

2026

RF Filters Design & Manufacture

Made in Taiwan. Since 1994
DC — 70 GHz

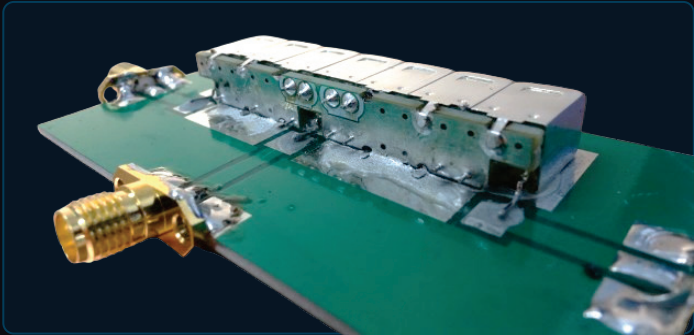


SELECTIVE EDITION / FOR EuMW 2026

- 01 Helical Filters (SMD)
- 02 Miniature SMD Filters
- 03 Cavity Filters & Duplexers
- 04 Waveguide Filter & Repeater Duplexer
- 05 Low PIM Solutions
- 06 RF Combiners / Splitters
- 07 Portable LCD Repeater
- 08 Power Amplifier & TETRA Combined System
- 09 RF Circulators & Isolators
- 10 RF Couplers & Programmable Step Attenuator
- 11 RF Switch



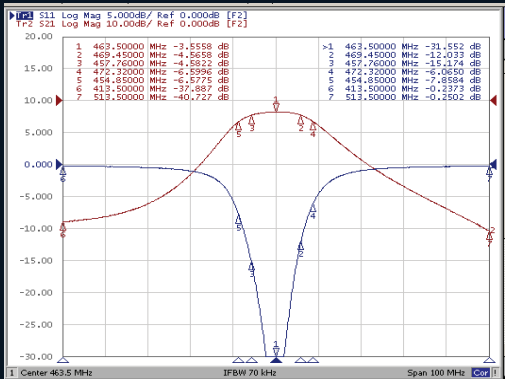
Helical Filter (SMD)



PRODUCT HIGHLIGHT

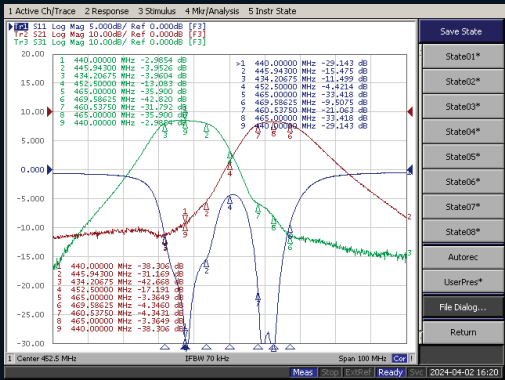
- Tunable: 45–2600 MHz
- Band-pass performance
- Custom service on request
- RoHS compliant

Part Number	TT631098SMT-700M	TT631172SMT-725M
Center Freq	700 MHz	725 MHz
Insertion Loss	3.5 dB	3.0 dB
Bandwidth	30 MHz	28 MHz
Attenuation	43 dB@600MHz 31 dB@800MHz	40 dB@625MHz 39 dB@825MHz
Return Loss	19 dB	39 dB
Ripple	<1 dB	<1 dB
Impedance	50 Ohm	50 Ohm



Measured response – SMD Helical Filter

Part Number	TTW31230SMT-463.5M	TV651148SMT-74.5M
Center Freq	463.5 MHz	74.5 MHz
Insertion Loss	4.5 dB	3.0 dB
Bandwidth	16 MHz	20 MHz
Attenuation	34 dB@413.5MHz 37 dB@513.5MHz	42 dB@24.5MHz 49 dB@124.5MHz
Return Loss	31 dB	16 dB
Ripple	<1 dB	<1 dB
Impedance	50 Ohm	50 Ohm



Measured response – SMD Helical Miniature Duplexer

Part Number	DDQ-440M-465M-SMT	
	Tx	Rx
Center Freq	440 MHz	465 MHz
Insertion Loss	<4.0 dB	
-1dB Bandwidth	8 MHz	
Rejection	>32 dB	>35 dB
Isolation	41 dB	38 dB
Return Loss	> 12 dB	
Impedance	50 Ohm	

Miniature SMD Filters

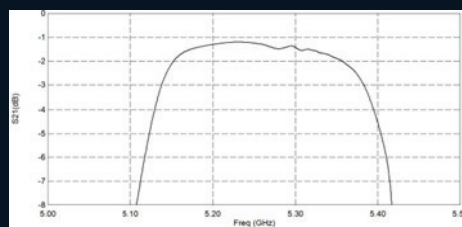


PRODUCT HIGHLIGHT

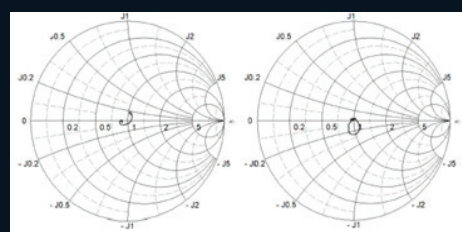
- Wi-Fi UNII1-2a / UNII2c-3 bands
- Telecom, router & gateway applications
- -40 °C to +105 °C operating range
- 1.8 × 1.4 × 0.65 mm miniature size
- BAW Technology Alternatives

P/N: TSB-5250, Passband 5170-5330 MHz (Wi-Fi UNII1-2a band)					
Parameter	Condition [MHz]	Unit	Min.	Typ.	Max.
Insertion Loss	5170-5330	dB	-	1.3	1.7
Inband Ripple	5170-5330	dB	-	0.4	0.8
VSWR of Input Port	5170-5330	-	-	1.3	1.7
VSWR of Output Port	5170-5330	-	-	1.2	1.5
Absolute Attenuation	30-2400	dB	30	37	-
	2400-2500	dB	30	37	-
	2400-3000	dB	30	34	-
	3400-3800	dB	30	37	-
	3800-4900	dB	30	33	-
	4400-4800	dB	35	42	-
	4800-5000	dB	20	28	-
	5490-5850	dB	50	60	-
	7203-7500	dB	20	24	-
	10300-11800	dB	15	18	-

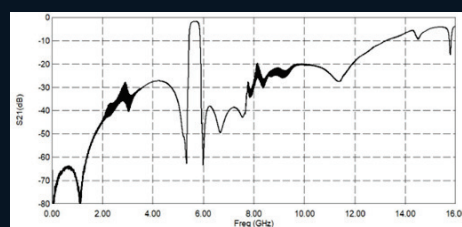
P/N: TSB-5662, Passband 5490-5835 MHz (Wi-Fi UNII-2c-3 band)					
Parameter	Condition [MHz]	Unit	Min.	Typ.	Max.
Insertion Loss	5490-5835	dB	-	2.1	2.5
Inband Ripple	5490-5835	dB	-	1.0	1.6
VSWR of Input Port	5490-5835	-	-	1.8	2
VSWR of Output Port	5490-5835	-	-	1.8	2
Absolute Attenuation	30-2400	dB	39	44	-
	2400-2500	dB	37	43	-
	2400-3000	dB	30	35	-
	3400-3800	dB	25	31	-
	3800-4900	dB	25	31	-
	4400-4800	dB	25	31	-
	4800-5000	dB	27	32	-
	5170-5330	dB	50	52	-
	7203-7500	dB	30	35	-
	10300-11800	dB	20	22	-



Passband insertion loss



Input / output Smith chart



Wideband response

Cavity Filters & Duplexers

PRODUCT HIGHLIGHT

- High-selectivity
- Configurations for demanding isolation



Cavity Filter

	ST-46.5GA74-EL9	STLP-18GA80-EL3	STHP-18GA13-EL4	STHP-18GA13-EL4-SMA
Type	Band Pass	Low Pass	High Pass	High Pass
Freq Range	40~53 GHz	DC~18 GHz	18 ~ 46GHz	18 ~ 28GHz
Insertion Loss	≤ 1.35 dB	≤ 1.0 dB @DC~17.3GHz ≤ 3.0 dB @17.3~18GHz	≤ 2.0 dB @18~19.5GHz ≤ 1.0 dB @19.5~42GHz ≤ 2.0 dB @42~46GHz	≤ 2.0 dB @18~19.5GHz ≤ 1.0 dB @19.5~28GHz
VSWR	$< 1.28:1$	$< 1.6:1$	$< 1.7:1$	$< 1.7:1$
Rejection	≥ 80 dB @DC~38.1GHz ≥ 55 dB @55~56.3GHz ≥ 80 dB @56.3~67GHz ≥ 40 dB @67~68GHz	≥ 50 dB @19.1~26GHz	≥ 60 dB @DC~16.2GHz ≥ 30 dB @16.2~17GHz	≥ 60 dB @DC~16.2GHz ≥ 30 dB @16.2~17GHz
Power	5W max.	15W max.	15W max.	15W max.
Temperature	-30°C ~ +70°C	-55°C ~ +85°C	-30°C ~ +70°C	-30°C ~ +70°C
Connector	1.85mm(v)-Female	SMA-Female	2.92mm(K)-Female	SMA-Female



Cavity Duplexer

PRODUCT HIGHLIGHT

- High-isolation
- Cavity Stop-Band Filter for specific noise signal

	STCD-14615-15250-A02-EC2	STR-3.3-4.2GA42-EL8	STR-5150-5850-A01-EC3
Type	Duplexer (Dual-Band Pass)		Band Stop
	Rx	Tx	---
Freq Range	14.4~14.83 GHz	15.15~15.35 GHz	3.3~4.2 GHz
Rejection	≥ 60 dB @DC~12.4GHz & 18~25GHz		≥ 50 dB
Isolation	≥ 60 dB @Tx Band	≥ 60 dB @Rx Band	≤ 1.0 dB @DC~3030MHz & 4470~8000MHz
Insertion Loss @Pass Band	≤ 2.5 dB		≤ 2.0 dB @DC~4900MHz & 6100~12000MHz
VSWR	< 1.44		$< 1.7:1$
Power	20W		5W max.
Temperature	-30°C ~ +70°C		20W avg.
Connector	SMA-Female		-15°C ~ +30°C
			0°C ~ +60°C
			SMA-Female

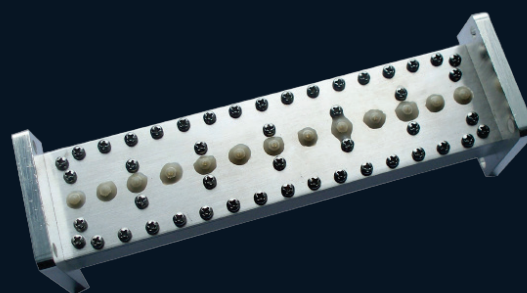
Waveguide Filter

PRODUCT HIGHLIGHT

- C-band solutions
- Wall mounted; Indoor & Outdoor IP66
- High-power handling

STW-3700-4200M-963-EH5

Frequency Range	3700-4200 MHz
Insertion Loss	≤0.4 dB (Outcluding connectors) ≤0.5 dB (Including connectors)
Ripple	≤0.2 dB
Group Delay	≤8 ns
Rejection (dB)	≥75 min@3.4-3.5 GHz ≥70 min@3.5-3.6GHz ≥75 min@5.8-6.5GHz
Return Loss	≥18 dB
Input Power	<100 W
Peak Power	<400 W
Connector Type	CPR-229G (input) CPR-229F (output)
Operational Temperature	-40 to +65°C
Dimensions(LxWxH)	190x170x130 mm



Waveguide Filter

Repeater Duplexer

PRODUCT HIGHLIGHT

- Application: Mobile Radio
- Impedance: 50 Ohms
- High-isolation
- High Stability & Rugged



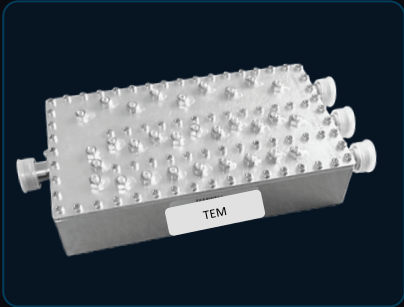
Repeater Duplexer

Model No.	Band Pass (MHz)	Separation (MHz)	Insertion Loss (dB)	VSWR	Rejection (dB)	Connector
STRD-136-174-50-4.6	dot	≥4.6	≤1.5	≤1.3	≥70	N-K
STRD-136-174-50-2-4.6	2	≥4.6	≤1.5	≤1.3	≥70	SMA/N-K
STRD-330-520-50-5	dot	≥4.6	≤1.5	≤1.3	≥70	N-K
STRD-330-360-50-5-10	5	≥10	≤1.5	≤1.3	≥70	SMA/N-K
STRD-360-400-50-4-10	4	≥10	≤1.5	≤1.3	≥70	SMA/N-K
STRD-400-520-50-3-10	4	≥10	≤1.5	≤1.3	≥70	SMA/N-K

Low PIM Solutions

PRODUCT HIGHLIGHT

- Multi-band support
- Indoor & outdoor use
- Custom service on request
- RoHS compliant



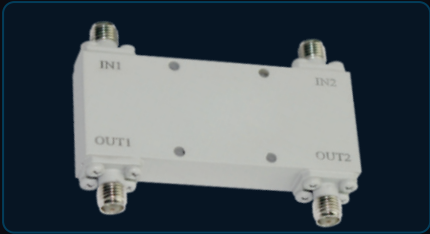
Low PIM Combiners

Bands	3	4	8	
Frequency	700-876 MHz 1000-1320 MHz 1520-1710 MHz	400-512 MHz 790-876 MHz 1000-1350 MHz 5000-6000 MHz	420-450 MHz 700-870 MHz 902-960 MHz 1100-1610 MHz	1805-2170 MHz 2400-2700 MHz 3400-3800 MHz 4900-5900 MHz
PIM3	≤ -160dBc	≤ -130dBc	≤ -140dBc	
Power	200 W	400 W	500 W	

Low PIM Power Divider
STD-617-4200M-950-EH1



Frequency	617-4200MHz			Input Power	<300W
Way	2	3	4	PIM3	≤ -150dBc @2x43 dBm
Insertion Loss	≤ 0.3 dB	≤ 0.4 dB	≤ 0.5 dB	Connector	4.3-10 Female (Twist head)



Low PIM Hybrid Combiner
STC-550-4200M-953-EH4

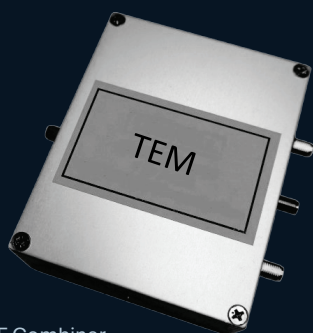
Frequency	550-4200 MHz	Input Power	<300-500W
Insertion Loss	3.1±0.6dB	PIM3	≤ -160dBc @2x43 dBm
Isolation	>25 dB	Connector	N / 4.3-10 / 7-16 Female

Low PIM Directional Coupler
STDC-550-4000M-951-EH2

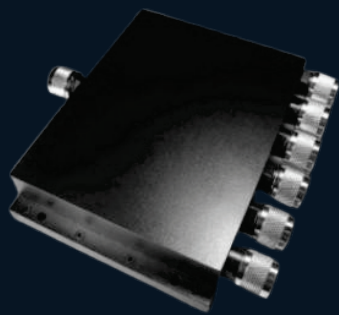


Frequency	550-4000 MHz					Directivity	≥ 20dB @550-2700 MHz ≥ 18dB @2700-4000 MHz
Coupling	5±1.0 dB	6±1.0 dB	7±1.0 dB	8±1.2 dB	10±1.2 dB	Return Loss	≥ 21dB @550-2700 MHz ≥ 19dB @2700-4000 MHz
Insertion Loss	<2.4 dB	<1.8 dB	<1.6 dB	<1.2 dB	<0.8 dB	Input Power	< 300W
Coupling	13±1.3 dB	15±1.3 dB	20±1.5 dB	30±1.5 dB		PIM3	≤ -160dBc @2x43 dBm
Insertion Loss	<0.5 dB	<0.4 dB	<0.3 dB	<0.3 dB		Connector	4.3-10 Female

RF Combiners / Splitters



RF Combiner



RF Splitter

TEMWELL
GROUP

PRODUCT HIGHLIGHT

- Wide frequency range
- High isolation
- Good phase consistency
- Strong anti-interference

RF Combiners

Bands	1	5	1	1
Freq Range	470-860 MHz	88-108 & 136-174 & 450-520 & 740-868 & 1350-1850 MHz	8-12 GHz	10-15 GHz
Insertion Loss	<0.5 dB	<0.5 dB	<0.8 dB	<0.8 dB
Isolation	>20 dB	>60 dB	>35 dB	>35 dB
VSWR	<1.25:1	<1.25:1	<1.3:1	<1.3:1
Phase Balance	±5°	na	±5°	±5°
Amplitude Balance	±0.2 dB	na	±0.3 dB	±0.3 dB
Connector	27- 40	SMA-f	SMA-f	SMA-f
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
Power Handling	500 W	50 W	5 W	5 W
Operating Temperature	-40°C to +80°C	-40°C to +80°C	-55°C to +90°C	-55°C to +90°C
Dimensions(LxWxH)	380x178x52 mm	200x100x22 mm	150x70x15 mm	150x70x15 mm

RF Splitters

Way	1 in-8 out	1 in-8 out	1 in-4 out
Freq Range	0.8-6 GHz	6-18 GHz	27-29 GHz
Insertion Loss	<0.8 dB	<0.8 dB	<0.4 dB
Isolation	>18 dB	>18 dB	>20 dB
VSWR	<1.4:1	<1.4:1	<1.3:1
Phase Balance	±5°	±5°	±5°
Amplitude Balance	±0.2 dB	±0.2 dB	±0.2 dB
Connector	N-f	SMA-f	SMA-f
Impedance	50 Ω	50 Ω	50 Ω
Power Handling	50W	50W	50W
Operating Temperature	-55°C to +90°C	-55°C to +90°C	-55°C to +90°C
Dimensions(LxWxH)	158x68x20 mm	138x68x12 mm	65x45x12 mm

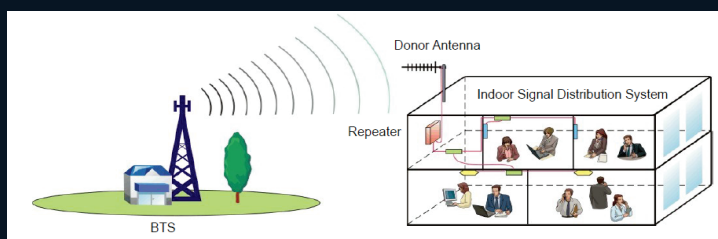
Portable LCD Repeater



PRODUCT HIGHLIGHT

- 5G n1 and IMT 2100
- LCD control panel
- Automatic gain balance
- Portable, band-selective operation
- BTS & Cellular relays

STPR-LTE-B120



- To expand signal coverage or fill signal blind area where signal is weak or unavailable.
- Indoor: Hotels, exhibition centers, basements, shopping malls, offices, parking lots, and etc.

	Uplink	Downlink
Frequency Range	1920-1980 MHz	2110-2170 MHz
Bandwidth (fixed)	14.8MHz	
Center Freq Adjustment Range	1927.5-1972.5MHz	2117.5-2162.5MHz
Center Freq Adjustment Step	200kHz	
Gain	65±3dB	70±3dB
Output Power (customized)	17±3 dBm	20±3dBm
Manual Gain Control	25dB, 1dB/steps	
AGC control range	20dB	
Max. Input Power	-10dBm	
Ripple in band	±3dB	
VSWR	2	
Group delay time	5μs	
I/O Impedance	50 Ω	
Noise Figure	8dB	
Error Vector Magnitude (EVM)	12.5%	
Peak Code Domain Error (PCDE)	-35dB	
Third-order Inter-Modulation	Max.-40dBc	
Connector Type	N-Female	
Power Consumption	10W	
Power Supply	AC100~ 240V DC+5V 2A	
Humidity	95%	
Dimensions	178*110*40mm	
Operating Temperature	0°C ~ +40°C	
Weight	3kg	
IP Rating	IP40	

Power Amplifier

STAP-450-470-ER1

		Note
Freq Range	450-470 MHz	-
Output power	40±0.5 dBm	-
Input VSWR	≤1.5	-
Gain	50±1.0 dB	465MHz, Pout=40dBm
Gain Linearity	≤ 1.0 dB	465MHz, CW, 33~44dBm
Ripple	≤ 1.5 dB	@ Pin= -10dBm
EVM	≤5%	-
ACLR ±5±10MHz	≤ -45 dBc	465MHz, PAR=8, LTE 5MHz
Quiescent Current	0.9±0.2 A	25 ~ 35
Working Current	≤ 2.2 A	-
Output Power reading	≤ 1.0 dB	33~40dBm
	≤ 1.5 dB	25~32dBm
Reflection Power reading	≤ 1.0 dB	33~40dBm
Power Supply	DC 48V	-
PA-IN & OUT	SMA-F, 50Ω	Height: 10mm
Working Temperature	-40℃ ~65℃	
Storage Temperature	-40℃ ~95℃	
Relative Humidity	5%~95%, Non-condensing	
Storage Humidity	5%~98%, Non-condensing	
Atmospheric Pressure	70~106 kPa	
Wind Pressure	40 Pa	
Dimensions	185*110*25mm	
Weight	0.25 KG	

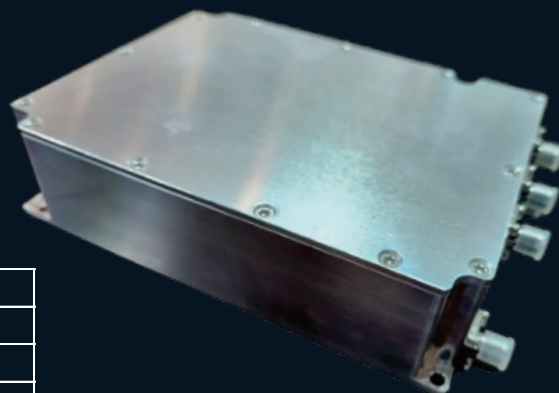


TETRA Combined System

ST-372-386-MBS-EX4

MINI TWO-TX / TWO-RX

	Rx	Tx
Freq Band	372-376 MHz	382-386 MHz
Bandwidth	4 MHz	4 MHz
Insertion Loss	ANT-RX: 6.2 dB max.	TX-ANT: 6.5 dB max.
Isolation (min)	TX-TX: 50 dB	ANT-TX: 25 dB RX-RX: 25 dB
VSWR	1.3	
Input Power	20W	
Temperature	-30℃ ~ +60℃	
Dimensions	134*100*35mm	
Weight	0.6 KG	



RF Circulators & Isolators



Low PIM SMD Circulator STCR-925-960-SMD

Freq Range	925-960 MHz	
	@25±5°C	@-40°C ~ +125°C
Insertion Loss	0.2 dB max.	0.25 dB max.
Isolation	23 dB max.	20 dB max.
Return Loss	23 dB max.	20 dB max.
Average Power	160 W	
Peak Power	1600 W	
Group delay	0.4-2.8 ns	
IMD3	≤ -78dBc@2x50W, 5MHz Spacing	
Direction of Circulation	Clockwise, CW	
Operating Temp	-40°C ~ +125°C	

X-Band SMD Circulator STCR-9-10G-SMD

Freq Range	9-10 GHz	Isolation	20 dB
Insertion Loss	0.5 dB	Power	10-40 W
VSWR	20 dB	Operating Temp	-45°C ~ +85°C

Ku-Band SMD Isolator STIR-14-17G-SMD

Freq Range	14-17 GHz	Isolation	18 dB
Insertion Loss	0.7 dB	Power	10-40 W
Return Loss	16.6 dB	Operating Temp	-40°C ~ +85°C

RF Coupler

Directional Coupler 180° Hybrid Coupler

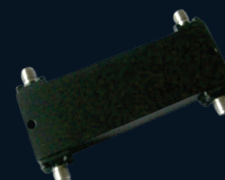
	ST-0.5-18G-E98-EL5	ST-14G-21G-A10-EC1		ST-2-18G-E69-EL6
Type	Directional Coupler	Directional Coupler	Type	180° Hybrid Coupler
Freq Range	0.5~18 GHz	14~21 GHz	Freq Range	2~18 GHz
Coupling	10dB±0.6dB	10dB±1.0dB	Nominal Split	3.01dB
Coupling Sensitivity	≤ ±0.8dB	≤ ±1.0dB	Amplitude Balance	≤ ±0.8dB
Insertion Loss	≤ 1.3dB	≤ 1.0dB	Insertion Loss	≤ 2.9dB
VSWR	<1.4:1	<1.6:1	VSWR	<1.7:1
Directivity	≥ 15dB	≥ 16dB	Phase Balance	≤ ±15°
Power	50W	20W	Power	50W
Temperature	-30°C ~ +70°C	-40°C ~ +80°C	Temperature	-55°C ~ +85°C
Connector	SMA-Female	SMA-Female	Connector	SMA-Female

Broadband Directional Coupler STDC-10-110-C7A

Frequency Range	10MHz-110GHz
Directivity	12dB
Coupling	61dB @10MHz-1GHz 12dB @3-110GHz
Return Loss	14dB
Power	10W max.
Interface	1.0mm Connector
Operating Temperature	-25°C to +65°C



Directional Coupler



Hybrid Coupler

Broadband
Directional Coupler

Programmable Step Attenuator

STPSA-DC-67-5F



Programmable Step Attenuator

Frequency Range	DC-67GHz
Attenuation Range	0-70dB
Attenuation Step	2dB
Insertion Loss	0.9dB
VSWR	2.0
Power	1W CW, 50W Peak
Switching Time	20 ms
RF Connector	1.85 mm Female
Supply Voltage	+24 VDC
Operating Temperature	-20°C to +75°C

RF Switch

PRODUCT HIGHLIGHT

- Broadband RF Signal Routing
- Fast Switching
- Latching Actuator
- Ideal for Wireless Communication, RF Test & Measurement, Radar Systems, SATCOM, Aerospace and Defense Applications

Electromechanical Coaxial STRS-DC-67-L5

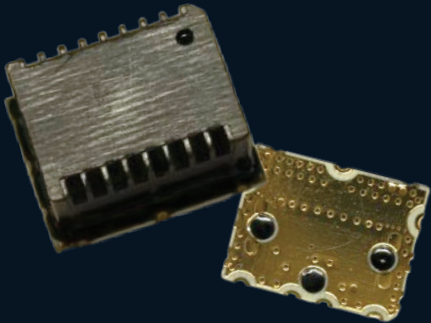
Switch Configuration	SP6T (Single Pole Six Throw)
Frequency Range	DC-67GHz
Insertion Loss	0.3dB @DC-18GHz 0.9dB @50-67GHz
VSWR	1.4 @DC-18GHz 1.8 @50-67GHz
Isolation	75dB @DC-18GHz 60dB @50-67GHz
Load Impedance / Power	50Ω / 0.5W
RF Connector	1.85 mm Female
Actuator Type	Latching
Control Logic	TTL High (3.3-5.5 V)
Supply Voltage	+24 VDC
Switching Time	15 ms
Operating Temperature	-45°C to +85°C

Electromechanical SMT STRS-DC-3-102N-SMD

Switch Configuration	SPDT
Frequency Range	DC-3GHz
Insertion Loss	0.2dB @DC-1GHz 0.5dB @2-3GHz
VSWR	1.3
Isolation	40dB @DC-1GHz 25dB @2-3GHz
Load Impedance / Power	NA
Packaging	SMT
Actuator Type	Latching
Control Logic	High-level active
Supply Voltage	+12 VDC
Switching Time	10 ms
Operating Temperature	-45°C to +85°C



Electromechanical Coaxial SP6T Switch



Electromechanical SMT SPDT Switch