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CATALOGUE

PRODUCTS & SERVICES

OUR PRODUCTS

- RF / MW Passive Components
- Signal Generators
- Signal Processing
- Customized Designs

OUR SERVİCES

R&D DESIGN ENGINEERING

SYSTEM INTEGRATION CONFIGURATION

TEST DOCUMENTATION

asartech

R&D DESIGN ENGINEERING

Designed and Manufactured in TÜRKİYE

ASARTECH ARGE TASARIM MÜHENDİSLİK

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info@asartech.com.tr

IMPORTANT

- Specifications of the products given in this document subject to change without further notice.
- Data given in this document provides its typical performance. Actual device performance is guaranteed by specifications called out by “customer-specific” part number and the associated acceptance test procedure

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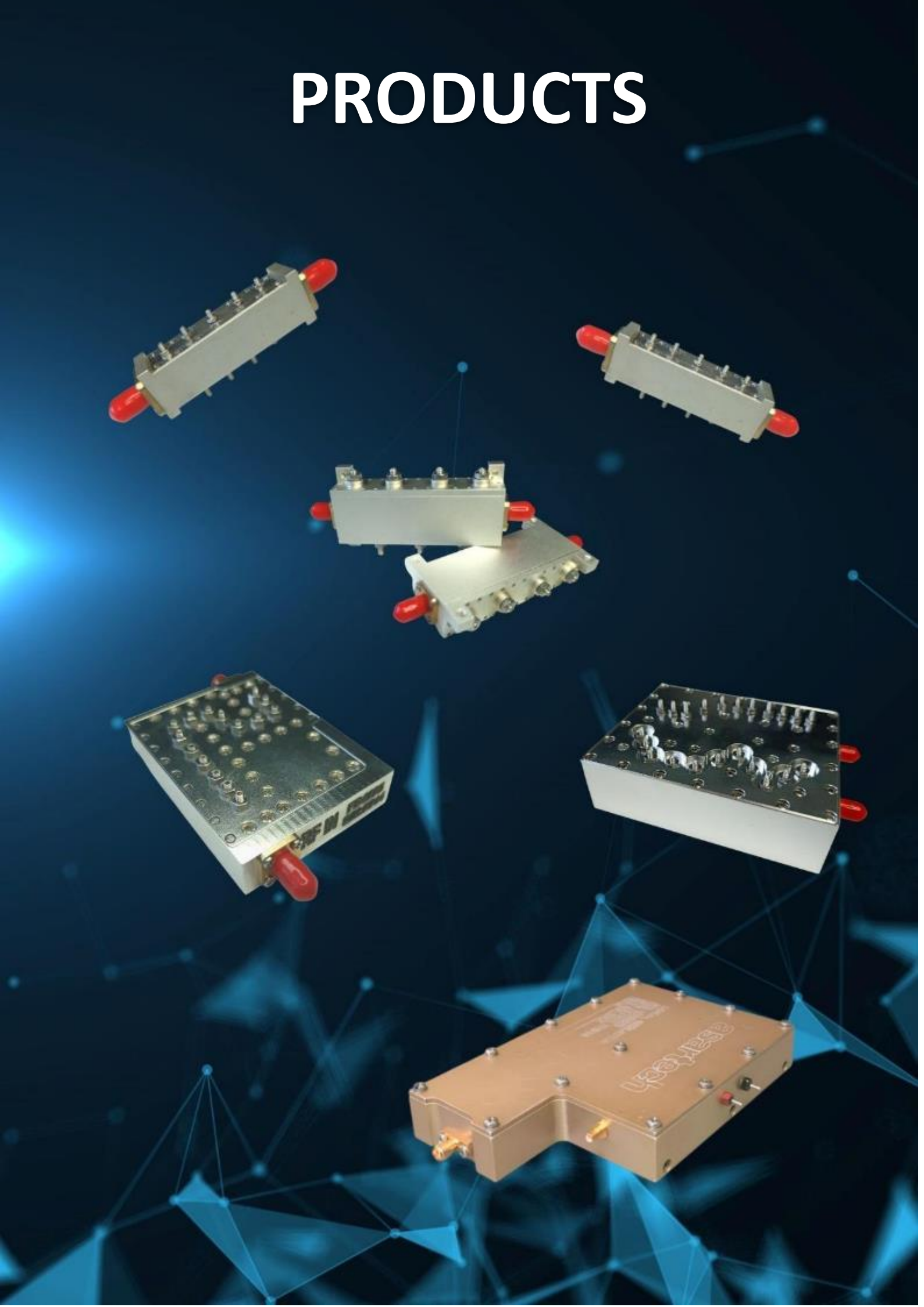
PRODUCTS



TYPICAL USE

Radars & Electronic Warfare Equipment

Ammunition Data Link

4,5G/LTE/5G Base Stations

Autonomous & Airborne Vehicles

Satellite Systems

Smart City Applications

asartech

R&D DESIGN ENGINEERING

RF /MW PASSIVE COMPONENTS

Asartech designs custom RF and microwave passive products up to 40 GHz:

- Lumped Element Filters
- Machined Cavity Filters
- Coaxial Ceramic Resonator Filters
- Microstrip and Suspended Stripline Filters
- Switched/Channelized Filters
- Diplexer and Multiplexers
- Switched Multiplexers
- Directional Couplers
- Hybrid Couplers
- Attenuators
- Terminations

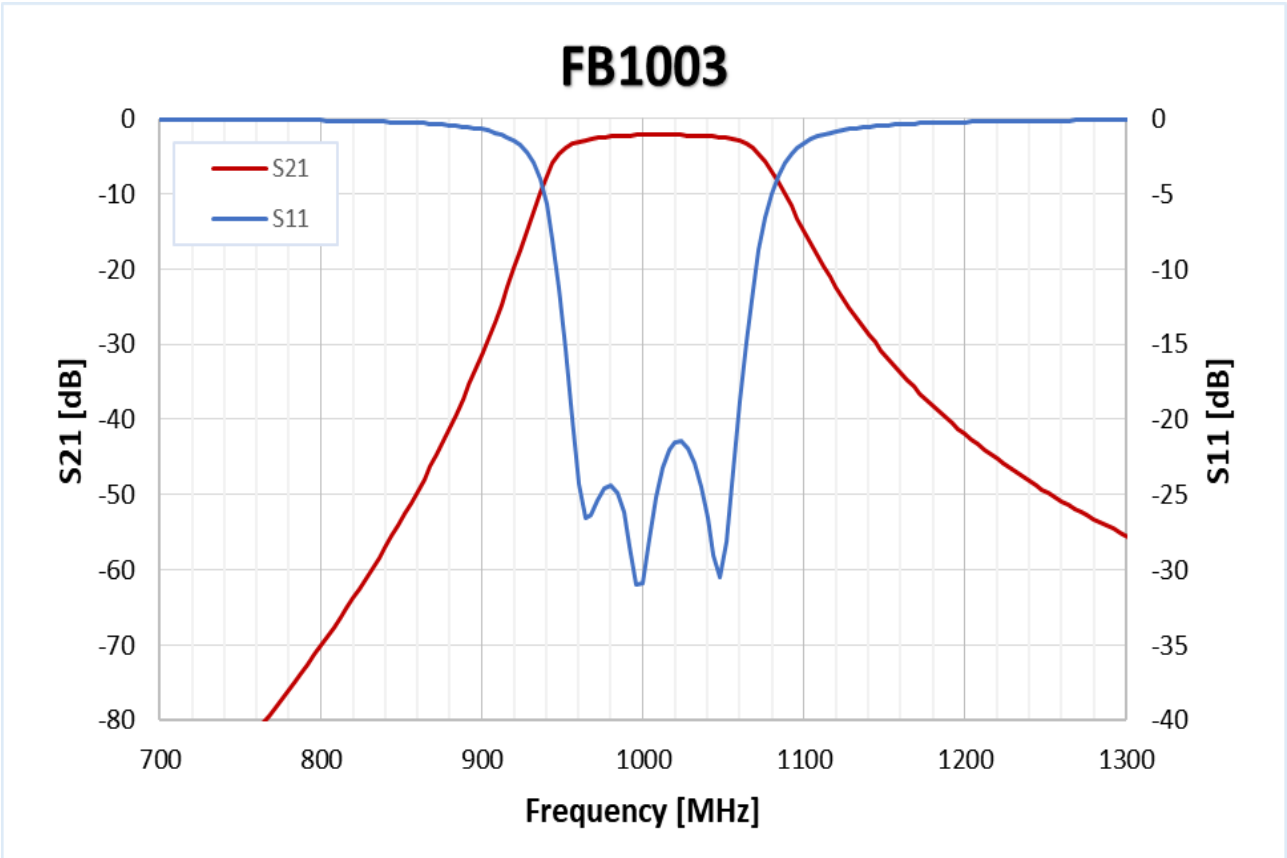
Available in Surface Mount and Connectorized versions

FB1003

1 GHz BANDPASS FILTER

DESCRIPTION

FB1003 is a general purpose 1GHz bandpass filter. It's a lumped element filter housed in a standard Asartech FG1002 housing, i.e., 39.25 x 16.7 x 11mm aluminum box. The input and output connectors are standard SMA. The unit is intended for narrowband applications up to 100MHz, as well as harmonic filtering for fixed 1GHz reference frequency sources.

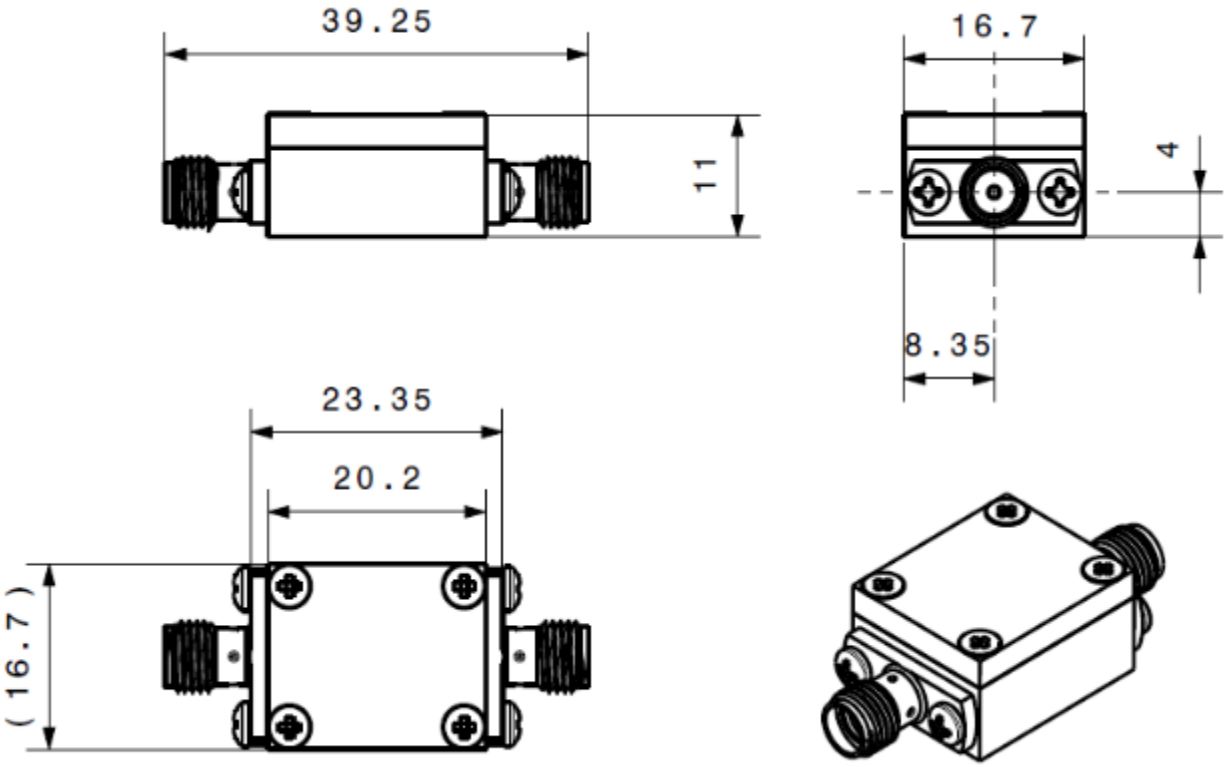


SPECIFICATIONS

Parameter		Frequency Range	Min	Typ	Max
Passband	**Insertion Loss**	950-1050 MHz		2.5dB	4dB
	Return Loss	950-1050 MHz		20dB	18dB
	Power Handling	950-1050 MHz			1W
Stopband	**Attenuation**	DC - 800MHz	60dB	70dB	
	Attenuation	1200-3000MHz	35dB	40dB	

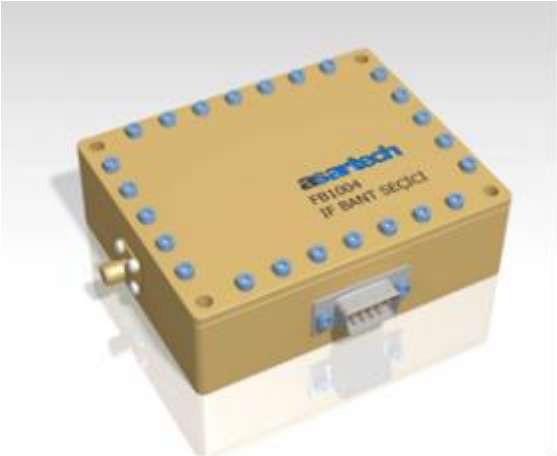
Other specifications available upon request.

MECHANICAL



FB1004

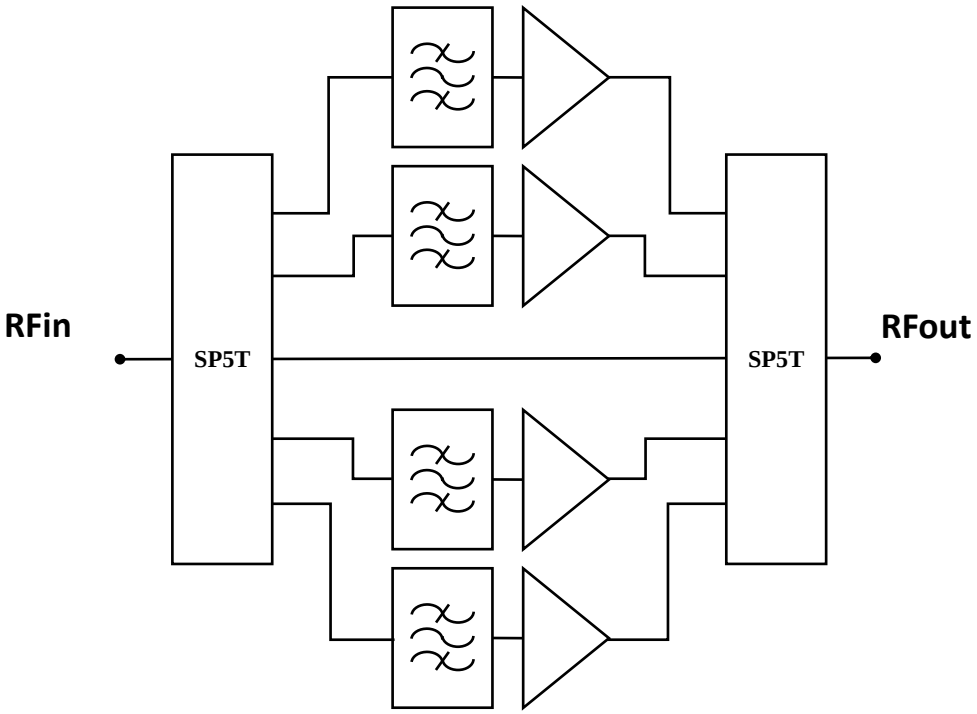
IF FILTER BANK



DESCRIPTION

FB1004 is an IF filter bank suitable in front of high-speed ADCs in receiver chains. The filter channels are centered around 240MHz and selected by TTL inputs. The unit incorporates highly selective SAW filters with bandwidths of 0.3MHz, 5MHz, 10MHz and 20MHz. The filter bank also includes a selectable bypass RF through path.

On SAW filter channels, adequate gain blocks were included to compensate the SAW filter losses. The overall gain is 0dB ± 1dB for those channels.

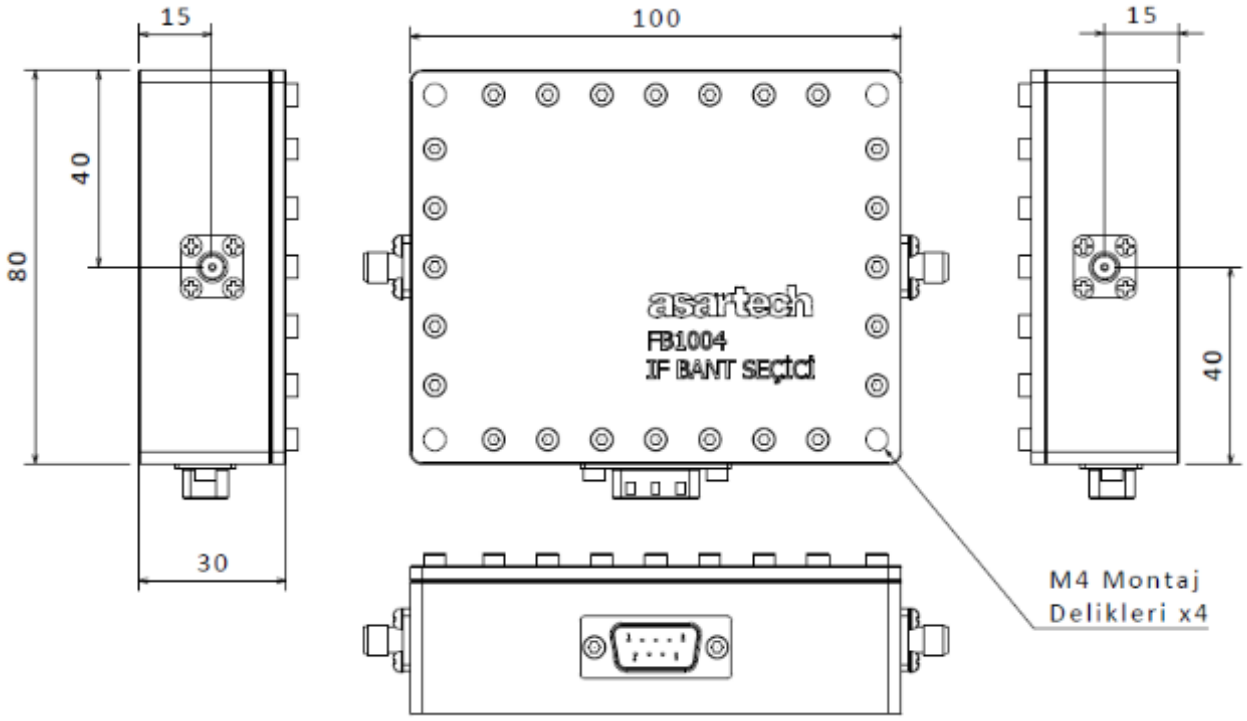


SPECIFICATIONS

Parameter	Limits
Passband Center (Fo)	240MHz
Passband Width (BW)	5 selectable channels: 0.3MHz, 5MHz, 10MHz, 20MHz, Through path
Signal Gain	0dB ± 1dB typ for filter paths, -2dB typ for through path
Return Loss	20dB max
Stopband Attenuation	30dB min @ Fo-BW 30dB min @ Fo+BW
Power Handling	15dBm typ
Operational Temp Range	5°C to 65°C
Storage Temp Range	0°C to 125°C
RF Input Power	20dBm max

Note-1: Other specifications available upon request.
Note-2: It is assumed that the device will sit within a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL

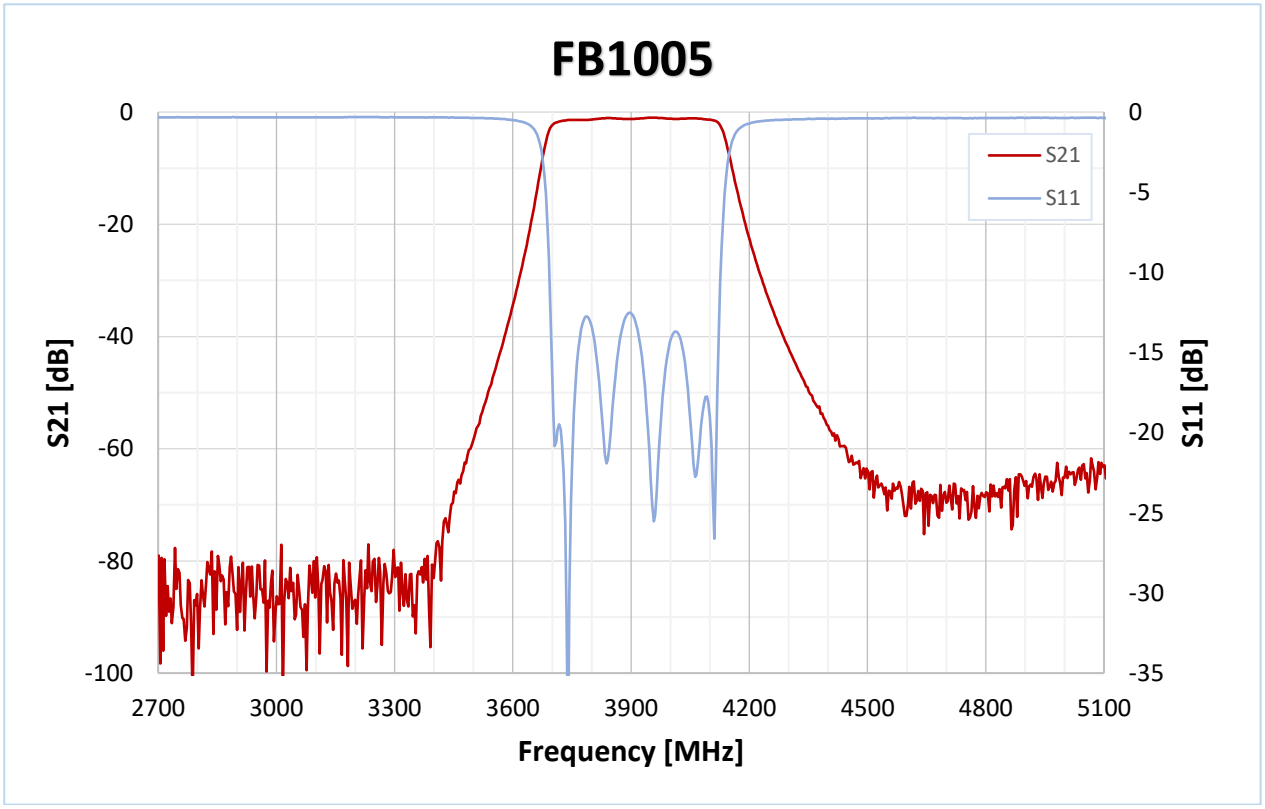


FB1005

S BAND CERAMIC FILTER

DESCRIPTION

FB1005[1] is an ultra-miniature bandpass filter in SMD form with sharp roll off and low passband insertion loss. It is suitable for dense PCB applications thanks to its compact size.

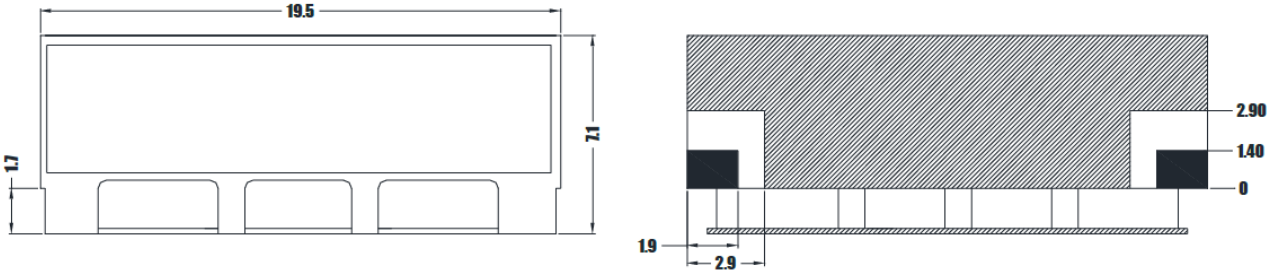


[1] This product has been developed with the support the program of The Scientific and Technological Research Council of Turkey (TÜBTAK) (Project No: 3205062) but all the responsibility concerning the product/service belongs to ASARTECH ARGE TASARIM MÜHENDİSLİK A.Ş.

SPECIFICATIONS

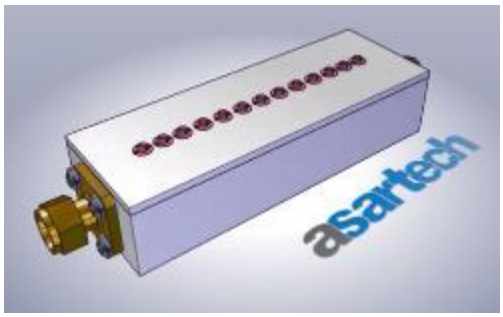
Parameter	Limits
Filter Type	PCB filter with soldered TIN (covered with proper material for environmental conditions) type box
Mounting	Input, Output Pads -Soldered
Passband	3800-4100 MHz
Max Loss in Passband	2 dB
Stopband	<3350 MHz & >4750 MHz
Min Loss in Stopband	60 dB
Input/Output Impedance	50 ohm
S11/S12	< -12 dB
Mechanical Dimensions	19.5 x 7.1 x 4.42 mm
Operational Temperature	-45°C + - 85°C

MECHANICAL



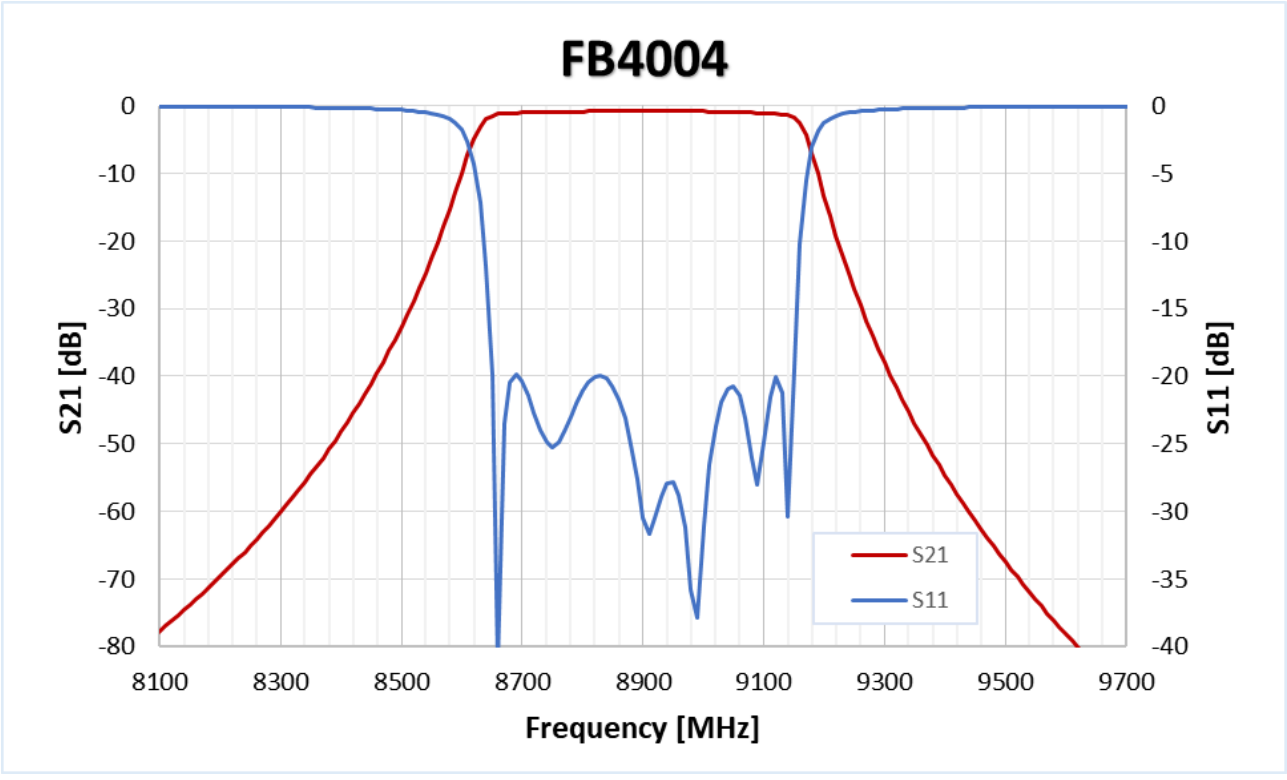
FB4004

8.9 GHz BANDPASS FILTER



DESCRIPTION

FB4004 is a highly selective, low-loss 8900MHz bandpass filter. It's a machined cavity filter housed in 98.6 x 17.2 mm aluminum box. The input and output connectors are standard SMA. The unit can be used for RX and TX front ends of X-band transceivers and radars.

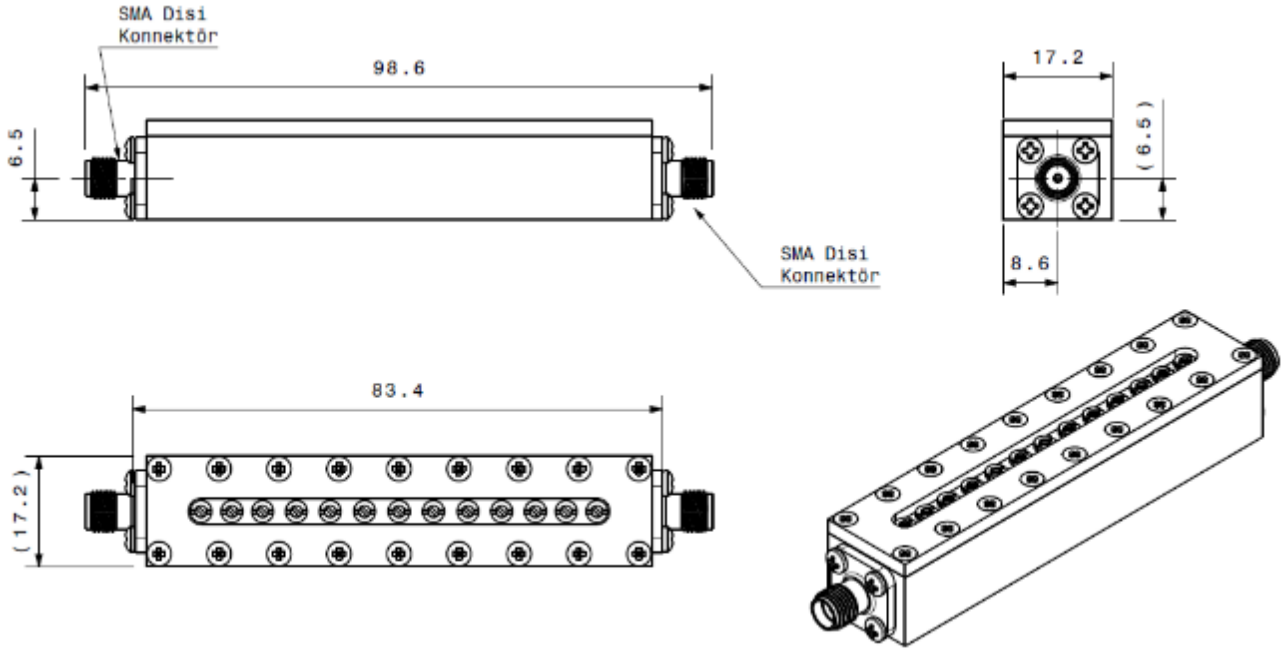


SPECIFICATIONS

Parameter		Frequency Range	Min	Typ	Max
Passband	**Insertion Loss**	8700-9100 MHz		1.2 dB	1.5 dB
	Return Loss	8700-9100 MHz		20 dB	17 dB
	Power Handling	8700-9100 MHz			10 W
Stopband	**Attenuation**	DC-8400 MHz	40 dB	48 dB	
	Attenuation	9400-18000 MHz	50 dB	55 dB	

Other specifications available upon request.

MECHANICAL



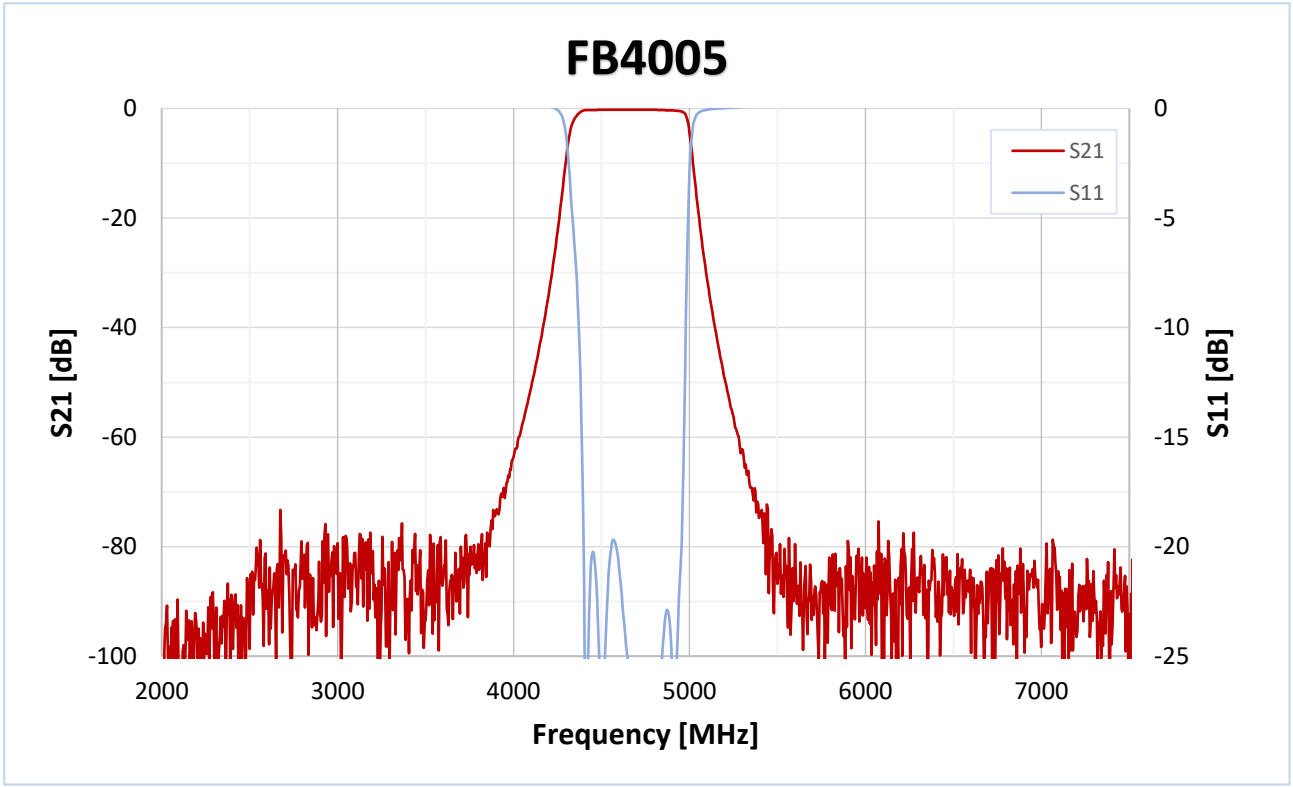
FB4005

C-BAND BANDPASS CAVITY FILTER

DESCRIPTION

FB4005[2] is a highly selective, low-loss 4675 MHz. bandpass filter. It's a machined cavity filter housed in 72×53.5×14.5 mm. aluminum box.

The input and output connectors are standard SMA (female). The Insertion Loss is 1.0 max. dB. and its Operational Temp. Range is -45 °C – +85 °C. The unit can be used for RX and TX front ends of C-band transceivers and radars.



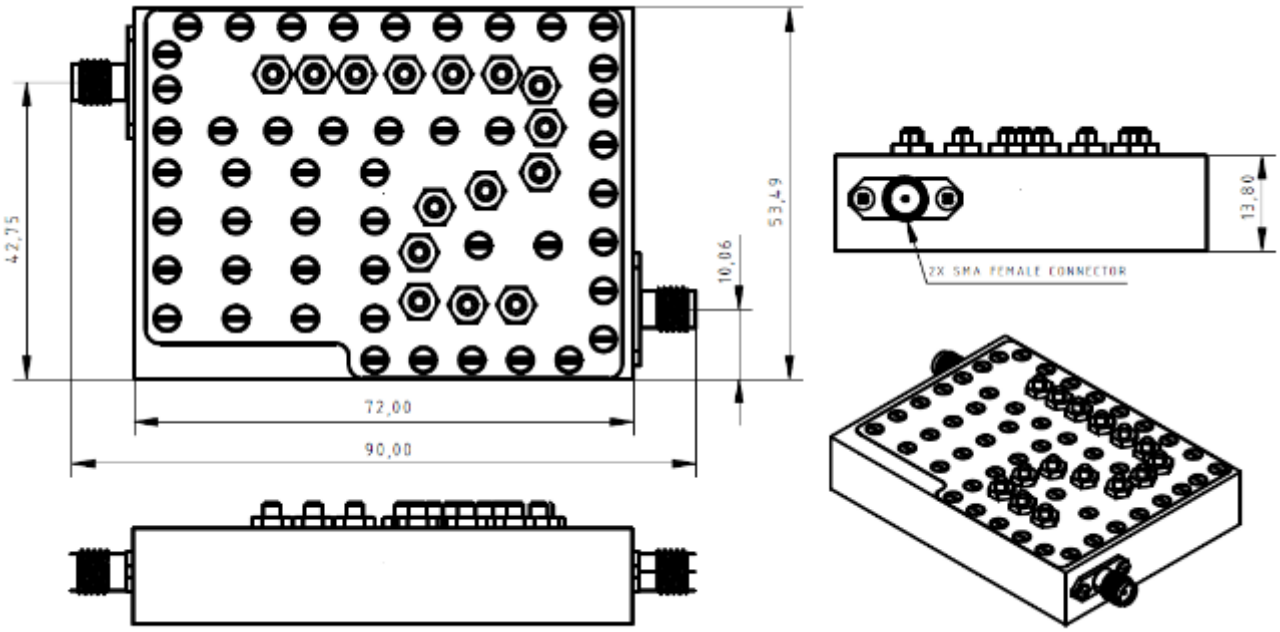
[2] This product has been developed with the support the program of The Scientific and Technological Research Council of Turkey (TÜBTAK) (Project No: 3205062) but all the responsibility concerning the product/service belongs to ASARTECH ARGE TASARIM MÜHENDİSLİK A.Ş.

SPECIFICATIONS

Parameter	Limits	
	Frequency Range	Min
Center Frequency	4675 MHz	5550 MHz
Bandwidth	4400-4950 MHz	5250-5850 MHz
Insertion Loss	1.0 dB max.	1.0 dB max.
VSWR	1.3:1 max	1.3:1 max
Attenuation	80 dB min. @ 2000 MHz 70 dB min. @ 5250-5850 MHz 80 dB min. @ 9000 MHz	80 dB min. @ 2000 MHz 70 dB min. @ 4400-4950 MHz 80 dB min. @ 9000 MHz
Isolation between bands	80 dB min. @5250-5850 MHz	80 dB min. @4440-4950 MHz
Power Handling	20 Watt CW max.	
IN/OUT Impedance	50 Ohm	
Operational Temp. Range	-45°C - + 85°C	
Connector	SMA (Female) – All Ports	
Finish	Black Painting	
Mechanical Dimensions	96 x 74 x 14.5 mm	

Other specifications available upon request.

MECHANICAL



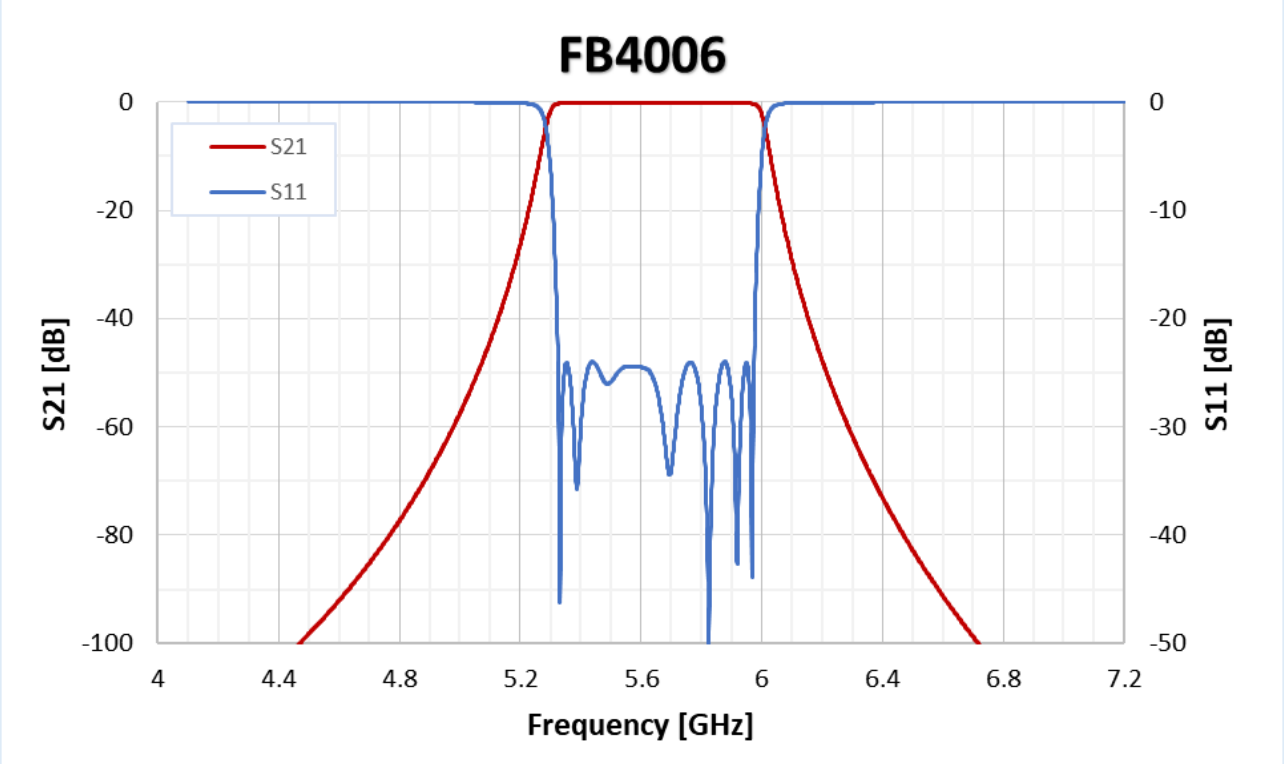
FB4006

C-BAND BANDPASS CAVITY FILTER

DESCRIPTION

FB4006 is cavity bandpass filter in C-band (frequencies available upon request and customizable within frequency range).

The passband width is 600MHz max.

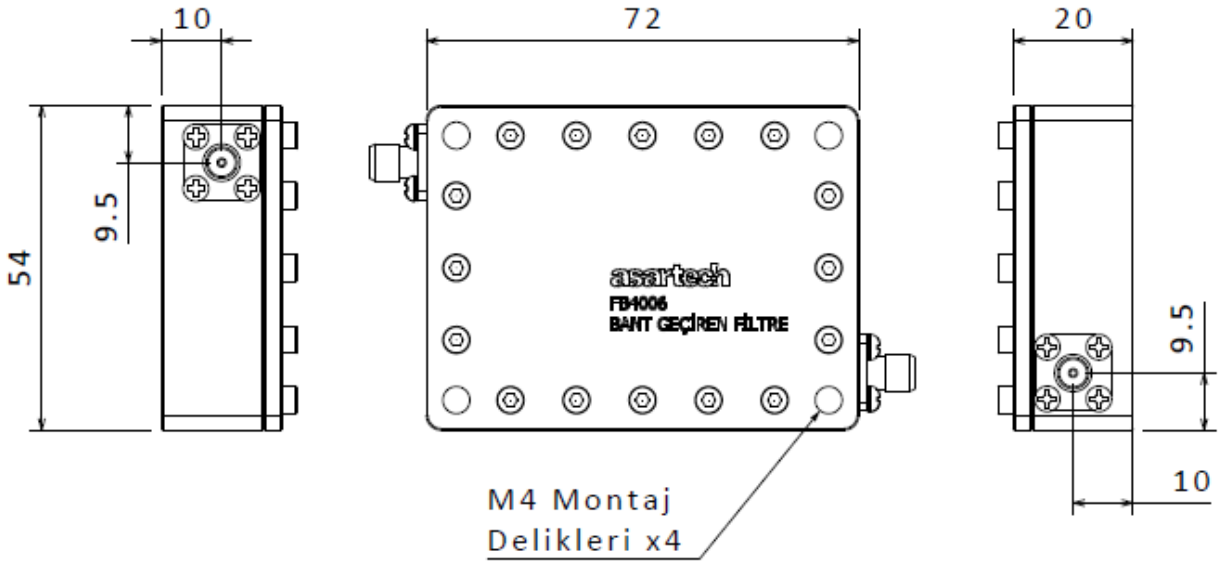


SPECIFICATIONS

Parameter	Limits
Passband Freqs (F1, F2)	5-6 GHz
Passband Width	600MHz
Insertion Loss	0.5dB max within PB
Return Loss	20dB max
Stopband Attenuation	55dB @ F1-350MHz 55dB @ F2+350MHz
Power Handling	100W
No Spurious	Up to 15GHz
Operational Temp Range	5°C to 65°C
Storage Temp Range (Note 2)	0°C to 125°C
RF Input Power	125W max

Note-1: Other specifications available upon request.
Note 2: It is assumed that the device will sit within a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL



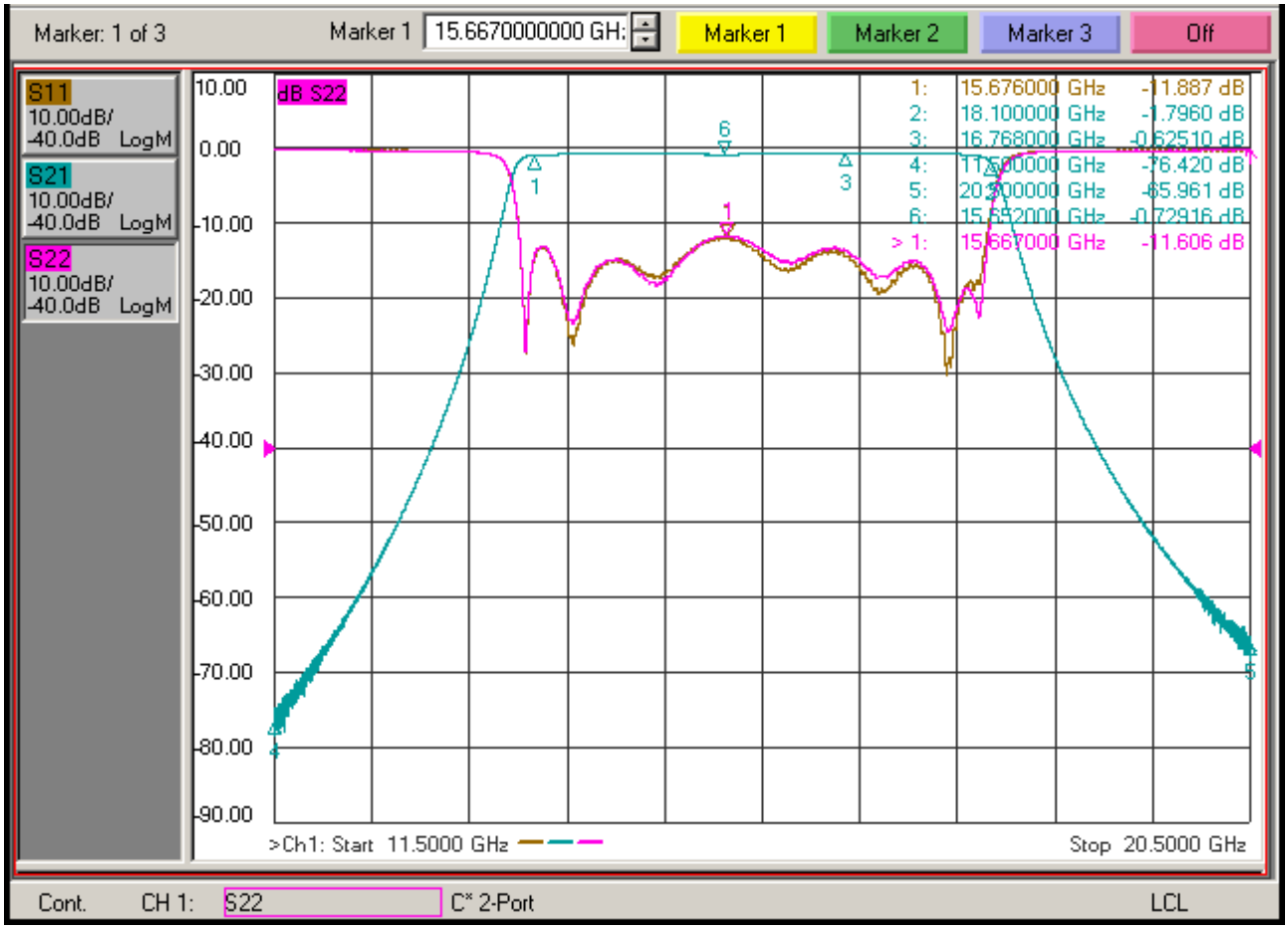
FB4021

16 GHz BANDPASS FILTER

DESCRIPTION

FB4021 is a 13.9-18.1GHz low-loss microwave bandpass filter. The unit is used in front-end RF and typically EW applications as preselector filtering.

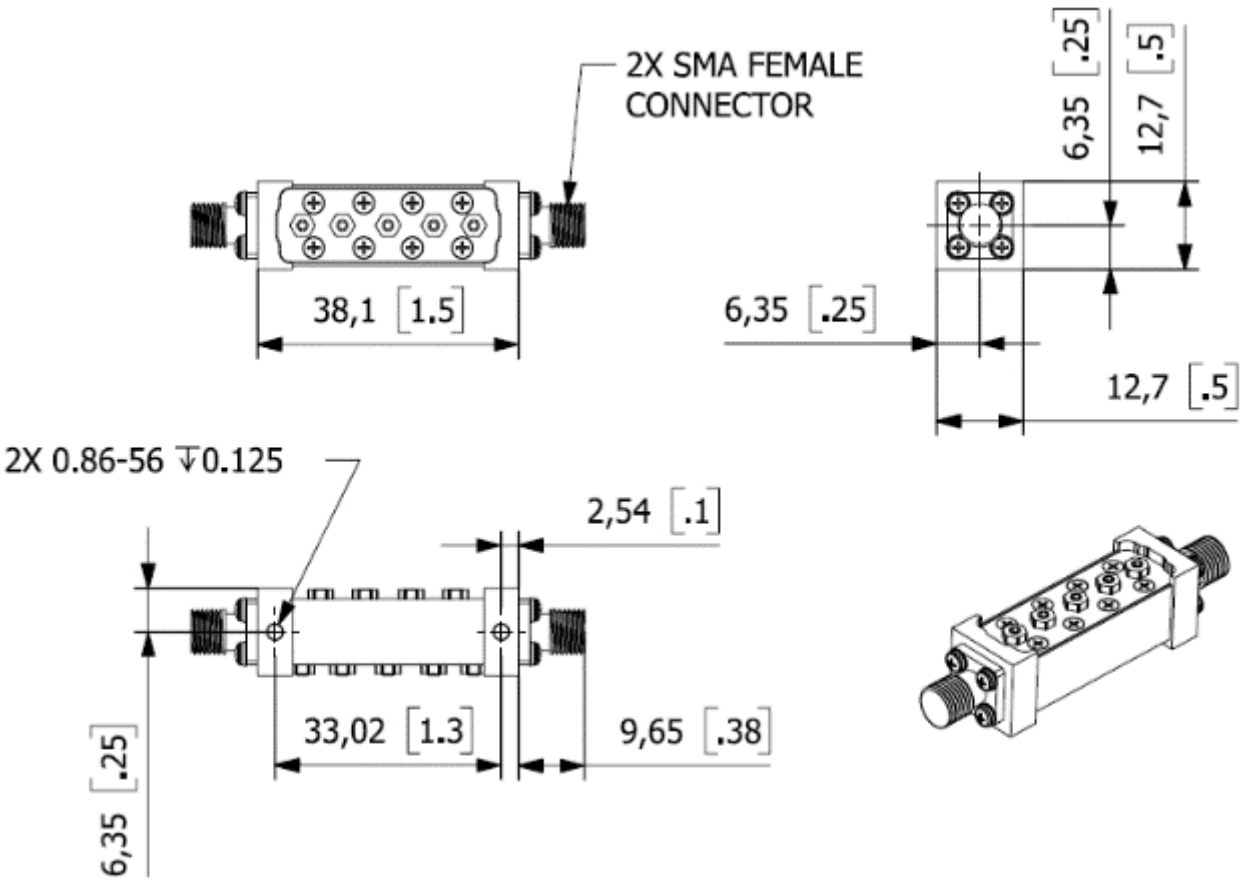
The filter enclosure is silver-plated machined aluminum with SMA female connectors on input and output.



SPECIFICATIONS

Parameter	Limits
Center Freq	16000 MHz
3dB BW [min]	4200 MHz
Passband IL [max]	0.6dBa
VSWR [max]	1.7:1
Passband RL [min]	11.7 dB
Out of Band Rejection	62 dBc @ 11500 MHz 58 dBc @ 20500 MHz
Dimensions	1.5 x 0.5 x 0.5 in (38.10 x 12.70 x 12.70 mm)
Operational Temp Range	-40 °C / +85 °C
Storage Temp Range	-40 °C / +85 °C
RF Connectors	SMA (Female)

MECHANICAL



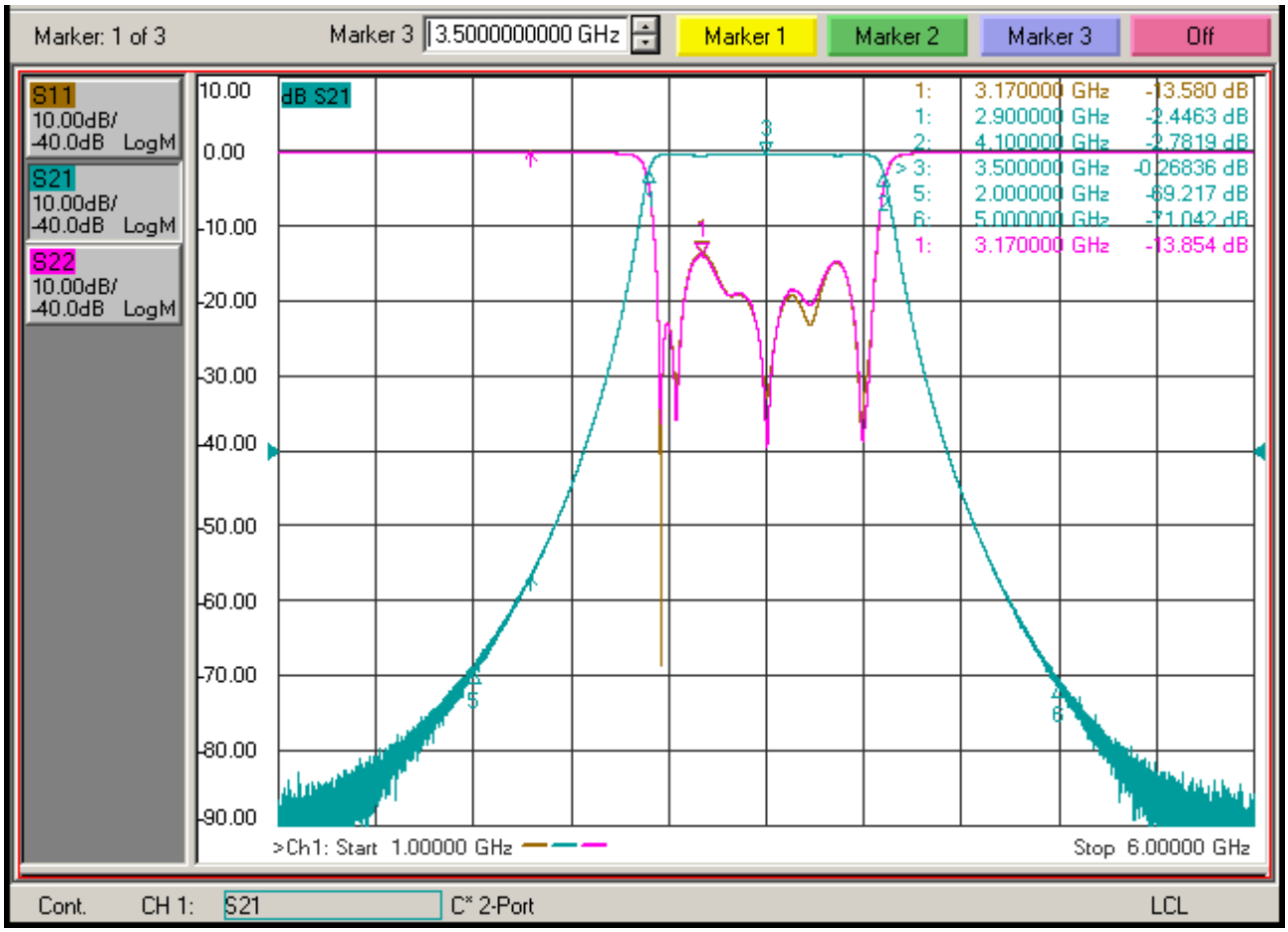
FB4024

3.5 GHz BANDPASS FILTER

DESCRIPTION

FB4024 is a 2.9-4.1GHz low-loss microwave bandpass filter. The unit is used in front-end RF and typically EW applications as preselector filtering.

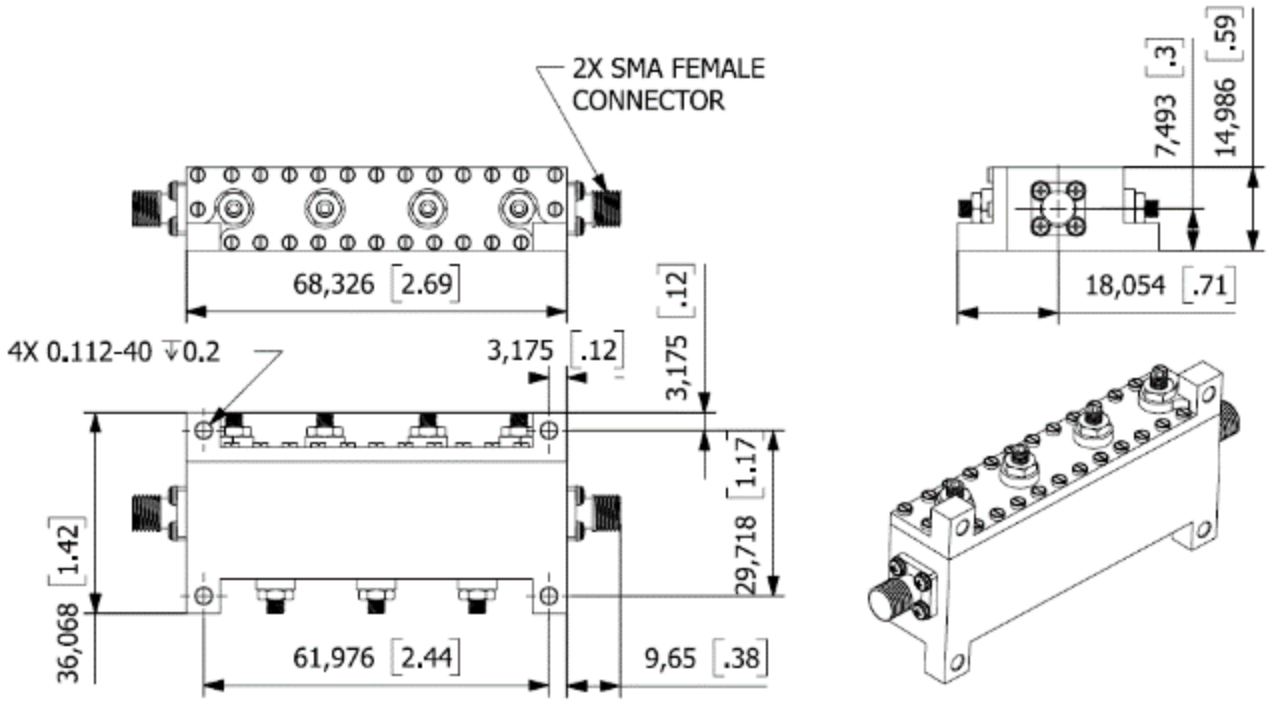
The filter enclosure is silver-plated machined aluminum with SMA female connectors on input and output.



SPECIFICATIONS

Parameter	Limits
Center Freq	3500 MHz
3dB BW [min]	1200 MHz
Passband IL [max]	0.3dBa
VSWR [max]	1.7:1
Passband RL [min]	11.7 dB
Out of Band Rejection	66 dBc @ 2000 MHz 58 dBc @ 5000-7350 MHz
Dimensions	2.69 x 1.42 x 0.59 in (68.36 x 36.15 x 15.06 mm)
Operational/Storage Temp	-40 °C / +85 °C
RF Connectors	SMA (Female)

MECHANICAL



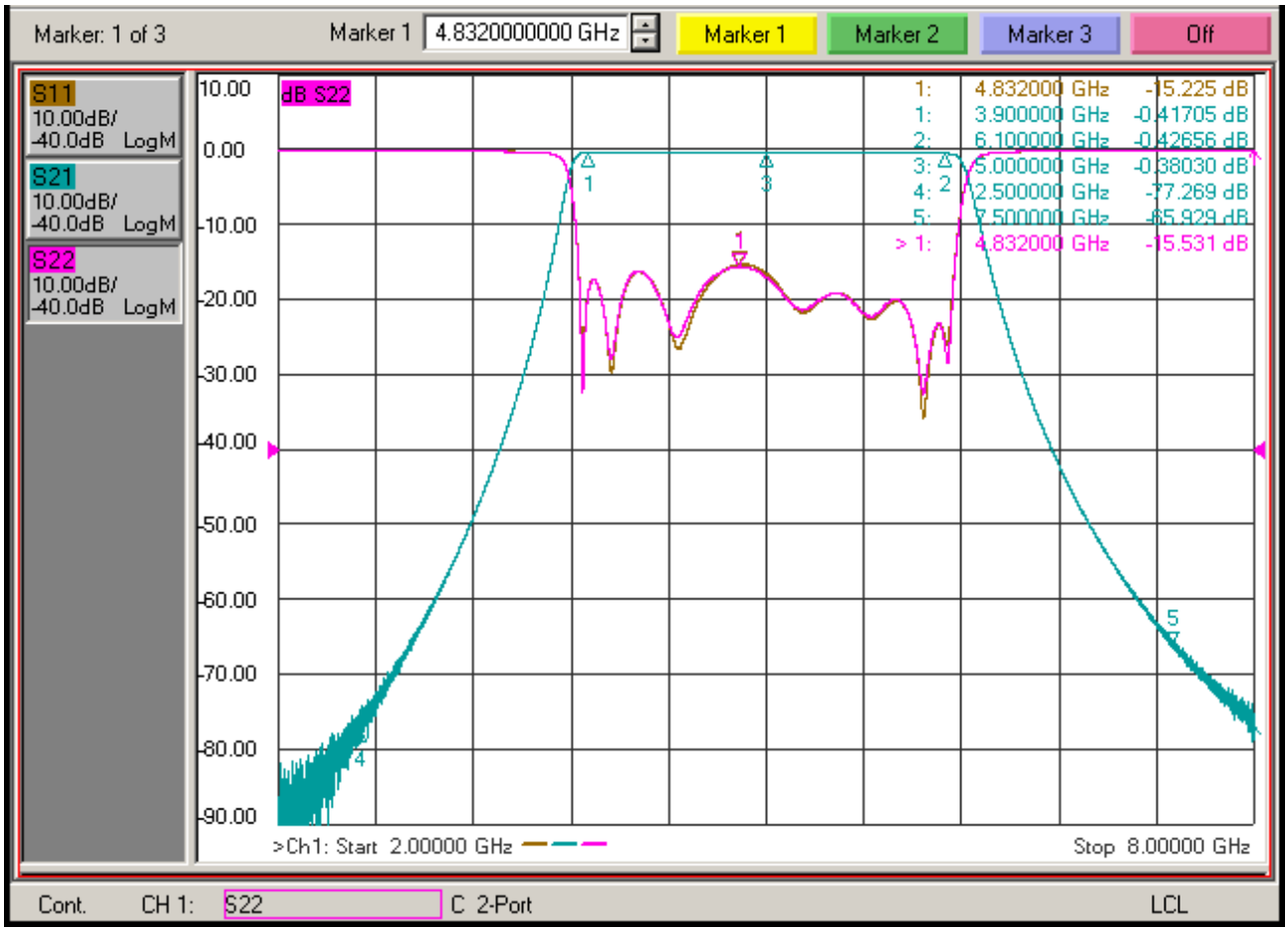
FB4025

5 GHz BANDPASS FILTER

DESCRIPTION

FB4025 is a 3.9-6.1GHz low-loss microwave bandpass filter. The unit is used in front-end RF and typically EW applications as preselector filtering.

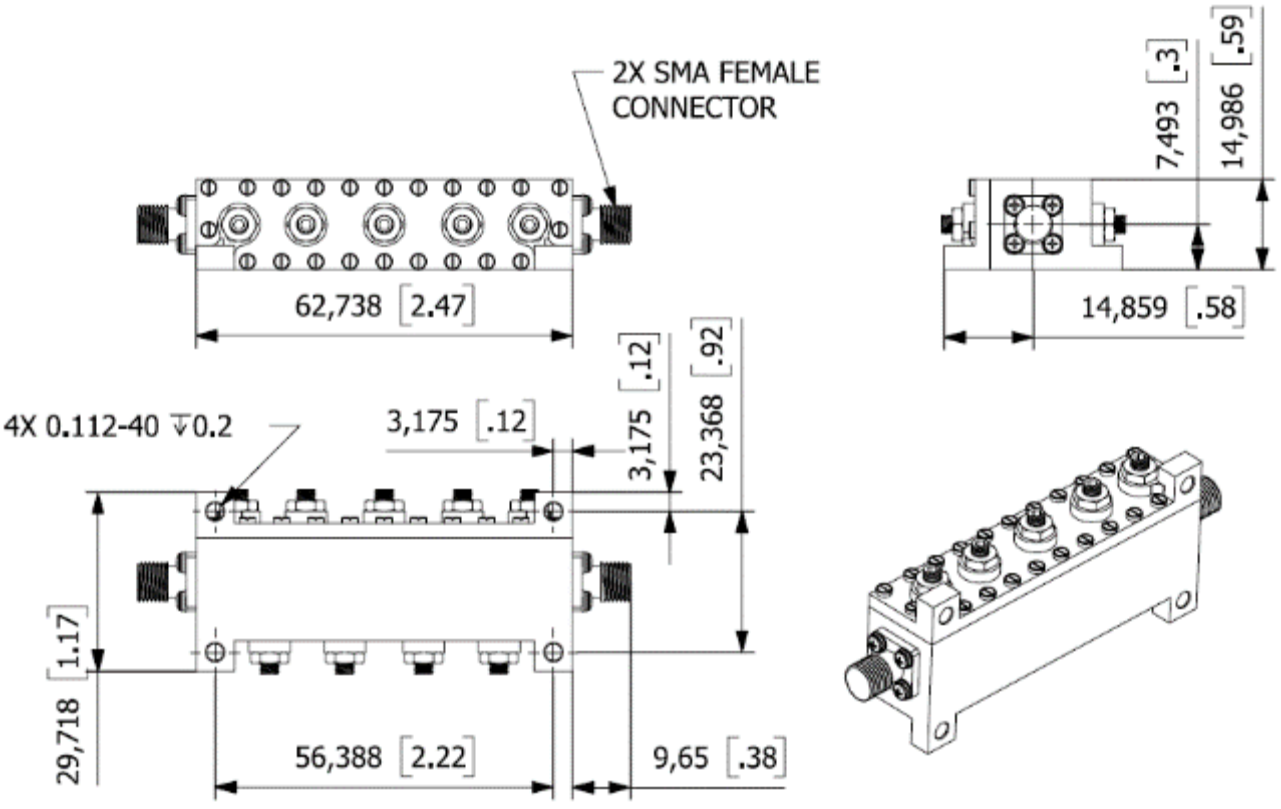
The filter enclosure is silver-plated machined aluminum with SMA female connectors on input and output.



SPECIFICATIONS

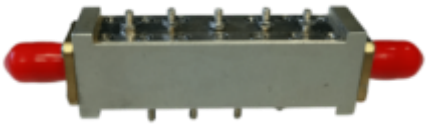
Parameter	Limits
Center Freq	5000 MHz
3dB BW [min]	2200 MHz
Passband IL [max]	0.3dBa
VSWR [max]	1.7:1
Passband RL [min]	11.7 dB
Out of Band Rejection	63 dBc @ 2500 MHz 53 dBc @ 7500-10500 MHz
Dimensions	2.47 x 1.17 x 0.59 in (62.79 x 29.72 x 15.06 mm)
Operational Temp Range	-40 °C / +85 °C
Storage Temp Range	-40 °C / +85 °C
RF Connectors	SMA (Female)

MECHANICAL



FB4027

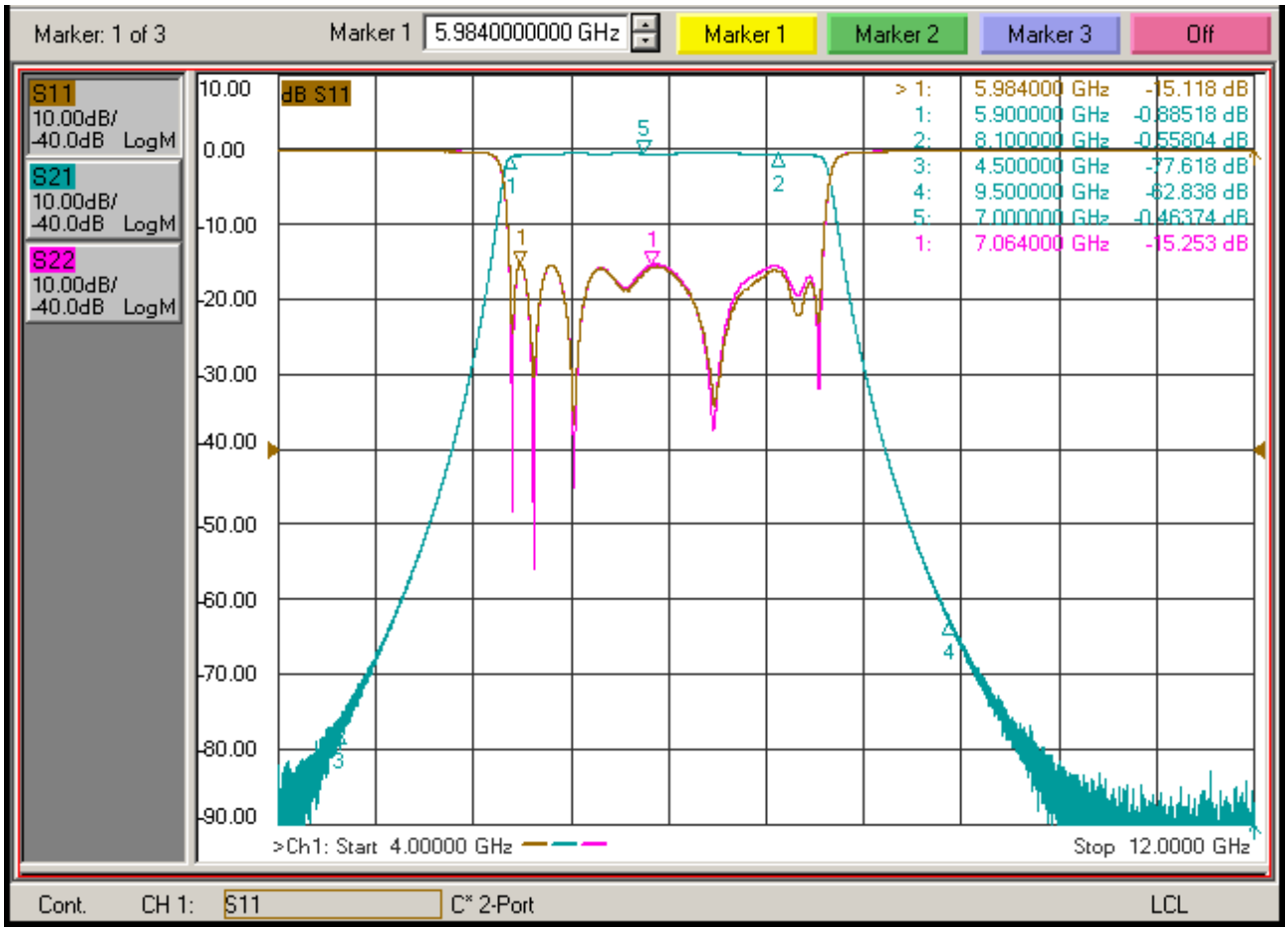
7 GHz BANDPASS FILTER



DESCRIPTION

FB4027 is a 5.9-8.1GHz low-loss microwave bandpass filter. The unit is used in front-end RF and typically EW applications as preselector filtering.

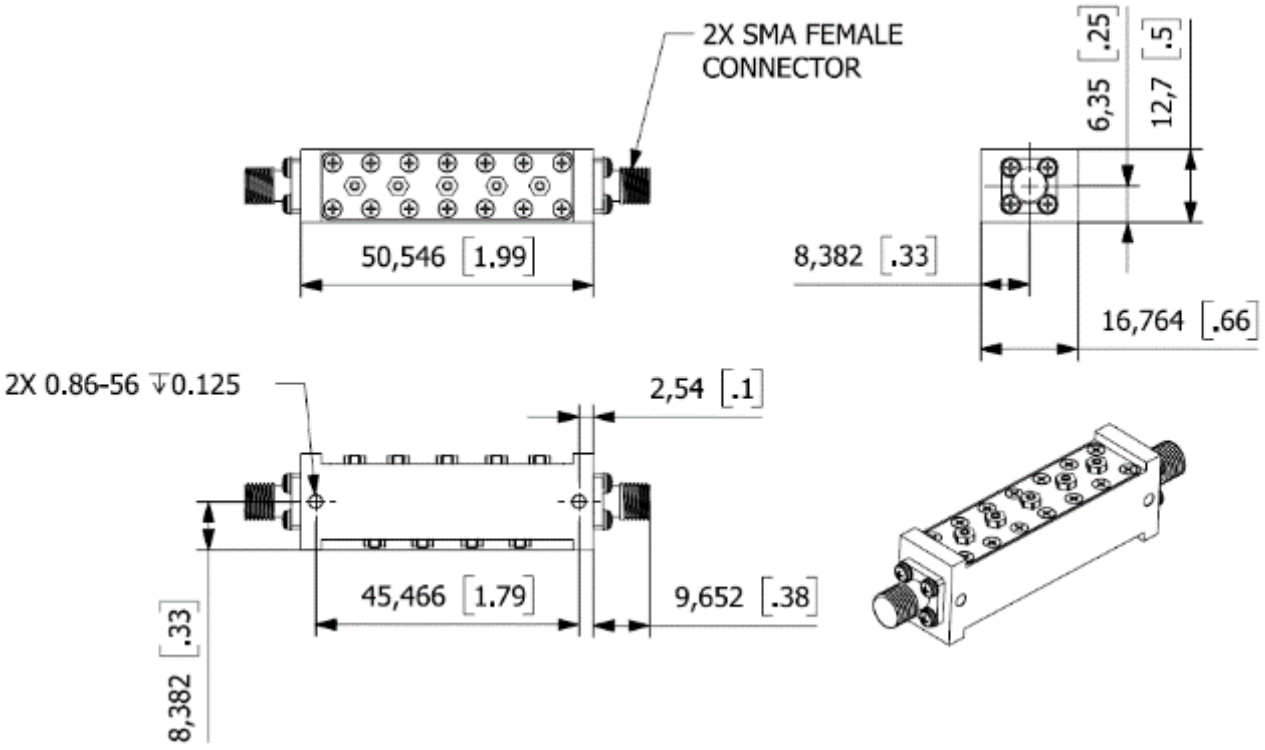
The filter enclosure is silver-plated machined aluminum with SMA female connectors on input and output.



SPECIFICATIONS

Parameter	Limits
Center Freq	7000 MHz
3dB BW [min]	2200 MHz
Passband IL [max]	0.4dBa
VSWR [max]	1.7:1
Passband RL [min]	11.7 dB
Out of Band Rejection	58 dBc @ 4500 MHz 53 dBc @ 9500 MHz
Dimensions	1.99 x 0.66 x 0.50 in (50.55 x 16.80 x 12.70 mm)
Operational Temp Range	-40 °C / +85 °C
Storage Temp Range	-40 °C / +85 °C
RF Connectors	SMA (Female)

MECHANICAL



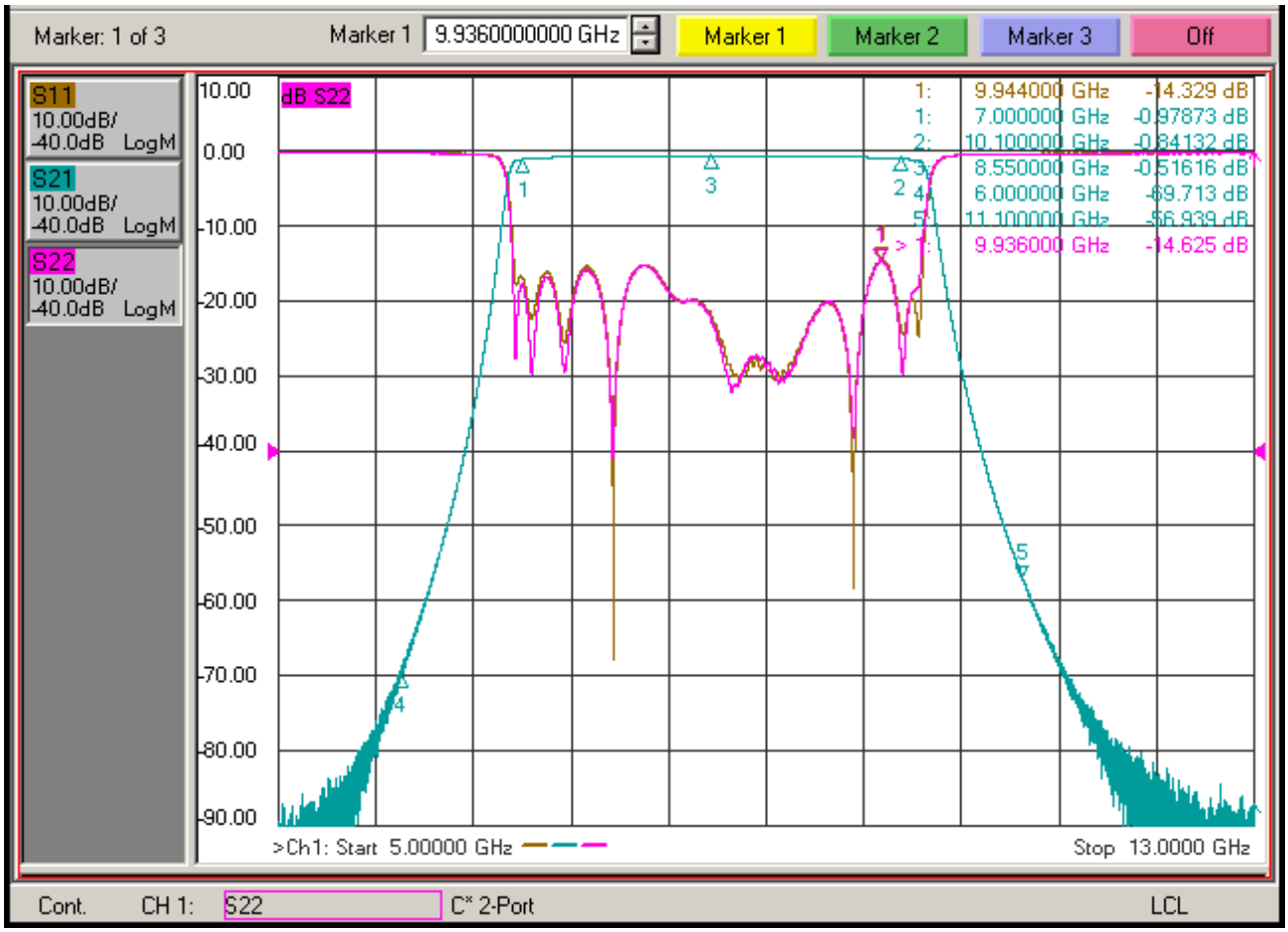
FB4028

8.55 GHz BANDPASS FILTER

DESCRIPTION

FB4028 is a 6.950-10.050GHz low-loss microwave bandpass filter. The unit is used in front-end RF and typically EW applications as preselector filtering.

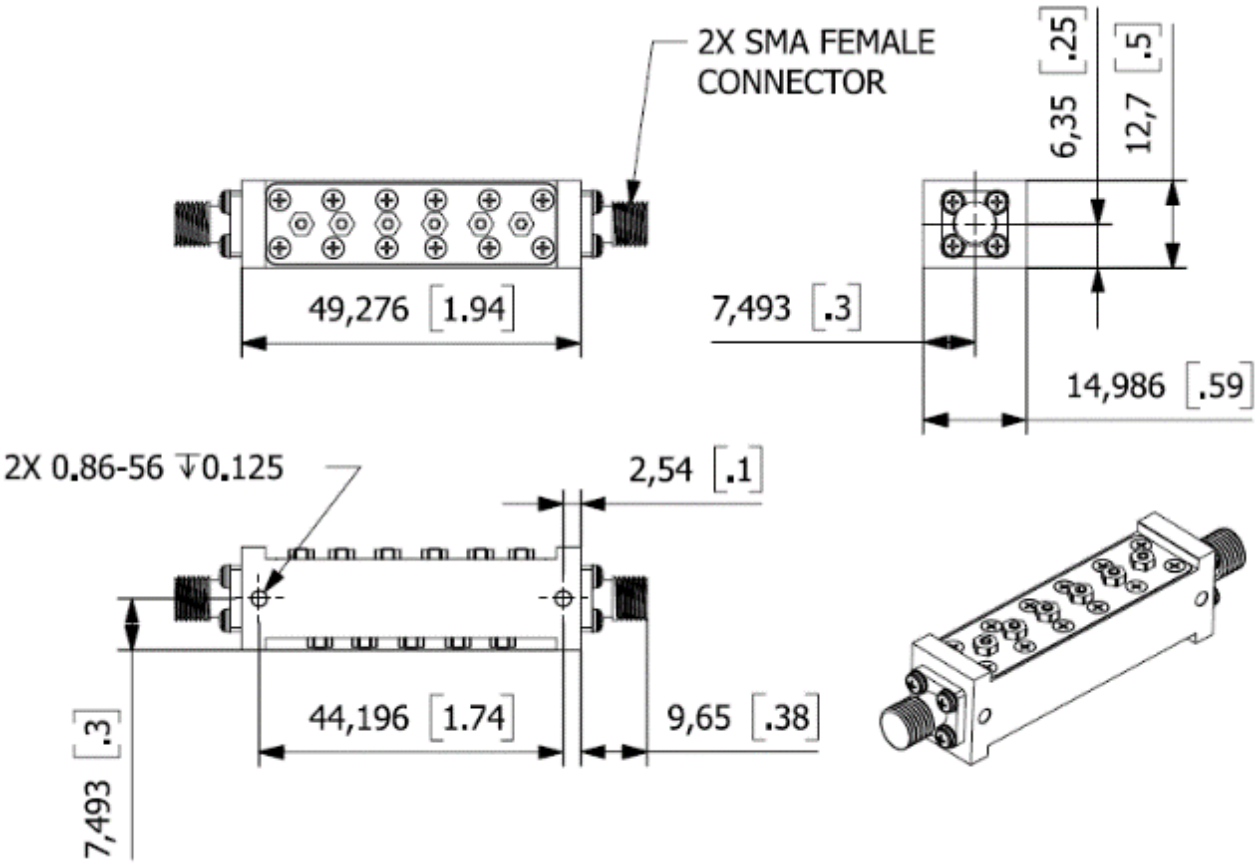
The filter enclosure is silver-plated machined aluminum with SMA female connectors on input and output.



SPECIFICATIONS

Parameter	Limits
Center Freq	8550 MHz
3dB BW [min]	3100 MHz
Passband IL [max]	0.5dBa
VSWR [max]	1.7:1
Passband RL [min]	11.7 dB
Out of Band Rejection	58 dBc @ 6000 MHz 53 dBc @ 11100 MHz
Dimensions	1.94 x 0.59 x 0.50 in (49.17 x 14.86 x 12.70 mm)
Operational Temp Range	-40 °C / +85 °C
Storage Temp Range	-40 °C / +85 °C
RF Connectors	SMA (Female)

MECHANICAL



FB4029

12 GHz BANDPASS FILTER

DESCRIPTION

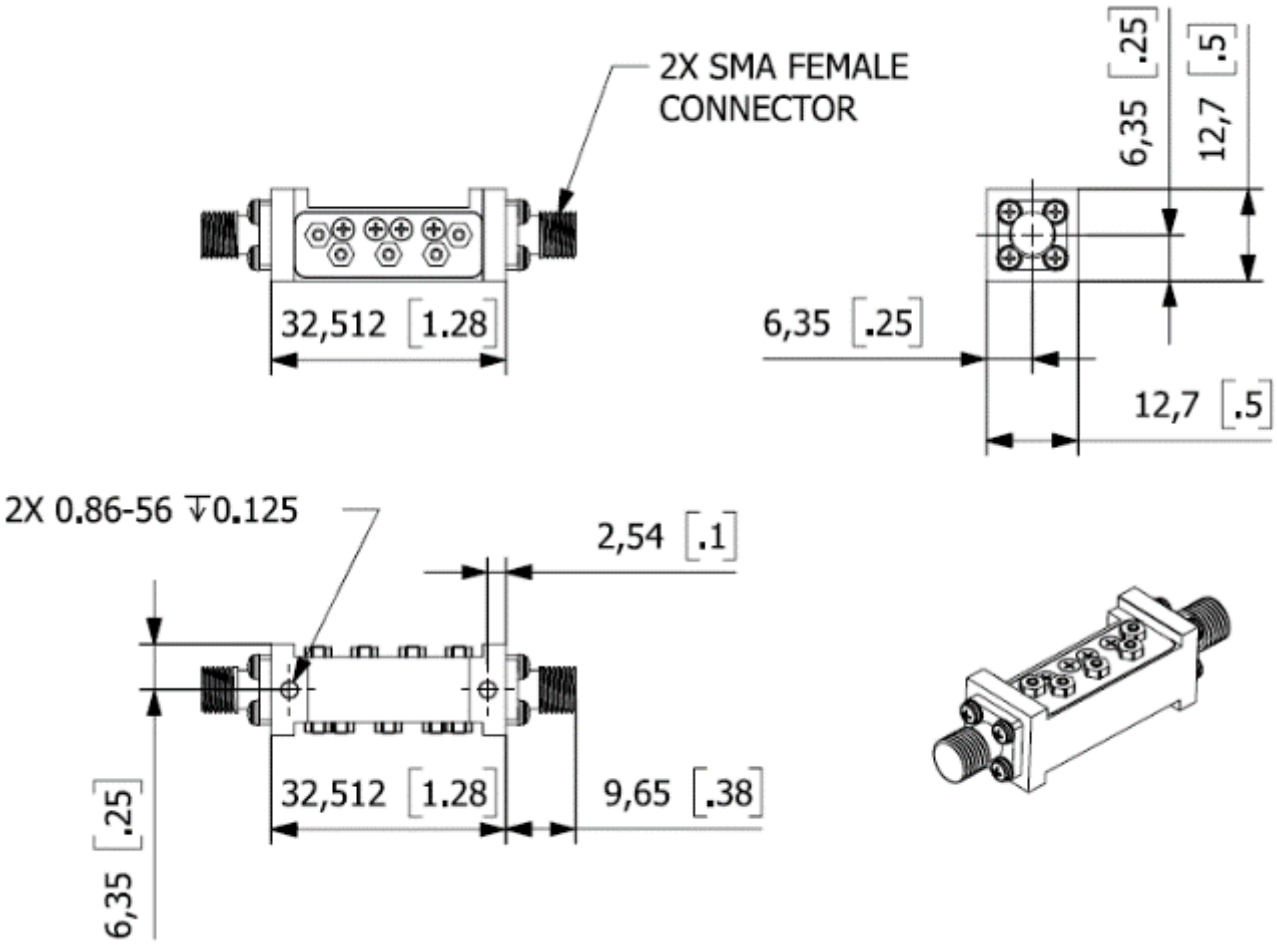
FB4029 is a 9.9-14.1GHz low-loss microwave bandpass filter. The unit is used in front-end RF and typically EW applications as preselector filtering.

The filter enclosure is silver-plated machined aluminum with SMA female connectors on input and output.

SPECIFICATIONS

Parameter	Limits
Center Freq	12000 MHz
3dB BW [min]	4200 MHz
Passband IL [max]	0.5dBa
VSWR [max]	1.7:1
Passband RL [min]	11.7 dB
Out of Band Rejection	55 dBc @ 7500 MHz 49 dBc @ 16500-25200 MHz
Dimensions	1.28 x 0.50 x 0.50 in (32.45 x 12.70 x 12.70 mm)
Operational Temp Range	-40 °C / +85 °C
Storage Temp Range	-40 °C / +85 °C
RF Connectors	SMA (Female)

MECHANICAL



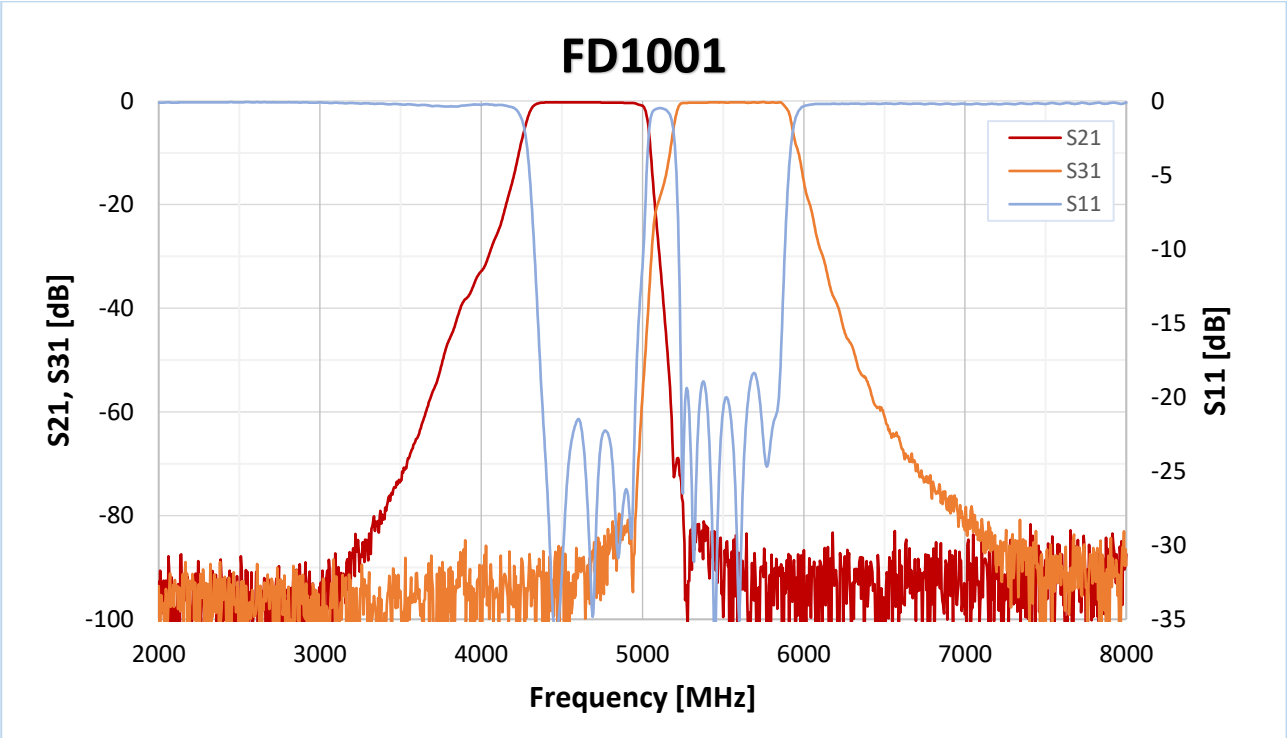
FD1001

C-BAND DIPLEXER

DESCRIPTION

FD1001[3] is a Bandpass Diplexer that is designed to address challenging needs of C Band communication requirements in 4 to 6GHz. The unit boasts two low-loss cavity channels which are diplexed with a band gap of 300MHz.

FD1001 is equipped with 3 SMA(F) connectors on the input and diplexed RX and TX channels. The unit can handle RF power up to 20W CW with 1.0 dB max insertion loss on either channel.



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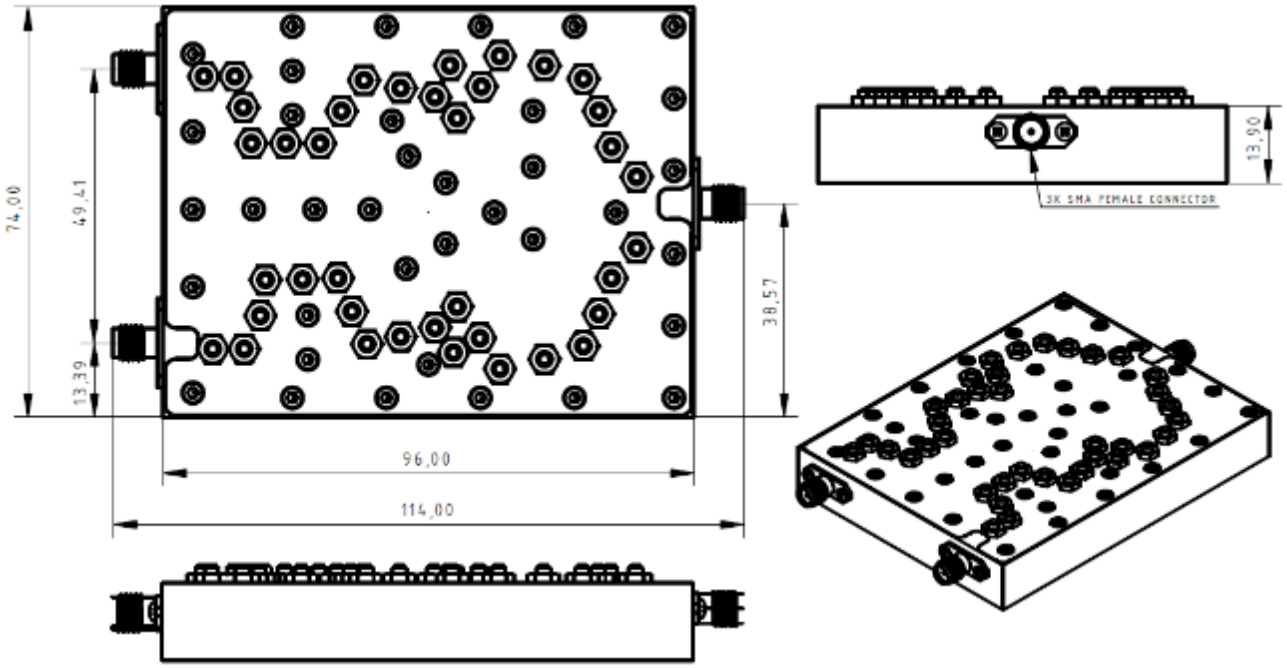
SPECIFICATIONS

Parameter	Low Band Limits	High Band Limits
Center Freq	4675 MHz	5550 MHz
Bandwidth	4400 – 4950 MHz	5200 – 5850 MHz
Insetion Loss	1.0 dB max	1.0 dB max
VSWR	1.3:1 max	1.3:1 max
Peak Ripple	0.5 dB	0.5 dB
Attenuation	80 dB min @ DC-2000 MHz 80 dB min @5250-11700 MHz	80 dB min @ DC-4400 MHz 80 dB min @ 6500-11700 MHz
Power Handling (Watt)	20 CW max	
IN/OUT Impedance	50 Ohm	
Operational Temp. Range	-45°C - + 85°C	
Connector	SMA (Female) – All Ports	
Finish	Black Painting	
Mechanical Dimensions	72 mm x 53,5 mm x 14,5 mm	

MECHANICAL



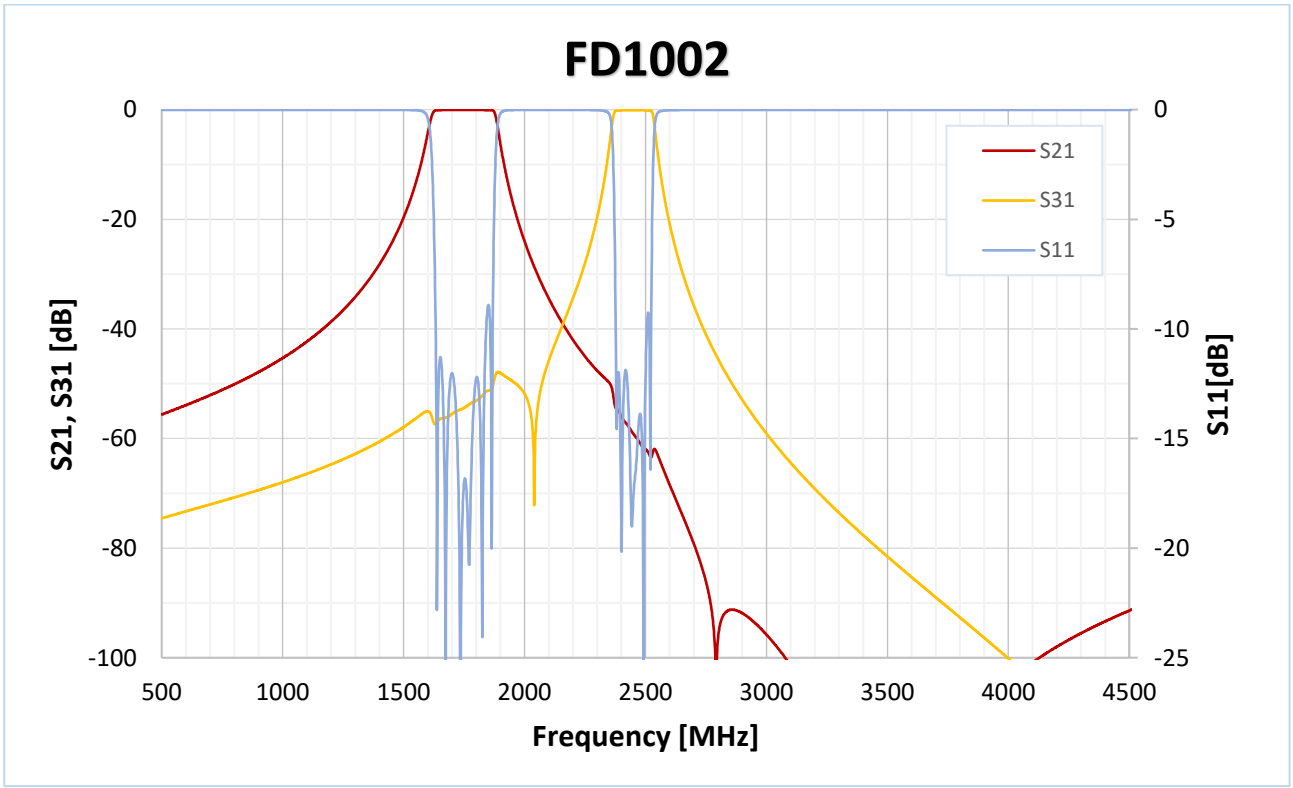
FD1002

L/S-BAND DIPLEXER

DESCRIPTION

FD1002[4] is a Bandpass Diplexer that is designed to address challenging needs of L/S Band communication requirements. The unit boasts two low-loss cavity channels which are diplexed with a band gap of 100MHz. Each channel bandwidth is 90 MHz.

FD1002 is equipped with a Type SMA connector at common port and two SMA(F) connectors on the diplexed RX and TX channels. The unit can handle RF power up to 20W CW with 1.0dB max insertion loss on either channel.

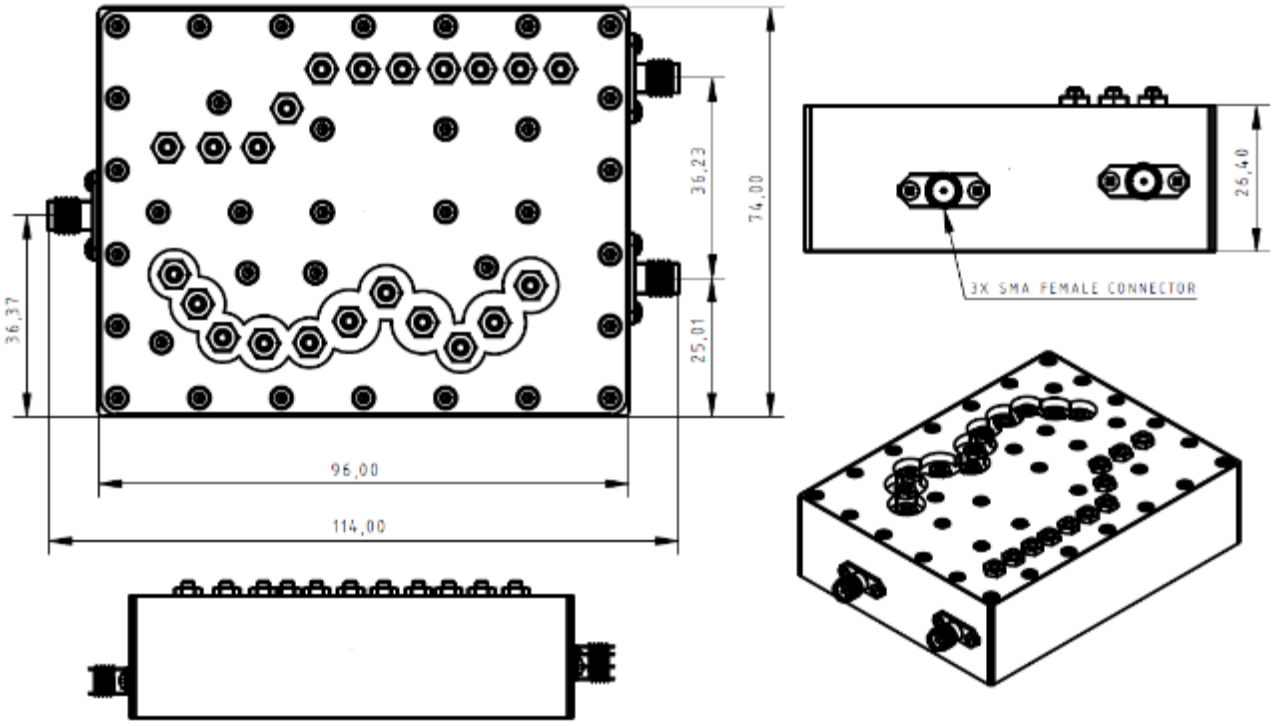


[4] This product has been developed with the support the program of The Scientific and Technological Research Council of Turkey (TÜBTAK) (Project No: 3205062) but all the responsibility concerning the product/service belongs to ASARTECH ARGE TASARIM MÜHENDİSLİK A.Ş.

SPECIFICATIONS

Parameter	Limits	
	Low Path	High Path
Center Frequency	1750 MHz	2450 MHZ
Bandwidth	1650 – 1850 MHz	2400 – 2500 MHz
Insertion Loss	1.0 dB max	1.0 dB max
VSWR	1.3:1 max	1:3.1 max
Attenuation	80 dB min. @ 1000 MHz 70 dB min @ 2400-2500 MHz 80 dB min @ 3300 MHz	80 dB min. @ 1000 MHz 70 dB min. @ 1650-1850 MHz 80 dB min. @ 1650-1850 MHz
Isolation Between Bands	80 dB min. @ 2400-2500	80 dB min. @ 1650-1850 MHz
Power Handling	20 Watt CW max.	
IN/OUT Impedance	50 Ohm	
Operational Temp. Range	-45° - +85°C	
Connector	SMA (Female) – All Ports	
Finish	Black Painting	
Mechanical Dimensions	96 mm x 74 mm x 45 mm	

MECHANICAL

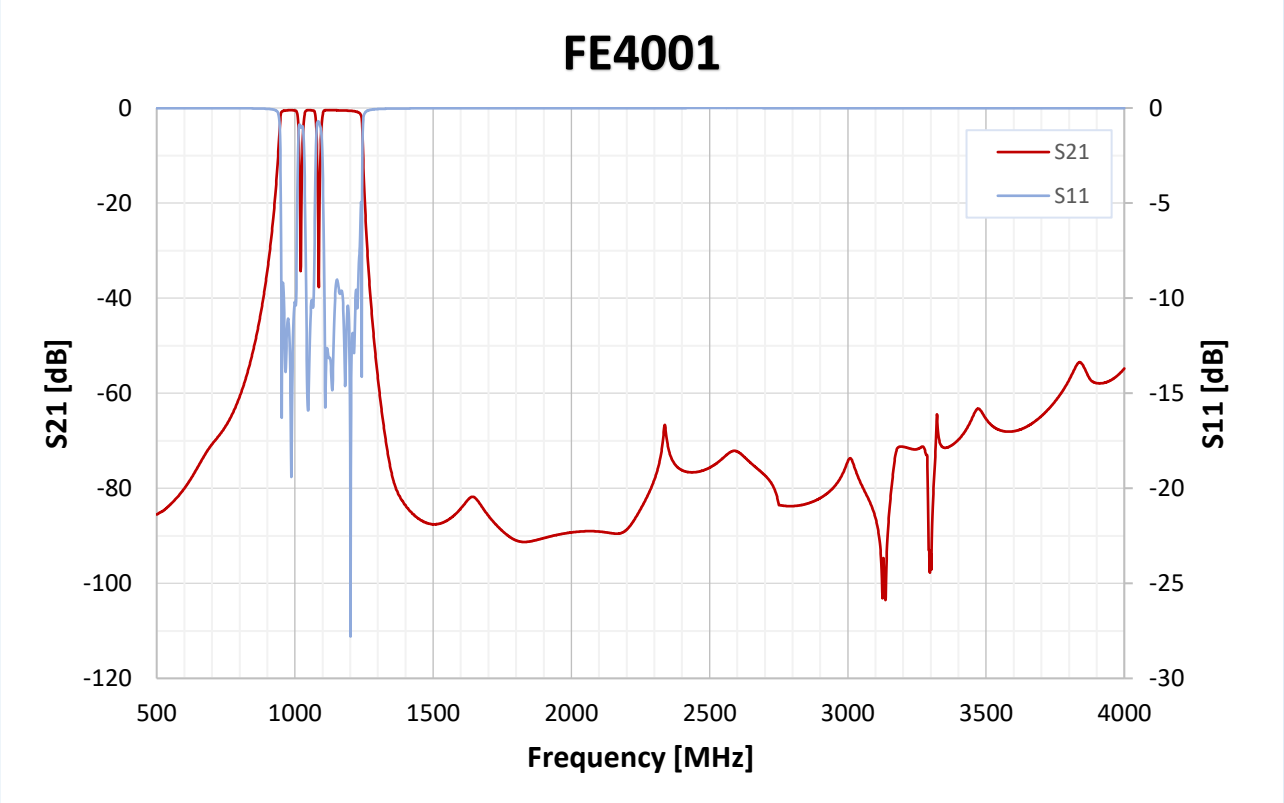


FE4001

L-BAND TRIPLE BAND BANDPASS FILTER

DESCRIPTION

FE4001[5] is a multiband filter covering LINK16/TACAN band having excellent IFF band rejection. The unit boasts low passband insertion loss, sharp roll off and having suppression of 60 dBc minimum beyond 3rd harmonic band. FE4001 is equipped with two SMA(F) connectors. The unit can handle powers of up to 200W.

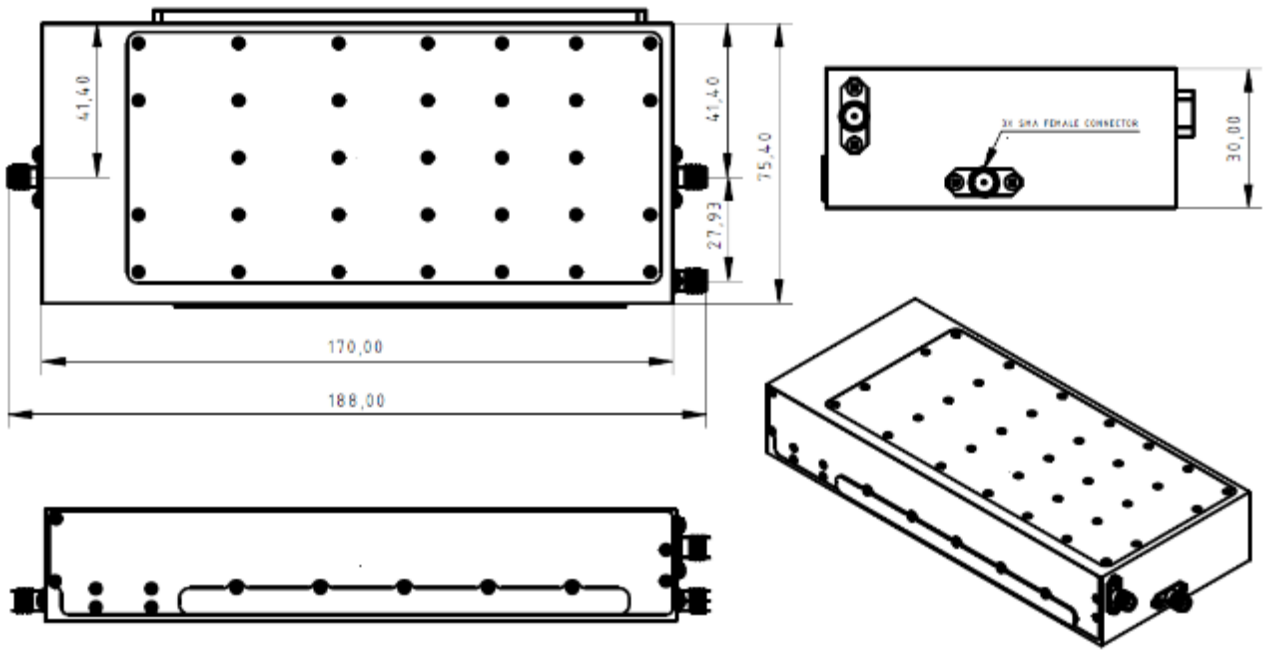


[5] This product has been developed with the support the program of The Scientific and Technological Research Council of Turkey (TÜBTAK) (Project No: 3205062) but all the responsibility concerning the product/service belongs to ASARTECH ARGE TASARIM MÜHENDİSLİK A.Ş.

SPECIFICATIONS

Parameter	Limits		
	Passband 1	Passband 2	Passband 3
Bandwidth	960-1010 MHz	1050-1072 MHz	1110-1215 MHz
Insertion Loss	2.0 dB max.		
Return Loss BW	16 dB min.		
Peak Ripple	1.0 dB max.		
Attenuation	60 dB min. @ DC-900 MHz 60 dB min. @ 1030 MHz 60 dB min. @ 1090 MHz 60 dB min. @ 1300-1400 MHz		
Power Handling	20 Watt CW max.		
IN/OUT Impedance	50 Ohm		
Operational Temp. Rate	-45°C - +85°C		
Connector	SMA (Female) – All Ports		
Finish	Black Painting		
Mechanical Dimensions	170 mm x 80 mm x 32 mm		

MECHANICAL

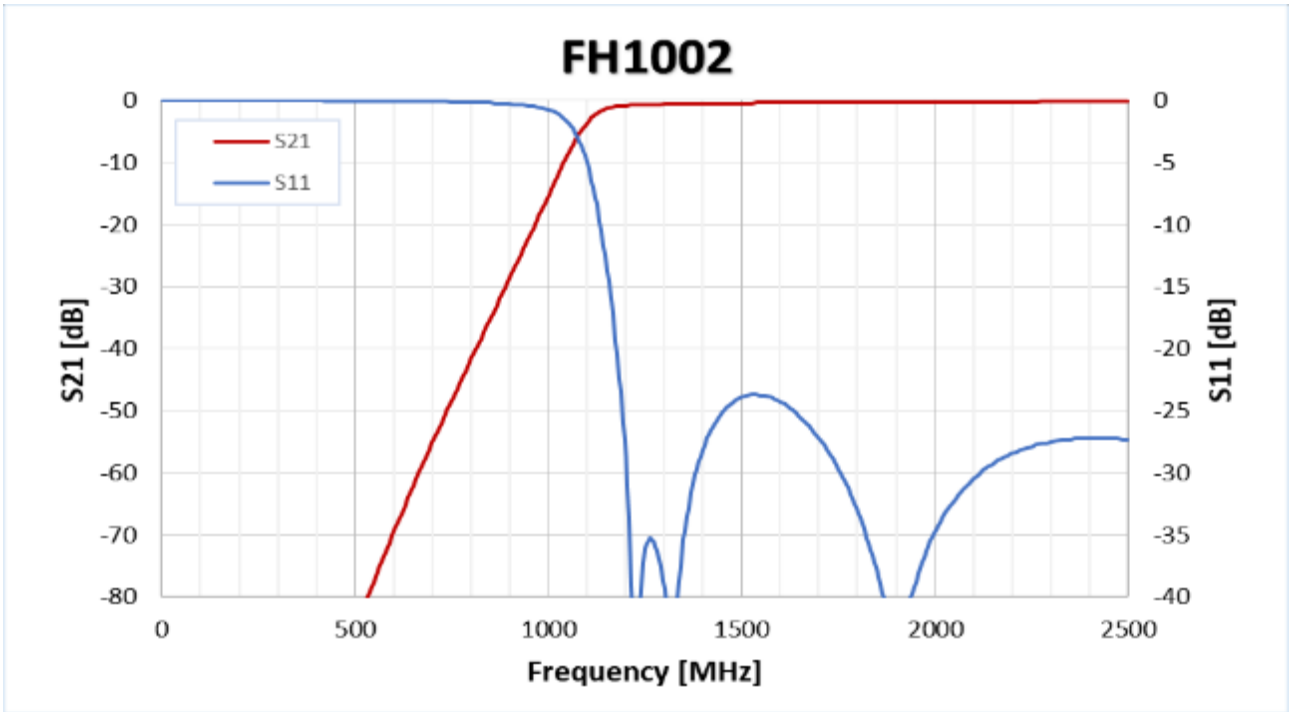


FH1002

1200 MHz HIGHPASS FILTER

DESCRIPTION

FH1002 is a general purpose 1200MHz high pass filter. It's a lumped element filter housed in a standard Asartech FG1002 housing, i.e., 39.25x16.7x11mm aluminum box. The input and output connectors are standard SMA. The unit can be used for filtering out GSM signals as well as a good fit for low order Nyquist zones of anti-alias filtering of ultra-high-speed ADCs.

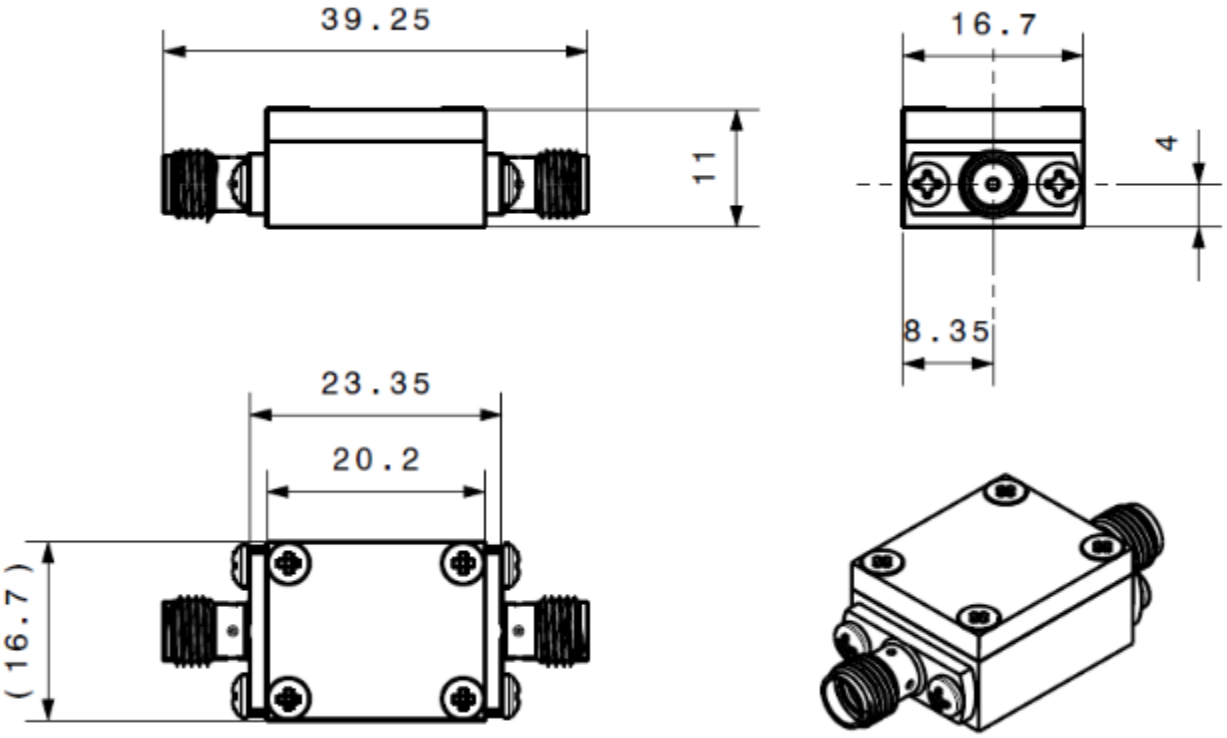


SPECIFICATIONS

Parameter		Frequency Range	Min	Typ	Max
Passband	**Insertion Loss**	1200-3000 MHz		0.8dB	1.2dB
	Return Loss	1200-3000 MHz		20dB	16dB
	Power Handling	1200-3000 MHz			5W
Stopband	**Attenuation**	DC - 800MHz	35dB	40dB	

Other specifications available upon request.

MECHANICAL

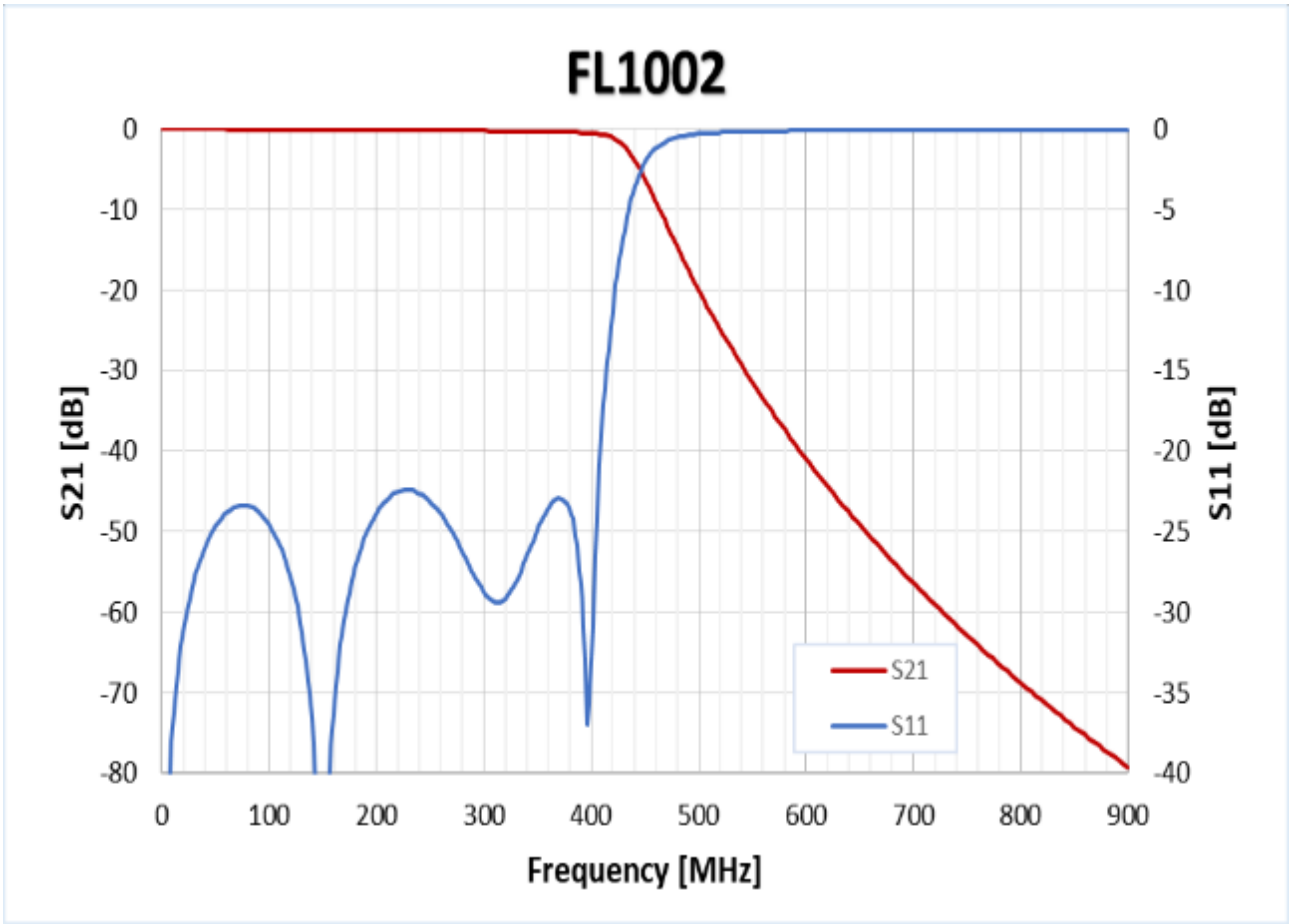


FL1002

400MHz LOWPASS FILTER

DESCRIPTION

FL1002 is a general purpose 400MHz lowpass filter. It's a lumped element filter housed in a standard Asartech FG1001 housing, i.e., 54.25 x 16.8 x 11mm aluminum box. The input and output connectors are standard SMA. The unit can be used for filtering out harmonics of PA driver amplifiers, as well as a good fit for anti-alias filtering of high-speed ADCs.

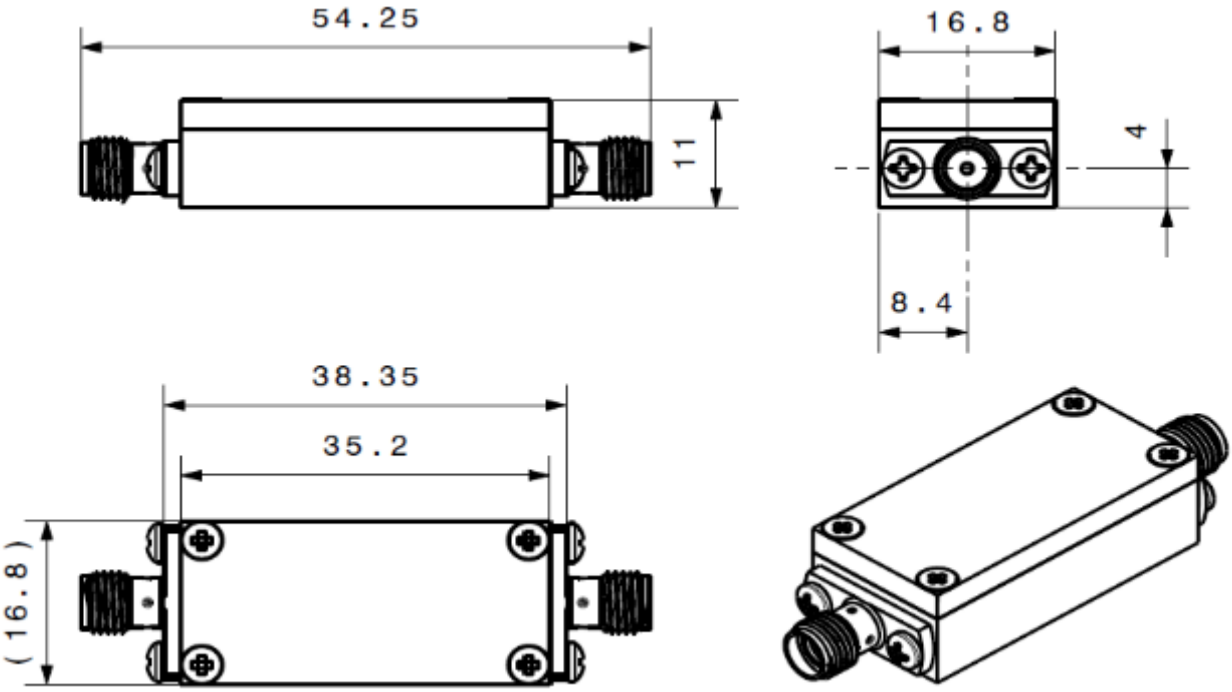


SPECIFICATIONS

Parameter		Frequency Range	Min	Typ	Max
Passband	**Insertion Loss**	DC – 400 MHz		0.5dB	1.0dB
	Return Loss	DC – 400 MHz		20dB	18dB
	Power Handling	DC – 400 MHz			5W
Stopband	**Attenuation**	600 – 3000 MHz	35dB	40dB	

Other specifications available upon request.

MECHANICAL



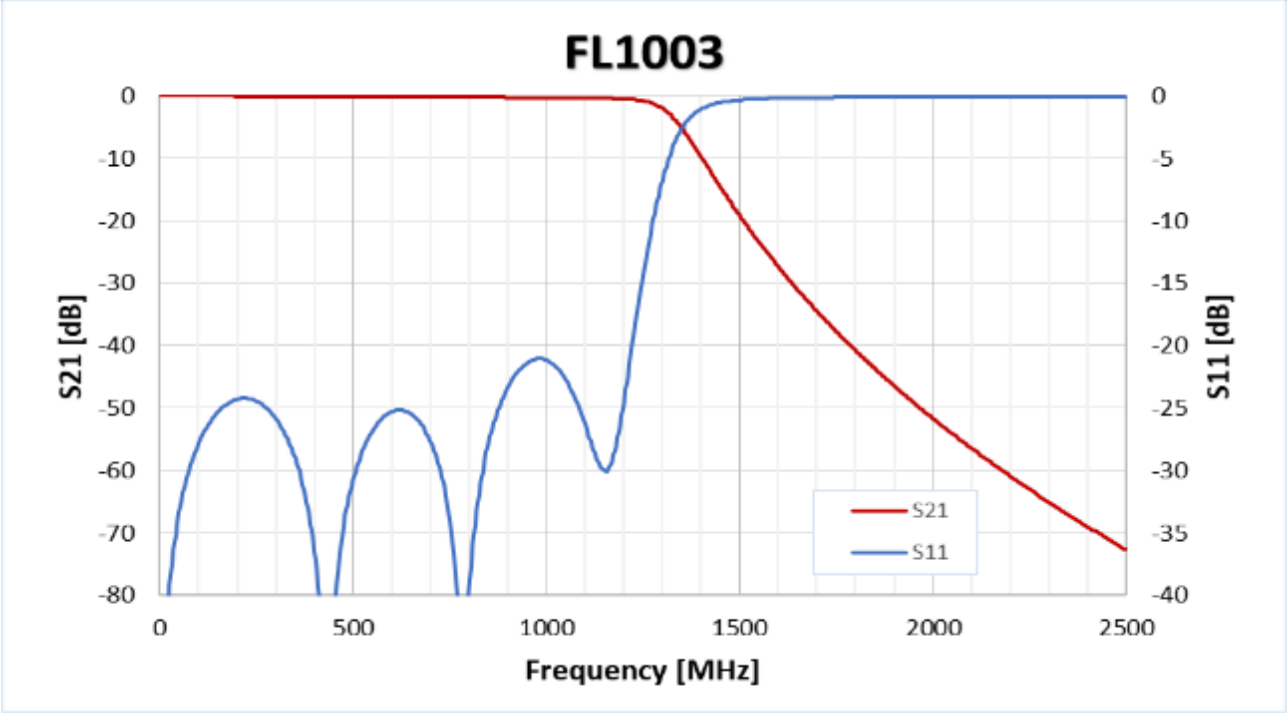
FL1003

1200 MHz LOWPASS FILTER

DESCRIPTION

FL1003 is a general purpose 1200MHz lowpass filter. It's a lumped element filter housed in a standard Asartech FG1002 housing, i.e., 39.25 x 16.7 x 11mm aluminum box.

The input and output connectors are standard SMA. The unit can be used for various applications including anti-alias filtering for ultra-high-speed ADCs.

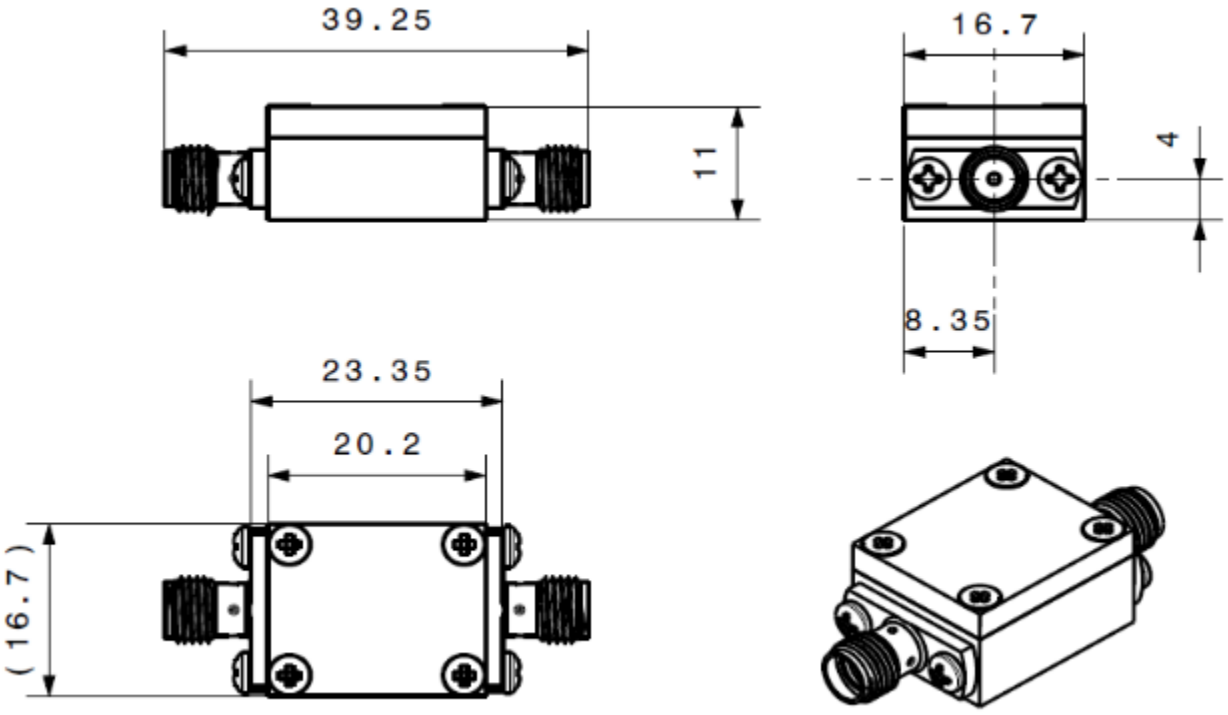


SPECIFICATIONS

Parameter		Frequency Range	Min	Typ	Max
Passband	**Insertion Loss**	DC – 1200 MHz		0.5dB	1.0dB
	Return Loss	DC – 1200 MHz		20dB	16dB
	Power Handling	DC – 1200 MHz			5W
Stopband	**Attenuation**	1800 – 3000 MHz	40dB	45dB	

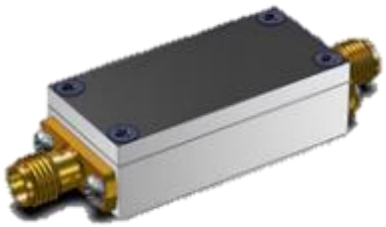
Other specifications available upon request.

MECHANICAL



FL2001

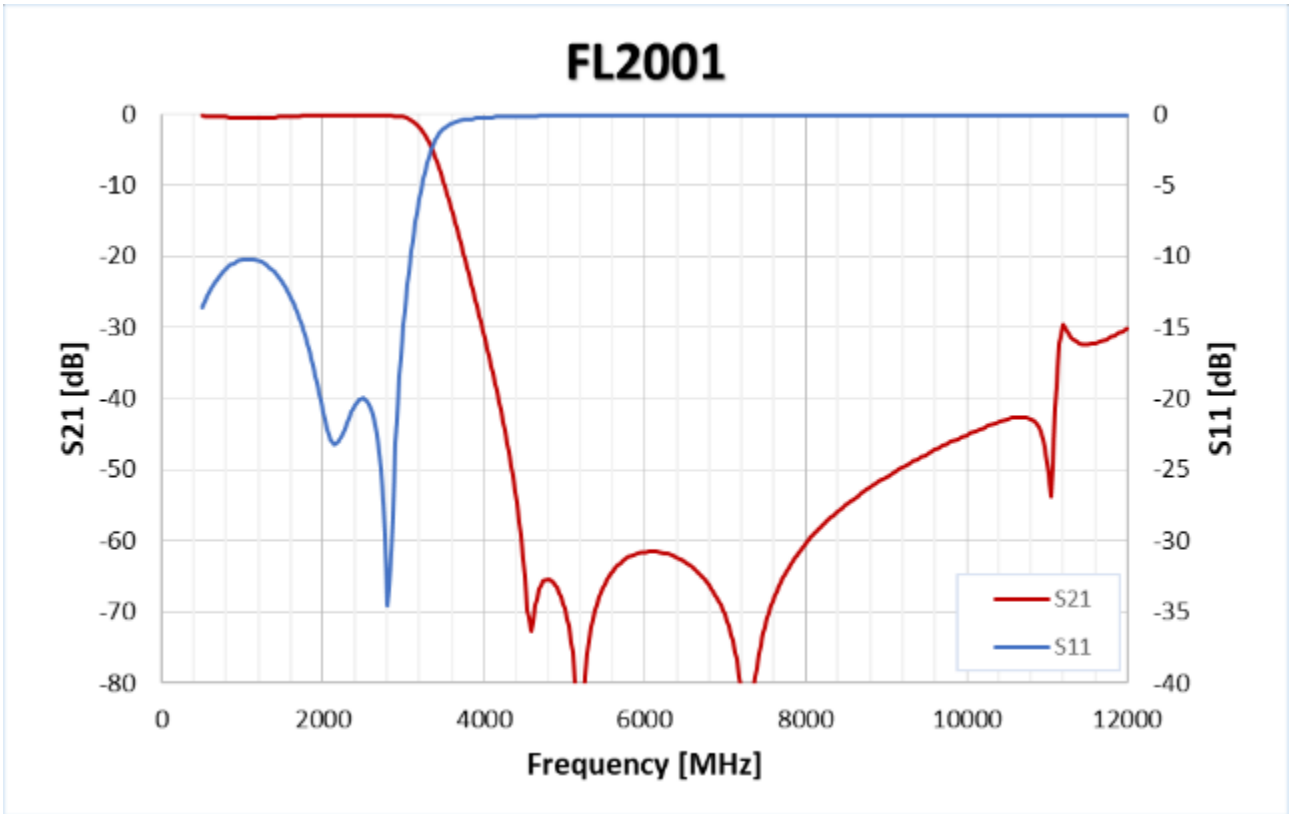
HIGH POWER 2850 MHz LOWPASS FILTER



DESCRIPTION

FL2001 is a 2850MHz harmonic lowpass filter. It's a distributed element filter housed in a 45.25 x 16.1 x 11mm aluminum box (inc connectors).

The input and output connectors are standard SMA. The unit is intended for filtering out harmonics and spurii of 2.4GHz PA drivers.

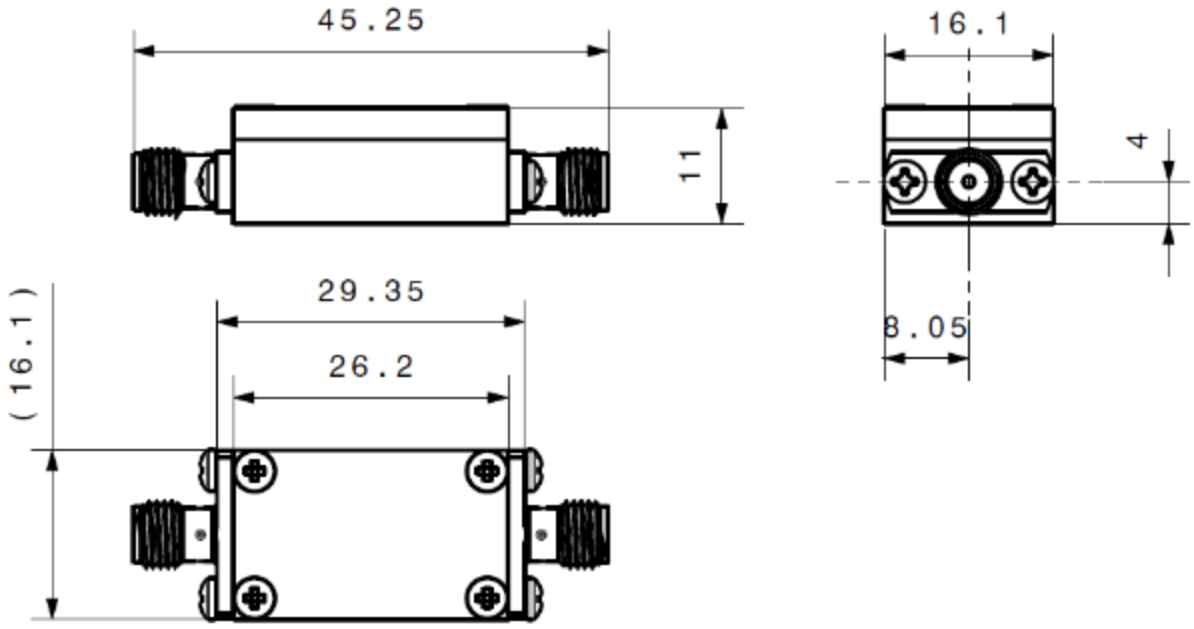


SPECIFICATIONS

Parameter		Frequency Range	Min	Typ	Max
Passband	**Insertion Loss**	DC to 2850 MHz		0.5 dB	1.0 dB
	Return Loss	DC to 2850 MHz		20 dB	18 dB
	Power Handling	DC to 2850 MHz		20W	150W(peak)
Stopband	**Attenuation**	4400-10000MHz	45 dB	40 dB	

Other specifications available upon request.

MECHANICAL



asartech

R&D DESIGN ENGINEERING

SIGNAL GENERATORS

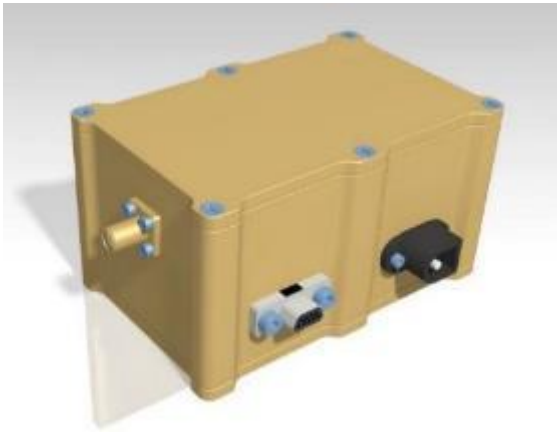
Asartech designs custom RF and microwave high fidelity signal generators up to and including Ka-band.

- Ultra-Stable, Ultra Low Noise Frequency References (typ 10 MHz, 100 MHz, and 1 GHz)
- Wideband Frequency Synthesizers involving phase locked loops
- Ultra-Low Noise Local Oscillators for Radar Applications
- Frequency Hopping Synthesizers

Available in Module or Rack Mount

SG1001

WIDEBAND SIGNAL GENERATOR



DESCRIPTION

SG1001 is a USB-controlled wideband signal generator for portable applications. It incorporates an internal 10MHz TCXO. The frequency accuracy is ±1ppm.

The output power is controlled by a digital attenuator in 0.5dB steps with 30dB attenuation range.

Device consumes 1W at a single 7.5Vdc input.

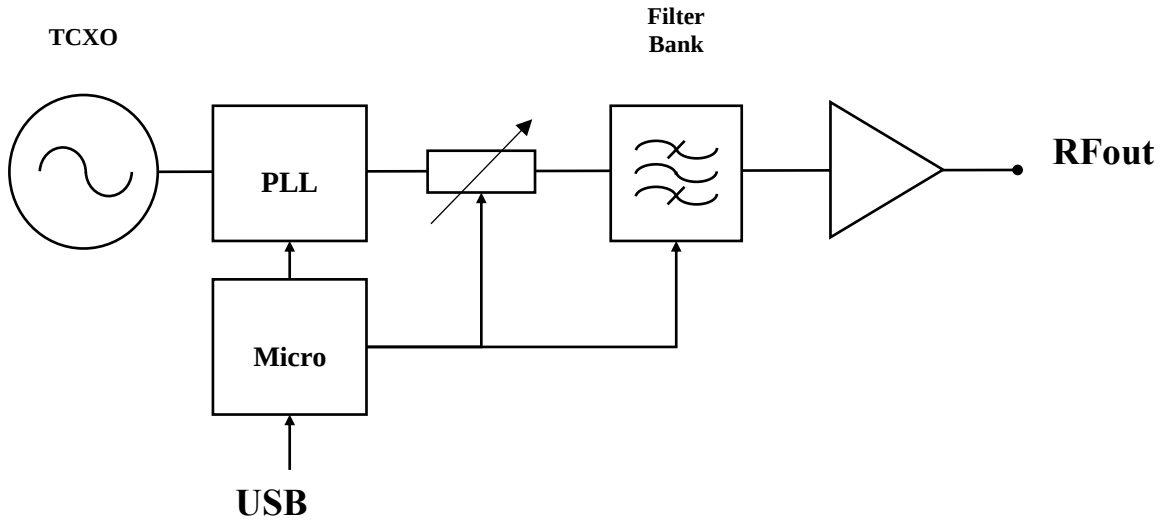
FEATURES

- Wideband Frequency Generation
- Frequency and Amplitude Control
- Low Phase Noise
- Low power consumption

SPECS AT A GLANCE

- 10MHz to 20GHz output
- 20dBm to +10dBm output power
- Low Phase Noise
- 105dBc/Hz @ 10kHz offset at 9GHz
- 96dBc/Hz @ 10kHz offset at 20GHz
- - 20us switching speed

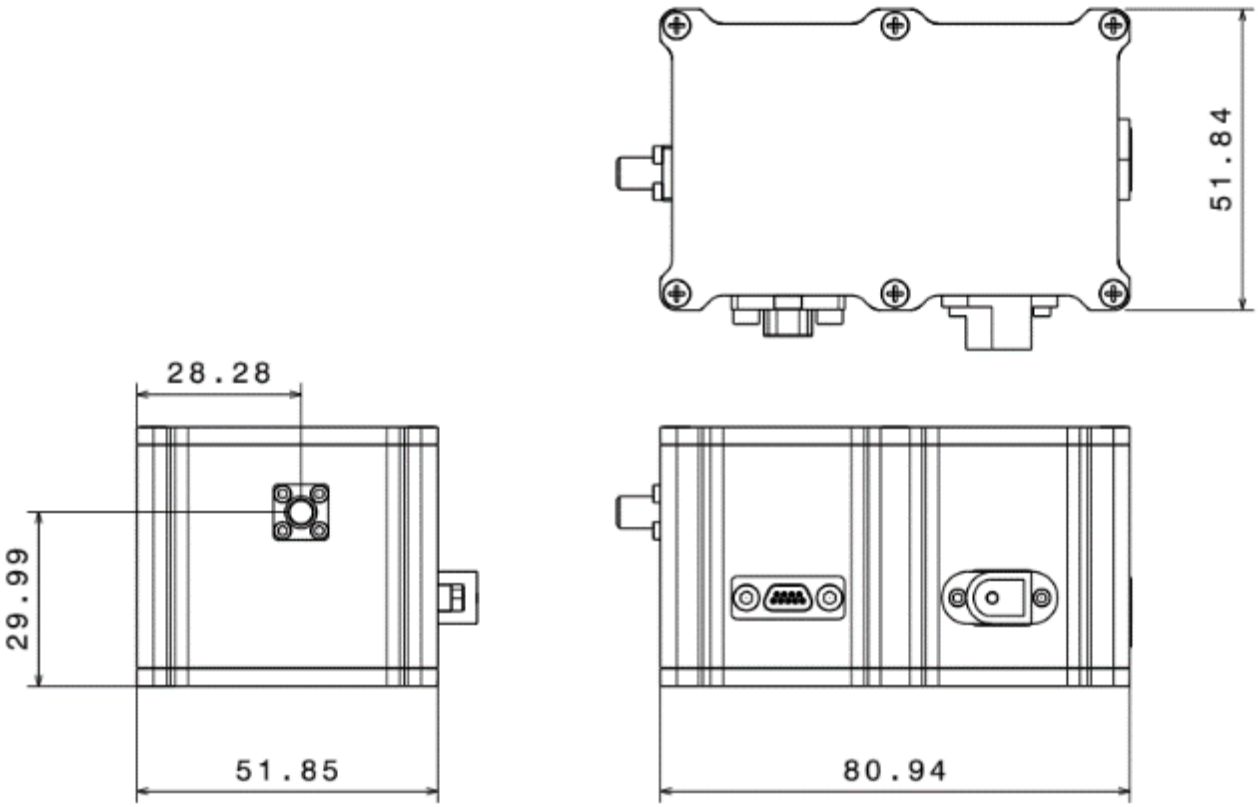
BLOCK DIAGRAM



SPECIFICATIONS

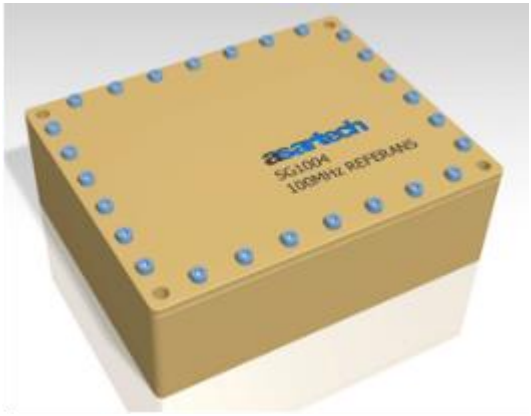
Parameter	Limit
Output Frequency Range	10 MHz to 20 GHz
Frequency Steps	1kHz
Output Level	-20 to +10dBm
Level Control	0.5dB steps
Output Phase Noise at 3GHz	-113dBc/Hz @ 10kHz offset -125dBc/Hz @ 1MHz offset
Output Phase Noise at 9GHz	-105dBc/Hz @ 10kHz offset -120dBc/Hz @ 1MHz offset
Output Phase Noise at 20GHz	-96dBc/Hz @ 10kHz offset -112dBc/Hz @ 1MHz offset
DC Power Consumption	1W typ
Operational Temp Range	5°C to 65°C
Storage Temp Range	0°C to 125°C
DC Input Voltage – 7.5V	10V max
DC Input Current	0.5A max

MECHANICAL



SG1004

LOW NOISE, STABLE FREQUENCY REFERENCE



DESCRIPTION

SG1004 is an ultra-stable, ultra-low noise frequency reference. It consists of a low noise 100MHz Voltage Controlled Crystal Oscillator (VCXO), locked to a stable Oven Controlled Crystal Oscillator (OCXO).

Device consumes 5W during warm-up of 5 minutes and settles at 2.5W at steady state at 20°C ambient temperature.

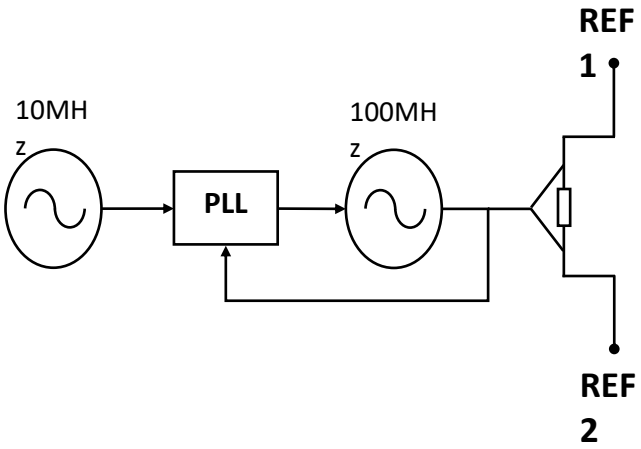
FEATURES

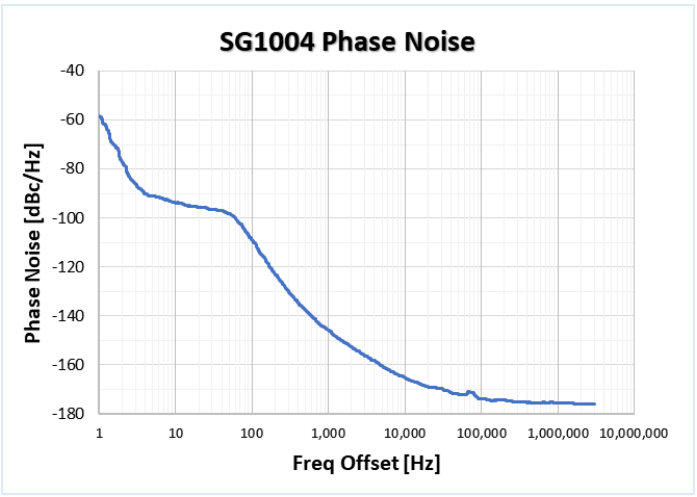
- Sinewave output
- Ultra Temperature Stable
- Very Low Ageing
- Ultra Low Phase Noise

SPECS AT A GLANCE

- 100MHz fixed output
- 2ppb Stability within 0 to 50°C
- 30ppb/year Ageing
- Ultra Low Phase Noise
  - -140dBc/Hz @ 10kHz
  - -165dBc/Hz @ 1MHz

BLOCK DIAGRAM



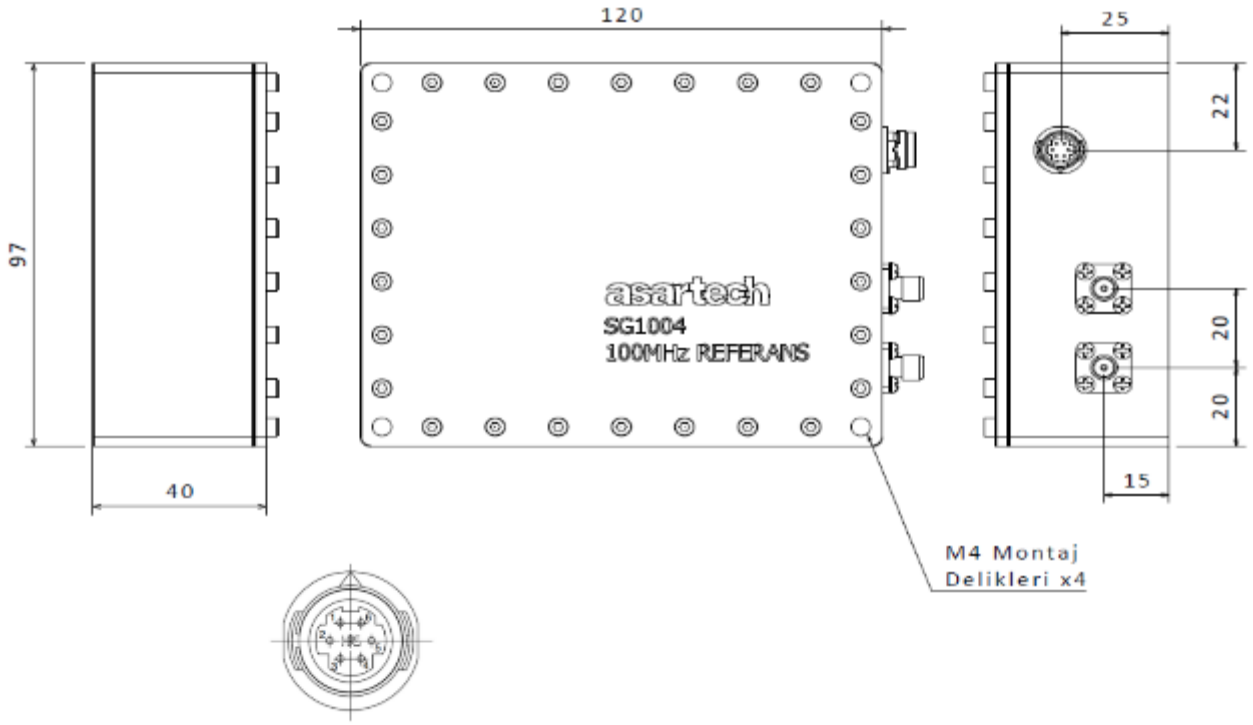


SPECIFICATIONS

Parameter	Limit
REF outputs Freq	100MHz
REF outputs Level	5dBm ± 2dB
Temperature Stability	± 2ppb within 0 to 50°C
Ageing / day	0.5ppb typ
Ageing / year	30ppb typ
Output Phase Noise	-140dBc/Hz @ 10kHz -165dBc/Hz @ 1MHz
DC Power Consumption	5W max during warmup 2.5W typ at steady state
Operational Temp Range	5°C to 65°C (NOTE-1)
Storage Temp Range	0°C to 125°C (NOTE-1)
DC Input Voltage – 18V	24V max
DC Input Voltage – 6V	10V max
DC Input Current	0.5A max @ 18V 0.2A max @ 6V

NOTE-1: It is assumed that the device will sit within a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL



Hirose HR30-6R-6P Panel mount Connector

LO1001

C-BAND LOCAL OSCILLATOR

DESCRIPTION

LO1001 is a low phase noise, voltage-controlled oscillator for use with C-band transceivers.

LO1001 features a very low phase noise ceramic resonator oscillator with -160dBc/Hz phase noise floor. Device consumes 5W typically.

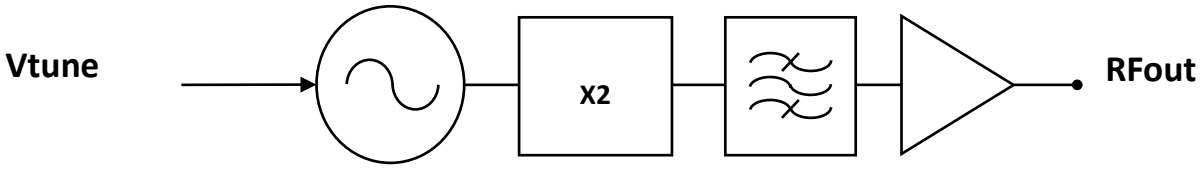
FEATURES

- Excellent Phase Noise
- High Output Power – no extra LO drive needed

SPECS AT A GLANCE

- 5-6 GHz Output Frequency Range
- +16dBm output power
- P/N -100dBc/Hz @ 10kHz offset
- P/N -142dBc/Hz @ 1MHz offset
- 60MHz/V Tuning Sensitivity

BLOCK DIAGRAM

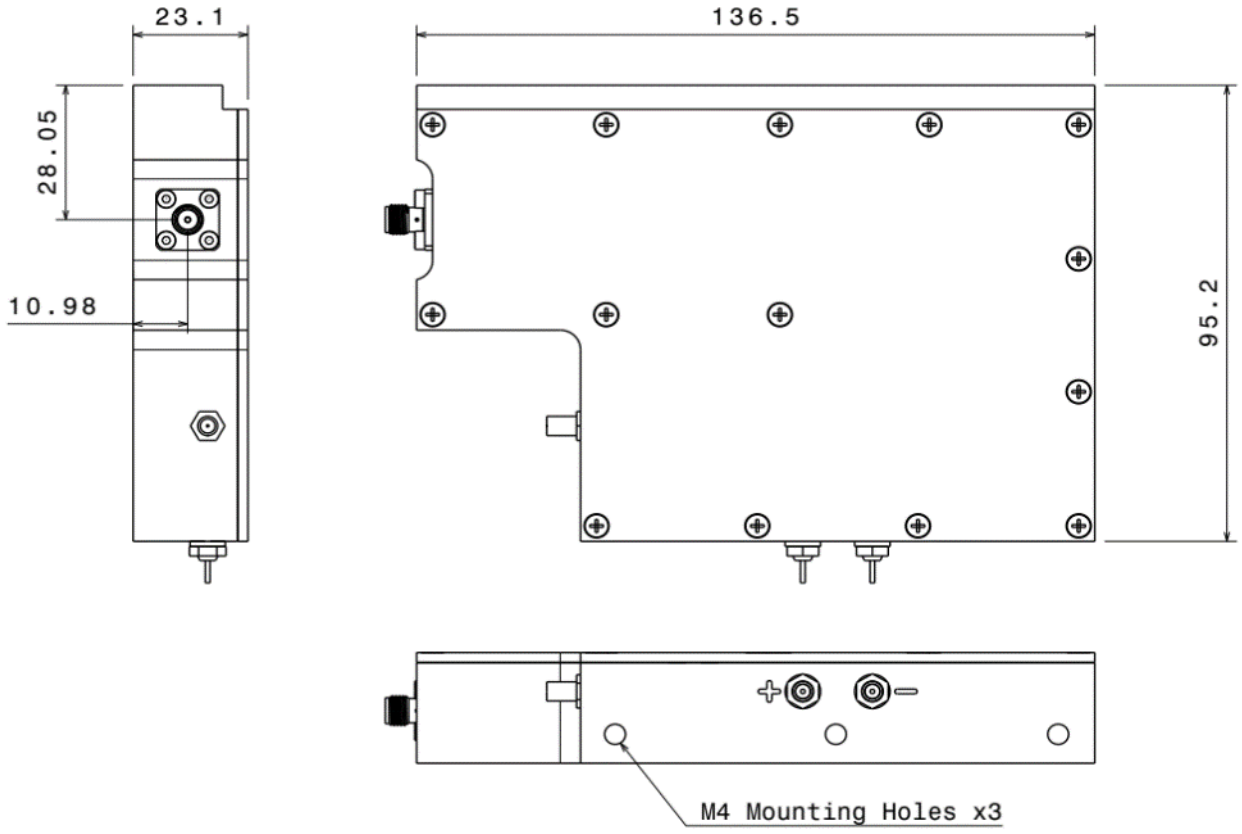


SPECIFICATIONS

Parameter	Limit
Frequency Range	C-Band
Output Power	16dBm typ
Tuning Voltage	5V to 25V
Harmonics	-25dBc
Spurious	-60dBc
Phase Noise	-100dBc/Hz @ 10kHz -124Bc/Hz @ 100kHz -142dBc/Hz @ 1MHz -157dBc/Hz Noise Floor
DC Power Consumption	5W max
Operational Temp Range	5°C to 65°C (NOTE-1)
Storage Temp Range	0°C to 125°C (NOTE-1)

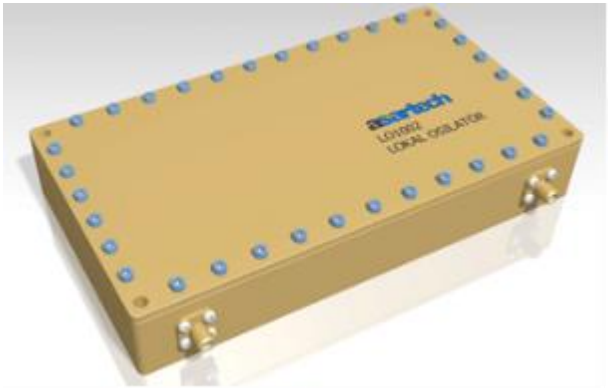
Note 1: It is assumed that the device will sit within inside a conditioned enclosure. Consult factory for conditions otherwise.

MECHANICAL



LO1002

2-CHANNEL DUAL BAND LOCAL OSCILLATOR



DESCRIPTION

LO1002 is a 2-channel dual band local oscillator for use with frequency converters. LO1 is a fast frequency variable oscillator whereas LO2 is a fixed oscillator. Frequency ranges can be customized to specifications within specified ranges.

LO1002 features fast PLLs with LO1 settling in 150ns which allow fast frequency hopping. Device incorporates very low noise voltage-controlled oscillators (VCOs), with LO1 reaching -135dBc/Hz and LO2 reaching -145dBc/Hz at 1MHz offset.

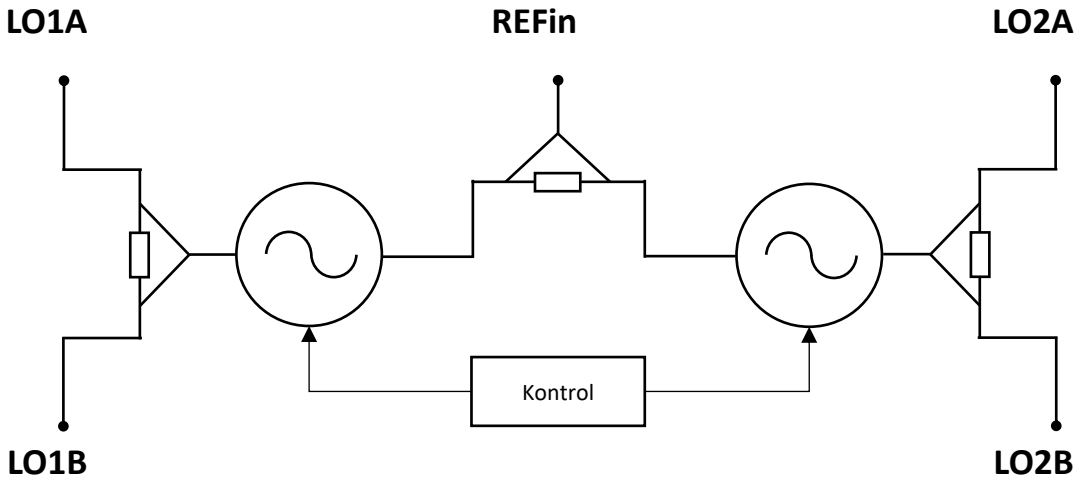
FEATURES

- Ultra-Low Phase Noise Oscillators
- 150ns LO1 frequency switching time
- Fast Phase Locked Loops (PLLs) locked to a single frequency reference
- Both LOs amplitude and phase matched for A and B outputs

SPECS AT A GLANCE

- 6.5 – 8.0 GHz LO1 output
- 1.6 – 2.0 GHz LO2 output
- -60dBc spurii and harmonics

BLOCK DIAGRAM

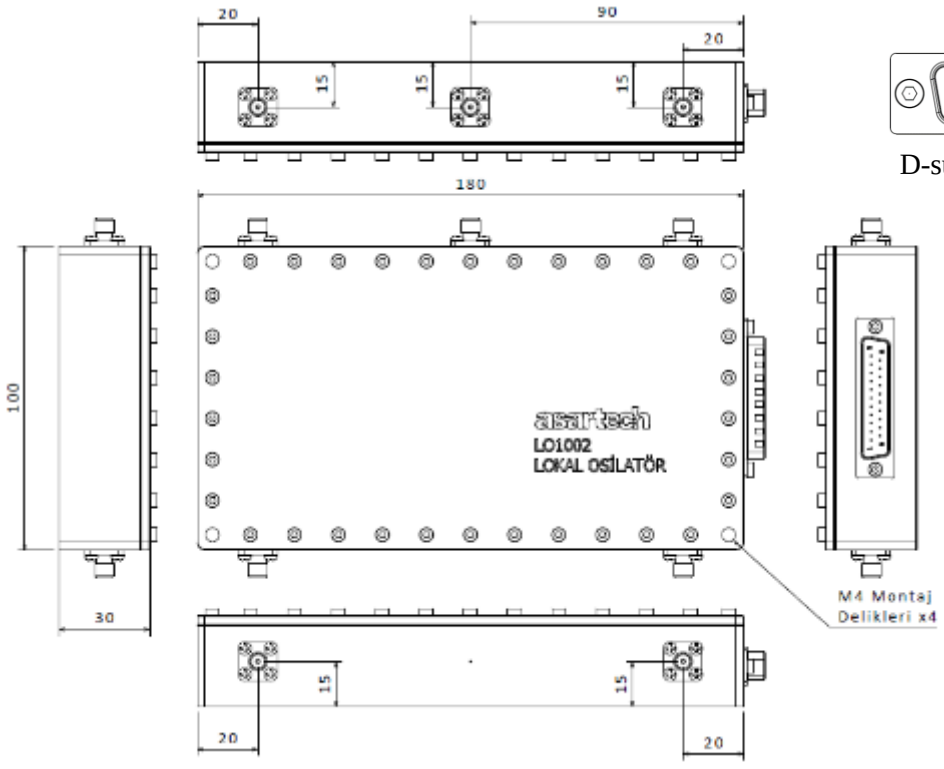


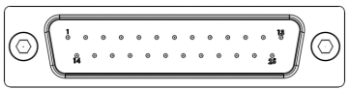
SPECIFICATIONS

Parameter	Limit
LO1 Frequency Range	6.5 – 8.0GHz
LO2 Frequency Range	1.6 – 2.0GHz
LO1 Frequency Steps	10MHz minimum
LO1 Frequency Settling Time	150ns typ
LO1 Frequency Selection	5-bit TTL
LO1 Phase Noise	-100dBc/Hz @ 10kHz -135dBc/Hz @ 1MHz
LO2 Phase Noise	-110dBc/Hz @ 10kHz -145dBc/Hz @ 1MHz
LO1 Output Level	3dBm ± 3dB
LO2 Output Level	3dBm ± 2dB
REF Input Frequency	100MHz
REF Input Level	0dBm ± 2dB
DC Power Consumption	5W typ
Operational Temp Range	5°C to 65°C (Note 1)
Storage Temp Range	0°C to 125°C (Note 1)

Note 1: It is assumed that the device will sit within a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL





D-sub 25-pin Plug (Male)

asartech

R&D DESIGN ENGINEERING

SIGNAL PROCESSING PRODUCTS

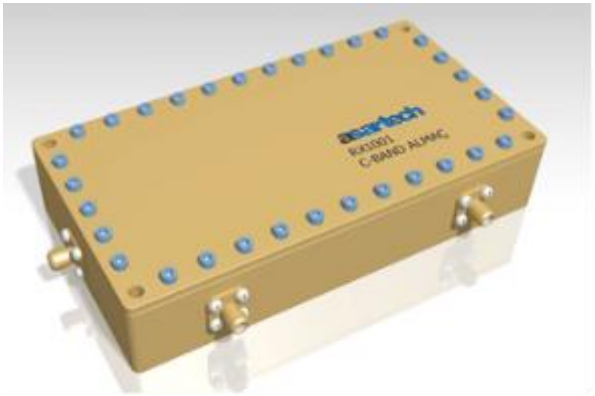
Asartech designs custom RF and microwave signal processing products up to 40 GHz:

- Wideband Frequency Converters
- Narrowband Receivers for Radar Applications
- Frequency Upconverters for Transmitters
- RF Switches integrated with Receiver Protection
- Block Downconverters

Available in Module or Rack Mount

RX1001

C-BAND RECEIVER



DESCRIPTION

RX1001 is a 2-stage frequency downconverter designed to work in C-band. RF input frequency band lies within 5-6GHz and can be customized for the customer. IF output frequency is normally centered at 240MHz and can be similarly customized. IF bandwidth is limited to 60MHz.

Equipped with filtered and low noise LDO regulators, and highly selective filters, harmonic and spurii output are suppressed below -60dBc.

IF output is limited to +10dBm for ADC applications. It can be removed at factory if desired.

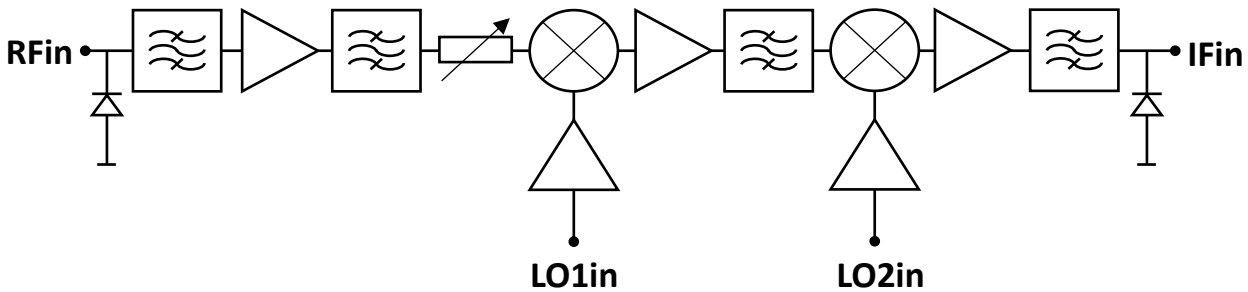
FEATURES

- RF power limiting at input and output
- High Side LO1 and LO2 mixing
- Selective SAW Filtering

SPECS AT A GLANCE

- 5-6 GHz RF input
- 240 MHz IF output
- 70dB SFDR typ (1MHz BW)
- 4dB NF typ

BLOCK DIAGRAM

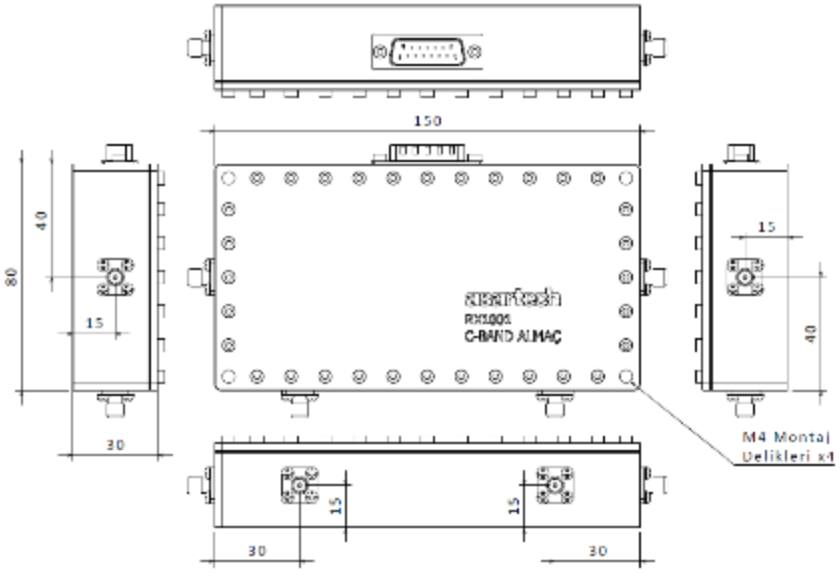


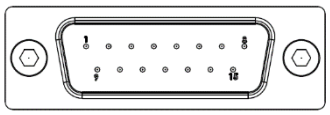
SPECIFICATIONS

Parameter	Limit	Notes
RF Input Band	5-6 GHz	Actual freq band specified upon order
IF Output Band	210-270 MHz	
RF-IF Gain	40dB typ	
RF Output P1dB	9dBm	Can be customized within 7 to 13dBm
RF Output Power	-30dBm typ +10dBm max	10% duty
Noise Figure	4dB typ	
SFDR	70dB typ	
LO Frequencies	--	LO frequencies available upon order
LO Input Power	0dBm ± 2dB	LO1 and LO2
IF Output Spurii	-60dBc max	At IF output
Out of Band Signal Suppression	-80dBm max	Measured IF output for 0dBm input at 200MHz away from RF input band corners
RF-IF Gain Adjust	31dB typ	
RF-IF Gain Adjustment Steps	1dB	
RF-IF Gain Control	5-bit, 0/5V	
Gain Adjustment Settling	200ns max	From 50% VCTRL to %90 RF
DC Power Consumption	4W max	
Operational Temp Range	5°C to 65°C	Note 1
Storage Temp Range	0°C to 125°C	Note 1

Note 1: It is assumed that the device will sit within a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL

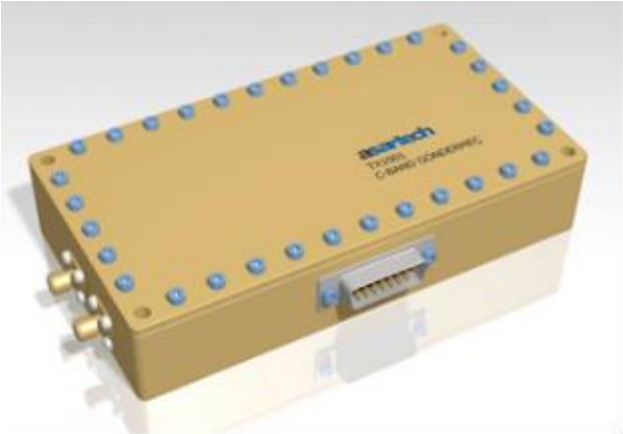




D-sub 15-pin Plug
(Male)

TX1001

C-BAND TRANSMITTER



DESCRIPTION

TX1001 is a 2-stage frequency upconverter designed to work in C-band. RF input frequency band lies within 5-6GHz and can be customized for the customer. IF input frequency is normally centered at 240MHz and can be similarly customized. IF bandwidth is limited to 60MHz.

Equipped with filtered and low noise LDO regulators, and highly selective filters, harmonic and spurii output are suppressed below -60dBc.

TX1001 features a BITE output for use in automated system tests.

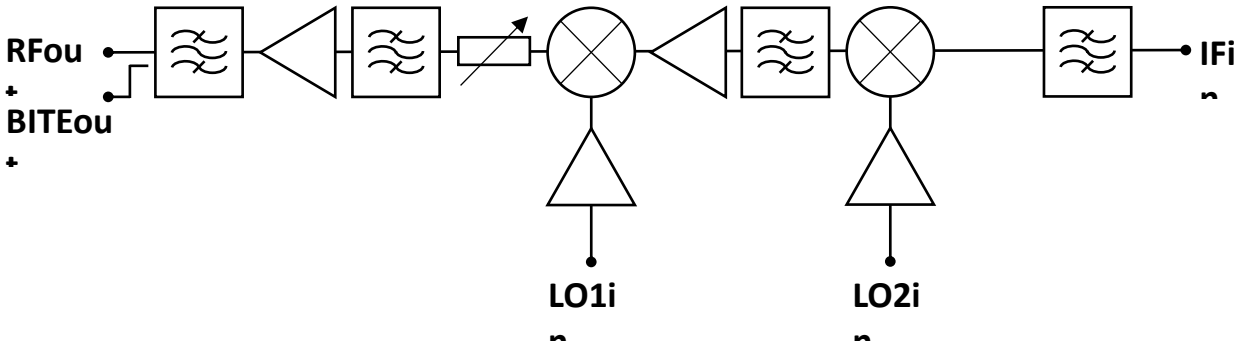
FEATURES

- DAC alias filtering
- High Side LO1 and LO2 mixing
- Selective SAW Filtering
- BITE output

SPECS AT A GLANCE

- 240 MHz IF input
- 5-6 GHz RF output
- +19dBm linear output
- -60dBc max spurii

BLOCK DIAGRAM

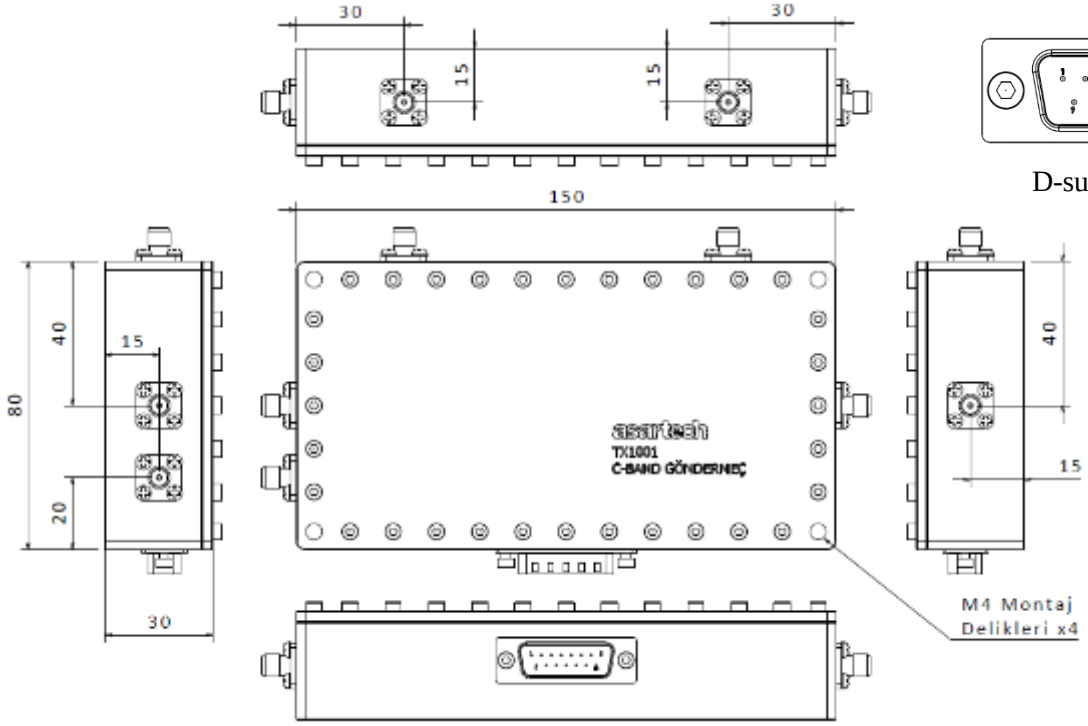


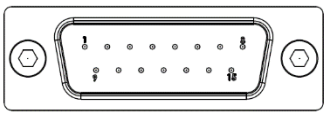
SPECIFICATIONS

Parameter	Limit	Notes
IF Input Band	210-270 MHz	
IF Input Level	0dBm max	
Output RF Band	5-6 GHz	Actual freq band specified upon order
RF-IF Gain	19dB typ	
Linear RF Output	19dBm	Harmonic output < -60dBc
RF Output P1dB	22dBm	
BITE Output	-20dBc	20dB coupled to RF output
LO Frequencies	--	LO frequencies available upon order
LO Input Power	0dBm ± 2dB	LO1 and LO2
IF-RF Gain	31dB typ	
IF-RF Gain Adjustment	1dB	
IF-RF Gain Adjustment Steps	5-bit, 0/5V	
Gain Adjustment Settling	200ns max	From 50% VCTRL to %90 RF
DC Power Consumption	5W max	
Operational Temp Range	5°C to 65°C	Note 1
Storage Temp Range	0°C to 125°C	Note 1

Note 1: It is assumed that the device will sit a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL

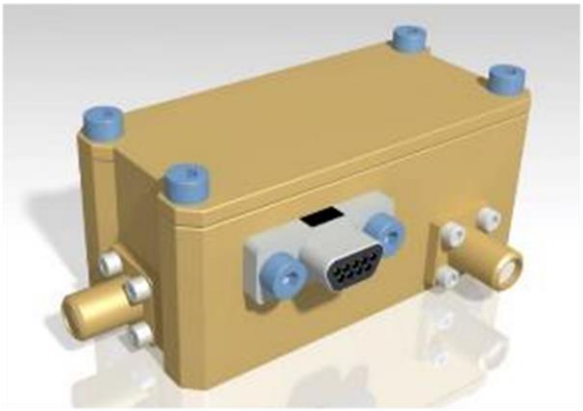




D-sub 15-pin Plug
(Male)

MC1001

WIDEBAND DOWNCONVERTER



DESCRIPTION

MC1001 is wideband downconverter for wideband receiver applications.

The RF to IF signal chain contains IF amplification and digitally controlled attenuator for gain control.

IF output ranges from 0.4 to 2.5GHz. For fixed frequency narrowband applications, the IF output can be externally filtered to reduce the noise output.

Device consumes 1.5W typically.

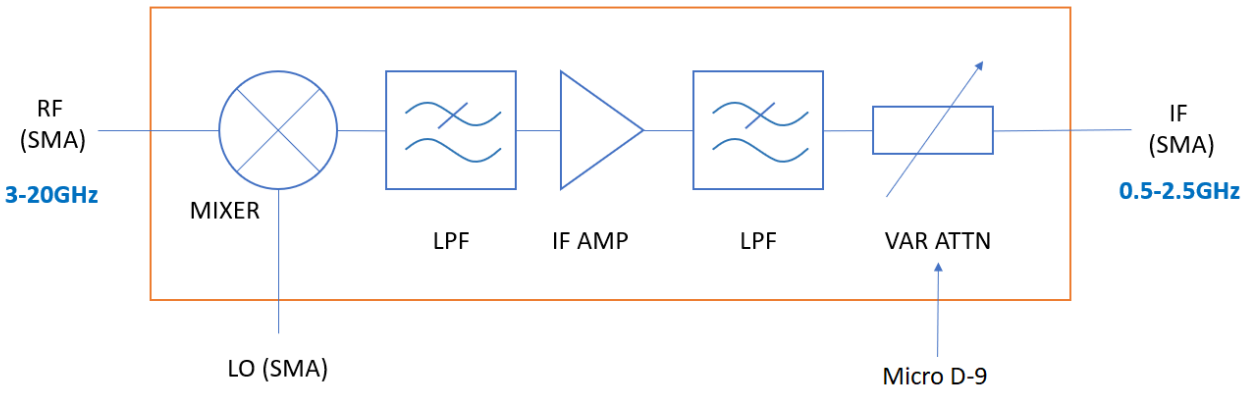
FEATURES

- Adjustable Conversion Gain
- Suitable for high speed ADCs

SPECS AT A GLANCE

- 3-20 GHz RF Input
- 0.5-19.5GHz LO Input
- 0.4-2.5GHz IF Output
- 10dB Noise Figure

BLOCK DIAGRAM

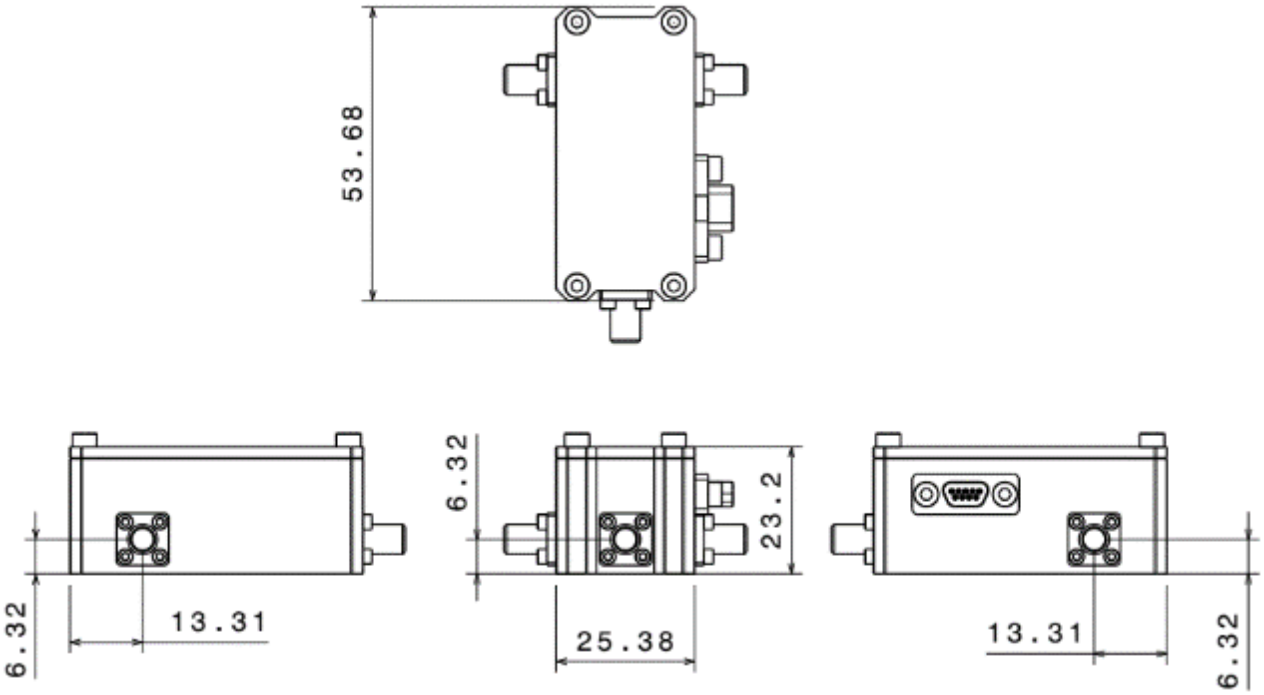


SPECIFICATIONS

Parameter	Limit
RF Frequency	3 to 20 GHz
IF Frequency	0.5 to 2.5 GHz
LO Frequency	0.5 to 19.5 GHz
Conversion Gain	-27.5 to +5dB with 0.5dB steps
Image Rejection	45dBc min
LO/RF Isolation	50dB typ
Noise Figure	10dB max
Input P1dB	10dBm min @ 10GHz typ
DC Power Consumption	1.5W typ
Operational Temp Range	5°C to 65°C (Note 1)
Storage Temp Range	0°C to 125°C (Note 1)

Note 1: It is assumed that the device will sit a rack unit inside a conditioned cabinet. Consult factory for conditions otherwise.

MECHANICAL



CUSTOMIZED DESIGNS

Asartech designs products customized to platforms, facilities, and premises. Products range from printed circuit board and modules to subsystems and turn-key systems.

KR1001/KT1001

RF REMOTE CONTROLLER

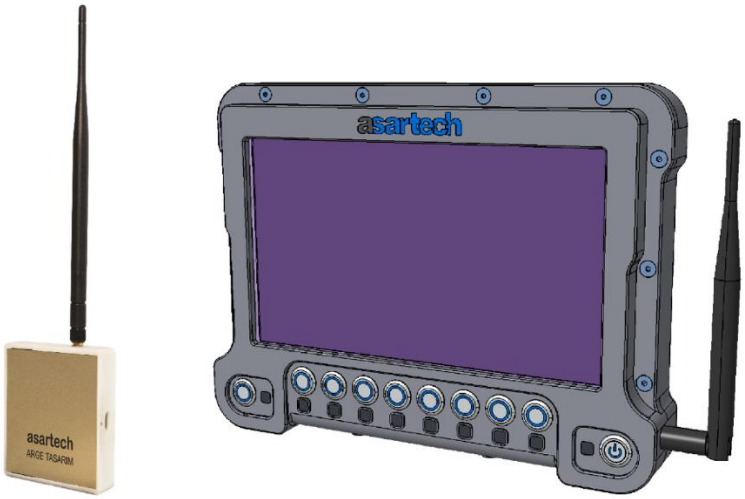
FEATURES

- 1km Communication Range
- Sub-1GHz Transceiver
- Secure Protocol
- Battery Operated

DESCRIPTION

Secure RF transceiver with remote control capability for military applications.

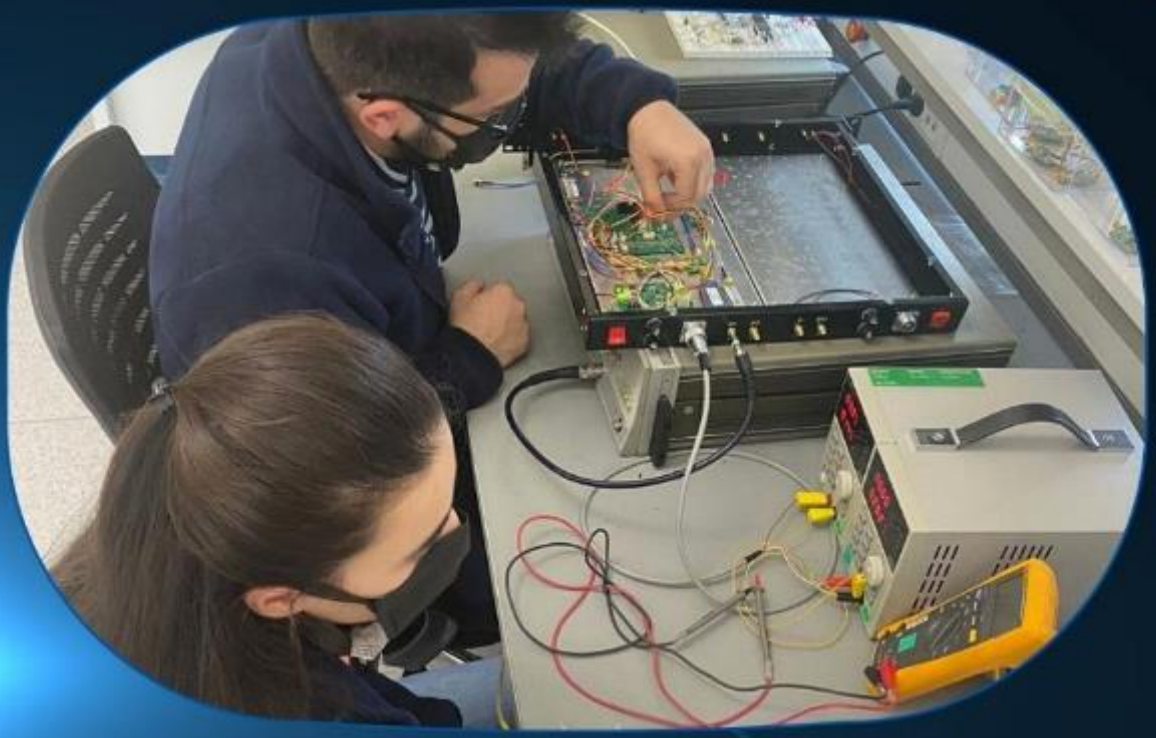
BLOCK DIAGRAM



SPECIFICATIONS

Parameter	Limit	Notes
Frequency	Sub 1GHz	Data available upon request
Output Power	+20dBm	
Range	> 1km	
Frequency Accuracy	±1 ppm	
Supply Voltage	Battery operated	
Operation Temperature	-40 to 85C	
Frequency	Sub 1GHz	

SERVICES



SYSTEM ENGINEERING & INTEGRATION

TEST & DOCUMENTATION

SYSTEM ENGINEERING INTEGRATION, TEST AND DOCUMENTATION

Integrated Logistic Support (ILS) for Radar, Electronic Warfare (EW), Communication and Navigation Systems for Prime Contractors and System Producers Lumped Element Filters

- Integration, Documentation, Configuration and Test
- Form-Fit-Function Activities

SYSTEMS ENGINEERING

The whole systems engineering life cycle can be implemented and applied to various systems, especially on RF and Microwave and Naval Systems.

- Conceptual Design
- Systems Requirements Engineering
- Systems Design
- Systems Integration
- Systems Test, Verification, and Validation

SUBSTITUTIONAL DESIGN

The renovative design of obsolete components and systems according to newest and maintainable technologies.

- Form-Fit-Functional Design of obsolete systems and products
- Beginning from scratch or from a working sample
- Full design and verification
- Operational validation

NGOs

SAHA İSTANBUL
DEFENCE & AEROSPACE CLUSTER

HTK
COMMUNICATION TECHNOLOGIES CLUSTER

OSSA
OSTİM DEFENSE AND AVIATION CLUSTER

HİB
SERVICES EXPORTERS' ASSOCIATION

TET
TURKISH ELECTRO TECHNOLOGY

immiB
Istanbul Mineral and Metals Exporters' Association

TİM
TURKISH EXPORTERS ASSEMBLY

Collaborations and Affiliations

PRESIDENCY OF
THE REPUBLIC OF TÜRKİYE
DEFENCE INDUSTRY
AGENCY

YETEN
SAVUNMA SANAYİİ YETENEK ENVANTERİ

DEFENSE INDUSTRY CAPABILITY INVENTORY

EYDEP

PRESIDENCY OF DEFENSE INDUSTRIES PROGRAM

STRATEGIC COOPERATION

TÜBİTAK

aselsan

ULAK HABERLEŞME A.Ş.

METEKSAN SAVUNMA

Koç
Koç Bilgi ve Savunma Teknolojileri A.Ş.

roketsan

STM

Business Values

Cost Effective

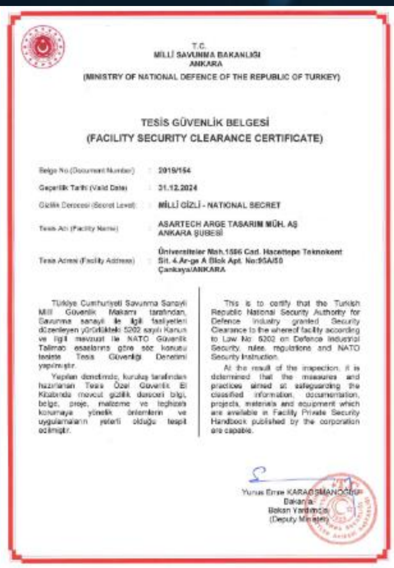
To establish Design and Production Capability in order to reduce the cost of RF and Microwave modules.

Innovative Technologies

To conduct R&D activities in the design and prototyping of customized RF communication modules.

Integrated Logistic Support (ILS)

To Provide cost effective, agile and fast Integration, Test and Validation, Documentation, Configuration, Reporting, Service, Maintenance, Fault Detection and Fault Repair as System Engineering Services in the field.



T.C.
MİLLİ SAVUNMA BAKANLIĞI
ANKARA
(MINISTRY OF NATIONAL DEFENCE OF THE REPUBLIC OF TURKEY)

TESİS GÜVENLİK BELGESİ
(FACILITY SECURITY CLEARANCE CERTIFICATE)

Belge No (Document Number)	: 2019/154
Geçerlik Tarihi (Valid Date)	: 31.12.2024
Gizlilik Derecesi (Secret Level)	: MİLLİ GİZLİ - NATIONAL SECRET
Tesis Adı (Facility Name)	: ASARTECH ARGE TASARIM MÜH. AŞ ANKARA ŞUBESİ
Tesis Adresi (Facility Address)	: Üniversiteler Mah.1596 Cad. Hacettepe Teknokent Sit. 4.Ar-ge A Blok Apt. No:95A/50 Çankaya/ANKARA

Türkiye Cumhuriyeti Savunma Sanayii Milli Güvenlik Makamı tarafından, Savunma sanayii ile ilgili faaliyetleri düzenleyen yürürlükteki 5202 sayılı Kanun ve ilgili mevzuat ile NATO Güvenlik Talimatı esaslarına göre söz konusu tesiste Tesis Güvenliği Denetimi yapılmıştır.

Yapılan denetimde, kuruluş tarafından hazırlanan Tesis Özel Güvenlik El Kitabında mevcut gizlilik dereceli bilgi, belge, proje, malzeme ve teçhizatı korumaya yönelik önlemlerin ve uygulamaların yeterli olduğu tespit edilmiştir.

This is to certify that the Turkish Republic National Security Authority for Defence Industry granted Security Clearance to the whereof facility according to Law No: 5202 on Defence Industrial Security, rules, regulations and NATO Security Instruction.

At the result of the inspection, it is determined that the measures and practices aimed at safeguarding the classified information, documentation, projects, materials and equipment which are available in Facility Private Security Handbook published by the corporation are capable.

Yunus Emre KARAOSMANOĞLU
Bakan a.
Bakan Yardımcısı
(Deputy Minister)

NATO UNCLASSIFIED

THE REPUBLIC OF TURKEY
MINISTRY OF FOREIGN AFFAIRS

FACILITY SECURITY CLEARANCE CERTIFICATE (FSCC)

NATO UNCLASSIFIED

asartech

R&D DESIGN ENGINEERING

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