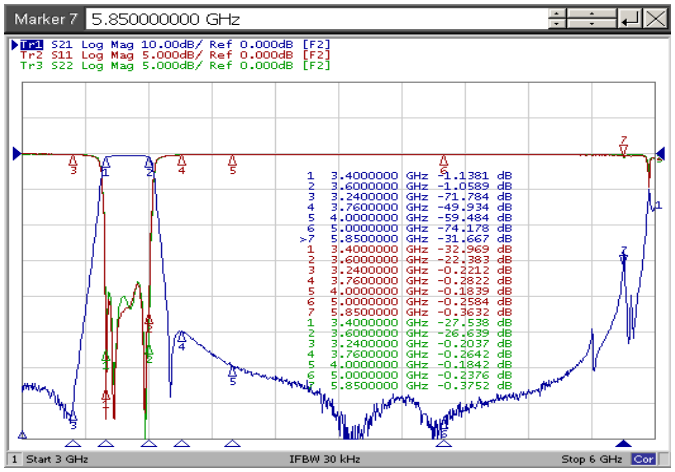
This technology is completely different from the traditional BTS architecture. Massive MIMO has hundreds of antenna elements and uses pre-coding technology to focus wireless energy on target mobile users to reduce radiant power. Focusing energy on certain users saves not only copy power, but also reduces interference with other users. This is particularly advantageous in the current cellular network, where interference is limited.

1-1. Ceramic waveguide filter 3.5GHz

1. Electrical Specifications

Descriptions		Specification
Center Frequency		3500MHz
Band Width		3400-3600MHz
Insertion loss		≤ 1.1 dB
Passband Ripple measured across 10MHz		≤ 0.5 dB
Return loss		≥ 15dB
Attenuation	DC - 2500 MHz	≥ 60 dB
	2500 - 2600 MHz	≥ 50 dB
	2600 - 3300 MHz	≥ 30 dB
	3340 - 3360 MHz	≥ 12 dB
	3640 - 3660 MHz	≥ 12 dB
	3660 - 3700 MHz	≥ 20 dB
	3700 - 4000 MHz	≥ 50 dB
	4000 - 5000 MHz	≥ 50 dB
	5000 – 5850 MHz	≥ 25 dB
Dimension(mm)		**30 x 30 x 8 or 65 x 15 x 8**
Power handling		10 watt
Temperature		-40 ~ 85 ℃

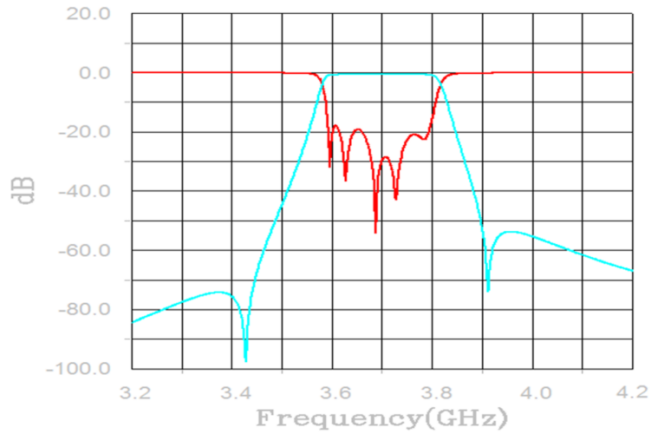


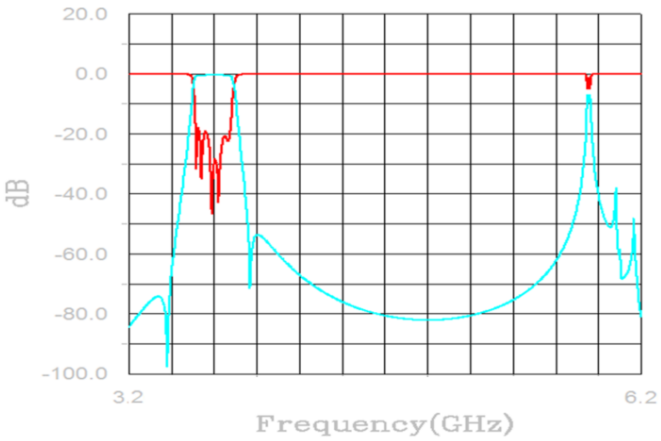


1-2. Ceramic waveguide filter 3.7GHz

1. Electrical Specifications

Descriptions		Specification
Center Frequency		3700MHz
Band Width		3600-3800MHz
Insertion loss		≤ 1.1 dB
Passband Ripple measured across 10MHz		≤ 0.5 dB
Return loss		≥ 15dB
Attenuation	DC - 2700 MHz	≥ 60 dB
	2700 - 2800 MHz	≥ 50 dB
	2800 - 3500 MHz	≥ 30 dB
	3540 - 3560 MHz	≥ 12 dB
	3840 - 3860 MHz	≥ 12 dB
	3860 - 3900 MHz	≥ 20 dB
	3900 - 4200 MHz	≥ 50 dB
	4200 - 5800 MHz	≥ 40 dB
Dimension(mm)		**30 x 30 x 8 or 65 x 15 x 8**
Power handling		10 watt
Temperature		-40 ~ 85 ˚C



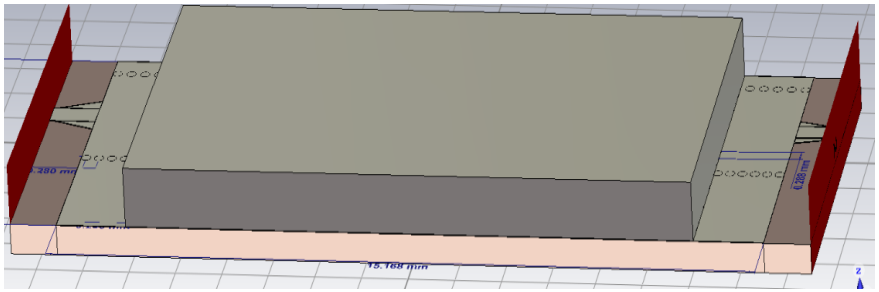


28GHz Substrate Integrated Waveguide filter

1. RMS500B2800 SIW filter

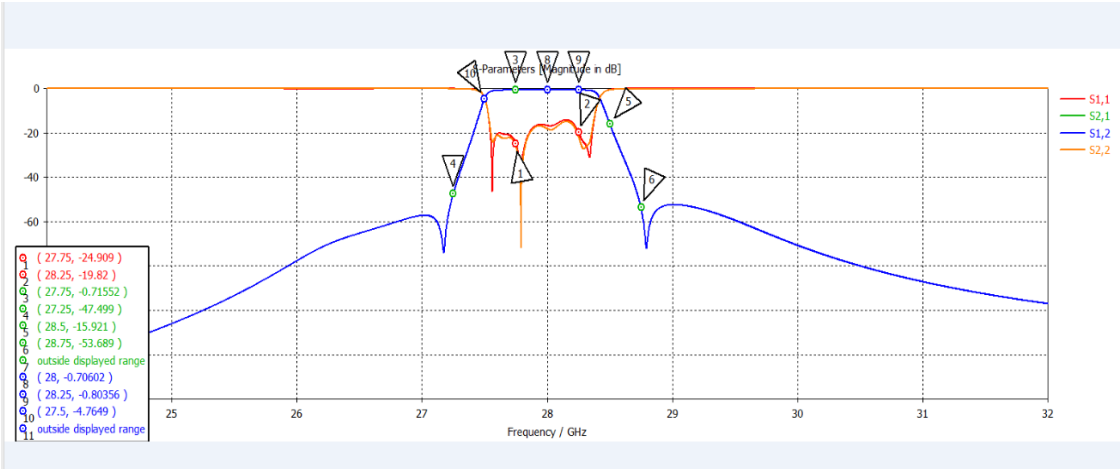
1. Electrical Specifications

Parameter	Specification
Frequency Range	27.75Ghz~28.25Ghz
Return Loss	15dB Min.
dB value over Frequency (27.25~28.75Ghz)	40dB Min.@27.25Ghz
	2.5dB Max.@27.5Ghz
	1.5dB Max. @27.75Ghz
	1.5dB Max.@28.25Ghz
	2dB Max.@28.5Ghz
	30dB Min.@28.75Ghz



Size:29X13X6mm

2. Simulation data

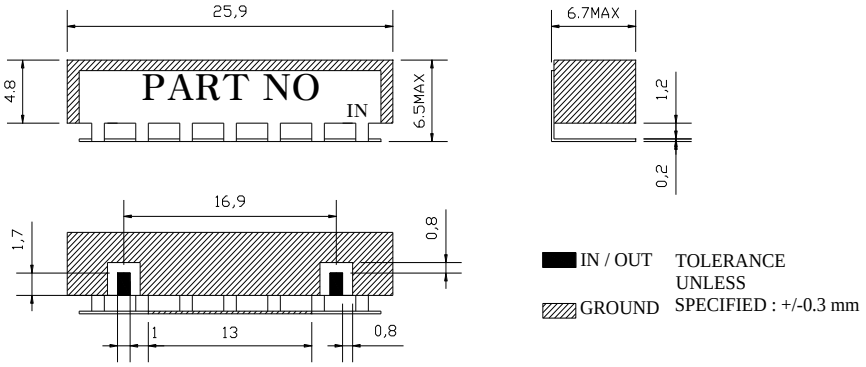


Monoblock Filter Type

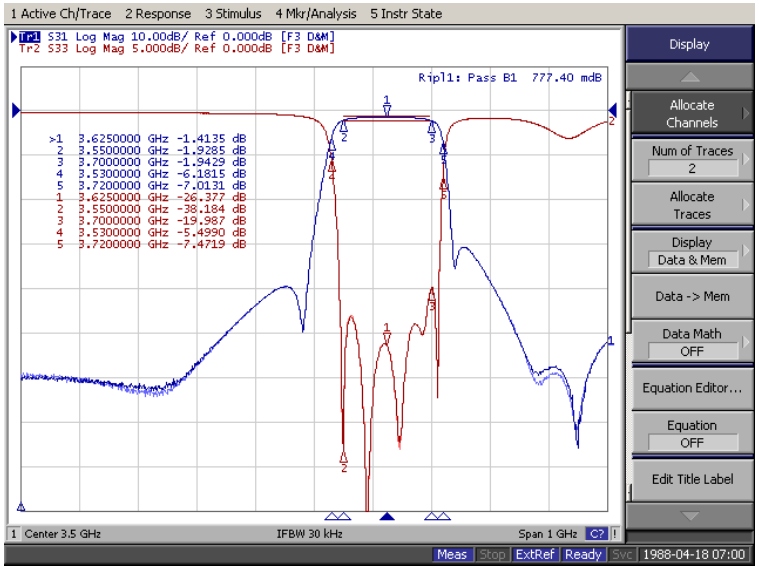
1. RM150B3625S6.5R6NP

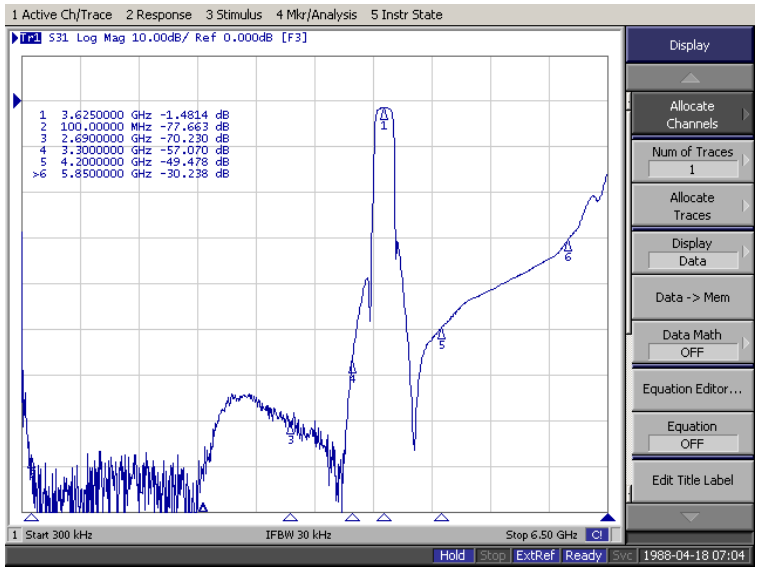
1. Electrical Specifications

Descriptions	Specification	Remark
Center frequencies	3625Mhz	
Band width	150Mhz (3550~3700)	
Insertion Loss	2.0 dB max.	
Ripple	1.0 dB max.	
V.S.W.R	2.0:1 dB max.	
Attenuation	@DC~2690 MHz	40 dB min.
	@2690~3300 MHz	25 dB min.
	@3300~3530 MHz	6 dB min.
	@3720~4200 MHz	6 dB min.
	@4200~5850 MHz	30 dB min.
Input Power	3W max	
In/Out Impedance	50 ohm	
Temperature range	-40~+85℃	
Size	25.9 x 6.5 x 6.7 mm	



2. Plot Data

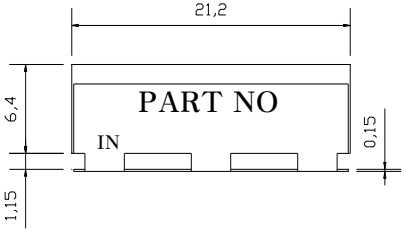


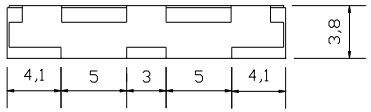


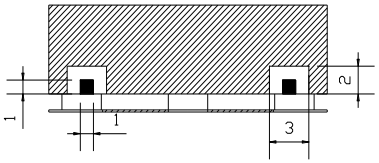
2. RM200B3500M48NP

1. Electrical Specifications

Descriptions	Specification	Remark
Center frequencies	3500MHz	
Band width	200MHz	
Insertion Loss	4.5 dB max.	
Ripple	2.0 dB max.	
Return Loss	13 dB max.	
Attenuation	@3380 MHz	18 dBc min.
	@3620 MHz	18 dBc min.
Input Power	3W max	
In/Out Impedance	50 ohm	
Temperature range	-40~+85℃	
Size	21.2 x 7.55 x 3.8 mm	





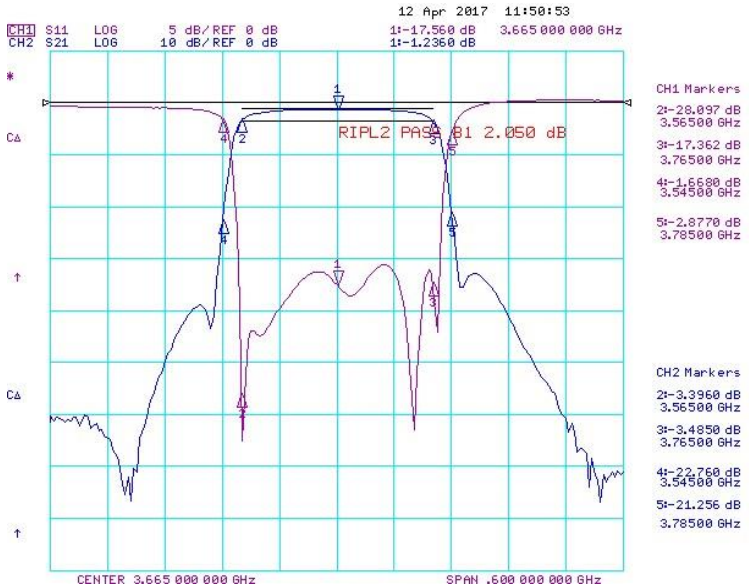


IN / OUT

GROUND

TOLERANCE UNLESS SPECIFIED : +/-0.3 mm

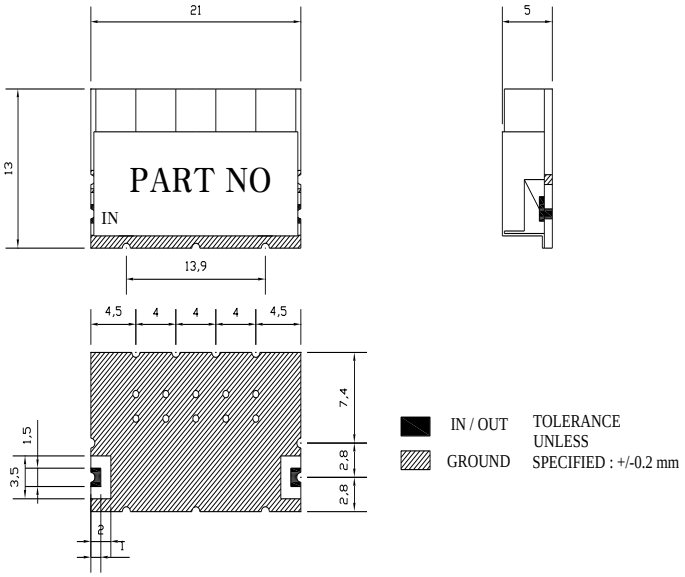
2. Plot Data



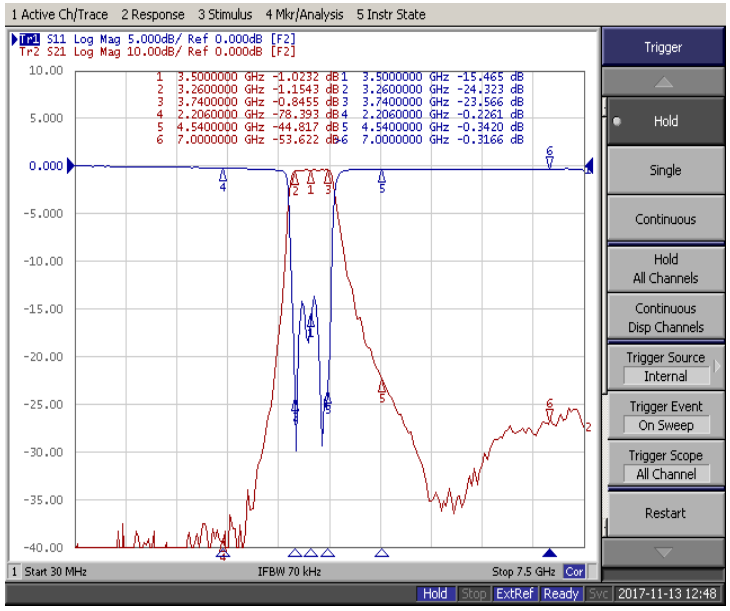
3. RM480B3500S45A

1. Electrical Specifications

Descriptions	Specification	Remark
Center frequencies	3500MHz	
Band width	480MHz	
Insertion Loss	3.0 dB max.	
Ripple	Over240MHz, 0.5 dB max. Over480MHz, 0.7 dB max.	
Return Loss	10 dB max.	
Attenuation	@DC~2206MHz	40 dBc min.
	@4540~7000 MHz	40 dBc min.
Input Power	3W max	
In/Out Impedance	50 ohm	
Temperature range	-40~+85℃	
Size	21 x 13 x 5 mm	



2. Plot Data

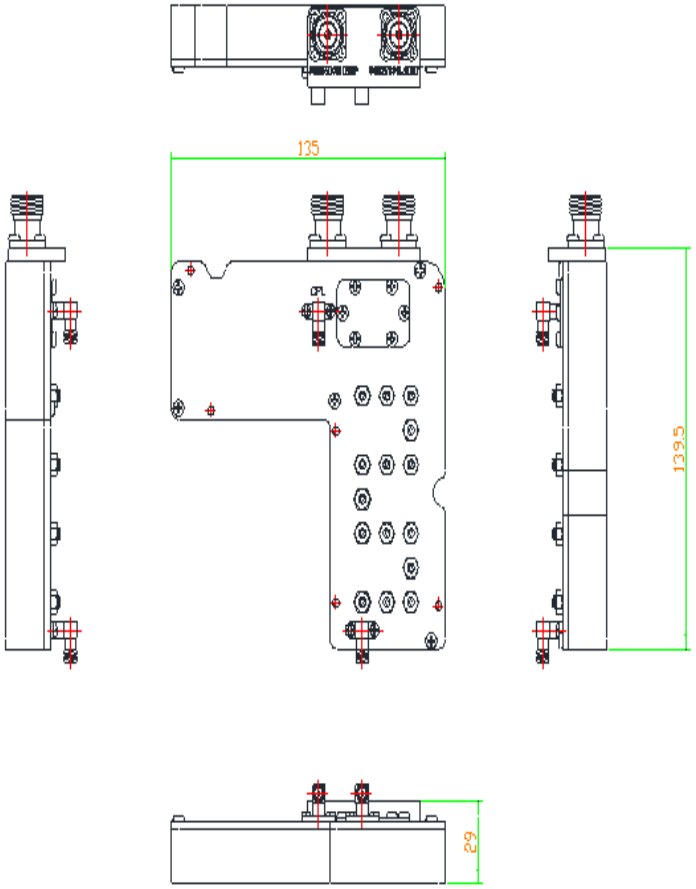


3.5GHz combined Cavity Filter

1. 3.5GHz combined Diplexer

1. Electrical Specifications

Descriptions		Specification	
Frequency Range		3600~ 3800MHz	800~2700MHz
Insertion Loss		1dB	1dB
Ripple		0.8dB	1dB
Return Loss		18 dB	18 dB
Coupling		30dB ±1.5dB	
Directivity		10dBc	
Attenuation	3400MHz ~ 5000MHz	-	≥30 dB
	100MHz ~ 3500MHz	50dB	-
	3500MHz ~ 3550MHz	35dB	-
	3850MHz ~ 6000MHz	35dB	-
	3577MHz	5dB(Room)	-
	3823MHz	5dB(Room)	-
	6500MHz ~ 8000MHz	≥30 dB	-
Absolute Delay		20nsec	20nsec
Input Power		AVG 5W	AVG 1W
In/Out Impedance		50Ω	
Temp. / Humidity.		- 30℃ ~ 70℃(0% ~ 90%)	
Vibration		1G 10 ~ 150Hz, 0.1 OCTAVES / MIN	
RoHS		RoHS apply	
Size		135 x 139.5 x 29 mm	



2. Block Diagram