

DC - 86GHz

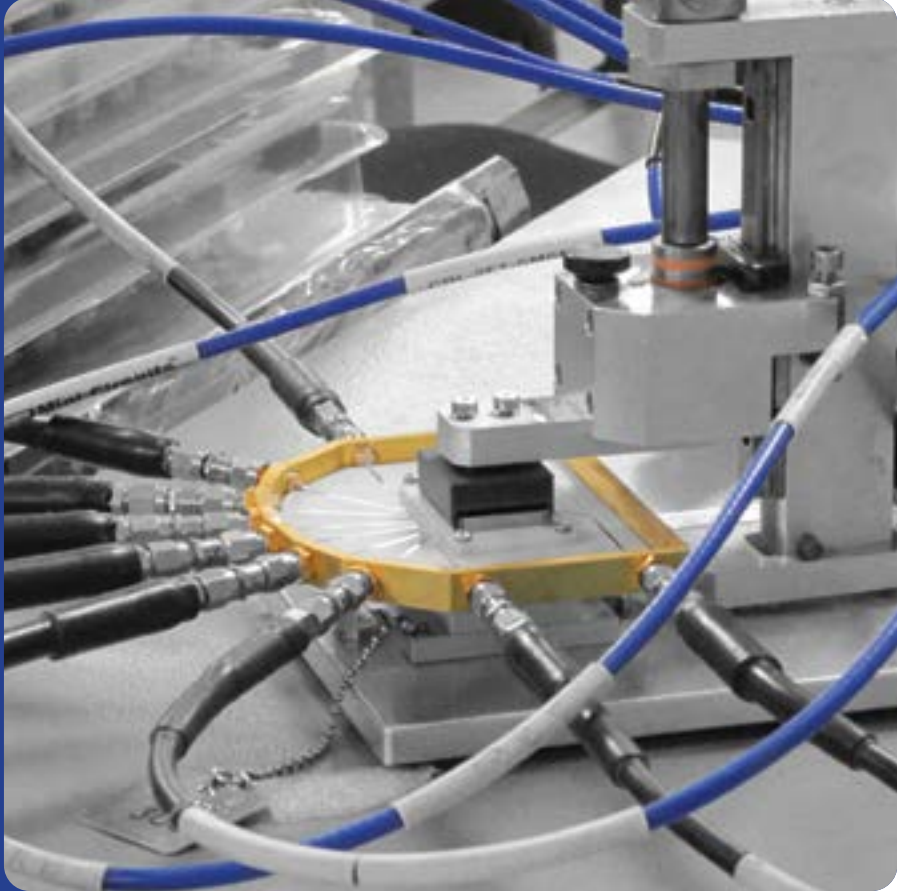
 Mini-Circuits®

# TEST ACCESSORIES

PRODUCT GUIDE

## DC-86GHz

TAPG/2020



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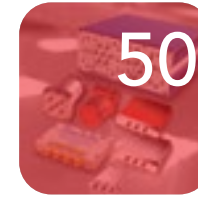
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Colorized products seen in this product guide are a design element only and can not be ordered.

Items contained in this Product Guide represent a sampling of our complete portfolio. Visit [www.minicircuits.com](http://www.minicircuits.com) for the complete catalog of models.

# ADAPTERS



**RF Adapters for SMA, N-Type, BNC, 1.85mm, 2.4mm, 2.92mm (K), and 3.5mm Connectors. Female to Female, Female to Male, Male to Female, Male to Male Designs Available.**

- Frequency Range as wide as DC to 67 GHz!
- Low insertion loss
- Excellent VSWR
- Rugged construction

## RF ADAPTERS, 50Ω, DC to 67 GHz

MODEL	Connector 1	Connector 2	Frequency Range (GHz)	VSWR (:1) Typ.
185F-KF+	1.85mm-F	2.92mm-F	DC-40	1.05
185F-KM+	1.85mm-F	2.92mm-M	DC-40	1.04
185M-24F+	1.85mm-F	2.4mm-F	DC-50	1.08
185F-24M+	1.85mm-F	2.4mm-M	DC-50	1.08
185F-185F+	1.85mm-F	1.85mm-F	DC-67	1.05
24F-24F+	2.4mm-F	2.4mm-F	DC-50	1.03
24F-24M+	2.4mm-F	2.4mm-M	DC-50	1.06
24FPM-24F	2.4 mm-F/Panel	2.4 mm-F	DC-50	1.04
KF-24F+	2.92mm-F	2.4mm-F	DC-40	1.1
KF-KF50+	2.92mm-F	2.92mm-F	DC-40	1.03
KF-24M+	2.92mm-F	2.4mm-M	DC-40	1.1
KF-24MNMD+	2.92mm-F	2.4mm NMD-M	DC-40	1.06
KF-KM50+	2.92mm-F	2.92mm-M	DC-40	1.04
KFFL-KF50+	2.92mm-F/ Flange	2.92mm-F	DC-40	1.05
KFPM-KF50+	2.92mm-F/ Panel	2.92mm-F	DC-40	1.08
KFNMD-KM+	2.92mm NMD-F	2.92mm-M	DC-40	1.06
35F-35F50+	3.5mm-F	3.5mm-F	DC-34	1.07
35F-35M50+	3.5mm-F	3.5mm-M	DC-34	1.07
35FFL-35F50+	3.5mm-F/ Flange	3.5mm-F	DC-33	1.07
SF-35M50+	SMA-F	3.5mm-M	DC-26.5	1.1
SF-MOK50+	SMA-F	SMA-M Quick Connect	DC-18	1.25

## RF ADAPTERS, 50Ω, DC to 50 GHz

MODEL	Connector 1	Connector 2	Frequency Range (GHz)	VSWR(:1) Typ.
SF-SF50+	SMA-F	SMA-F	DC-18	1.25
SF-SM50+	SMA-F	SMA-M	DC-18	1.28
SFFL-SF50+	SMA-F/ Flange	SMA-F	DC-18	1.13
SFR-KF50+	SMA-F	2.92mm-F	DC-18	1.11
SFR-NM50+	SMA-F	N-M	DC-18	1.13
SFR-SM50+	SMA-F	SMA-M	DC-18	1.09
SMPF-SF50+	SMP-F	SMA-F	DC-18	1.07
SMPF-SM50+	SMP-F	SMA-M	DC-18	1.07
SF-SFRP50+	SMA-F	SMA-FRP	DC-12	1.2
SF-SMRP50+	SMA-F	SMA-MRP	DC-12	1.2
SF-BF50+	SMA-F	BNC-F	DC-2	1.2
SF-BM50+	SMA-F	BNC-M	DC-2	1.2
NF-NMR50-18+	N-F	N-Male Right Angle	DC-18	1.06
NF-SF50+	N-F	SMA-F	DC-18	1.2
NF-SM50+	N-F	SMA-M	DC-18	1.2
NFFL-SF50+	N-F/ Flange	SMA-F	DC-18	1.2
NFFL-SM50+	N-F/ Flange	SMA-M	DC-18	1.08
NF-NF50+	N-F	N-F	DC-6	1.2
NF-NMR50+	N-F	N-Male Right Angle	DC-6	1.02
NF-BM50+	N-F	BNC-Male	DC-2	1.15
185M-KF+	1.85mm-M	2.92mm-F	DC-40	1.04
185M-KM+	1.85mm-M	2.92mm-M	DC-40	1.03
24M-24M+	2.4mm-M	2.4mm-M	DC-50	1.04
KM-24F+	2.92mm-M	2.4mm-F	DC-40	1.1
KM-24M+	2.92mm-M	2.4mm-M	DC-40	1.1
KM-24MNMD+	2.92mm-M	2.4mm NMD-M	DC-40	1.04
KM-KM50+	2.92mm-M	2.92mm-M	DC-40	1.02
KM-24M+	2.92mm-M	2.4mm-M	DC-40	1.1
KM-24MNMD+	2.92mm-M	2.4mm NMD-M	DC-40	1.04
KM-KM50+	2.92mm-M	2.92mm-M	DC-40	1.02
KMNMD-24MNMD+	2.92mm NMD-M	2.4mm NMD-M	DC-40	1.06
KMNMD-24MNMD+	2.92mm NMD-M	2.4mm NMD-M	DC-40	1.06
35M-35M50+	3.5mm-M	3.5mm-M	DC-34	1.02
SMPM-24M	SMP-M	2.4mm-M	DC-40	1.11
SMPMR-SM50+	SMP-M	SMA-M Right Angle	DC-26.5	1.1
SM-SM50+	SMA-M	SMA-M	DC-18	1.3
SM-BF50+	SMA-M	BNC-F	DC-2	1.2
SM-BM50+	SMA-M	BNC-M	DC-2	1.2
NM-NM50-18+	N-M	N-M	DC-18	1.04
NM-SF50+	N-M	SMA-F	DC-18	1.25
NM-SM50+	N-M	SMA-M	DC-18	1.2
NM-NM50+	N-M	N-M	DC-6	1.03
SMRP-SM50+	SMA-MRP	SMA-M	DC-12	1.22

# AMPLIFIERS



## Amplifiers from 0.05 to 43500 MHz

- High Power Amplifiers up to 100W
- Low Noise Amplifiers, Noise Figure as low as 0.4 dB
- Low-Cost Custom Solutions Available
- Over 400 Models In Stock

## AMPLIFIERS, High Frequency, 50Ω, 0.05 to 43500 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @1dB comp. Typ.	Out. IP3 (dBm) Typ.	Voltage (V)	DC Current (mA)	Connector Type
ZVA-24443G1+	24000-43500	45	1.7	20	27	15	160	2.92mm
ZVE-403-K+	26000-40000	22	9	19	21	12	300	2.92mm
ZVA-403GX+	0.05-40000	11	4.5	11	21	5	100	2.92mm
ZVE-323LN-K+	18000-32000	20	3	10	23	12	50	2.92mm
ZVM-273HP+	13000-26500	14.5	9	25	34	12	559	2.92mm
ZVA-203GX+	1500-21000	29	3	15.5	27.5	5	450	2.92mm
ZVA-213-S+	800-21000	26	3	24	33	12	400	SMA
ZX60-06203LN+	6000-20000	18.4	2.8	15.6	27.4	5	128	SMA
ZX60-24-S+	5000-20000	24	6.8	18	27	5	260	SMA
ZX60-24A-S+	5000-20000	24	6.4	18.3	25.4	5	27	SMA
ZVA-213UWX+	100-20000	14	3	16	29	+12, -5	84	2.92mm
ZX60-183-S+	6000-18000	23.5	6.9	18.1	27.2	5	260	SMA
ZX60-06183LN+	6000-18000	25	2.1	11	24	5	64	SMA
ZX60-183A-S+	6000-18000	28	5	18	27	5	260	SMA
ZVA-183-S+	700-18000	26	3	24	33	12	400	SMA

## AMPLIFIERS, General Purpose, 50Ω, 0.3 to 15000 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @1dB comp. Typ.	Out. IP3 (dBm) Typ.	Voltage (V)	DC Current (mA)	Connector Type
ZVA-183G-S+	500-18000	38	3	25	36	15	770	SMA
ZVA-183W-S+	100-18000	28	3	26	34.5	15	625	SMA
ZJL-153+	5000-15000	13	6	18	23	5	180	SMA
ZX60-14012L-S+	0.3-14000	12	5.5	11	20	12	62	SMA
ZRON-8G+	2000-8000	20	6	20	30	15	310	SMA
ZVE-8G+	2000-8000	30	4	30	40	12	1200	SMA
ZX60-8008E-S+	20-8000	9	4.1	9.3	24	12	39	SMA
ZJL-7G+	20-7000	10	5	9	24	12	50	SMA
ZX60-5916MA-S+	1500-6000	18	6.6	16.5	27	2.8/5.0	103	SMA
ZX60-V62+	50-6000	15.4	5.1	19	33.4	5	82	SMA
ZX60-V63+	50-6000	20.3	3.7	17.8	31.2	5	69	SMA
ZJL-6G+	20-6000	13	4.5	10	24	12	50	SMA
ZX60-6013E-S+	20-6000	14	3.3	10.3	28.7	12	39	SMA
ZX60-V81-S+	20-6000	9.7	8	18.5	36	5	103	SMA
ZX60-V82-S+	20-6000	13.5	6.8	20	35.8	5	100	SMA
ZJL-5G+	20-5000	9	8.5	15	32	12	80	SMA
ZX60-V83-S+	20-4700	16.8	6	17	31	5	72	SMA
ZHL-42+	600-4200	34	8	30	38	15	1000	SMA
ZHL-4240+	600-4200	42	8	30	38	15	1000	SMA
ZHL-42W+	10-4200	30	8	28	38	15	880	SMA
ZHL-1042J+	10-4200	25	6	20	30	15	330	SMA
ZHL-4240W+	10-4200	42	6	30	38	15	1000	SMA
ZJL-4G+	20-4000	12.4	5.5	14	30.5	12	75	SMA
ZJL-4HG+	20-4000	17	4.5	15	30	12	75	SMA
ZX60-4016E-S+	20-4000	18	3.9	16.5	30	12	65	SMA
ZX60-43-S+	0.5-4000	17	5.4	17.3	33	5	110	SMA
ZJL-3G+	20-3000	14	3.8	8	22	12	45	SMA
ZFL-272VH+	30-2700	16.9	3.4	24.5	47.2	15	350	SMA
ZKL-2R7+	10-2700	24	5	13	30	12	120	SMA
ZFL-2500+	500-2500	28	8	15	27	5	220	SMA
ZX60-2510MA-S+	500-2500	15	5.4	20	32	2.8/5.0	104	SMA
ZX60-2514MA-S+	500-2500	17.8	4.5	19	31	2.8/5.0	94	SMA
ZX60-2531MA-S+	500-2500	40	3.1	19	26	2.8/5.0	130	SMA
ZFL-2500VH+	10-2500	20	5.5	23	35	15	300	SMA
ZKL-2R5+	10-2500	30	5	15	31	12	120	SMA

## AMPLIFIERS, General Purpose, 50Ω, 0.0025 to 2400 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @1dB comp. Typ.	Out. IP3 (dBm) Typ.	Voltage (V)	DC Current (mA)	Connector Type
ZX60-2411BM-S+	800-2400	11.5	3.5	24	46.5	5	280	SMA
ZX60-H242+	700-2400	14.5	3	23	46	5.5	145	SMA
ZHL-2150+	950-2150	30	3.5	11	25	12	110	SMA
ZFL-2000+	10-2000	20	7	16	25	15	120	SMA
ZKL-2+	10-2000	33.5	4	15	31	12	120	SMA
ZFL-11AD+	2-2000	8	6.5	-2	14	15	22	SMA
ZKL-1R5+	10-1500	40	3	15	31	12	115	SMA
ZHL-2-12+	10-1200	26	5	29	45	24	750	SMA
ZFL-2HAD+	50-1000	12	6	20	35	15	115	SMA
ZHL-1010+	50-1000	9.5	3.5	26	46	12	525	SMA
ZHL-2010+	50-1000	20	3.7	26	46	12	900	SMA
ZHL-3010+	50-1000	30	5.5	26	46	12	1000	SMA
ZFL-1000H+	10-1000	28	4	20	33	15	160	SMA
ZFL-1000VH+	10-1000	20	4.5	25	38	15	320	SMA
ZFL-1000VH2+	10-1000	28	5	25	38	15	320	SMA
ZHL-2-8-S+	10-1000	34	7	29	42	24	700	SMA
ZHL-2-S+	10-1000	20	9	29	42	24	600	SMA
ZFL-2AD+	2-1000	9	6.5	-2	14	15	22	SMA
ZFL-1000+	0.1-1000	17	6	9	18	15	105	SMA
ZFL-750+	0.2-750	18	6	9	18	15	90	SMA
ZFL-500HLN+	10-500	19	3.8	16	30	15	110	SMA
ZHL-1-2W+	5-500	29	12	33	44	24	900	BNC/SMA/N
ZHL-1A+	2-500	16	11	28	38	24	600	BNC/SMA
ZFL-500+	0.05-500	20	4.2	9	18	15	80	SMA
ZHL-6A+	0.0025-500	25	9.5	22	34	24	350	BNC/SMA/N
ZHL-3A+	0.4-150	24	11	29.5	38	24	600	BNC/SMA
ZHL-32A+	0.05-130	25	10	29	38	24	600	BNC/SMA
ZX60-100VH+	0.3-100	36	4	30	43	12	370	SMA

## High Power, 50Ω, 700 to 18000 MHz

ZVE-3W-183+	5900-18000	35	5.5	34	44	15	2200	SMA
ZVE-3W-83+	2000-8000	35	5.8	33	42	15	1500	SMA
ZHL-25W-63+	700-6000	53	13	37	45	24	12000	SMA
ZHL-50W-63+	700-6000	59	11	42	53	40	6000	SMA

## AMPLIFIERS, High Power, 50Ω, 0.1 to 6000 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @1dB comp. Typ.	Out. IP3 (dBm) Typ.	Voltage (V)	DC Current (mA)	Connector Type
ZHL-100W-63+	2500-6000	58	12	43	54	30	8000	SMA-N
ZHL-1W-63-S+	600-6000	35	12	30	35	15	1000	SMA
ZHL-2W-63-S+	600-6000	42	12	33	38	28	2000	SMA
ZHL-5W-63-S+	600-6000	45	12	37	42	28	3500	SMA
ZHL-15W-422-S+	600-4200	46	10	39	47	28	3500	SMA
ZHL-4W-422+	500-4200	25	10	34	44	28	3000	SMA
ZHL-5W-422+	500-4200	25	7	35	45	28	3000	SMA
ZHL-16W-43+	1800-4000	45	6	41	47	28	4300	SMA
ZHL-100W-382A+	3300-3850	47	9.5	50	58	28	18000	SMA-N
ZHL-100W-382+	3250-3850	50	9.5	50	58	28	18000	SMA-N
ZHL-100W-352+	3000-3500	50	7.3	50	55	28	20000	SMA-N
ZHL-100W-272+	700-2700	48	8.2	49	50	30	16000	SMA-N
ZVE-2W-272+	700-2700	33	9.5	32	39.5	15	800	SMA
ZHL-25W-272+	20-2700	50	10	40	49	28	3700	SMA
ZHL-30W-262+	2300-2550	50	7	43	50	28	4300	SMA
ZHL-30W-252+	600-2500	50	5.5	44	52	28	6300	SMA
ZHL-100W-242+	2000-2400	50	7.8	49.5	55	28	12000	SMA-N
ZHL-5W-2G+	800-2000	45	8	37	44	24	2000	SMA
ZHL-10W-2G+	800-2000	43	7	40	50	24	5000	SMA
ZHL-20W-202-S+	20-2000	53	10	39	45	28	4000	SMA
ZHL-5W-202-S+	10-2000	50	10	36	45	28	3000	SMA
ZHL-10W-202-S+	10-2000	50	10	38	45	28	5000	SMA
ZHL-100W-13+	800-1000	50	7	49	60	28	14500	SMA-N
ZHL-1000-3W+	500-1000	44	3.5	37	45	24	2250	SMA
ZHL-20W-13+	20-1000	50	3.5	41	50	24	2800	SMA
ZHL-20W-13SW+	20-1000	50	3.5	41	50	24	2800	SMA
ZHL-20W-52-S	70-500	50	7	42	53	24	4700	SMA
ZHL-50W-52+	50-500	50	6	47.5	55	24	9300	SMA
ZHL-100W-52+	50-500	50	6.5	48.5	57	24	10500	SMA
ZHL-100W-GAN+	20-500	42	7	49	60	30	9400	SMA
ZHL-5W-1+	5-500	45	4	37	49	24	3300	SMA
ZHL-03-5WF+	60-300	35	3	36	49	24	2800	SMA
ZHL-100W-251-S+	50-250	46	4.5	48	58	24	10200	SMA
LZY-22+	0.1-200	43	8.9	42	52	24	6000	SMA

### AMPLIFIERS, High Power Rack Mounted, 50Ω, 20 to 6000 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @ Saturation	Out. IP3 (dBm) Typ.	Line Supply 47-63 Hz (V)	Power Consumption (Watts) @ 110/220V Typ.	Connector Type
HPA-100W-63+	2500-6000	58	15	50	50	85/264	450	N
HPA-50W-63+	700-6000	56	12	47	55	85/264	400	N
HPA-272+	700-2700	48	8.2	50	55	85/264	531	N
HPA-25W-272+	20-2700	50	10	44	50	85/264	200	N

### High Power Rack Mounted, Instrumentation, 50Ω, 0.5 to 21000 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @ 1dB Comp. Typ.	Out. IP3 (dBm) Typ.	Line Supply 47-63 Hz (V)	Built in push button attenuator	Connector Type
TVA-82-213A+	800-21000	25	3	24	30	85/265 V	N	N
TVA-63-183A+	6000-18000	24	6.4	17	26	85/265 V	N	N
TVA-4W-422A+	500-4200	25	10	34	44	85/265 V	N	N
TVA-11-422A+	10-4200	39	10.5	30	40	85/265 V	Y	N
TVA-R5-13A+	0.5-1000	38	10	34	42	85/265 V	N	N

### Low Noise, 50Ω, 20 to 15000 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @1dB comp. Typ.	Out. IP3 (dBm) Typ.	Voltage (V)	DC Current (mA)	Connector Type
ZX60-153LN-S+	500-15000	16	2.8	15	27	12	82	SMA
ZX60-123LN-S+	500-12000	17	2.4	16	28	12	82	SMA
ZX60-05113LN+	5000-11000	21.4	1.9	13	24.5	5	42	SMA
ZX60-83LN-S+	500-8000	22.1	1.4	20.7	35.2	5.0/6.0	60/70	SMA
ZX60-83LN12+	500-8000	22.1	1.4	20.7	35.2	12	77	SMA
ZX60-542LN-S+	4400-5400	24	1.9	10	23	12	80	SMA
ZX60-53LNB-S+	500-5000	20	1.45	19.5	32	5	105	SMA
ZX60-3800LN-S+	3300-3800	23	0.9	18	36	5	110	SMA
ZX60-362GLN-S+	3300-3600	20	0.9	16	29	5	140	SMA
ZX60-362LN-S+	3300-3600	11.5	0.9	10.5	22	5	30	SMA
ZRL-3500+	700-3500	21	2.4	24	45	12	460	SMA
ZX60-3011+	400-3000	11	1.7	21.1	31	12	120	SMA
ZX60-P33ULN+	400-3000	14.8	0.4	17.4	35	3	67	SMA
ZX60-33LNR-S+	50-3000	14.1	1.1	19	35	5	80	SMA
ZX60-P103LN+	50-3000	13	0.6	22.5	40	5	120	SMA
ZX60-3018G-S+	20-3000	20	2.7	11.8	25	12	34	SMA
ZX60-272LN-S+	2300-2700	14	0.8	18.5	31.5	5	70	SMA
ZQL-2700MLNW+	2200-2700	25	1.5	25	38	15	350	SMA
ZX60-P105LN+	40-2600	15	2	20	35	5	77	SMA

### AMPLIFIERS, Low Noise, 50Ω, 0.1 to 2500 MHz

MODEL	Frequency Range (MHz)	Gain (dB) Typ.	NF (dB) Typ.	Power Out (dBm) @1dB comp. Typ.	Out. IP3 (dBm) Typ.	Voltage (V)	DC Current (mA)	Connector Type
ZX60-2522MA-S+	500-2500	24	2.6	20.5	32	2.8/5.0	110	SMA
ZX60-2534MA-S+	500-2500	43	2.6	19	18	2.8/5.0	190	SMA
ZEL-1724LN+	1700-2400	20	1.5	10	22	15	70	SMA
ZHL-1724HLN+	1700-2400	30	1.5	26	36	15	725	SMA
ZHL-1724MLN+	1700-2400	28	1.1	20	32	15	380	SMA
ZX60-242GLN-S+	1710-2400	30	0.85	20	37	5	150	SMA
ZX60-242LN-S+	1710-2400	13	0.75	16.5	33	5	46	SMA
ZRL-2400LN+	1000-2400	30	1	23	39	12	520	SMA
ZRL-2300+	1400-2300	29	2.5	26	42	12	470	SMA
ZRL-2150+	950-2150	25	1.5	22	34	12	300	SMA
ZQL-1900MLNW+	1800-2000	23	1.6	25	41	15	310	SMA
ZQL-1900LNW+	1700-2000	14	1.6	18.5	37	15	160	SMA
ZQL-1900LN+	1850-1910	15	1.5	19	37	15	160	SMA
ZQL-1900MLN+	1850-1910	25	1.5	26	41	15	310	SMA
ZEL-1217LN+	1200-1700	20	1.5	10	25	15	70	SMA
ZHL-1217HLN+	1200-1700	36	1.5	26	36	15	725	SMA
ZHL-1217MLN+	1200-1700	35	1.1	22	36	15	380	SMA
ZX60-1614LN-S	1217-1620	14	0.5	13.5	30	12	50	SMA
ZX60-P162LN+	700-1600	22.5	0.5	19.9	29.9	4	60	SMA
ZX60-1215LN-S+	800-1400	16	0.4	12.5	27	12	50	SMA
ZRL-1150LN+	650-1400	33	1	25	41	12	500	SMA
ZEL-0812LN	800-1200	20	1.5	8	18	15	70	SMA
ZHL-0812HLN	800-1200	30	1.5	26	36	15	725	SMA
ZHL-0812HLN+	800-1200	36	1.5	26	36	15	725	SMA
ZRL-1200+	650-1200	28	2	23.5	46	12	575	SMA
ZX60-H122+	500-1200	14.9	2.5	22.8	46.2	5.5	145	SMA
ZX60-112LN+	400-1100	27	1.2	16.5	30	5	190	SMA
ZFL-1000LN+	0.1-1000	20	2.9	3	14	15	60	SMA
ZX60-0916LN-S+	824-960	18	0.55	16.5	30	5	45	SMA
ZQL-900LNW+	800-900	13	1.6	21	35	15	160	SMA
ZQL-900MLNW+	800-900	22	1.7	23	41	15	230	SMA
ZQL-900LN+	824-849	15	1.3	21	35	15	160	SMA
ZQL-900MLN+	824-849	25.5	1.5	24.5	41	15	230	SMA
ZRL-700+	250-700	30	2	23.5	46	12	575	SMA
ZFL-500LN+	0.1-500	24	2.9	5	14	15	60	SMA
ZRL-400+	150-400	31	2.5	25	42	12	450	SMA

# ATTENUATORS



Over 200 coaxial fixed attenuators.  
Both 50Ω and 75Ω models  
available. See website for full list of  
models and specifications.

- DC passing and DC blocking models
- Power handling up to 100W
- Bandwidths spanning DC to 65 GHz
- Excellent accuracy and repeatability

## ATTENUATORS, 50Ω, DC to 65000 MHz

MODEL	Frequency Range (MHz)	Attenuation (dB) Typ.	VSWR (:1) Typ.	Input Power (W) Max.	Connector Type
BW-E1-1W653+	DC-65000	1	1.65	1	1.85 mm
BW-E3-1W653+	DC-65000	3	1.65	1	1.85 mm
BW-E6-1W653+	DC-65000	6	1.65	1	1.85 mm
BW-E10-1W653+	DC-65000	10	1.65	1	1.85 mm
BW-E20-1W653+	DC-65000	20	1.65	1	1.85 mm
BW-E30-1W653+	DC-65000	30	1.65	1	1.85 mm

## 50Ω, DC to 50000 MHz

BW-V3-1W54+	DC-50000	3	1.1	1	2.4 mm
BW-V6-1W54+	DC-50000	6	1.2	1	2.4 mm
BW-V10-1W54+	DC-50000	10	1.5	1	2.4 mm
BW-V20-1W54+	DC-50000	20	1.1	1	2.4 mm

## 50Ω, DC to 40000 MHz

BW-K1-2W44+	DC-40000	1	1.5	2	2.92 mm
BW-K2-2W44+	DC-40000	2	1.5	2	2.92 mm
BW-K3-2W44+	DC-40000	3	1.5	2	2.92 mm
BW-K4-2W44+	DC-40000	4	1.5	2	2.92 mm
BW-K5-2W44+	DC-40000	5	1.5	2	2.92 mm
BW-K6-2W44+	DC-40000	6	1.5	2	2.92 mm
BW-K10-2W44+	DC-40000	10	1.5	2	2.92 mm
BW-K20-2W44+	DC-40000	20	1.5	2	2.92 mm
BW-KM3-2W44+	DC-40000	3	1.2	2	2.92 mm
BW-KM6-2W44+	DC-40000	6	1.1	2	2.92 mm
BW-KM10-2W44+	DC-40000	10	1.1	2	2.92 mm
BW-KM20-2W44+	DC-40000	20	1.1	2	2.92 mm

Models BW-KM3-2W44+, BW-KM6-2W44+, BW-KM10-2W44+, BW-KM20-2W44+/ M-M connector

## ATTENUATORS, 50Ω, DC to 26000 MHz

MODEL	Frequency Range (MHz)	Attenuation (dB) Typ.	VSWR (:1) Typ.	Input Power (W) Max.	Connector Type
BW-S1-2W263+	DC-26000	1	1.4	2	SMA
BW-S3-2W263+	DC-26000	3	1.4	2	SMA
BW-S6-2W263+	DC-26000	6	1.4	2	SMA
BW-S10-2W263+	DC-26000	10	1.35	2	SMA
BW-S20-2W263+	DC-26000	20	1.35	2	SMA

## 50Ω, DC to 18000 MHz

BW-N1W5+	DC-18000	1	1.3	5	N
BW-N2W5+	DC-18000	2	1.3	5	N
BW-N3W20+	DC-18000	3	1.5	20	N
BW-N3W5+	DC-18000	3	1.3	5	N
BW-N4W5+	DC-18000	4	1.3	5	N
BW-N5W5+	DC-18000	5	1.3	5	N
BW-N6W20+	DC-18000	6	1.5	20	N
BW-N6W5+	DC-18000	6	1.3	5	N
BW-N7W5+	DC-18000	7	1.3	5	N
BW-N8W5+	DC-18000	8	1.3	5	N
BW-N9W5+	DC-18000	9	1.3	5	N
BW-N10W20+	DC-18000	10	1.5	20	N
BW-N10W5+	DC-18000	10	1.3	5	N
BW-N10W50+	DC-18000	10	1.4	50	N
BW-N12W5+	DC-18000	12	1.3	5	N
BW-N15W5+	DC-18000	15	1.3	5	N
BW-N20W20+	DC-18000	20	1.4	20	N
BW-N20W5+	DC-18000	20	1.3	5	N
BW-N20W50+	DC-18000	20	1.4	50	N
BW-N30W20+	DC-18000	30	1.65	20	N
BW-N30W5+	DC-18000	30	1.3	5	N
BW-N30W50+	DC-18000	30	1.4	50	N
BW-N40W5+	DC-18000	40	1.3	5	N
BW-N40W50+	DC-18000	40	1.4	50	N
BW-S1W2+	DC-18000	1	1.3	2	SMA
BW-S1W5+	DC-18000	1	1.3	5	SMA
BW-S2W2+	DC-18000	2	1.3	2	SMA
BW-S2W5+	DC-18000	2	1.3	5	SMA
BW-S3W20+	DC-18000	3	1.4	20	SMA
BW-S3W2+	DC-18000	3	1.3	2	SMA
BW-S3W5+	DC-18000	3	1.3	5	SMA
BW-S4W2+	DC-18000	4	1.3	2	SMA
BW-S4W5+	DC-18000	4	1.3	5	SMA
BW-S5W2+	DC-18000	5	1.3	2	SMA
BW-S5W5+	DC-18000	5	1.3	5	SMA
BW-S6W20+	DC-18000	6	1.4	20	SMA
BW-S6W2+	DC-18000	6	1.3	2	SMA
BW-S6W5+	DC-18000	6	1.3	5	SMA
BW-S7W2+	DC-18000	7	1.3	2	SMA
BW-S7W5+	DC-18000	7	1.3	5	SMA
BW-S8W2+	DC-18000	8	1.3	2	SMA
BW-S8W5+	DC-18000	8	1.3	5	SMA
BW-S9W2+	DC-18000	9	1.3	2	SMA
BW-S9W5+	DC-18000	9	1.3	5	SMA
BW-S10W20+	DC-18000	10	1.4	20	SMA
BW-S10W2+	DC-18000	10	1.3	2	SMA

## ATTENUATORS, 50Ω, DC to 18000 MHz

MODEL	Frequency Range (MHz)	Attenuation (dB) Typ.	VSWR (:1) Typ.	Input Power (W) Max.	Connector Type
BW-S10W5+	DC-18000	10	1.3	5	SMA
BW-S12W2+	DC-18000	12	1.3	2	SMA
BW-S12W5+	DC-18000	12	1.3	5	SMA
BW-S15W2+	DC-18000	15	1.3	2	SMA
BW-S15W5+	DC-18000	15	1.3	5	SMA
BW-S20W20+	DC-18000	20	1.4	20	SMA
BW-S20W2+	DC-18000	20	1.3	2	SMA
BW-S20W5+	DC-18000	20	1.3	5	SMA
BW-S30W20+	DC-18000	30	1.4	20	SMA
BW-S30W2+	DC-18000	30	1.3	2	SMA
BW-S30W5+	DC-18000	30	1.3	5	SMA
BW-S40W20+	DC-18000	40	1.4	20	SMA
BW-S40W2+	DC-18000	40	1.3	2	SMA
BW-S40W5+	DC-18000	40	1.3	5	SMA
BW-S50W2+	DC-18000	50	1.25	2	SMA

## 50Ω, DC to 12000 MHz

FW-1+	DC-12000	1	1.35	1	SMA
FW-2+	DC-12000	2	1.3	1	SMA
FW-3+	DC-12000	3	1.3	1	SMA
FW-4+	DC-12000	4	1.35	1	SMA
FW-5+	DC-12000	5	1.3	1	SMA
FW-6+	DC-12000	6	1.3	1	SMA
FW-7+	DC-12000	7	1.3	1	SMA
FW-8+	DC-12000	8	1.3	1	SMA
FW-9+	DC-12000	9	1.35	1	SMA
FW-10+	DC-12000	10	1.3	1	SMA
FW-12+	DC-12000	12	1.4	1	SMA
FW-15+	DC-12000	15	1.3	1	SMA
FW-20+	DC-12000	20	1.35	1	SMA

## 50Ω, DC to 6000 MHz

UNAT-1+	DC-6000	1	1.4	1	N
UNAT-1+	DC-6000	1	1.4	1	N
UNAT-2+	DC-6000	2	1.5	1	N
UNAT-3+	DC-6000	3	1.5	1	N
UNAT-4+	DC-6000	4	1.5	1	N
UNAT-5+	DC-6000	5	1.5	1	N
UNAT-6+	DC-6000	6	1.5	1	N
UNAT-7+	DC-6000	7	1.5	1	N
UNAT-8+	DC-6000	8	1.5	1	N
UNAT-9+	DC-6000	9	1.5	1	N
UNAT-10+	DC-6000	10	1.5	1	N
UNAT-12+	DC-6000	12	1.8	1	N
UNAT-15+	DC-6000	15	1.7	1	N
UNAT-20+	DC-6000	20	1.5	0.5	N
UNAT-30+	DC-6000	30	1.1	0.5	N
VAT-1+	DC-6000	1	1.4	1	SMA
VAT-1W2+	DC-6000	1	1.55	2	SMA
VAT-2+	DC-6000	2	1.5	1	SMA
VAT-2W2+	DC-6000	2	1.5	2	SMA
VAT-3+	DC-6000	3	1.4	1	SMA
VAT-3W2+	DC-6000	3	1.45	2	SMA
VAT-4+	DC-6000	4	1.45	1	SMA
VAT-4W2+	DC-6000	4	1.5	2	SMA
VAT-5+	DC-6000	5	1.4	1	SMA
VAT-5W2+	DC-6000	5	1.65	2	SMA
VAT-6+	DC-6000	6	1.5	1	SMA
VAT-6W2+	DC-6000	6	1.5	2	SMA
VAT-7+	DC-6000	7	1.4	1	SMA
VAT-6+	DC-6000	6	1.5	1	SMA
VAT-6W2+	DC-6000	6	1.5	2	SMA
VAT-7+	DC-6000	7	1.4	1	SMA

## ATTENUATORS, 50Ω, DC to 6000 MHz

MODEL	Frequency Range (MHz)	Attenuation (dB) Typ.	VSWR (:1) Typ.	Input Power (W) Max.	Connector Type
VAT-7W2+	DC-6000	7	1.4	2	SMA
VAT-8+	DC-6000	8	1.6	1	SMA
VAT-8W2+	DC-6000	8	1.6	2	SMA
VAT-9+	DC-6000	9	1.5	1	SMA
VAT-9W2+	DC-6000	9	1.5	2	SMA
VAT-10+	DC-6000	10	1.6	1	SMA
VAT-10W2+	DC-6000	10	1.6	2	SMA
VAT-12+	DC-6000	12	1.65	1	SMA
VAT-12W2+	DC-6000	12	1.7	2	SMA
VAT-15+	DC-6000	15	1.75	1	SMA
VAT-15W2+	DC-6000	15	1.75	2	SMA
VAT-20+	DC-6000	20	1.3	0.5	SMA
VAT-20W2+	DC-6000	20	1.95	2	SMA
VAT-30+	DC-6000	30	1.25	0.5	SMA
VAT-30W2+	DC-6000	30	1.6	2	SMA

## 50Ω, DC to 2000 MHz

HAT-1+	DC-2000	1	1.1	1	BNC
HAT-2+	DC-2000	2	1.1	1	BNC
HAT-3+	DC-2000	3	1.1	1	BNC
HAT-3-75	DC-2000	3	1.22	0.5	BNC
HAT-3-75+*	DC-2000	3	1.22	0.5	BNC
HAT-4+	DC-2000	4	1.1	1	BNC
HAT-5+	DC-2000	5	1.1	1	BNC
HAT-6+	DC-2000	6	1.1	1	BNC
HAT-6-75+*	DC-2000	6	1.15	0.5	BNC
HAT-7+	DC-2000	7	1.1	1	BNC
HAT-8+	DC-2000	8	1.1	1	BNC
HAT-9+	DC-2000	9	1.1	1	BNC
HAT-10+	DC-2000	10	1.1	1	BNC
HAT-10-75+*	DC-2000	10	1.1	0.5	BNC
HAT-12+	DC-2000	12	1.15	1	BNC
HAT-15+	DC-2000	15	1.15	1	BNC
HAT-15-75+*	DC-2000	15	1.1	0.5	BNC
HAT-20+	DC-2000	20	1.15	0.5	BNC
HAT-20-75+*	DC-2000	20	1.1	0.5	BNC
HAT-30+	DC-2000	30	1.15	1	BNC
SF-BM-10+	DC-2000	10	1.1	0.5	SMA-BNC
SM-BF-10+	DC-2000	10	1.1	0.5	SMA-BNC

## 50Ω, 100 to 4000 MHz

NAT-10DC-1.5A+	1000-4000	10	1.6	1	N
NAT-15DC-1.5A+	950-4000	15	1.6	1	N
NAT-15DC-1A+	650-4000	15	1.7	1	N
NAT-6DC-1A+	600-4000	6	1.7	1	N
NAT-10DC-1A+	600-4000	10	1.6	1	N
NAT-6DC-2A+	1000-3750	6	1.6	1	N
NAT-6DC-3A+	1700-3500	6	1.5	1	N
NAT-3DC-3A+	1700-3300	3	1.7	1	N
NAT-3DC-2A+	1000-3500	3	1.7	1	N
NAT-3DC-1A+	650-3500	3	1.6	1	N
NAT-3DC+	200-2500	3	1.1	0.5	N
NAT-6DC+	200-2500	6	1.1	0.375	N
NAT-10DC+	200-2500	10	1.2	0.6	N
NAT-20DC+	500-2300	20	1.1	0.4	N
SAT-3DC-3A+	100-500	3	1.1	10	SMA
SAT-6DC-3A+	100-500	6	1.1	10	SMA
SAT-10DC-3A+	100-500	10	1.1	10	SMA

## High Power, 100W, 50Ω, DC to 6000 MHz

BW-20N100W+	DC-6000	20	1.45	100	N
BW-30N100W+	DC-6000	30	1.45	100	N
BW-40N100W+	DC-4000	40	1.4	100	N

Notes: DC passing models are indicated by "DC" in the model number after the attenuation value, \*Indicates 75 W model.



# CABLES



**RF/microwave interconnect and precision test cables for 50Ω and 75Ω systems from DC to 50 GHz with a wide selection of connectors including 2.4mm, 2.92mm, SMA, N-Type, F-Type and BNC!**

- All combinations of male and female connectors
- Options for straight, right angle, bulkhead, and quick-connect connections
- Performance qualified for reliability in the most demanding environments

## CABLES, Armored Test, 50Ω, up to 40 GHz

MODEL	Frequency High (GHz)	Insertion Loss (dB)	Length (ft)	Conn. 1 Type	Conn. 1 Gender	Conn. 1 Mounting Type	Conn. 2 Type	Conn. 2 Gender	Conn. 2 Mounting Type
KBL-1.5FT-LOW+	40	1.41	1.5	2.92 mm	Male	Standard	2.92 mm	Male	Standard
KBL-1M-LOW+	40	3.05	3.28	2.92 mm	Male	Standard	2.92 mm	Male	Standard
KBL-2FT-LOW+	40	1.74	2	2.92 mm	Male	Standard	2.92 mm	Male	Standard
KBL-2M-LOW+	40	5.46	6.56	2.92 mm	Male	Standard	2.92 mm	Male	Standard
KBL-4FT-LOW+	40	3.41	4	2.92 mm	Male	Standard	2.92 mm	Male	Standard
APC-10FT-NMNM+	18	6.3	10	N-Type	Male	Standard	N-Type	Male	Standard
APC-15FT-NMNM+	18	9	15	N-Type	Male	Standard	N-Type	Male	Standard
APC-4FT-SMNM+	18	2.55	4	N-Type	Male	Standard	SMA	Male	Standard
APC-6FT-NMNM+	18	3.8	6	N-Type	Male	Standard	N-Type	Male	Standard

## Precision Test, 50Ω, up to 50 GHz

T50-2FT-VFVM+	50	2.2	2	2.4 mm	Male	Standard	2.4 mm	Female	Standard
T50-3FT-VFVM+	50	3.7	3	2.4 mm	Male	Standard	2.4 mm	Female	Standard
T40-2FT-KFKM+	40	2.2	2	2.92 mm	Male	Standard	2.92 mm	Female	Standard
T40-2FT-KMKM+	40	2.2	2	2.92 mm	Male	Standard	2.92 mm	Male	Standard
T40-2FT-VFVM+	40	2.2	2	2.4 mm	Male	Standard	2.4 mm	Female	Standard
T40-3FT-KFKM+	40	3.3	3	2.92 mm	Male	Standard	2.92 mm	Female	Standard
T40-3FT-KMKM+	40	3.3	3	2.92 mm	Male	Standard	2.92 mm	Male	Standard
T40-3FT-VFVM+	40	3.3	3	2.4 mm	Male	Standard	2.4 mm	Female	Standard
CBL-1.5FT-SMSM+	18	1	1.5	SMA	Male	Standard	SMA	Male	Standard
CBL-1.5M-NMNM+	18	3.4	4.92	N-Type	Male	Standard	N-Type	Male	Standard

Note: Other standard cable lengths and connector options available, see website Cable builder app

## CABLES, Precision Test, 50Ω, up to 50 GHz

MODEL	Frequency High (GHz)	Insertion Loss (dB)	Length (ft)	Conn. 1 Type	Conn. 1 Gender	Conn. 1 Mounting Type	Conn. 2 Type	Conn. 2 Gender	Conn. 2 Mounting Type
CBL-1.5M-SMNM+	18	3.2	4.92	N-Type	Male	Standard	SMA	Male	Standard
CBL-1.5M-SMSM+	18	3.1	4.92	SMA	Male	Standard	SMA	Male	Standard
CBL-10FT-NMNM+	18	6.3	10	N-Type	Male	Standard	N-Type	Male	Standard
CBL-10FT-SMNM+	18	6.06	10	N-Type	Male	Standard	SMA	Male	Standard
CBL-10FT-SMSM+	18	6.1	10	SMA	Male	Standard	SMA	Male	Standard
CBL-15FT-NMNM+	18	9.2	15	N-Type	Male	Standard	N-Type	Male	Standard
CBL-15FT-SMNM+	18	9.2	15	N-Type	Male	Standard	SMA	Male	Standard
CBL-15FT-SMSM+	18	9.25	15	SMA	Male	Standard	SMA	Male	Standard
CBL-1FT-SMSM+	18	0.75	1	SMA	Male	Standard	SMA	Male	Standard
CBL-1M-NMNM+	18	2.3	3.28	N-Type	Male	Standard	N-Type	Male	Standard
CBL-1M-SMNM+	18	2.2	3.28	N-Type	Male	Standard	SMA	Male	Standard
CBL-1M-SMSM+	18	2	3.28	SMA	Male	Standard	SMA	Male	Standard
CBL-20FT-NMNM+	18	12	20	N-Type	Male	Standard	N-Type	Male	Standard
CBL-20FT-SMSM+	18	12.5	20	SMA	Male	Standard	SMA	Male	Standard
CBL-2FT-NMNM+	18	1.4	2	N-Type	Male	Standard	N-Type	Male	Standard
CBL-2FT-SFNM+	18	1.4	2	N-Type	Male	Standard	SMA	Female	Standard
CBL-2FT-SMNM+	18	1.4	2	N-Type	Male	Standard	SMA	Male	Standard
CBL-2FT-SMSM+	18	1.4	2	SMA	Male	Standard	SMA	Male	Standard
CBL-2M-NMNM+	18	4	6.56	N-Type	Male	Standard	N-Type	Male	Standard
CBL-2M-SMNM+	18	4.2	6.56	N-Type	Male	Standard	SMA	Male	Standard
CBL-2M-SMSM+	18	4	6.56	SMA	Male	Standard	SMA	Male	Standard
CBL-3FT-NMNM+	18	1.9	3	N-Type	Male	Standard	N-Type	Male	Standard
CBL-3FT-SFNM+	18	1.9	3	N-Type	Male	Standard	SMA	Female	Standard
CBL-3FT-SFSM+	18	1.9	3	SMA	Male	Standard	SMA	Female	Standard
CBL-3FT-SMNM+	18	1.9	3	N-Type	Male	Standard	SMA	Male	Standard
CBL-3FT-SMSM+	18	1.9	3	SMA	Male	Standard	SMA	Male	Standard
CBL-4FT-SMNM+	18	2.55	4	N-Type	Male	Standard	SMA	Male	Standard
CBL-4FT-SMSM+	18	2.55	4	SMA	Male	Standard	SMA	Male	Standard
CBL-50FT-SMSM+	18	31	50	SMA	Male	Standard	SMA	Male	Standard
CBL-5FT-NMNM+	18	2.5	5	N-Type	Male	Standard	N-Type	Male	Standard
CBL-5FT-SMSM+	18	3.4	5	SMA	Male	Standard	SMA	Male	Standard
CBL-6FT-NMNM+	18	3.8	6	N-Type	Male	Standard	N-Type	Male	Standard
CBL-6FT-SFNM+	18	3.8	6	N-Type	Male	Standard	SMA	Female	Standard
CBL-6FT-SMNM+	18	3.8	6	N-Type	Male	Standard	SMA	Male	Standard
CBL-6FT-SMSM+	18	3.8	6	SMA	Male	Standard	SMA	Male	Standard
CBL1.5SMQ-SM+	18	1	1.5	SMA	Male	Standard	SMA	Male	Standard
CBL10SMQ-SM+	18	6.1	10	SMA	Male	Standard	SMA	Male	Quick Connect
CBL2SMQ-NM+	18	1.4	2	N-Type	Male	Standard	SMA	Male	Quick Connect
CBL2SMQ-SM+	18	1.4	2	SMA	Male	Standard	SMA	Male	Quick Connect
CBL3NMQ-NM+	18	2	3	N-Type	Male	Standard	N-Type	Male	Quick Connect
CBL3NMQ-SM+	18	1.9	3	SMA	Male	Standard	N-Type	Male	Quick Connect
CBL3NMQ-SMQ+	18	1.9	3	N-Type	Male	Quick Connect	SMA	Male	Quick Connect
CBL3SMQ-SM+	18	1.9	3	SMA	Male	Standard	SMA	Male	Quick Connect
CBL6NMQ-NM+	18	3.8	6	N-Type	Male	Standard	N-Type	Male	Quick Connect
CBL6NMQ-SM+	18	3.8	6	SMA	Male	Standard	N-Type	Male	Quick Connect
CBL6SMQ-SM+	18	3.8	6	SMA	Male	Standard	SMA	Male	Quick Connect

Note: Other standard cable lengths and connector options available, see website Cable builder app

**CABLES, Precision Test Cable, Economy, 50Ω, up to 50 GHz**

MODEL	Frequency High (GHz)	Insertion Loss (dB)	Length (ft)	Conn. 1 Type	Conn. 1 Gender	Conn. 1 Mounting Type	Conn. 2 Type	Conn. 2 Gender	Conn. 2 Mounting Type
E50-2FT-VMVM+	50	3.5	2	2.4 mm	Male	Standard	2.4 mm	Male	Standard
E50-3FT-VMVM+	50	6.3	3	2.4 mm	Male	Standard	2.4 mm	Male	Standard
E40-2FT-KMKM+	40	3.4	2	2.92 mm	Male	Standard	2.92 mm	Male	Standard
E40-3FT-KMKM+	40	5.1	3	2.92 mm	Male	Standard	2.92 mm	Male	Standard
E40-6FT-KMKM+	40	8.7	6	2.92 mm	Male	Standard	2.92 mm	Male	Standard

**Flexible Test, Booted Joints, 50Ω, up to 18 GHz**

ULC-1.5FT-SMSM+	18	1.4	1.5	SMA	Male	Standard	SMA	Male	Standard
ULC-10FT-SMSM+	18	7.5	10	SMA	Male	Standard	SMA	Male	Standard
ULC-1FT-SMSM+	18	0.7	1	SMA	Male	Standard	SMA	Male	Standard
ULC-1M-NMNM+	18	2.6	3.28	N-Type	Male	Standard	N-Type	Male	Standard
ULC-1M-SMNM+	18	2.5	3.28	N-Type	Male	Standard	SMA	Male	Standard
ULC-1M-SMSM+	18	2.8	3.28	SMA	Male	Standard	SMA	Male	Standard
ULC-2FT-NMNM+	18	1.6	2	N-Type	Male	Standard	N-Type	Male	Standard
ULC-2FT-SMNM+	18	1.5	2	N-Type	Male	Standard	SMA	Male	Standard
ULC-2FT-SMSM+	18	1.8	2	SMA	Male	Standard	SMA	Male	Standard
ULC-3FT-NMNM+	18	2.2	3	N-Type	Male	Standard	N-Type	Male	Standard
ULC-3FT-SMNM+	18	2.2	3	N-Type	Male	Standard	SMA	Male	Standard
ULC-3FT-SMSM+	18	2.7	3	SMA	Male	Standard	SMA	Male	Standard
ULC-4FT-SMNM+	18	3.1	4	N-Type	Male	Standard	SMA	Male	Standard
ULC-4FT-SMSM+	18	3.4	4	SMA	Male	Standard	SMA	Male	Standard
ULC-6FT-NMNM+	18	4.6	6	N-Type	Male	Standard	N-Type	Male	Standard
ULC-6FT-SMNM+	18	4.4	6	N-Type	Male	Standard	SMA	Male	Standard
ULC-6FT-SMSM+	18	5.2	6	SMA	Male	Standard	SMA	Male	Standard

**Flexible Test, 50Ω, up to 26 GHz**

FLC-1.5FT-SMSM+	26	1.26	1.5	SMA	Male	Standard	SMA	Male	Standard
FLC-1M-SMSM+	26	2.62	3.28	SMA	Male	Standard	SMA	Male	Standard
FLC-2FT-SMSM+	26	1.61	2	SMA	Male	Standard	SMA	Male	Standard
FLC-2M-SMSM+	26	5.5	6.56	SMA	Male	Standard	SMA	Male	Standard
FLC-3FT-SMSM+	26	2.5	3	SMA	Male	Standard	SMA	Male	Standard
FLC-4FT-SMSM+	26	3.55	4	SMA	Male	Standard	SMA	Male	Standard
FLC-6FT-SMSM+	26	5.04	6	SMA	Male	Standard	SMA	Male	Standard
FLC-2M-SMNM+	18	4.03	6.56	N-Type	Male	Standard	SMA	Male	Standard

**Temperature Stable, 50Ω, up to 40 GHz**

TMP40-1M-KMKM+	40	2.6	3.28	2.92 mm	Male	Standard	2.92 mm	Male	Standard
TMP40-3FT-KMKM+	40	2.4	3	2.92 mm	Male	Standard	2.92 mm	Male	Standard
TMP40-6FT-KMKM+	40	4.6	6	2.92 mm	Male	Standard	2.92 mm	Male	Standard

**VNA Cable, 50Ω, up to 40 GHz**

VNAC-2R1-K+	40	2.3	2.08	2.92 mm	Female	Rugged	2.92 mm	Male	Standard
VNAX-2FT-KMVR+	40	2	2	2.4 mm	Female	Rugged	2.92 mm	Male	Standard

**Super Flexible Interconnect, 0.047" center diameter, 50Ω, up to 18 GHz**

SLC-2FT-SMSM+	18	2.9	2	SMA	Male	Standard	SMA	Male	Standard
SLC-3FT-SMSM+	18	4.4	3	SMA	Male	Standard	SMA	Male	Standard
SLC-4FT-SMSM+	18	6	4	SMA	Male	Standard	SMA	Male	Standard
SLC-6FT-SMSM+	18	8.8	6	SMA	Male	Standard	SMA	Male	Standard

**CABLES, Hand-Flex Interconnect, 0.086" center diameter, 50Ω, up to 40 GHz**

MODEL	Frequency High (GHz)	Insertion Loss (dB)	Length (ft)	Conn. 1 Type	Conn. 1 Gender	Conn. 1 Mounting Type	Conn. 2 Type	Conn. 2 Gender	Conn. 2 Mounting Type
086-12KM+	40	1.7	1	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-15KM+	40	2.2	1.25	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-18KM+	40	2.4	1.5	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-24KM+	40	3.2	2	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-3KM+	40	0.49	0.25	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-4KM+	40	0.6	0.33	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-6KM+	40	0.89	0.5	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-9KM+	40	1.4	0.75	2.92 mm	Male	Standard	2.92 mm	Male	Standard
086-10SBSM+	18	0.78	0.83	SMA	Male	Standard	SMA	Female	Bulkhead
086-10SM+	18	0.85	0.83	SMA	Male	Standard	SMA	Male	Standard
086-11SBSM+	18	1.1	0.92	SMA	Male	Standard	SMA	Female	Bulkhead
086-11SM+	18	1.17	0.92	SMA	Male	Standard	SMA	Male	Standard
086-12SBSM+	18	0.9	1	SMA	Male	Standard	SMA	Female	Bulkhead
086-12SM+	18	1.01	1	SMA	Male	Standard	SMA	Male	Standard
086-13SM+	18	1	1.08	SMA	Male	Standard	SMA	Male	Standard
086-14SBSM+	18	1.03	1.17	SMA	Male	Standard	SMA	Female	Bulkhead
086-14SM+	18	1.13	1.17	SMA	Male	Standard	SMA	Male	Standard
086-15SM+	18	1.19	1.25	SMA	Male	Standard	SMA	Male	Standard
086-16SBSM+	18	1.1	1.33	SMA	Male	Standard	SMA	Female	Bulkhead
086-16SM+	18	1.33	1.33	SMA	Male	Standard	SMA	Male	Standard
086-18SBSMR+	18	1.71	1.5	SMA	Male	Standard	SMA	Female	Bulkhead
086-18SM+	18	1.41	1.5	SMA	Male	Standard	SMA	Male	Standard
086-20SM+	18	1.87	1.67	SMA	Male	Standard	SMA	Male	Standard
086-22SM+	18	2.02	1.83	SMA	Male	Standard	SMA	Male	Standard
086-24SM+	18	2.02	2	SMA	Male	Standard	SMA	Male	Standard
086-25M+	18	0.33	0.17	SMA	Male	Standard	SMA	Male	Standard
086-36SM+	18	2.44	3	SMA	Male	Standard	SMA	Male	Standard
086-3SBSM+	18	0.47	0.25	SMA	Male	Standard	SMA	Female	Bulkhead
086-3SM+	18	0.31	0.25	SMA	Male	Standard	SMA	Male	Standard
086-4SM+	18	0.34	0.33	SMA	Male	Standard	SMA	Male	Standard
086-5SBSM+	18	0.42	0.42	SMA	Male	Standard	SMA	Female	Bulkhead
086-5SM+	18	0.41	0.42	SMA	Male	Standard	SMA	Male	Standard
086-6SBSM+	18	0.47	0.5	SMA	Male	Standard	SMA	Female	Bulkhead
086-6SM+	18	0.52	0.5	SMA	Male	Standard	SMA	Male	Standard
086-7SBSM+	18	0.59	0.58	SMA	Male	Standard	SMA	Female	Bulkhead
086-7SM+	18	0.6	0.58	SMA	Male	Standard	SMA	Male	Standard
086-8SM+	18	0.69	0.67	SMA	Male	Standard	SMA	Male	Standard
086-9SBSM+	18	0.72	0.75	SMA	Male	Standard	SMA	Female	Bulkhead
086-9SM+	18	0.79	0.75	SMA	Male	Standard	SMA	Male	Standard
086-12BM+	3	0.27	1	BNC	Male	Standard	BNC	Male	Standard
086-18BM+	3	0.39	1.5	BNC	Male	Standard	BNC	Male	Standard
086-24BM+	3	0.51	2	BNC	Male	Standard	BNC	Male	Standard
086-6BM+	3	0.14	0.5	BNC	Male	Standard	BNC	Male	Standard
086-8BM+	3	0.18	0.67	BNC	Male	Standard	BNC	Male	Standard

Note: Other standard cable lengths and connector options available, see website Cable builder app

**CABLES, Hand-Flex Interconnect, 0.141" center diameter, 50Ω, up to 18 GHz**

MODEL	Frequency High (GHz)	Insertion Loss (dB)	Length (ft)	Conn. 1 Type	Conn. 1 Gender	Conn. 1 Mounting Type	Conn. 2 Type	Conn. 2 Gender	Conn. 2 Mounting Type
141-0.5SM+	18	0.86	1.64	SMA	Male	Standard	SMA	Male	Standard
141-10SM+	18	0.59	0.83	SMA	Male	Standard	SMA	Male	Standard
141-10SMNM+	18	0.69	0.83	N-Type	Male	Standard	SMA	Male	Standard
141-11SM+	18	0.57	0.92	SMA	Male	Standard	SMA	Male	Standard
141-12SM+	18	0.66	1	SMA	Male	Standard	SMA	Male	Standard
141-12SMNM+	18	0.77	1	N-Type	Male	Standard	SMA	Male	Standard
141-13SM+	18	0.5	1.08	SMA	Male	Standard	SMA	Male	Standard
141-14SM+	18	0.73	1.17	SMA	Male	Standard	SMA	Male	Standard
141-15SM+	18	0.85	1.25	SMA	Male	Standard	SMA	Male	Standard
141-16SM+	18	0.9	1.33	SMA	Male	Standard	SMA	Male	Standard
141-17SM+	18	0.96	1.42	SMA	Male	Standard	SMA	Male	Standard
141-18SM+	18	0.89	1.5	SMA	Male	Standard	SMA	Male	Standard
141-18SMNM+	18	1.19	1.5	N-Type	Male	Standard	SMA	Male	Standard
141-19SM+	18	0.86	1.58	SMA	Male	Standard	SMA	Male	Standard
141-1MSM+	18	1.67	3.28	SMA	Male	Standard	SMA	Male	Standard
141-20SM+	18	0.92	1.67	SMA	Male	Standard	SMA	Male	Standard
141-22SM+	18	1.12	1.83	SMA	Male	Standard	SMA	Male	Standard
141-24SBSM+	18	1.1	2	SMA	Male	Standard	SMA	Female	Bulkhead
141-24SM+	18	1.12	2	SMA	Male	Standard	SMA	Male	Standard
141-24SMNM+	18	1.32	2	N-Type	Male	Standard	SMA	Male	Standard
141-26SM+	18	1.2	2.17	SMA	Male	Standard	SMA	Male	Standard
141-2MSM+	18	3.36	6.56	SMA	Male	Standard	SMA	Male	Standard
141-2SM+	18	0.15	0.17	SMA	Male	Standard	SMA	Male	Standard
141-30SM+	18	1.27	2.5	SMA	Male	Standard	SMA	Male	Standard
141-36SM+	18	1.51	3	SMA	Male	Standard	SMA	Male	Standard
141-3SM+	18	0.21	0.25	SMA	Male	Standard	SMA	Male	Standard
141-3SMRSM+	18	0.28	0.25	SMA	Male	Standard	SMA	Male	Standard
141-4SBSM+	18	0.21	0.33	SMA	Male	Standard	SMA	Female	Bulkhead
141-4SM+	18	0.2	0.33	SMA	Male	Standard	SMA	Male	Standard
141-4SMNM+	18	0.49	0.33	N-Type	Male	Standard	SMA	Male	Standard
141-50SM+	18	2.5	4.17	SMA	Male	Standard	SMA	Male	Standard
141-5SM+	18	0.29	0.42	SMA	Male	Standard	SMA	Male	Standard
141-5SMNM+	18	0.84	0.42	N-Type	Male	Standard	SMA	Male	Standard
141-60SM+	18	2.5	5	SMA	Male	Standard	SMA	Male	Standard
141-6SM+	18	0.39	0.5	SMA	Male	Standard	SMA	Male	Standard
141-6SMNM+	18	0.67	0.5	N-Type	Male	Standard	SMA	Male	Standard
141-6SMRSM+	18	0.5	0.5	SMA	Male	Standard	SMA	Male	Standard
141-72SM+	18	3.1	6	SMA	Male	Standard	SMA	Male	Standard
141-8SM+	18	0.42	0.67	SMA	Male	Standard	SMA	Male	Standard
141-8SMNM+	18	0.86	0.67	N-Type	Male	Standard	SMA	Male	Standard
141-9SM+	18	0.55	0.75	SMA	Male	Standard	SMA	Male	Standard
CBL6NMQ-SM+	18	3.8	6	SMA	Male	Standard	N-Type	Male	Quick Connect
CBL6SMQ-SM+	18	3.8	6	SMA	Male	Standard	SMA	Male	Quick Connect
141-12NM+	12.5	0.69	1	N-Type	Male	Standard	N-Type	Male	Standard

Note: Other standard cable lengths and connector options available, see website Cable builder app

**CABLES, Hand-Flex Interconnect, 0.141" center diameter, 50Ω, up to 18 GHz**

MODEL	Frequency High (GHz)	Insertion Loss (dB)	Length (ft)	Conn. 1 Type	Conn. 1 Gender	Conn. 1 Mounting Type	Conn. 2 Type	Conn. 2 Gender	Conn. 2 Mounting Type
141-12SMNB+	12.5	0.58	1	N-Type	Female	Bulkhead	SMA	Male	Standard
141-18SMNB+	12.5	0.81	1.5	N-Type	Female	Bulkhead	SMA	Male	Standard
141-24NM+	12.5	1.21	2	N-Type	Male	Standard	N-Type	Male	Standard
141-24SMNB+	12.5	1.18	2	N-Type	Female	Bulkhead	SMA	Male	Standard
141-3NM+	12.5	0.42	0.25	N-Type	Male	Standard	N-Type	Male	Standard
141-6NM+	12.5	0.35	0.5	N-Type	Male	Standard	N-Type	Male	Standard
141-6SMNB+	12.5	0.32	0.5	N-Type	Female	Bulkhead	SMA	Male	Standard
141-8SMNB+	12.5	0.32	0.67	N-Type	Female	Bulkhead	SMA	Male	Standard
141-18BM+	3	0.25	1.5	BNC	Male	Standard	BNC	Male	Standard
141-24BM+	3	0.31	2	BNC	Male	Standard	BNC	Male	Standard
141-6BM+	3	0.1	0.5	BNC	Male	Standard	BNC	Male	Standard

**Hand-Flex Interconnect, 0.047" center diameter, 50Ω, up to 18 GHz**

047-12SMP+	18	1.51	1	SMP	Female	Standard	SMP	Female	Standard
047-12SMPSM+	18	1.51	1	SMA	Male	Standard	SMP	Female	Standard
047-3SMP+	18	0.34	0.25	SMP	Female	Standard	SMP	Female	Standard
047-3SMPSM+	18	0.35	0.25	SMA	Male	Standard	SMP	Female	Standard
047-6SMP+	18	0.72	0.5	SMP	Female	Standard	SMP	Female	Standard
047-6SMPSM+	18	0.75	0.5	SMA	Male	Standard	SMP	Female	Standard

**Flexible Interconnect, 0.086" center diameter, 50Ω, up to 18 GHz**

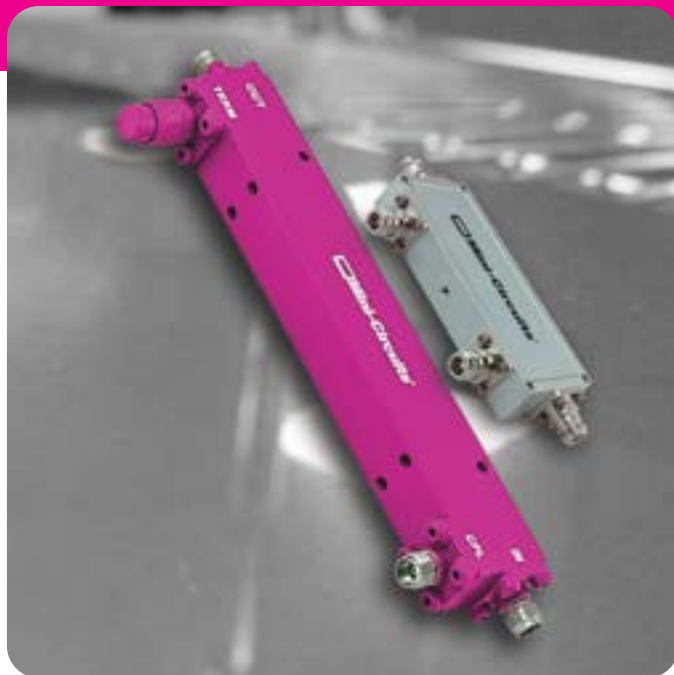
FL086-12NM+	18	0.6	1	N-Type	Male	Standard	N-Type	Male	Standard
FL086-12SM+	18	0.9	1	SMA	Male	Standard	SMA	Male	Standard
FL086-12SMNM+	18	0.7	1	N-Type	Male	Standard	SMA	Male	Standard
FL086-24NM+	18	1.4	2	N-Type	Male	Standard	N-Type	Male	Standard
FL086-24SM+	18	1.5	2	SMA	Male	Standard	SMA	Male	Standard
FL086-24SMNM+	18	1.4	2	N-Type	Male	Standard	SMA	Male	Standard
FL086-6NM+	18	0.3	0.5	N-Type	Male	Standard	N-Type	Male	Standard
FL086-6SM+	18	0.4	0.5	SMA	Male	Standard	SMA	Male	Standard
FL086-6SMNM+	18	0.3	0.5	N-Type	Male	Standard	SMA	Male	Standard
FL086-9SM+	18	0.64	0.75	SMA	Male	Standard	SMA	Male	Standard

**Flexible Interconnect, 0.141" center diameter, 50Ω, up to 18 GHz**

FL141-12NM+	18	0.4	1	N-Type	Male	Standard	N-Type	Male	Standard
FL141-12SM+	18	0.5	1	SMA	Male	Standard	SMA	Male	Standard
FL141-12SMNM+	18	0.4	1	N-Type	Male	Standard	SMA	Male	Standard
FL141-24NM+	18	0.9	2	N-Type	Male	Standard	N-Type	Male	Standard
FL141-24SM+	18	1	2	SMA	Male	Standard	SMA	Male	Standard
FL141-24SMNM+	18	0.9	2	N-Type	Male	Standard	SMA	Male	Standard
FL141-6NM+	18	0.2	0.5	N-Type	Male	Standard	N-Type	Male	Standard
FL141-6SM+	18	0.3	0.5	SMA	Male	Standard	SMA	Male	Standard
FL141-6SMNM+	18	0.2	0.5	N-Type	Male	Standard	SMA	Male	Standard
FL141-9SM+	18	0.37	0.75	SMA	Male	Standard	SMA	Male	Standard

Note: Other standard cable lengths and connector options available, see website Cable builder app

# COUPLERS



**Directional, bi-directional, dual-directional and RF Taps; over 475 models with power handling from 0.5 to 300W covering DC to 40 GHz!**

- Wide selection for 50Ω /75Ω systems

## RF COUPLERS, 50Ω, 500 to 40000 MHz

MODEL	Frequency Range (MHz)	Coupling (dB)	Mainline Loss (dB) Typ.	Directivity (dB) Typ.	VSWR (:1) Typ.	Power Input Max. (W)	Type	Feature
ZCDC10-K5R44W+	500-40000	10	1.3	23	1.12	15	Directional	DC Passthrough
ZCDC10-K0144+	1000-40000	10	2.2	16	1.22	19	Directional	DC Passthrough
ZCDC10-K0244+	2000-40000	10	1.2	23	1.11	15	Directional	DC Passthrough
ZCDC10-K0644+	6000-40000	10	1	24	1.12	17	Directional	DC Passthrough
ZCDC10-K1844+	18000-40000	10	1.2	21	1.22	17	Directional	DC Passthrough
ZCDC13-K0144+	1000-40000	13	1.5	19	1.73	13	Directional	DC Passthrough
ZCDC13-K0244+	2000-40000	13	0.95	24	1.11	20	Directional	DC Passthrough
ZCDC13-K1844+	18000-40000	13	0.9	21	1.13	20	Directional	DC Passthrough
ZCDC13-K26344+	26500-40000	13	0.9	21	1.22	20	Directional	DC Passthrough
ZCDC16-K5R44W+	500-40000	16	2	19	1.19	20	Directional	DC Passthrough
ZCDC16-K0144+	1000-40000	16	1.3	20	1.22	19	Directional	DC Passthrough
ZCDC16-K0244+	2000-40000	16	1.2	20	1.19	20	Directional	DC Passthrough
ZCDC16-K1844+	18000-40000	16	0.7	23	1.1	20	Directional	DC Passthrough
ZCDC20-K0144+	1000-40000	20	1.2	20	1.2	20	Directional	DC Passthrough
ZCDC20-K0244+	2000-40000	20	1	20	1.17	20	Directional	DC Passthrough
ZCDC20-K0644+	6000-40000	20	0.7	22	1.07	20	Directional	DC Passthrough
ZCDC20-K0644+	6000-40000	20	0.7	22	1.07	20	Directional	DC Passthrough
ZCDC20-K1844+	18000-40000	20	0.7	19	1.17	20	Directional	DC Passthrough
ZCDC30-K0644+	6000-40000	30	0.5	22	1.12	20	Directional	DC Passthrough
ZCDC30-K1844+	18000-40000	30	0.6	22	1.15	20	Directional	DC Passthrough
ZDC10-20403-K+	20000-40000	10	1.2	13	1.22	20	Directional	DC Passthrough

## RF COUPLERS, 50Ω, 50 to 26500 MHz

MODEL	Frequency Range (MHz)	Coupling (dB)	Mainline Loss (dB) Typ.	Directivity (dB) Typ.	VSWR (:1) Typ.	Power Input Max. (W)	Type	Feature
ZCDC10-02263S+	2000-26500	10	0.9	27	1.11	20	Directional	DC Passthrough
ZCDC10-06263-S+	6000-26500	10	1	22	1.17	20	Directional	DC Passthrough
ZCDC10-18263-S+	18000-26500	10	0.9	24	1.15	20	Directional	DC Passthrough
ZCDC13-5R263-S+	500-26500	13	1.3	21	1.73	20	Directional	DC Passthrough
ZCDC13-01263-S+	1000-26500	13	1.2	21	1.17	19	Directional	DC Passthrough
ZCDC16-5R263-S+	500-26500	16	1.4	23	1.12	20	Directional	DC Passthrough
ZCDC16-01263-S+	1000-26500	16	0.9	21	1.14	20	Directional	DC Passthrough
ZCDC16-02263-S+	2000-26500	16	0.6	26	1.09	20	Directional	DC Passthrough
ZCDC20-5R263-S+	500-26500	20	0.9	25	1.09	20	Directional	DC Passthrough
ZCDC20-01263-S+	1000-26500	20	0.9	23	1.12	20	Directional	DC Passthrough
ZCDC20-02263S+	2000-26500	20	0.5	18	1.33	20	Directional	DC Passthrough
ZCDC20-06263-S+	6000-26500	20	0.5	26	1.14	20	Directional	DC Passthrough
ZCDC20-18263-S+	18000-26500	20	0.4	24	1.14	20	Directional	DC Passthrough
ZCDC30-5R263-S+	500-26500	30	0.6	28	1.07	20	Directional	DC Passthrough
ZCDC30-01263-S+	1000-26500	30	0.8	23	1.14	20	Directional	DC Passthrough
ZCDC30-02263-S+	2000-26500	30	0.6	23	1.14	20	Directional	DC Passthrough
ZCDC30-06263-S+	6000-26500	30	0.6	23	1.12	20	Directional	DC Passthrough
ZCDC30-18263-S+	18000-26500	30	0.6	21	1.14	20	Directional	DC Passthrough
ZUDC10-183+	500-18000	10	1.4	17	1.3	50	Directional	DC Passthrough
ZUDC10-02183-S+	2000-18000	10	0.3	17	1.43	20	Directional	DC Passthrough
ZUDC15-02183-S+	2000-18000	15	0.3	18	1.25	20	Directional	DC Passthrough
ZUDC20-183+	500-18000	20	0.9	17	1.3	50	Directional	DC Passthrough
ZUDC20-02183-S+	2000-18000	20	0.5	20	1.22	20	Directional	DC Passthrough
ZUDC30-183+	500-18000	30	0.9	16	1.3	50	Directional	DC Passthrough
ZUDC30-02183-S+	2000-18000	30	0.3	17	1.33	20	Directional	DC Passthrough
ZX30-14-972HP+	8300-9700	14	0.8	7	2.3	20	Directional	DC Passthrough
ZGBDC35-93HP+	900-9000	34.5	0.1	19	1.2	250	Bi-Directional	DC Passthrough
ZGDC35-93HP+	900-9000	35	0.1	19	1.25	250	Directional	DC Passthrough
ZUDC10-83-S+	300-8000	10	0.9	24	1.15	20	Directional	DC Passthrough
ZUDC20-83-S+	300-8000	20	0.7	24	1.15	20	Directional	DC Passthrough
ZADC-13-73-S+	2600-7000	13	0.8	18	1.2	4	Directional	DC Passthrough
ZADC-10-63-S+	2500-6000	11.7	0.6	23	1.11	4	Directional	DC Passthrough
ZARC-25-63-S+	2500-6000	25	0.27	20	0	100	RF Tap	-
ZFBDC16-63HP+	700-6000	16	0.55	25	1.22	75	Bi-Directional	-
ZHDC-10-63+	50-6000	10.2	4	32	1.2	1	Directional	-
ZHDC-10-63-NS+	50-6000	10.2	4	32	1.2	1	Directional	-
ZHDC-16-63+	50-6000	16.7	2	32	1.3	0.5	Directional	-
ZHDC-16-63-NS+	50-6000	16	2	24	1.3	0.5	Directional	-
ZX30-20-462HP+	2600-4600	19.3	0.35	25	1.2	40	Bi-Directional	DC Passthrough
ZGBDC6-372HP+	380-3700	6	0.29	20	1.135	250	Bi-Directional	DC Passthrough
ZGBDC10-372HP+	380-3700	10	0.18	20	1.135	250	Bi-Directional	DC Passthrough
ZGBDC20-372HP+	380-3700	20	0.16	18	1.288	250	Bi-Directional	DC Passthrough
ZGBDC30-372HP+	380-3700	30	0.2	20	1.222	250	Bi-Directional	DC Passthrough
ZGDC6-372HP+	380-3700	6	0.2	23	1.09	250	Directional	DC Passthrough

**RF COUPLERS, 50Ω, 0.1 to 3700 MHz**

MODEL	Frequency Range (MHz)	Coupling (dB)	Mainline Loss	Directivity (dB) Typ.	VSWR (:1) Typ.	Power Input Max. (W)	Type	Feature
ZGDC10-372HP+	380-3700	10	0.17	23	1.09	250	Directional	DC Passthrough
ZGDC20-372HP+	380-3700	20	0.15	25	1.06	250	Directional	DC Passthrough
ZGDC30-372HP+	380-3700	30	0.16	17	1.07	250	Directional	DC Passthrough
ZABDC20-322H-S+	1700-3200	20.5	0.25	21	1.1	50	Bi-Directional	DC Passthrough
ZFDC-20-33+	20-3000	20.5	0.9	15	1.5	1	Directional	-
ZGBDC20-33H+	300-3000	20.6	0.2	23	1.14	50	Bi-Directional	DC Passthrough
ZADC-40-27HP+	1400-2700	40	0.19	25	1.2	40	Directional	DC Passthrough
ZBDC25-2575W+	1270-2575	24.9	0.3	28	1.05	20	Bi-Directional	DC Passthrough
ZABDC10-25HP-S	1500-2500	10	0.55	26	1.1	10	Bi-Directional	DC Passthrough
ZABDC20-252H+	800-2500	21.7	0.2	28	1.05	50	Bi-Directional	DC Passthrough
ZADC-15-252+	850-2500	15	0.7	14.5	1.15	8	Directional	DC Passthrough
ZARC-25-252-S+	550-2500	25	0.15	27	0	100	RF Tap	-
ZABDC20-2400-S+	1500-2400	19.5	0.3	25	1.2	10	Bi-Directional	DC Passthrough
ZABDC20-232H+	800-2300	20.5	0.23	20	1.15	50	Bi-Directional	DC Passthrough
ZADC-6-2G-5W-S+	800-2000	6.7	1.6	25	1.15	5	Directional	DC Passthrough
ZFDC-10-5+	1-2000	10.8	1.2	30	1.3	0.5	Directional	-
ZFDC-15-5	1-2000	15.5	1.2	25	1.3	2	Directional	-
ZFDC-20-5+	0.1-2000	19.5	0.7	27	1.2	2	Directional	-
ZFDC-20-50+	20-2000	19.5	0.7	25	1.25	1	Directional	-
ZNDC-13-2G-S+	800-2000	13	0.8	20	1.15	3	Directional	-
ZNDC-15-2G-S+	800-2000	15	0.8	22	1.2	3	Directional	-
ZNDC-18-2G-S+	800-2000	18.2	0.5	25	1.2	3	Directional	-
ZNDC-20-2G-S+	800-2000	19.8	0.5	25	1.15	3	Directional	-
ZNDC-23-2G-S+	800-2000	23	0.5	22	1.2	3	Directional	-
ZX30-17-5-S+	5-2000	17.5	0.85	18	1.3	1	Directional	-
ZX30-20-20BD-S+	500-2000	21	0.2	21	1.2	2	Directional	-
ZADC-10-17W-S+	800-1900	10.2	0.8	24	1.2	5	Directional	DC Passthrough
ZABDC20-182H-S+	700-1800	20.5	0.2	25	1.08	50	Bi-Directional	DC Passthrough
ZFDC-10-182+	10-1800	10.4	1	31.7	1.16	0.5	Directional	-
ZADC-10-17-S+	1000-1700	9.8	0.8	25	1.2	5	Directional	DC Passthrough
ZBDC40-1450W+	550-1450	39.9	0.15	24	1.12	50	Bi-Directional	DC Passthrough
ZADC-17-14HP-S	500-1350	16.4	0.8	29	1.06	10	Directional	DC Passthrough
ZNDC-6-122-S+	500-1200	6	0.5	25	1.2	2	Directional	-
ZX30-9-4-S+	5-1200	8.9	1.1	20	1.2	1	Directional	-
ZX30-13-4-S+	5-1200	13	0.7	19	1.15	1	Directional	-
ZADC-10-10	800-1000	10	0.85	22	1.16	5	Directional	DC Passthrough
ZADC-20-10+	800-1000	20	0.4	21	1.18	5	Directional	DC Passthrough
ZADC-30-10+	800-1000	30	0.4	21	1.15	5	Directional	DC Passthrough
ZEDC-10-2B	1-1000	11	1.5	30	1.3	3	Directional	-
ZEDC-15-2B	1-1000	15	0.8	30	1.15	3	Directional	-
ZFBDC20-13HP+	40-1000	20	0.6	22	1.2	10	Bi-Directional	-
ZFDC-10-2	10-1000	10.75	1.2	30	1.5	3	Directional	-
ZFDC-10-21	1-1000	11	1.2	25	1.2	2	Directional	-

**RF COUPLERS, 50Ω, 0.005 to 1000 MHz**

MODEL	Frequency Range (MHz)	Coupling (dB)	Mainline Loss	Directivity (dB) Typ.	VSWR (:1) Typ.	Power Input Max. (W)	Type	Feature
ZFDC-15-10+	800-1000	15	0.3	23	1.2	5	Directional	DC Passthrough
ZFDC-20-4	1-1000	19.5	0.4	27	1.1	2	Directional	-
ZFDC-20-4+	1-1000	19.5	0.4	27	1.1	2	Directional	-
ZFDC-20-4L	10-1000	20.2	0.3	30	1.1	1	Directional	-
ZX30-12-4-S+	5-1000	12	0.85	25	1.15	1	Directional	-
ZX30-20-4-S+	5-1000	20.5	0.35	22	1.11	1	Directional	-
ZFBDC20-970HP	860-970	20.4	0.1	28	1.1	10	Bi-Directional	-
ZFBDC20-900HP	800-900	20.7	0.1	28	1.1	10	Bi-Directional	-
ZFDC-10-22	1-750	11	1.2	25	1.25	2	Directional	-
ZFBDC20-62HP+	10-600	20	0.25	25	1.05	25	Bi-Directional	-
ZARC-20-52+	100-550	20	0.9	21	0	16	RF Tap	-
ZARC-25-551-S+	100-550	25	0.12	23	0	100	RF Tap	-
ZDC-10-1+	0.5-500	11.5	0.65	32	1.2	3	Directional	-
ZFDC-10-1+	1-500	10.5	0.8	33	1.2	3	Directional	-
ZMDC-10-1+	0.5-500	11.5	0.65	32	1.2	3	Directional	-
ZDC-20-1+	25-400	20	0.3	35	1.25	5	Directional	-
ZFDC-20-1H+	30-400	20.5	0.15	30	1.2	25	Bi-Directional	-
ZDC-20-3	0.2-250	19.5	0.25	33	1.2	4	Directional	-
ZFDC-20-3+	0.2-250	19.5	0.25	33	1.2	4	Directional	-
ZMDC-20-3+	0.2-250	19.5	0.35	33	1.2	4	Directional	-
ZMDC-30-1+	0.1-250	30	0.5	20	1.5	3	Directional	-
ZARC-26-12-S+	20-100	26	0.06	27	0	100	RF Tap	-
ZFBDC20-61HP+	1-60	20	0.1	30	1.07	15	Bi-Directional	-
ZFDC-15-6+	0.03-35	15	0.2	35	1.15	4	Directional	-
ZFDC-10-6+	0.005-20	11	0.4	40	1.3	3	Directional	-
ZABDC50-150HP+	0.4-15	50	0.01	30	1.03	100	Bi-Directional	DC Passthrough

**75Ω, 1 to 2500 MHz**

ZABDC20-25H75+	700-2500	21.5	0.15	25	1.08	25	Bi-Directional	DC Passthrough
ZABDC20-25H75F+	700-2500	20	0.3	25	1.1	25	Bi-Directional	DC Passthrough
ZADC-20-18-75+	800-1750	19.8	0.4	22	1.2	1	Directional	-
Z30-16-5-75+	5-1500	16.5	1.1	24	1.3	1	Directional	-
ZFDC-20-5-75	100-1500	20	0.9	25	1.3	1	Directional	-
Z30-18-4-75+	5-1000	18.5	0.85	23	1.3	1	Directional	-
ZFDC-10-1-75	1-400	10.5	1.1	44	1.3	4	Directional	-
ZDC-10-1-75+	1-250	10.5	1.1	30	2	4	Directional	-
ZFDC-20-3-75+	10-250	19.3	0.3	29	1.2	2	Directional	-
ZADC20-22-7550+	1-200	20	0.2	22	1.22	2	Directional	-
ZDC-20-3-75+	1-150	19.5	0.35	25	2	4	Directional	-
ZDC-2375	50-100	10.5	1.1	35	1.3	4	Directional	-
ZDC-2375+	50-100	10.5	1.1	35	1.3	4	Directional	-
ZDC-20-3-75-1	55-90	18.6	0.4	35	1.2	4	Directional	-
ZDC-20-3-75-1+	55-90	18.6	0.4	35	1.2	4	Directional	-

# DC BLOCKS



Choose from a variety of wideband DC blocks with SMA, N-type, BNC and 2.92mm connector types for 50Ω and 75Ω applications from 0.1 MHz to 65 GHz!

- Wideband performance
- Low insertion loss and excellent return loss
- Rugged construction

**DC BLOCKS, Wideband, 50/75Ω, 0.1 to 65000 MHz**

MODEL	Frequency Range (MHz)	Insertion Loss (dB) Typ.	Return Loss (dB) Typ.	Voltage (V), Max	Connector Type
BLK-E653+	10-65000	0.7	22	16	1.85mm
BLK-V54+	10-50000	0.51	23	100	2.4mm
BLK-K44+	10-40000	0.43	25	200	2.92mm
BLK-18W-S+	10-18000	0.41	23	200	SMA
BLK-18-S+	10-18000	0.15	26	50	SMA
BLK-89-S+	0.1-8000	0.1	25	50	SMA
BLK-6+	10-6000	0.05	45	50	N
BLK-222-75+	10-2200	0.1	25	100	BNC
BLK-222+	10-2200	0.2	28	100	BNC

# FILTERS



**Low-Pass, High-Pass and Band-Pass Filters**

- Sharp-Rejection Cavity and Suspended Substrate Filters
- Passbands spanning DC to 24 GHz
- Over 3000 models in stock!
- Custom Designs with Fast Turnaround!

**FILTERS, Low Pass, 50Ω,, DC to 8400 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
VLF-8400+	8400	9100	10300	20	10300-15000	30	LTCC
VLF-7200+	7200	8150	9500	20	8850-9600	30	LTCC
VLF-6700+	6700	7600	9300	20	9500-11000	30	LTCC
VLF-6400+	6400	7200	8300	20	7770-10200	30	LTCC
VLF-6000	6000	6800	8500	20	8700-10500	30	LTCC
VLF-6000+	6000	6800	8500	20	8700-10500	30	LTCC
VLF-5850+	5850	6540	7600	20	7100-9900	30	LTCC
VLF-5500+	5500	6200	7200	20	6770-9500	30	LTCC
VLP-64	5400	6410	9000	20	-	-	LTCC
VLF-5000+	5000	5580	6850	20	7050-10000	30	LTCC
VLF-4400+	4400	5290	6700	20	6280-9800	30	LTCC
VLP-54	4000	5400	7100	20	-	-	LTCC
VLF-3800+	3900	4850	6000	20	5700-8300	30	LTCC
VLF-3400+	3400	3950	4300	20	-	-	LTCC
VLP-41	3300	4100	5600	20	-	-	LTCC
VLF-3000+	3000	3600	4550	20	4780-7500	40	LTCC
VLF-2850+	2800	3300	4000	20	4200-7400	40	LTCC
VLF-2750+	2750	3150	4000	20	4150-6800	40	LTCC
VLF-2600+	2600	3125	3750	20	3900-6600	40	LTCC
VLF-2500+	2500	3075	3675	20	3800-6100	40	LTCC
VLFX-2500+	2500	3075	3675	20	2800-20000	40	LTCC
VLF-2350+	2350	2700	3600	20	3700-4000	40	LTCC
VLF-2250	2200	2575	2900	20	2950-5000	40	LTCC
VLF-2250+	2200	2575	2900	20	2950-5000	40	LTCC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

**FILTERS, Low Pass, 50Ω, DC to 2000 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
VLP-24	2000	2430	3400	20	4400	40	LTCC
VLF-1800	1800	2125	2425	20	2500-7200	40	LTCC
VLF-1800+	1800	2125	2425	20	2500-7200	40	LTCC
VLF-1700+	1700	2050	2375	20	2500-6500	40	LTCC
VLF-1575+	1575	1875	2175	20	2225-6800	40	LTCC
VLF-1525+	1525	1750	2040	20	2120-6600	40	LTCC
VLF-1500+	1500	1825	2100	20	2150-6600	40	LTCC
VLF-1400+	1400	1700	2015	20	2100-6600	40	LTCC
VLF-1450+	1450	1825	2025	20	2050-6600	40	LTCC
VLFX-1350	1350	2050	2425	20	2650-20000	40	LTCC
VLFX-1350+	1350	2050	2425	20	2600-20000	40	LTCC
VLP-16	1350	1550	2100	20	2700-4500	30	LTCC
VLFX-1300+	1300	1925	2300	20	2500-20000	40	LTCC
VLF-1200+	1200	1530	1865	20	2000-5000	40	LTCC
VLFX-1125+	1125	1850	2200-20000	20	-	-	LTCC
VLFX-1100+	1100	1750	2070	20	2300-20000	40	LTCC
VLF-1000+	1000	1300	1550	20	1900-5000	40	LTCC
VLF-1000	1000	1300	1550	20	1900-5000	40	LTCC
VLFX-1050+	1050	1675	1990	20	2275-20000	40	LTCC
VLFX-950+	950	1400	1865	20	2250-20000	40	LTCC
VLFX-825+	825	1275	1550	20	1850-20000	40	LTCC
VLP-11	850	1125	1500	20	2000-3100	40	LTCC
VLF-800+	800	1075	1275	20	1350-4850	40	LTCC
VLFX-650+	650	1025	1275	20	1450-20000	40	LTCC
VLFX-780+	780	950	1450	20	1600-20000	40	LTCC
VLF-630+	630	830	1000	20	1020-3500	40	LTCC
VLF-575+	575	770	900	20	1050-3200	40	LTCC
VLFX-540+	540	810	1000	20	1100-20000	40	LTCC
VLF-530+	530	700	820	20	945-3000	40	LTCC
VLFX-500+	500	750	900	20	1100-20000	40	LTCC
VLF-490+	490	650	800	20	880-2500	40	LTCC
VLFX-470+	470	675	820	20	1000-20000	40	LTCC
VLFX-450+	450	640	800	20	900-20000	40	LTCC
VLF-400+	400	560	660	20	680-3000	40	LTCC
VLFX-400+	400	540	670	20	700-20000	40	LTCC
VLF-320+	320	460	560	20	640-2500	40	LTCC
VLFX-300+	300	450	580	20	650-20000	40	LTCC
VLF-225+	225	350	460	20	510-2500	40	LTCC
VLFX-225+	225	350	460	20	520-20000	40	LTCC
VLF-190+	190	280	400	20	510-2850	40	LTCC
VLF-180+	180	270	370	20	525-2350	40	LTCC
VLF-160+	160	230	330	20	480-2700	40	LTCC
VLF-120+	120	195	280	20	300-1850	40	LTCC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

**FILTERS, Low Pass, 50Ω, DC to 2700 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
VLF-105+	105	180	250	20	265-1650	40	LTCC
VLFX-105+	105	165	250	20	400-20000	40	LTCC
VLF-95+	95	165	230	20	255-1600	40	LTCC
VLF-80+	80	145	200	20	225-1550	40	LTCC
VLFX-80+	80	145	200	20	220-20000	40	LTCC
VLF-52+	52	93	140	20	170-1100	30	LTCC
VLF-45+	45	77	120	20	150-910	30	LTCC
SLP-2950+	2700	2950	3700-4500	20	4500-6000	40	Lumped LC
NLP-2950+	2700	2950	3700-4500	20	4500-6000	40	Lumped LC
ZLFP-40W-222-S+	2200	-	2650-3200	29	3200-6300	39	Lumped LC
NLP-2400+	2200	2400	3150-4000	20	4000-6000	40	Lumped LC
SLP-2400+	2200	2400	3150-4000	20	4000-6000	40	Lumped LC
NLP-1750+	1500	1750	2400-3000	20	3000-6000	40	Lumped LC
SLP-1650+	1400	1650	2300-2900	20	2900-6000	40	Lumped LC
ZX75LP-1050-S+	50-1050	1090	1200 - 2500	43	-	-	Lumped LC
BLP-1200+	1000	1200	1620-2100	20	2100-2500	40	Lumped LC
NLP-1200+	1000	1200	1620-2100	20	2100-2500	40	Lumped LC
SLP-1200+	1000	1200	1620-2100	20	2100-2500	40	Lumped LC
ZX75LP-900-S+	900	1000	1300-2900	20	-	-	Lumped LC
BLP-1000+	900	990	1340-1750	20	1750-2000	40	Lumped LC
NLP-1000+	900	990	1340-1750	20	1750-2000	40	Lumped LC
SLP-1000+	900	990	1340-1750	20	1750-2000	40	Lumped LC
BLP-850+	780	850	1100-1400	20	1400-2000	40	Lumped LC
NLP-850+	780	850	1100-1400	20	1400-2000	40	Lumped LC
SLP-850+	780	850	1100-1400	20	1400-2000	40	Lumped LC
BLP-800+	720	800	1080-1400	20	1400-2000	40	Lumped LC
NLP-800+	720	800	1080-1400	20	1400-2000	40	Lumped LC
SLP-800+	720	800	1080-1400	20	1400-2000	40	Lumped LC
BLP-750+	700	770	1000-1300	20	1300-2000	40	Lumped LC
NLP-750+	700	770	1000-1300	20	1300-2000	40	Lumped LC
SLP-750+	700	770	1000-1300	20	1300-2000	40	Lumped LC
BLP-600+	580	640	840-1120	20	1120-2000	40	Lumped LC
NLP-600+	580	640	840-1120	20	1120-2000	40	Lumped LC
SLP-600+	580	640	840-120	20	1120-2000	40	Lumped LC
NLP-500+	500	630	1000	20	1400-4500	40	Lumped LC
BLP-550+	520	570	750-920	20	920-2000	40	Lumped LC
NLP-550+	520	570	750-920	20	920-2000	40	Lumped LC
SLP-550+	520	570	750-920	20	920-2000	40	Lumped LC
ZX75LP-470-S+	470	510	650-2000	20	-	-	Lumped LC
ZFLP-450-S+	450	505	640-5000	20	-	-	Lumped LC
BLP-450+	400	440	580-750	20	750-1800	40	Lumped LC
NLP-450+	400	440	580-750	20	750-1800	40	Lumped LC
SLP-450+	400	440	580-750	20	750-1800	40	Lumped LC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

LOW PASS FILTERS

LOW PASS FILTERS

**FILTERS, Low Pass, 50Ω, DC to 520 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
ZX75LP-340-S+	340	365	475-2000	20	-	-	Lumped LC
ZX75LP-320-S+	320	345	445-1800	20	-	-	Lumped LC
ZX75LP-288-S+	288	312	400-1500	20	-	-	Lumped LC
BLP-300+	270	297	410-550	20	550-1200	40	Lumped LC
NLP-300+	270	297	410-550	20	550-1200	40	Lumped LC
SLP-300+	270	297	410-550	20	550-1200	40	Lumped LC
ZX75LP-264-S+	264	288	365-1500	20	-	-	Lumped LC
BLP-250+	225	250	320-400	20	400-1200	40	Lumped LC
NLP-250	225	250	320-400	20	400-1200	40	Lumped LC
NLP-250+	225	250	320-400	20	400-1200	40	Lumped LC
SLP-250+	225	250	320-400	20	400-1200	40	Lumped LC
ZX75LP-216-S+	216	232	300-1400	20	-	-	Lumped LC
BLP-200+	190	210	290-390	20	390-800	40	Lumped LC
NLP-200+	190	210	290-390	20	390-800	40	Lumped LC
SLP-200+	190	210	290-390	20	390-800	40	Lumped LC
ZX75LP-176-S+	176	189	245-1500	20	-	-	Lumped LC
ZX75LP-158-S+	158	170	220-1000	20	-	-	Lumped LC
BLP-150+	140	155	210-300	20	300-600	40	Lumped LC
NLP-150+	140	155	210-300	20	300-600	40	Lumped LC
SLP-150+	140	155	210-300	20	300-600	40	Lumped LC
ZX75LP-137-S+	137	150	195-1000	20	-	-	Lumped LC
ZX75LP-120-S+	120	130	175-2000	20	-	-	Lumped LC
ZLPF-120+	120	121	125-2000	20	-	-	Lumped LC
ZX75LP-105-S+	105	115	150-1000	20	-	-	Lumped LC
BLP-100+	98	108	146-189	20	189-400	40	Lumped LC
NLP-100+	98	108	146-189	20	189-400	40	Lumped LC
SLP-100+	98	108	146-189	20	189-400	40	Lumped LC
ZX75LP-83-S+	83	93	119-850	20	-	-	Lumped LC
BLP-90+	81	90	121-157	20	157-400	40	Lumped LC
NLP-90	81	90	121-157	20	157-400	40	Lumped LC
NLP-90+	81	90	121-157	20	157-400	40	Lumped LC
SLP-90+	81	90	121-157	20	157-400	40	Lumped LC
ZX75LP-70-S+	70	78	105-4000	20	-	-	Lumped LC
BLP-70+	60	67	90-117	20	117-300	40	Lumped LC
NLP-70+	60	67	90-117	20	117-300	40	Lumped LC
SLP-70+	60	67	90-117	20	117-300	40	Lumped LC
ZX75LP-50-S+	50	59	79-4000	20	-	-	Lumped LC
ZX75LP-40-S+	40	56	71-3000	20	-	-	Lumped LC
BLP-50+	48	55	70-90	20	90-200	40	Lumped LC
NLP-50+	48	55	70-90	20	90-200	40	Lumped LC
SLP-50+	48	55	70-90	20	90-200	40	Lumped LC
ZX75LP-30-S+	30	38	48-3000	20	-	-	Lumped LC
BLP-30+	32	35	47-61	20	61-200	40	Lumped LC
NLP-30+	32	35	47-61	20	61-200	40	Lumped LC
SLP-30+	32	35	47-61	20	61-200	40	Lumped LC
BLP-21.4+	22	24.5	32-41	20	41-200	40	Lumped LC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

**FILTERS, Low Pass, 50Ω, DC to 14000 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
NLP-21.4+	22	24.5	32-41	20	41-200	40	Lumped LC
SLP-21.4+	22	24.5	32-41	20	41-200	40	Lumped LC
BLP-15+	15	17	23-32	20	32-200	40	Lumped LC
NLP-15+	15	17	23-32	20	32-200	40	Lumped LC
SLP-15+	15	17	23-32	20	32-200	40	Lumped LC
BLP-10.7+	11	14	19-24	20	24-200	40	Lumped LC
NLP-10.7+	11	14	19-24	20	24-200	40	Lumped LC
SLP-10.7+	11	14	19-24	20	24-200	40	Lumped LC
BLP-5+	5	6	8-10	20	10-200	40	Lumped LC
NLP-5+	5	6	8-10	20	10-200	40	Lumped LC
SLP-5+	5	6	8-10	20	10-200	40	Lumped LC
BLP-2.5+	2.5	2.75	3.8-5.0	20	5.0-200	40	Lumped LC
NLP-2.5+	2.5	2.75	3.8-5.0	20	5.0-200	40	Lumped LC
SLP-2.5+	2.5	2.75	3.8-5.0	20	5.0-200	40	Lumped LC
BLP-1.9+	1.9	2.5	3.4-4.7	20	4.7-200	40	Lumped LC
NLP-1.9+	1.9	2.5	3.4-4.7	20	4.7-200	40	Lumped LC
SLP-1.9+	1.9	2.5	3.4-4.7	20	4.7-200	40	Lumped LC
ZNFLP-2100-S+	1800	2100	2600-4500	20	-	-	Microstrip
VXLF-192+	1900	-	3480-11200	15	-	-	Reflectionless
ZLSS-14G-S+	14000	15100	16500-18000	20	18000-26500	40	Suspended Substrate
ZLSS-11G-S+	11000	11400	12500-14500	20	14500-26500	40	Suspended Substrate
ZLSS-8G-S+	8000	8600	10800-12500	20	12500-26500	40	Suspended Substrate
ZLSS-6G-S+	6000	6600	8200-9600	20	9600-26500	40	Suspended Substrate
ZLSS-4G-S+	4000	4500	5500-6300	20	6300-26500	40	Suspended Substrate
ZLSS-2R8G-S+	2800	3300	4000-4700	20	4700-26500	40	Suspended Substrate

**Low Pass, 75Ω, DC to 580 MHz**

BLP-600-75+	580	640	840-1120	20	1120-2000	40	Lumped LC
BLP-100-75+	98	108	146-189	20	189-400	40	Lumped LC
BLP-70-75+	60	67	90-117	20	117-300	40	Lumped LC
BLP-50-75+	48	55	70-90	20	90-200	40	Lumped LC
BLP-30-75+	32	35	47-61	20	61-200	40	Lumped LC
BLP-21.4-75+	22	24.5	32-41	20	41-200	40	Lumped LC
BLP-15-75+	15	17	23-32	20	32-200	40	Lumped LC
BLP-10.7-75+	11	14	19-24	20	24-200	40	Lumped LC
BLP-7-75+	7	8	11-15	20	15-200	40	Lumped LC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency



**FILTERS, High Pass, 50Ω, 140 to 15000 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
VHF-6010+	6350-15000	6010	5200	20	5190	40	LTCC
VHF-8400+	9500-13000	8400	6000	20	5700	40	LTCC
VHF-7150+	8500-10500	7150	6150	20	5100	40	LTCC
VHF-4600+	5200-10500	4600	3800	20	3700	40	LTCC
VHF-5500+	6600-10000	5500	4500	20	4000	40	LTCC
VHF-4400+	5000-9900	4400	3500	20	3600	40	LTCC
VHF-5050+	5650-9700	5050	4200	20	3600	40	LTCC
VHF-3100+	3500-9500	3100	2450	20	2500	40	LTCC
VHF-3800+	4500-9000	3800	3200	20	3100	40	LTCC
VHF-3500+	4000-8800	3500	2800	20	2900	40	LTCC
VHF-2700A+	3070-8500	2700	2150	20	2270	40	LTCC
VHP-26	3000-7000	2570	2000	20	1500	40	LTCC
VHF-2275+	2640-6230	2275	1770	20	1400	40	LTCC
VHF-2700+	3000-5700	2500	1800	20	1500	40	LTCC
VHF-2000+	2410-5550	2000	1530	20	1300	40	LTCC
VHP-19	2300-5500	1995	1650	20	1450	40	LTCC
VHF-1760+	2100-5200	1760	1230	20	950	40	LTCC
VHF-2100+	2500-5000	2100	1530	20	1050	40	LTCC
VHF-1080+	1150-5000	1080	750	20	600	40	LTCC
VHF-1810+	2250-4000	1810	1480	20	1100	40	LTCC
VHF-1910+	2200-4400	1910	1400	20	1075	40	LTCC
VHF-1600+	1950-4000	1600	1290	20	1090	40	LTCC
VHF-1500+	1850-4400	1550	1250	20	1060	40	LTCC
VHF-1320+	1700-3800	1320	1060	20	880	40	LTCC
VHF-1300+	1510-4000	1300	930	20	680	40	LTCC
VHF-1200+	1380-4000	1180	910	20	750	40	LTCC
VHP-9R5	1300-3500	950	750	20	600	40	LTCC
VHP-16	1900-2700	1580	1300	20	1030	40	LTCC
VHF-880+	1060-2500	880	640	20	500	40	LTCC
VHF-740+	900-2200	740	550	20	430	40	LTCC
VHF-650+	850-2000	650	480	20	390	40	LTCC
VHF-440+	600-1700	440	350	20	230	40	LTCC
VHF-145+	140-1150	132	115	20	-	-	LTCC
ZFHP-2100-S+	2500-6800	2100	1925	20	900	40	Lumped LC
ZFHP-3800FF-S+	3800-6000	-	10-3170	27.3	-	-	Lumped LC
ZFHP-3800-S+	3800-5000	-	DC-3170	20	-	40	Lumped LC
ZX75HP-2400-S+	2400-5925	-	DC-2025	20	-	40	Lumped LC
ZX75HP-755-S+	1200-3400	-	DC-540	20	-	40	Lumped LC
BHP-500+	500-3200	454	365	20	280	40	Lumped LC
NHP-500+	500-3200	454	365	20	280	40	Lumped LC
SHP-500+	500-3200	454	365	20	280	40	Lumped LC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

**FILTERS, High Pass, 50Ω, 95 to 3200 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
ZX75HP-305-S+	420-3200	-	DC-215	20	-	40	Lumped LC
BHP-400+	395-3200	360	290	20	210	40	Lumped LC
NHP-400+	395-3200	360	290	20	210	40	Lumped LC
SHP-400+	395-3200	360	290	20	210	40	Lumped LC
ZX75HP-290-S+	430-3100	-	DC-200	20	-	40	Lumped LC
ZX75HP-2000-S+	2000-3000	-	DC-1600	20	-	40	Lumped LC
BHP-1000+	1000-3000	900	720	20	550	40	Lumped LC
NHP-1000+	1000-3000	900	720	20	550	40	Lumped LC
SHP-1000+	1000-3000	900	720	20	550	40	Lumped LC
BHP-900+	910-3000	820	660	20	520	40	Lumped LC
NHP-900+	910-3000	820	660	20	520	40	Lumped LC
SHP-900+	910-3000	820	660	20	520	40	Lumped LC
BHP-800+	780-3000	710	570	20	445	40	Lumped LC
NHP-800+	780-3000	710	570	20	445	40	Lumped LC
SHP-800+	780-3000	710	570	20	445	40	Lumped LC
BHP-700+	700-3000	640	520	20	400	40	Lumped LC
NHP-700+	700-3000	640	520	20	400	40	Lumped LC
SHP-700+	700-3000	640	520	20	400	40	Lumped LC
BHP-600+	600-3000	545	440	20	350	40	Lumped LC
NHP-600+	600-3000	545	440	20	350	40	Lumped LC
SHP-600+	600-3000	545	440	20	350	40	Lumped LC
ZX75HP-250-S+	400-3000	-	DC-178	20	-	40	Lumped LC
ZX75HP-225-S+	360-3000	-	DC-150	20	-	40	Lumped LC
BHP-300+	290-3000	245	190	20	145	40	Lumped LC
NHP-300+	290-3000	245	190	20	145	40	Lumped LC
SHP-300+	290-3000	245	190	20	145	40	Lumped LC
ZX75HP-147-S+	250-3000	-	DC-100	20	-	40	Lumped LC
BHP-250+	225-3000	205	150	20	100	40	Lumped LC
NHP-250+	225-3000	205	150	20	100	40	Lumped LC
SHP-250+	225-3000	205	150	20	100	40	Lumped LC
ZX75HP-122-S+	200-3000	-	DC-85	20	-	40	Lumped LC
BHP-200+	185-3000	164	116	20	90	40	Lumped LC
NHP-200+	185-3000	164	116	20	90	40	Lumped LC
SHP-200+	185-3000	164	116	20	90	40	Lumped LC
SHP-100A+	110-3000	92	82	20	77	40	Lumped LC
ZX75HP-395-S+	650-2750	-	DC-280	20	-	40	Lumped LC
ZX75HP-180-S+	300-2500	-	DC-130	20	-	40	Lumped LC
ZX75HP-110-S+	185-2500	-	DC-77	20	-	40	Lumped LC
ZX75HP-92-S+	160-2500	-	DC-64	20	-	40	Lumped LC
ZX75HP-44-S+	95-2400	-	DC-31	20	-	40	Lumped LC
ZX75HP-260-S+	300-2200	-	DC-184	20	-	40	Lumped LC

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

HIGH PASS FILTERS

HIGH PASS FILTERS

**FILTERS, High Pass, 50Ω, 0.07 to 24000 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
ZX75HP-139-S+	225-2200	-	DC-99	20	-	40	Lumped LC
SHP-48+	48-2150	34	DC-18	20	12	40	Lumped LC
ZX75HP-73-S+	140-2000	-	DC-53	20	-	40	Lumped LC
ZX75HP-65-S+	130-2000	-	DC-46	20	-	40	Lumped LC
ZX75HP-65-S+	130-2000	-	DC-46	20	-	40	Lumped LC
BHP-100+	90-2000	82	55	20	40	40	Lumped LC
NHP-100+	90-2000	82	55	20	40	40	Lumped LC
SHP-100+	90-2000	82	55	20	40	40	Lumped LC
BHP-175+	160-1200	140	105	20	70	40	Lumped LC
NHP-175+	160-1200	140	105	20	70	40	Lumped LC
SHP-175+	160-1200	140	105	20	70	40	Lumped LC
BHP-150+	133-1000	120	95	20	70	40	Lumped LC
NHP-150+	133-1000	120	95	20	70	40	Lumped LC
SHP-150+	133-1000	120	95	20	70	40	Lumped LC
SHP-20+	20-1000	15.5	DC-11	20	9	40	Lumped LC
ZFHP-0R23-S+	0.23-1000	-	DC-0.12	20	-	40	Lumped LC
ZFHP-0R12-S+	0.12-1000	-	DC-0.05	20	-	40	Lumped LC
ZFHP-0R055-S+	0.07-1000	0.055	0.044	20	0.04	40	Lumped LC
BHP-50+	41-800	37	26	20	20	40	Lumped LC
NHP-50+	41-800	37	26	20	20	40	Lumped LC
SHP-50+	41-800	37	26	20	20	40	Lumped LC
BHP-25+	27.5-800	25	19	20	13	40	Lumped LC
NHP-25+	27.5-800	25	19	20	13	40	Lumped LC
SHP-25+	27.5-800	25	19	20	13	40	Lumped LC
ZFHP-0R60-S+	0.6-800	-	DC-0.3	20	-	40	Lumped LC
ZFHP-1R2-S+	1.2-800	-	DC-0.5	20	-	40	Lumped LC
ZFHP-0R50-S+	0.5-750	-	DC-0.25	20	-	40	Lumped LC
ZFHP-0R75-S+	0.75-500	-	DC-0.3	20	-	40	Lumped LC
VXHF-392+	3940-11500	-	DC-2450	12.5	-	-	Reflectionless
VXHF-23+	2010-10100	1650	DC-1210	14	-	-	Reflectionless
VXHF-292M+	2900	8700	DC-1950	36	-	-	Reflectionless
ZHSS-8G+	8000-24000	-	5300-5800	20	DC-5300	40	Suspended Substrate

Note: F1: Passband insertion loss frequency F2: 3dB (half-power) insertion loss frequency F3: Transition band insertion loss frequency F4: Stop band insertion loss frequency

**FILTERS, Band Pass, 50Ω, 902 to 11400 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
ZVBP-11G3-S+	11200	11400	DC-11030	35	11580-20000	35	Cavity
ZVBP-10R5G-S+	9750	11250	DC-5950	35	15100-18000	35	Cavity
ZVBP-8250-S+	8025	8475	DC-7650	20	8925-11000	20	Cavity
ZVBP-5800-S+	5725	5875	DC-5200	35	6400-14000	35	Cavity
ZVBP-5310-S+	5250	5370	DC-5080	20	5530-8250	20	Cavity
ZVBP-4900-S+	4840	4960	DC-4670	20	5100-9000	20	Cavity
ZVBP-4810-S+	4750	4870	DC-4600	20	5020-8250	20	Cavity
ZVBP-4300-S+	4250	4350	DC-4140	20	4480-8000	20	Cavity
ZVBP-4000-S+	3997	4003	DC - 3800	70	4200 - 6000	70	Cavity
ZVBP-3875-S+	3845	3905	DC-3785	35	3970-8500	35	Cavity
ZVBP-2450-S+	2400	2500	2120-2260	40	2635-2780	40	Cavity
ZVBP-2400-S+	2375	2425	DC-2250	35	2550-6000	35	Cavity
ZVBP-2300A-S+	2200	2400	DC-2000	30	2550-8050	30	Cavity
ZVBP-909-S+	902	915	10-895	20	925-2300	20	Cavity
ZX75BP-4700-S+	4400	5000	DC-2800	40	6300-8000	30	Ceramic Resonator
ZX75BP-1842-S+	1725	1960	1450	20	2350	20	Ceramic Resonator
ZX75BP-1450-S+	1320	1580	DC-1100	46	2000-2500	54	Ceramic Resonator
ZX75BP-B1280-S+	1160	1400	DC-955	40	1700-2200	40	Ceramic Resonator
ZX75BP-B1230-S+	1120	1340	DC-940	25	1750-3500	20	Ceramic Resonator
ZX75BP-A1230-S+	1160	1300	DC-950	30	1670-3500	20	Ceramic Resonator
ZX75BP-A1060-S+	1015	1105	DC-880	25	1350-4000	30	Ceramic Resonator
ZX75BP-942-S+	875	1010	750	20	1160	20	Ceramic Resonator
VBF-8650+	8550	8750	7650	20	10300	20	LTCC
VBF-8450+	8350	8550	7650	20	10000	20	LTCC
VBF-8350+	8250	8450	7300	20	10300	20	LTCC
VBF-7900+	7800	8100	DC-6800	20	9500-15000	20	LTCC
VBF-8000+	7900	8100	6900	20	10300	20	LTCC
VBF-7700+	7500	7900	DC-6400	20	9200-14800	20	LTCC
VBF-7331+	6850	7850	10-5600	23	9300-10500	20	LTCC
VBF-7500+	7450	7650	6400	20	9000	20	LTCC
VBF-7350+	7150	7550	6325	20	8700	20	LTCC
VBF-7200+	7100	7300	6500	20	8400	20	LTCC
VBFZ-6260+	5600	7000	4200	20	9300	20	LTCC
VBFZ-5500+	4900	6200	3600	20	8600	20	LTCC
VBF-4440+	4200	4700	2000	20	6750	20	LTCC
VBFZ-4000+	3500	4500	2550	20	5700	20	LTCC
VBFZ-3590+	3000	4300	2250	20	5950	20	LTCC
VBF-2900+	2700	3100	1850	20	4200	20	LTCC
VBFZ-2575+	2350	2800	1390	20	3850	20	LTCC
VBFZ-2340+	2020	2660	1450	20	3750	20	LTCC
VBF-2555+	2500	2610	1970	20	3200	20	LTCC
VBF-2435+	2340	2530	DC-1830	20	4300-5500	30	LTCC

Note: F1 and F2: define the 3dB bandwidth frequencies F3 and F4: define the transition band insertion loss frequencies

HIGH PASS FILTERS

BAND PASS FILTERS

**FILTERS, Band Pass, 50Ω, 20 to 2470 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
VBF-2360+	2250	2470	DC-1700	20	4300-6200	30	LTCC
VBF-2275+	2170	2380	DC-1720	20	4200-6000	30	LTCC
VBFZ-2000+	1730	2270	1210	20	2960	20	LTCC
VBFZ-2130+	2000	2260	1420	20	2950	20	LTCC
VBF-1945+	1850	2040	DC-1500	20	3600-5700	30	LTCC
VBF-1840+	1750	1930	DC-1460	20	3500-5700	30	LTCC
VBFZ-1690+	1455	1925	930	20	2600	20	LTCC
VBF-1855+	1790	1920	DC-1400	20	3700-5550	30	LTCC
VBF-1560+	1500	1620	1100	20	2100	20	LTCC
VBF-1575+	1530	1620	DC-1200	20	2800-5200	30	LTCC
VBF-1525+	1480	1570	DC-1150	20	2900-5100	30	LTCC
VBF-1445+	1420	1470	DC-1140	20	2600-4400	30	LTCC
VBFZ-1400+	1350	1450	890	20	1965	20	LTCC
VBFZ-1065+	980	1150	630	20	1800	20	LTCC
VBFZ-925+	800	1050	530	20	1550	20	LTCC
VBFZ-780+	710	850	460	20	1300	20	LTCC
ZX75BP-2150-S+	2050	2250	DC-600	20	2720-4500	20	Lumped LC
ZX75BP-1940-S+	1710	2170	DC-150	20	2800-4000	20	Lumped LC
ZX75BP-1500-S+	1350	1650	DC-85	20	2030-2800	20	Lumped LC
NBP-1560+	1500	1620	DC-1060	20	2150-4200	20	Lumped LC
ZX75BP-1307-S+	1215	1400	DC-1000	20	1820-3000	20	Lumped LC
ZX75BP-1350-S+	1300	1400	DC-1125	20	1665-2800	20	Lumped LC
ZX75BP-1280-S+	1170	1390	DC-950	20	1850-2550	20	Lumped LC
ZX75BP-1260-S+	1200	1320	DC-1025	20	1640-2500	20	Lumped LC
ZX75BP-1250-S+	1215	1285	DC-1055	20	1510-2500	20	Lumped LC
ZX75BP-1205-S+	1155	1255	DC-1026	20	1435-4500	20	Lumped LC
ZX75BP-1170-S+	1110	1230	DC-900	20	1560-2200	20	Lumped LC
ZX75BP-1100-S+	1000	1200	DC-25	20	1500-1900	20	Lumped LC
ZX75BP-1062-S+	960	1164	DC-735	20	1620-2000	20	Lumped LC
ZX75BP-1090-S+	1060	1120	DC-955	20	1255-2200	20	Lumped LC
ZX75BP-1034-S+	978	1090	DC-790	20	1400-2000	20	Lumped LC
ZABP-510-S+	20	1000	DC-17	20	1150-2500	20	Lumped LC
ZABP-550-S+	100	1000	DC-80	35	1200-2000	30	Lumped LC
ZX75BP-915-S+	902.5	927.5	DC-830	20	1005-1900	20	Lumped LC
ZX75BP-893-S+	870	915	DC-750	20	1050-1800	20	Lumped LC
ZX75BP-750-S+	600	900	DC-500	30	1000-6000	30	Lumped LC
ZX75BP-840-S+	790	890	DC-665	20	1070-1650	20	Lumped LC
ZABP-670-S+	470	870	280-365	20	965-1200	20	Lumped LC
ZABP-598-S+	410	785	DC-385	20	825-1000	20	Lumped LC
ZABP-650-S+	560	780	185-280	20	890-3500	30	Lumped LC
ZX75BP-770-S+	760	780	DC-705	20	840-1700	20	Lumped LC
ZABP-587-S+	470	705	200-400	20	800-1500	20	Lumped LC
ZABP-495-S+	470	520	300-410	20	625-800	20	Lumped LC

Note: F1 and F2: define the 3dB bandwidth frequencies F3 and F4: define the transition band insertion loss frequencies

**FILTERS, Band Pass, 50Ω, 0.063 to 3300 MHz**

MODEL	Passband F1 (MHz)	Passband F2 (MHz)	Stopband F3 (MHz)	Rejection @ F3 (dB)	Stopband F4 (MHz)	Rejection @ F4 (dB)	Technology
ZABP-450-S+	400	510	150-310	20	700-760	20	Lumped LC
ZX75BP-204-S+	175	237	DC-90	60	2500-3500	30	Lumped LC
ZABP-184-S+	154.32	214.32	DC -139	20	242 - 750	20	Lumped LC
ZABP-141-S+	110	180	90-92	20	213-217	20	Lumped LC
ZABP-59-S+	30	88	16-22	20	115-140	20	Lumped LC
ZX75BP-B70-S+	52	88	11-29	20	118-200	20	Lumped LC
ZABP-73-S+	63	85	40-45	20	105-110	20	Lumped LC
SIF-70+	58	82	4.4	20	490	20	Lumped LC
ZX75BP-A70-S+	62	78	11-29	20	110-3300	20	Lumped LC
BBP-70+	63	77	51	20	94	20	Lumped LC
NBP-70+	63	77	51	20	94	20	Lumped LC
SBP-70+	63	77	51	20	94	20	Lumped LC
ZFBP-70HR-S+	69	71	DC-50	85	100-1000	60	Lumped LC
SIF-60+	50	70	3.8	20	400	20	Lumped LC
ZABP-45-S+	30	70	21-23	20	95-120	20	Lumped LC
BBP-60+	55	67	44	20	79	20	Lumped LC
SBP-60+	55	67	44	20	79	20	Lumped LC
SIF-50+	41	58	3.1	20	350	20	Lumped LC
SIF-40+	35	49	2.6	20	300	20	Lumped LC
BBP-35A+	30	40	DC-19	30	65-1350	30	Lumped LC
SIF-30+	25	35	1.9	20	210	20	Lumped LC
BBP-30+	27	33	22	20	40	20	Lumped LC
SBP-30+	27	33	22	20	40	20	Lumped LC
ZABP-16+	3	30	DC-1.4	20	35-1600	20	Lumped LC
SIF-21.4+	18	25	1.3	20	150	20	Lumped LC
BBP-21.4+	19.2	23.6	15.5	20	29	20	Lumped LC
SBP-21.4+	19.2	23.6	15.5	20	29	20	Lumped LC
BBP-20R5+	20	21	DC-15.8	40	40-380	40	Lumped LC
ZFBP-13.5-S+	12	15	8	20	22	30	Lumped LC
ZX75-12-S+	9	15	7.5	20	18	20	Lumped LC
ZFBP13-75+	12.3	13.8	10.6	20	16	20	Lumped LC
BBP-10.7+	9.5	11.5	7.5	20	15	20	Lumped LC
NBP-10.7+	9.5	11.5	7.5	20	15	20	Lumped LC
SBP-10.7+	9.5	11.5	7.5	20	15	20	Lumped LC
ZABP-4R5-S+	2	7	DC - 0.6	20	17 - 100	20	Lumped LC
ZFBP-400K-S+	0.35	0.45	0.03	20	0.18	20	Lumped LC
ZBPF-75-S+	0.063	0.087	DC-0.045	20	0.125-800	20	Lumped LC
ZAFBP-3200-S+	3100	3300	DC-2800	20	3550-8500	20	Microstrip
ZAFBP-2793-S+	2600	3000	DC-2300	20	3200-7400	20	Microstrip
ZFBP-2400-S+	2300	2500	DC-1800	20	2800-6000	20	Microstrip
ZAFBP-2100-S+	2050	2150	DC-1800	20	2340-5000	20	Microstrip
ZBSS-7975-S+	7825	8125	DC-6900	35	9350-15000	35	Suspended Substrate

Note: F1 and F2: define the 3dB bandwidth frequencies F3 and F4: define the transition band insertion loss frequencies

BAND PASS FILTERS

BAND PASS FILTERS

# HYBRIDS



**A broad selection of quadrature (90-degree) and 180-degree hybrids**

- 90°, 180°, and quadrifilar phase shifts
- Power handling up to 250W
- Low phase and amplitude unbalance

## 90° and 180° HYBRID SPLITTER/COMBINERS, 50Ω, 0.01 to 1300 MHz

MODEL	Frequency Range (MHz)	Description	Isolation (dB), Typ.	Insertion Loss (dB) above 3 dB, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Input Power, Max.
ZX10Q-2-13-S+	675-1300	90° Hybrid	20	0.4	8	1.3	15
ZX10Q-2-12-S+	800-1250	90° Hybrid	17	0.35	5	0.8	25
ZFSCJ-2-4+	50-1000	180° Hybrid	25	1.7	6	0.6	1
ZX10Q-2-7-S+	425-675	90° Hybrid	17	0.4	8	1	20
ZX10Q-2-5-S	330-580	90° Hybrid	20	0.4	5	1.3	20
ZX10Q-2-5-S+	330-580	90° Hybrid	20	0.4	5	1.3	20
ZAPDJ2-5W-521+	10-520	180° Hybrid	23	0.9	2	0.1	5
ZAPDJ2-5W-521N+	10-520	180° Hybrid	23	0.9	2	0.1	5
ZAPDJ2-5W-521S+	10-520	180° Hybrid	23	0.9	2	0.1	5
ZFSCJ-2-1	1-500	180° Hybrid	33	1	4	0.2	1
ZFSCJ-2-1+	1-500	180° Hybrid	33	1	4	0.2	1
ZX10Q-2-3-S+	220-470	90° Hybrid	24	0.6	8	1.7	15
ZFSCJ-2-3	5-300	180° Hybrid	33	1	4	0.2	1
ZFSCJ-2-3+	5-300	180° Hybrid	33	1	4	0.2	1
ZMSCJ-2-1	1-200	180° Hybrid	35	0.6	2.5	0.15	1
ZSCJ-2-1+	1-200	180° Hybrid	35	0.6	2.5	0.15	1
ZMSCQ-2-180+	120-180	90° Hybrid	23	0.3	4	1.2	1
ZMSCQ-2-120+	80-120	90° Hybrid	21	0.3	3	1.5	1
ZMSCQ-2-90	55-90	90° Hybrid	30	0.3	3	1.2	1
ZSCQ-2-90	55-90	90° Hybrid	30	0.3	3	1.2	1
ZMSCQ-2-50+	25-50	90° Hybrid	27	0.3	3	1.5	1
ZFSCJ-2-2	0.01-20	180° Hybrid	30	0.2	2	0.1	1
ZMSCJ-2-2	0.01-20	180° Hybrid	30	0.2	2	0.1	1
ZSCJ-2-2+	0.01-20	180° Hybrid	30	0.2	2	0.1	1

## 90° and 180° HYBRID SPLITTER/COMBINERS, 50Ω, 5 to 4200 MHz

MODEL	Frequency Range (MHz)	Description	Isolation (dB), Typ.	Insertion Loss (dB) above 3 dB, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Input Power, Max.
ZAPDQ-4+	2000-4200	90° Hybrid	22	0.4	8	1	1
ZX10Q-2-34-S+	2500-3400	90° Hybrid	29	0.4	4	1.2	20
ZX10Q-2-27-S+	1700-2700	90° Hybrid	23	0.4	3	1	20
ZX10Q-2-25-S	1350-2450	90° Hybrid	25	0.4	5	1.1	20
ZX10Q-2-25-S+	1350-2450	90° Hybrid	25	0.4	5	1.1	20
ZFSCJ-2-232+	5-2300	180° Hybrid	4	1.9	3	0.2	1
ZAPDJ-2-S+	1000-2000	180° Hybrid	22	1.3	6	0.8	1
ZAPDQ-2	1000-2000	90° Hybrid	22	0.4	6	0.8	1
ZX10Q-2-19-S+	1100-1925	90° Hybrid	26	0.4	4	1.1	20

# LIMITERS



Tough and reliable for the harshest operating conditions, from 10 MHz to 8.2 GHz

- Rugged coaxial models
- Quick recovery times
- Cost-effective custom models with rapid response and fast turnaround!

# MATCHING PADS



Coaxial 50Ω and 75Ω impedance matching pads for CATV systems, broadband networks, test setups and more!

- SMA, N-Type and BNC connectors available
- Frequency ranges as wide as DC to 3000 MHz
- Excellent matching VSWR

**LIMITERS, 5 to 37 dBm, 50Ω, 10 to 8200 MHz**

MODEL	Frequency Range (MHz)	Linear Range Insertion Loss (dB) Typ.	Input Power Min.	Input Power Max.	Output Power Limit (dBm) Typ.	Limiting Δ Output/ Δ 1 dB Input (dB / dB), Typ.
VLM-83-2W-S+	30-8200	1	12	32	11.5	0.8
VLM-73-1W-S+	30-7000	0.4	12	30	11.5	0.6
ULM-63-2W-N+	30-6000	0.5	12	33	13.5	0.6
VLM-63-2W-S+	30-6000	0.4	12	33	11.5	0.6
ZFLM-43-5W+	20-4000	0.5	10	37	13	0.1
VLM-33-S+	30-3000	0.23	12	30	11.5	0.2
VLM-33W-2W-S+	0.2-3000	0.2	12	33	13	0.6
ZFLM-252-1WL+	100-2500	0.7	5	30	0	0.1
VLM-52-S+	10-500	0.5	10	20	9.5	0.2

**IMPEDANCE MATCHING PADS, 50/75Ω, DC to 3000 MHz**

MODEL	Frequency Range (MHz)	Nom. Attenuation (dB)	Attenuation Flatness (dB) Typ.	VSWR (:1), Typ.	Connector, Typ.	Connector, 50Ω	Connector, 75Ω
SFOFM-5075+	DC-3000	5.7	0.2	1.2	SMA-F	SMA-F	F-M
UNMP-5075+	DC-3000	5.7±0.15	0.3	1.3	TYPE 'N'	F	M
UNMP-5075-33+	DC-3000	5.7±0.15	0.3	1.05	TYPE 'N'	F	M
UNMP-R5075-33+	DC-3000	5.7±0.15	0.3	1.05	TYPE 'N'	M	F
UNMP-5075-33R+	DC-3000	1.7	0.2	1.15	TYPE 'N'	M	F
Z7550R-FMSF+	DC-2500	5.9	-	1.2	SMA-F	SMA-F	F-M
BMP-5075+	DC-2000	5.7±0.10	0.3	1.22	BNC	F	M
BMP-5075R+	DC-2000	5.7±0.10	0.3	1.22	BNC	M	F

# SPLITTERS



**2, 3, 4, 5, 6, 8, 9, 10, 12, 16 and 24-way models for 50Ω and 75Ω systems from DC to 65 GHz!**

- SMA, N-Type, F-Type, BNC, 2.4mm and 2.92mm connectors
- DC passing and DC blocking
- Over 500 models in stock!

## SPLITTERS, 2-Way Models, DC to 12000 MHz

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZN2PD-E653+	10000-65000	2	22	1.2	10.7	0.64	10	DC Pass	50
ZN2PD-V54+	10000-50000	2	23	1.8	2.7	0.13	10	DC Pass	50
ZC2PD-K1844+	18000-40000	2	27	0.8	1.1	0.05	20	DC Pass	50
ZN2PD-44-V+	10000-40000	2	21	1	3.9	0.07	10	DC Pass	50
ZN2PD-K44+	10000-40000	2	20	0.9	10	0.6	10	DC Pass	50
ZC2PD-K0644+	6000-40000	2	29	0.7	1.3	0.03	20	DC Pass	50
ZC2PD-K0244+	2000-40000	2	32	0.8	0.5	0.04	20	DC Pass	50
ZC2PD-K0144+	1000-40000	2	36	0.9	1.1	0.05	20	DC Pass	50
ZC2PD-K5R44W+	500-40000	2	35	1.9	1	0.1	20	DC Pass	50
ZC2PD-18263-S+	18000-26500	2	29	0.7	1	0.03	11	DC Pass	50
ZC2PD-06263-S+	6000-26500	2	27	0.4	0.4	0.03	14	DC Pass	50
ZC2PD-02263-S+	2000-26500	2	31	0.6	0.69	0.04	14	DC Pass	50
ZC2PD-01263-S+	1000-26500	2	33	0.7	0.7	0.04	14	DC Pass	50
ZC2PD-5R263-S+	500-26500	2	35	1.2	0.6	0.05	14	DC Pass	50
ZN2PD-02183-S+	2000-18000	2	20	0.5	4	0.3	10	DC Pass	50
ZX10-2-183-S+	1500-18000	2	20	1	4	0.2	30	DC Pass	50
ZN2PD-183W-S+	500-18000	2	24	0.8	1.1	0.05	20	DC Pass	50
ZFRSC-183+	DC-18000	2	6.5	0.7	7	0.5	0.16	Resistive	50
ZX10-2-143M-S+	4000-14000	2	20	1.1	6	0.5	2.5	DC Pass	50
ZX10-2-126-S+	7400-12600	2	23	0.3	10	0.5	1	DC Pass	50
ZX10-2-1252-S+	1800-12500	2	20	1.1	12	0.9	1.85	DC Pass	50

## SPLITTERS, 2-Way Models, DC to 12000 MHz

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZFRSC-123+	DC-12000	2	19.5	3.5	3	0.25	0.16	Resistive	50
ZN2PD2-14W-S+	500-10500	2	20	0.9	2	0.1	35	DC Pass	50
ZFSC-2-10G+	2000-10000	2	20	0.6	12	0.5	1	DC Pass	50
ZX10R-14-S+	DC-10000	2	6	0.5	3	0.2	0.16	Resistive	50
ZX10-2-98-S+	4750-9800	2	23	0.3	9	0.5	1	DC Pass	50
ZFSC-2-9G+	3500-9000	2	20	0.6	10	0.5	1	DC Pass	50
ZN2PD-9G-S+	1700-9000	2	22	1	2	0.2	30	DC Pass	50
ZX10-2-852-S+	500-8500	2	20	1.9	8	0.9	2.5	DC Pass	50
ZX10-2-722-S+	2800-7200	2	22	0.8	10	0.4	1.5	-	50
ZX10-2-71-S+	2950-7100	2	23	0.25	3	0.4	1	DC Pass	50
ZAPD-50W+	4200-6000	2	26	0.3	5	0.7	10	DC Pass	50
ZX10-2-622-S+	2900-6200	2	24	0.9	9	0.3	1.5	-	50
ZACS622-100W+	650-6200	2	22	0.5	2	0.1	100	DC Pass	50
ZN2PD-622SMP+	350-6200	2	18	1	2	0.2	10	DC Pass	50
ZN2PD-63-S+	1800-6000	2	24	0.4	4	0.3	10	DC Pass	50
ZB2PD-63+	600-6000	2	19	0.9	2.8	0.2	30	DC Pass	50
ZN2PD1-63+	500-6000	2	18	0.45	1.5	0.1	30	DC Pass	50
ZN2PD2-63-S+	350-6000	2	20	0.7	1.5	0.2	25	DC Pass	50
ZN2PD2-63A+	350-6000	2	18	0.8	1	0.2	25	DC Pass	50
ZAPD-50+	4400-5000	2	26	0.3	5	0.5	10	DC Pass	50
ZN2PD2-50-S+	500-5000	2	25	0.8	4	0.5	10	DC Pass	50
ZX10-2-442-S+	1500-4400	2	20	1	6	0.3	1.5	-	50
ZAPD-4+	2000-4200	2	25	0.4	6	0.4	10	DC Pass	50
ZX10-2-42-S+	1900-4200	2	23	0.2	3	0.3	1	DC Pass	50
ZFRSC-42+	DC-4200	2	6.5	0.1	3	0.2	0.75	Resistive	50
ZFSC-2-372+	10-3700	2	18	0.6	4	0.3	1	-	50
ZACS362-100W+	600-3600	2	18	0.6	1	0.15	100	DC Pass	50
ZX10-2-332-S+	1600-3300	2	24	0.8	5	0.2	1.5	-	50
ZAPD-30-S+	20-3000	2	16	1.1	5	0.4	1	-	50
ZAPD-2-272+	800-2700	2	22	0.3	3	0.3	10	-	50
ZN2PD-272SMP+	600-2750	2	22	0.4	1	0.1	10	DC Pass	50
ZX10-2-25-S+	1000-2500	2	20	1.2	10	1.2	1	-	50
ZX10-2-252-S+	500-2500	2	22	0.9	4	0.2	1.5	-	50
ZFSC-2-2500+	10-2500	2	17	0.6	4	0.3	1	-	50
ZAPD-2-252-75+	5-2500	2	26	0.6	3	0.4	0.5	-	75
ZAPD-2-252+	5-2500	2	17	1	3	0.4	1	-	50
ZAPD-232-75+	700-2450	2	25	0.5	1	0.1	10	DC Pass	75
ZACS242-100W+	500-2450	2	22	0.8	2	0.1	100	DC Pass	50
ZX10-2-222-S+	800-2200	2	24	0.8	4	0.2	1.5	-	50
ZN2PD1-222-S+	600-2200	2	18	0.2	2	0.2	10	DC Pass	50
ZAPD-2DC+	950-2150	2	22	0.3	5	0.3	10	DC Pass	50
ZAPD-2-22-75+	910-2150	2	30	0.2	2	0.4	5	DC Pass	75
ZAPD-2-21-3W+	700-2100	2	25	0.4	0.7	0.05	10	DC Pass	50

**SPLITTERS, 2-Way Models, 0.002 to 2000 MHz**

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZN2PD-1900W+	1500-2000	2	24	0.2	3	0.3	10	DC Pass	50
ZAPD-2+	1000-2000	2	25	0.25	2	0.2	10	DC Pass	50
ZN2PD-20-S+	750-2000	2	25	0.2	4	0.3	5	DC Pass	50
ZAPD-20+	700-2000	2	30	0.3	3	0.4	10	DC Pass	50
ZAPD-23-S+	700-2000	2	27	0.4	2	0.2	10	DC Pass	50
ZAPD-21+	500-2000	2	25	0.25	3	0.2	10	DC Pass	50
ZX10-2-20-S+	200-2000	2	20	0.8	6	0.4	0.5	-	50
ZESC-2-11+	10-2000	2	18	0.5	3	0.3	1	-	50
ZFSC-2-11+	10-2000	2	16	1.2	2	0.3	1	-	50
ZFRSC-2050+	DC-2000	2	6.6	0.3	2	0.2	0.75	Resistive	50
ZFRSC-2075+	DC-2000	2	6.6	0.3	2	0.2	0.75	Resistive	75
ZAPD-1750+	950-1750	2	30	0.2	4	0.5	10	DC Pass	50
ZFSC-2-5+	10-1500	2	30	0.5	3	0.2	1	-	50
ZX10-2-12-S+	2-1200	2	21	0.5	3	0.5	0.5	-	50
ZN2PD-920W-S+	700-1050	2	22	0.15	3	0.3	10	DC Pass	50
ZA2CS-10-20W	900-1000	2	38	0.2	0.5	0.11	20	DC Pass	50
ZAPD-1+	500-1000	2	25	0.25	2	0.2	10	DC Pass	50
ZFSC-2-2+	10-1000	2	25	0.5	4	0.15	1	-	50
ZSC-2-4	10-1000	2	35	0.5	4	0.2	1	-	50
ZSC-2-4+	10-1000	2	35	0.5	4	0.2	1	-	50
ZFSC-2-4+	0.2-1000	2	25	0.5	4	0.15	1	-	50
ZN2PD-920-S+	800-920	2	30	0.15	2	0.2	10	DC Pass	50
ZAPD-900-5W+	100-900	2	23	0.3	3	0.3	5	-	50
ZFSC-2-1W+	1-750	2	28	0.4	4	0.15	1	-	50
ZMSC-2-1W+	1-650	2	35	0.5	3	0.2	1	-	50
ZSC-2-1W+	1-650	2	35	0.5	3	0.2	1	-	50
ZA2CS-62-40W+	100-600	2	22	0.8	0.9	0.2	40	-	50
ZA2CS-600-10W	100-600	2	27	0.4	0.4	0.15	10	-	50
ZFSC-2-1W-75+	5-600	2	45	0.27	2	0.3	1	-	75
Z99SC-62-S+	0.5-600	2	20	0.5	2	0.3	1	-	50
ZA2CS-500-15W	200-500	2	31	0.3	0.3	0.1	15	-	50
ZFSC-2-1+	5-500	2	28	0.3	4	0.15	1	-	50
ZMSC-2-1+	0.1-400	2	25	0.4	3	0.2	1	-	50
ZSC-2-1+	0.1-400	2	25	0.4	3	0.2	1	-	50
ZFSC-2-1-75+	0.25-300	2	30	0.4	3	0.2	1	-	75
ZSC-2-1-75+	0.25-300	2	30	0.4	3	0.2	1	-	75
ZA2CS-251-20W+	10-250	2	20	0.25	0.5	0.05	25	-	50
ZSC-2375+	55-85	2	35	0.3	1	0.1	1	-	75
ZFSC-2-6-75	0.004-60	2	35	0.4	2	0.2	1	-	75
ZFSC-2-6+	0.002-60	2	30	0.3	3	0.2	1	-	50
ZMSC-2-2	0.002-60	2	30	0.3	3	0.25	1	-	50
ZSC-2-2+	0.002-60	2	30	0.3	3	0.25	1	-	50
ZSC-2-2-75+	0.002-60	2	30	0.3	3	0.25	1	-	75

**SPLITTERS, 3 and 4-Way Models, DC to 40000 MHz**

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZC3PD-K1844+	18000-40000	3	31	1.2	3.7	0.15	13.6	DC Pass	50
ZB3PD-63+	150-6000	3	20	1	7	0.7	30	DC Pass	50
ZB3PD-63SMP+	150-6000	3	20	1.2	4	0.4	5	DC Pass	50
ZF3RSC-542-S+	DC-5400	3	19	1.6	10	0.5	0.1	Resistive	50
ZA3PD-4+	2000-4200	3	18	0.7	-	0.9	10	DC Pass	50
ZB3PD-2400W-S+	700-2450	3	25	0.5	8	0.9	10	DC Pass	50
ZB3PD1-222+	500-2200	3	25	0.3	-	0.7	10	DC Pass	50
ZA3PD-2+	1000-2000	3	20	0.3	-	0.3	10	DC Pass	50
ZA3PD-1.5+	750-1500	3	20	0.3	-	0.4	10	DC Pass	50
ZN3PD-900W-S	650-1050	3	22	0.3	-	0.8	10	DC Pass	50
ZA3PD-1+	500-1000	3	20	0.3	-	0.4	10	DC Pass	50
ZFSC-3-4-75+	1-1000	3	27	0.4	6	0.7	1	-	75
ZFSC-3-4+	1-1000	3	20	0.7	6	0.4	1	-	50
ZB3CS-900-6W	440-900	3	24	0.2	3	0.1	20	DC Pass	50
ZN3PD-900-S	800-900	3	30	0.2	-	0.5	10	DC Pass	50
ZFSC-3-1W+	2-750	3	30	0.5	5	0.3	1	-	50
ZFSC-3-1+	1-500	3	30	0.5	3	0.3	1	-	50
ZA3CS-450-9W	100-450	3	22	0.9	2.5	0.2	12	-	50
ZA3CS-400-3W+	2-400	3	25	0.5	0.2	0.15	10	-	50
ZCSC-3-R3+	2-300	3	31	0.4	2	0.3	1	-	50
ZFSC-3-13	1-200	3	48	0.35	3	0.2	1	-	50
ZMSC-3-1+	1-200	3	40	0.4	2	0.2	1	-	50
ZSC-3-1+	1-200	3	40	0.4	2	0.2	1	-	50
ZSC-3-1-75+	1-200	3	35	0.4	3	0.2	1	-	75
ZSC-3-2+	0.01-30	3	40	0.15	2	0.3	1	-	50
ZC4PD-K1844+	18000-40000	4	27	1.2	3.5	0.12	20	DC Pass	50
ZN4PD-K44+	10000-40000	4	22	1.5	6	0.3	20	-	50
ZC4PD-K0644+	6000-40000	4	26	1.5	2.9	0.13	20	DC Pass	50
ZC4PD-K0244+	2000-40000	4	28	2.7	2.8	0.14	20	DC Pass	50
ZC4PD-K0144+	1000-40000	4	33	1.8	1.5	0.1	20	DC Pass	50
ZC4PD-K5R44W+	500-40000	4	36	2.7	2.3	0.1	20	DC Pass	50
ZC4PD-18263-S+	18000-26500	4	28	1.1	2.5	0.1	20	DC Pass	50
ZC4PD-06263-S+	6000-26500	4	26	1.5	2	0.13	20	DC Pass	50
ZC4PD-02263-S+	2000-26500	4	31	1.5	1.5	0.07	14	DC Pass	50
ZC4PD-01263-S+	1000-26500	4	33	1.6	1.9	0.06	14	DC Pass	50
ZC4PD-5R263-S+	500-26500	4	34	2.7	1.6	0.15	20	DC Pass	50
ZN4PD1-183W-S+	4000-18000	4	22	0.7	3	0.25	30	DC Pass	50
ZN4PD-02183-S+	2000-18000	4	20	1	3.5	0.3	30	DC Pass	50
ZC4PD-153-S+	6000-15000	4	22	1.3	8	0.4	10	DC Pass	50
ZB4PD1-8.4+	6700-8400	4	29	0.5	9	0.9	10	DC Pass	50
ZN4PD1-842-S+	2100-8400	4	19	1.3	5	0.5	10	DC Pass	50
ZFRSC-4-842+	DC-8400	4	6.4	0.3	4	0.3	0.16	Resistive	50
ZB4PD-6.4-S	5400-6800	4	25	0.6	9	0.9	10	DC Pass	50

\*ZFRSC-183-S+ is a resistive splitter with theoretical loss of 6 dB

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**SPLITTERS, 4-Way Models, 1 to 6800 MHz**

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZB4PD-6.4-S+	5400-6800	4	25	0.6	9	0.9	10	DC Pass	50
ZN4PD-642W-S+	1600-6000	4	23	0.9	4	0.2	10	DC Pass	50
ZN4PD1-63-S+	2000-6000	4	26	0.7	5	0.4	10	DC Pass	50
ZN4PD1-63LW-S+	500-6000	4	23	0.6	2	0.15	30	DC Pass	50
ZN4PD1-63HP-S+	250-6000	4	23	1	2	0.2	30	DC Pass	50
ZB4PD1-5.8+	4600-5800	4	25	0.4	5	0.4	10	DC Pass	50
ZB4PD-462W+	380-4600	4	22	0.9	2	0.2	30	DC Pass	50
ZA4PD-4+	2000-4200	4	25	0.5	16	0.8	10	DC Pass	50
ZB4PD-4+	3700-4200	4	24	0.6	8	0.8	10	DC Pass	50
ZB4PD-42+	1700-4200	4	23	0.5	8	0.8	10	DC Pass	50
ZB4PD-332HP+	500-3300	4	22	1	3	0.2	100	DC Pass	50
ZN4PD-33SMP+	500-3000	4	20	0.9	3	0.3	10	DC Pass	50
ZB4PD-282-50W+	500-2750	4	20	1.8	6	0.4	100	DC Pass	50
ZN4PD-272-S+	500-2700	4	22	0.9	3	0.25	10	DC Pass	50
ZX10-4-27-S+	2225-2700	4	20	1	9	1.2	2.5	-	50
ZX10-4A-27-S+	2225-2600	4	23	0.9	6	0.8	2.5	-	50
ZX10-4-24-S+	1675-2350	4	20	0.9	5	0.7	2.5	-	50
ZB4PD-232-50W+	600-2300	4	19	1.1	0.9	0.05	50	DC Pass	50
ZX10-4A-24-S+	1675-2200	4	23	0.8	6	0.6	2.5	-	50
ZB4PD-222-75+	950-2200	4	23	0.9	2.7	0.3	10	DC Pass	75
ZA4PD-2+	1000-2000	4	25	0.3	6	0.7	10	DC Pass	50
ZB4PD1-2000+	800-2000	4	25	0.6	-	0.3	10	DC Pass	50
ZN4PD-20-S	1800-2000	4	31	0.3	4	0.5	10	DC Pass	50
ZX10-4-19-S+	1425-1900	4	20	0.75	6	0.9	2.5	-	50
ZX10-4A-19-S+	1425-1900	4	22	0.75	4	0.7	2.5	-	50
ZC4PD-18-S+	1000-1800	4	32	0.3	6	0.4	10	DC Pass	50
ZB4PD-1750-75+	875-1750	4	30	0.4	3	0.4	10	DC Pass	75
ZB4PD1-152-75+	650-1500	4	23	0.6	6	0.4	10	DC Pass	75
ZX10-4-14-S+	1100-1450	4	20	0.8	7	0.8	2.5	-	50
ZX10-4A-14-S+	1100-1450	4	25	0.6	4	0.7	2.5	-	50
ZX10-4-11-S+	800-1125	4	20	0.6	3	0.7	2.5	-	50
ZX10-4A-11-S+	800-1125	4	22	0.6	4	0.6	2.5	-	50
ZB4PD1-930W+	725-1050	4	22	0.3	5	0.4	10	DC Pass	50
ZFSC-4-175	10-1000	4	38	0.6	-	0.3	1	-	75
ZFSC-4-175+	10-1000	4	38	0.6	-	0.3	1	-	75
ZFSC-4-175W+	5-1000	4	36	0.5	3	0.2	1	-	75
ZN4PD-920W-S+	670-1000	4	22	0.3	3	0.2	10	DC Pass	50
ZFSC-4-1+	1-1000	4	23	0.6	8	0.4	1	-	50
ZB4PD1-930+	850-930	4	30	0.3	5	0.25	10	DC Pass	50
ZN4PD-920-S+	800-920	4	30	0.25	2	0.2	10	DC Pass	50
ZC4PD-900-S+	800-900	4	30	0.3	3	0.2	10	-	50
ZB4CS-870-10W	570-870	4	28	0.35	0.6	0.1	20	DC Pass	50
ZBSC-413+	10-800	4	18	1	8	0.4	1	-	50

**SPLITTERS, 4, 5, 6 and 8-Way Models, 0.002 to 40000 MHz**

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZB4CS-700-10W	400-700	4	25	0.35	0.6	0.1	20	DC Pass	50
ZB4PD-52-20W+	10-500	4	29	0.4	2	0.1	20	-	50
ZFSC-4-1W+	10-500	4	23	0.6	8	0.3	1	-	50
ZB4PD1-500+	5-500	4	34	0.5	3	0.2	1	-	50
ZB4PD1-500-75+	5-500	4	34	0.6	3	0.2	1	-	75
ZB4CS-440-12W	100-440	4	27	0.6	0.8	0.15	10	-	50
ZFSC-4-3+	10-300	4	38	0.6	6	0.1	1	-	50
ZB4PD1-32-75+	0.25-300	4	36	0.3	2	0.2	1	-	75
ZSC-4-3+	0.25-250	4	30	0.5	6	0.2	1	-	50
ZSC-4-3-75+	0.25-250	4	30	0.3	2	0.2	1	-	75
ZMSC-4-1+	0.1-200	4	30	0.5	6	0.2	1	-	50
ZSC-4-1+	0.1-200	4	30	0.5	6	0.2	1	-	50
ZSC-4-1-75+	1-200	4	25	0.5	6	0.2	1	-	75
ZFSC-4-375+	50-90	4	34	0.3	6	0.15	1	-	75
ZMSC-4-2+	0.002-20	4	33	0.3	6	0.2	1	-	50
ZB5CS-920-10W	450-920	5	26	0.4	2	0.1	20	DC Pass	50
ZBSC-5-1	120-520	5	25	1	8	0.9	1	-	50
ZFSC-5-1+	1-300	5	23	0.6	4	0.3	1	-	50
ZC6PD-K1844+	18000-40000	6	25	1.6	6.2	0.35	20	DC Pass	50
ZC6PD-18263-S+	18000-26500	6	24	1.1	5.2	0.28	20	DC Pass	50
ZN6PD-02183-S+	2000-18000	6	22	1.4	6	0.4	25	-	50
ZN6PD-63W-S+	1800-6000	6	20	1	7	0.9	10	DC Pass	50
ZN6PD1-63-S+	600-6000	6	20	2.5	10	0.8	20	DC Pass	50
ZN6PD1-63SMP+	600-6000	6	20	2.5	10	0.8	20	-	50
ZN6PD-272HP+	650-2750	6	25	0.9	4	0.3	100	-	50
ZB6PD-2+	800-2000	6	27	0.7	-	0.7	10	DC Pass	50
ZC6PD-1900W-S+	1500-2000	6	30	0.5	-	0.6	10	DC Pass	50
ZB6PD-17	600-1700	6	25	0.35	7	0.5	10	DC Pass	50
ZB6PD-1700	1500-1700	6	30	0.5	-	0.6	10	DC Pass	50
ZC6PD-960W-S	700-1000	6	28	0.4	-	0.6	10	DC Pass	50
ZB6PD1-960	890-960	6	35	0.3	-	0.6	10	DC Pass	50
ZB6PD1-900	800-900	6	32	0.3	-	0.5	10	DC Pass	50
ZBSC-615+	1-500	6	26	0.7	8	0.4	1	-	50
ZFSC-6-110	1-500	6	26	0.6	6	0.3	1	-	50
ZBSC-611	10-200	6	26	0.7	5	0.3	1	-	50
ZFSC-6-1+	1-175	6	26	0.75	6	0.4	1	-	50
ZFSC-6-1-75+	1-200	6	30	0.75	6	0.4	1	-	75
ZC8PD-K1844+	18000-40000	8	26	1.8	5.3	0.16	20	DC Pass	50
ZN8PD-K44+	10000-40000	8	20	2	8	0.3	20	-	50
ZC8PD-K0644+	6000-40000	8	28	2	2.2	0.12	20	DC Pass	50
ZC8PD-K5R44W+	500-40000	8	35	4.1	1.9	0.18	20	DC Pass	50
ZC8PD-18263-S+	18000-26500	8	26	1.7	4.2	0.19	20	DC Pass	50
ZC8PD-06263-S+	6000-26500	8	28	1.2	2.6	0.11	20	DC Pass	50

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**SPLITTERS, 8, 9, and 10-Way Models, 0.5 to 26500 MHz**

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZC8PD-02263-S+	2000-26500	8	31	2.1	2.3	0.11	20	DC Pass	50
ZC8PD-01263-S+	1000-26500	8	26	3.2	2.9	0.14	20	DC Pass	50
ZC8PD-5R263-S+	500-26500	8	35	4.1	3.1	0.2	20	DC Pass	50
ZN8PD-02183-S+	2000-18000	8	20	1.4	5	0.3	20	DC Pass	50
ZN8PD-113-S+	2000-11000	8	22	1.3	6	0.4	10	DC Pass	50
ZB8PD-8.4	7200-8400	8	25	0.9	15	0.8	10	DC Pass	50
ZB8PD-6.4	5600-6800	8	26	0.8	15	0.7	10	DC Pass	50
ZN8PD-642W-S+	1800-6400	8	25	1.5	5	0.2	10	-	50
ZB8PD-622+	3200-6200	8	26	0.8	3	0.3	10	DC Pass	50
ZB8PD-622N+	3200-6200	8	26	0.8	5	0.4	10	DC Pass	50
ZN8PD1-63W-S+	500-6000	8	24	1.5	4.5	0.3	10	DC Pass	50
ZN8PD1-53-S+	500-5000	8	20	1.5	14	0.5	10	DC Pass	50
ZB8PD-4+	2000-4200	8	23	0.8	10	1.2	10	DC Pass	50
ZB8PD-362+	600-3600	8	20	1.6	10	0.4	10	DC Pass	50
ZN8PD-362HP+	600-3600	8	23	1	4	0.2	100	DC Pass	50
ZN8PD-272SMP+	690-2750	8	28	0.8	2	0.1	10	DC Pass	50
ZC8SC272-12DL+	2450-2700	8	22	2	7	0.6	5	Dual Channel	50
ZB8PD-252+	1550-2500	8	25	0.8	3.2	0.3	10	DC Pass	50
ZB8PD-242-75+	600-2400	8	27	0.7	3	0.3	10	DC Pass	75
ZB8PD-242-75-F+	600-2400	8	27	0.7	3	0.3	10	DC Pass	75
ZB8PD-22-75+	950-2200	8	24	0.7	-	0.3	10	DC Pass	75
ZB8PD-2+	1000-2000	8	24	0.8	18	0.8	10	DC Pass	50
ZB8PD-2000+	800-2000	8	26	0.8	3	0.3	10	DC Pass	50
ZCSC-8-152-S+	0.5-1550	8	38	2.5	4	0.3	0.5	-	50
ZC8PD1-10-S+	300-1000	8	27	0.6	6	0.2	10	DC Pass	50
ZFSC-8-43+	10-1000	8	25	1.4	10	0.4	1	-	50
ZCSC-8-13-S+	5-1000	8	22	1.2	2	0.4	0.5	-	50
ZFSC-8-4-75+	5-1000	8	25	0.6	7	0.5	1	-	75
ZB8PD-1+	800-960	8	30	0.4	8	0.4	10	DC Pass	50
ZBSC-8-82+	10-800	8	26	0.9	4	0.3	1	-	50
ZFSC-8-4+	5-700	8	25	1.2	5	0.4	1	-	50
ZCSC-8-1+	2-250	8	30	0.8	4	0.3	1	-	50
ZFSC-8-1+	0.5-175	8	30	0.8	2.5	0.2	1	-	50
ZFSC-84-75+	1-300	8	30	0.7	3	0.2	1	-	75
ZFSC-8-1-75+	0.5-175	8	30	0.6	2.5	0.3	1	-	75
ZC8SC272-12DL+	1-100	8	30	0.5	0.2	0.1	0.5	Dual Channel	50
ZFSC-8375	50-90	8	30	1	2	0.2	1	-	75
ZC9PD-172-S+	1200-1700	9	18	0.6	7	0.4	10	-	50
ZC10PD-26W-S+	2250-2800	10	21	0.9	17	1	10	-	50
ZC10PD-26-S	2300-2600	10	35	0.7	15	1.1	10	-	50
ZC10PD-900-S	800-900	10	25	1.5	-	0.8	10	-	50
ZC10PD-900W	750-900	10	30	0.4	-	0.6	10	-	50
ZFSC-10-1+	0.5-100	10	30	0.4	6	0.3	1	-	50

**SPLITTERS, 12, 16 and 24-Way Models, 0.1 to 40000 MHz**

MODEL	Frequency Range (MHz)	Number of Ways	Isolation (dB), Typ.	Insertion Loss (dB) Above Theoretical, Typ.	Phase Unbalance (deg), Typ.	Amplitude Unbalance (dB), Typ.	Power Input (W) as Splitter, Max.	Feature	Impedance (Ω)
ZN12PD-63-S+	600-6000	12	18	3	10	0.9	20	DC Pass	50
ZN12PD-63SMP+	600-6000	12	19	3	8	0.8	20	DC Pass	50
ZN12PD-252-S+	800-2450	12	30	0.5	6	0.6	10	-	50
ZN12PD-17-S	800-1700	12	30	0.45	14	0.7	10	-	50
ZFSC-12-1W-75	5-860	12	30	0.8	8	0.8	1	-	75
ZFSC-12-175+	10-500	12	24	1	-	0.5	1	-	75
ZFSC-12-11+	10-300	12	33	1.1	4	0.3	1	-	50
ZFSC-12-1+	1-200	12	35	1.1	8	0.2	1	-	50
ZFSC-12-1-75+	10-200	12	27	0.8	-	0.3	1	-	75
ZC16PD-K1844+	18000-40000	16	22	3.1	5.9	0.2	20	DC Pass	50
ZC16PD-18263-S+	18000-26500	16	23	3.1	3.8	0.24	20	DC Pass	50
ZC16PD-K0644+	6000-40000	16	26	2.2	6	0.28	20	DC Pass	50
ZC16PD-06263-S+	6000-26500	16	24	2.2	3.3	0.2	20	DC Pass	50
ZB16PD-272-75F+	695-2700	16	20	1.2	5	0.5	5	-	75
ZC16PD-2185-S+	1800-2600	16	30	0.5	6	0.7	10	-	50
ZC16PD-252-S+	10-2500	16	17	3.2	10	0.7	1	-	50
ZC16PD-24-S+	650-2450	16	25	0.8	14	0.9	10	-	50
ZC16PD-23-S	1500-2300	16	32	0.8	11	0.6	10	-	50
ZC16PD-222-S+	10-2200	16	17	3.2	10	0.7	1	-	50
ZC16PD-1900W-S+	1500-2100	16	30	0.7	-	0.8	10	-	50
ZB16PD-13-S+	500-1000	16	30	0.6	6	0.6	10	-	50
ZC16PD-960W-S+	700-1000	16	26	0.5	-	0.6	10	-	50
ZC16PD-960-S+	890-960	16	28	0.5	-	0.5	10	-	50
ZB16PD-72-S+	400-700	16	30	0.7	8	0.6	10	-	50
ZC16PD-251-S+	1-250	16	25	3	4	0.3	5	-	50
ZFSC-16-1-75+	1-150	16	30	0.7	6	0.2	1	-	75
ZFSC-16-12+	0.1-200	16	27	0.7	6	0.2	1	-	50
ZFSC-16-1+	0.5-125	16	25	1.1	3	0.2	1	-	50
ZFSC-16-1-S	0.5-125	16	25	1.1	3	0.2	1	-	50
ZFSC-16-3	1-30	16	45	0.5	2	0.1	1	-	50
ZFSC-16-3+	1-30	16	45	0.5	2	0.1	1	-	50
ZC24PD-222-S+	650-2200	24	25	1.8	10	0.5	10	-	50
ZFSC-24-11	1-200	24	22	1	-	0.8	1	-	50
ZFSC-24-11-75	1-200	24	33	0.8	-	0.4	1	-	75
ZFSC-24-1	0.2-100	24	25	1	-	0.4	1	-	50

SPLITTERS/COMBINERS

SPLITTERS/COMBINERS

# SWITCHES



**SPDT, DPDT (transfer), SP4T, SP6T, SP8T, SP10T and SP16T mechanical and solid state RF switches for 50Ω and 75Ω systems spanning up to 18 GHz!**

- Ultra-reliable mechanical switches capable of extended life up to 10-million switch cycles!
- Solid-state switches with extremely fast switching times
- USB, Ethernet, and SPI control interfaces available
- Coaxial and surface mount formats available

**SWITCHES, Coaxial, SPDT, w/without TTL Drivers, Solid State, Absorptive/Reflective, 50/75Ω, 0.005 to 3 GHz**

Model	Frequency Range (GHz)	TTL Driver	Absorptive	Reflective	Insertion Loss (dB), Typ.	Insertion Loss (dB), Max.	1 dB Comp. (dBm), Typ.	1 dB Comp. (dBm), Min.	In-Out Isolation (dB), Typ.	In-Out Isolation (dB), Min.	Type
ZX80-DR230+	DC-3	Y	Y	-	0.9	1.6	31	28	46	50	SPDT
ZFSW2-33HDR-75+	0.005-3	Y	-	Y	0.85	-	35	-	32	28	SPDT
ZSW2-272VHDR+	0.03-2.7	Y	-	Y	0.5	1	45.5	-	35	21	SPDT

**Coaxial, SPST with/without TTL Drivers, High Isolation, 50Ω, DC to 2 GHz**

ZFSWA-1-20+	DC-2	-	Y	-	1.3	1.7	26	-	65	58	SPST
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**Coaxial, SPDT/SPDT, with/without TTL Drivers, 50Ω, 0.001 to 6 GHz**

ZFSWA2-63DR+	0.5-6	Y	Y	-	1.7	2.4	27	-	50	35	SPDT
ZFSWA2R-63DR+	0.5-6	Y	Y	-	1.7	2.4	27	-	50	35	SPDT
ZSW2-63DR+	0.005-6	-	-	Y	0.33	1.5	35	-	31	18	SPDT
ZSWA4-63DR+	0.001-6	Y	Y	-	1.7	3	35	-	57	27	SP4T

**SWITCHES, Coaxial, SPDT, with/without TTL Drivers, 50Ω, DC to 5 GHz**

Model	Frequency Range (GHz)	TTL Driver	Absorptive	Reflective	Insertion Loss (dB), Typ.	Insertion Loss (dB), Max.	1 dB Comp. (dBm), Typ.	1 dB Comp. (dBm), Min.	In-Out Isolation (dB), Typ.	In-Out Isolation (dB), Min.	Type
ZASW-2-50DRA+	DC-5	Y	-	Y	2.2	-	22	-	65	35	SPDT
ZASWA-2-50DRA+	DC-5	Y	Y	-	2.2	-	22	-	70	40	SPDT
ZASWA2-50DR-FA+	DC-5	Y	Y	-	2.2	-	22	-	70	40	SPDT
ZYSW-2-50DR+	DC-5	Y	-	Y	1.4	-	22	-	25	-	SPDT
ZYSWA-2-50DR+	DC-5	Y	Y	-	1.4	-	22	-	28	17	SPDT
ZFSW-2-46	DC-4.6	-	-	Y	1	1.8	17	-	50	28	SPDT
ZFSWA-2-46	DC-4.6	-	Y	-	0.9	2.6	17	-	50	25	SPDT

**Mechanical, SPDT/SP4T/SP6T Transfer, 50Ω, DC to 18 GHz**

Model	Frequency Range (GHz)	Insertion Loss (dB) Typ.	Isolation (dB), Typ.	VSWR (:1), Typ.	DC Current (mA) Typ. @ +12V	DC Current (mA) Typ. @ +24V	RF Power (W) Max.	Type
MSP2T-18-12+	DC-18	0.25	80	1.2	180	-	10	SPDT Reflective
MSP2T-18XL+	DC-18	0.2	80	1.2	-	80	10	SPDT Reflective
MSP2TA-18-12+	DC-18	0.25	80	1.2	350	-	20	SPDT Absorptive
MSP2TA-18-12D+	DC-18	0.25	80	1.2	350	-	20	SPDT Absorptive
MSP2TA-18D+	DC-18	0.25	80	1.2	-	175	20	SPDT Absorptive
MSP2TA-18XL+	DC-18	0.25	80	1.2	-	175	20	SPDT Absorptive
MSP4TA-18+	DC-18	0.25	85	1.2	-	175	2	SP4T Absorptive
MSP4TA-18-12+	DC-18	0.2	90	1.2	170	-	20	SP4T Absorptive
MSP4TA-18-12D+	DC-18	0.2	90	1.2	170	-	20	SP4T Absorptive
MSP4TA-18D+	DC-18	0.2	90	1.2	-	85	20	SP4T Absorptive
MTS-18-12B+	DC-18	0.25	80	1.15	350	-	10	Transfer Switch
MTS-18XL-B+	DC-18	0.25	80	1.15	-	175	10	Transfer Switch
MSP6T-12-12D+	DC-12	0.25	90	1.2	85	-	20	SP6T Reflective

**MECHANICAL SWITCHES, SP6T/SP8T Transfer, 50Ω, DC to 12 GHz**

Model	Frequency Range (GHz)	Insertion Loss (dB) Typ.	Isolation (dB), Typ.	VSWR (:1), Typ.	DC Current (mA) Typ. @ +12V	DC Current (mA) Typ. @ +24V	RF Power (W) Max.	Type
MSP6T-12D+	DC-12	0.25	90	1.2	-	42	20	SP6T Reflective
MSP6TA-12+	DC-12	0.25	90	1.2	-	85	10	SP6T Absorptive
MSP6TA-12-12+	DC-12	0.25	90	1.2	170	-	20	SP6T Absorptive
MSP6TA-12-12D+	DC-12	0.25	90	1.2	170	-	20	SP6T Absorptive
MSP6TA-12D+	DC-12	0.25	90	1.2	-	85	10	SP6T Absorptive
MSP8T-12-12D+	DC-12	0.4	90	1.3	85	-	20	SP8T Reflective
MSP8T-12D+	DC-12	0.4	90	1.3	-	40	20	SP8T Reflective
MSP8TA-12-12D+	DC-12	0.4	90	1.3	170	-	20	SP8T Absorptive
MSP8TA-12D+	DC-12	0.4	90	1.3	-	85	20	SP8T Absorptive

**Solid State Absorptive, USB/SPI/I<sup>2</sup>C/TTL, DC to 8 GHz**

Model	Frequency Range (GHz)	Insertion Loss (dB), Typ	Isolation (dB), Typ	VSWR (:1), Typ	Transition Time (usec), Typ	Supply Voltage (V), Typ	Max Input Power (W)	Control Interface	Number of Switches	Switch Type
USB-1SP16T-83H	0.001-8	7.5	100	1.3	5	USB (5V)	1	USB / TTL	1	SP16T
USB-2SP2T-DCH	DC-8	1.4	50	1.2	10	USB (5V)	3.15	USB	2	SPDT
U2C-1SP2T-63VH	0.01-6	4	110	1.3	0.7	USB (5V) or 12-24	2	USB / I <sup>2</sup> C / SPI	1	SPDT
USB-1SP8T-63H	0.01-6	4	80	1.25	0.2	USB (5V)	1	USB	1	SP8T
USB-2SP4T-63H	0.01-6	2.5	85	1.3	5	USB (5V)	1	USB	2	SP4T
USB-4SP2T-63H	0.01-6	2	80	1.25	0.2	USB (5V)	1	USB	4	SPDT
U2C-1SP4T-63H	0.002-6	3.7	80	1.25	0.2	5	1	USB / I <sup>2</sup> C	1	SP4T
SPI-SP8T-6G	0.001-6	4	90	1.25	6	5 - 24	0.5	SPI	1	SP8T
SPI-SP10T-63	0.001-6	4	90	1.25	6	12-24	0.5	SPI	1	SP10T
USB-SP4T-63	0.001-6	1	50	1.2	3	USB (5V)	0.5	USB	1	SP4T

# TERMINATIONS



Reliable dissipation of signal power for 50-ohm and 75-ohm systems from DC to 65 GHz. Choose from a wide variety of male and female connector types including 1.85mm, 2.4mm, 2.92mm, SMA, SMP, N-Type, and DIN 1.0/2.3.

- High power up to 500W
- Excellent return loss
- Rugged construction

**TERMINATIONS, 50/75Ω, DC to 65 GHz**

MODEL	Freq. Range (GHz)	Connector Type	Connector Description	Return Loss (dB), Typ. (GHz)												Power Rating (W), Max.
				1	2	4	6	8	12	18	20	40	50	65		
ANNE-50E+	DC-65	1.85mm	M	41	38	36	32	32	33	31	28	32	22	29	1	
ANNEF-50E+	DC-65	1.85mm	F	54.5	38	30.6	28.5	29.5	29.8	26.4	24.2	29.8	25.8	16.1	1	
ANNE-50V+	DC-50	2.4mm	M	43	42	37	35	35	38	29	27	26	19	-	1	
ANNEF-50V+	DC-50	2.4mm	F	45	44	42	43	45	38	31	30	20	24	-	1	
ANNE-50K+	DC-40	2.92mm	M	40	38	35	32	30	30	30	27	20	-	-	1	
ANNEF-50K+	DC-40	2.92mm	F	38	36	32	32	30	29	26	26	32	-	-	1	
ANNE-50X+	DC-20	SMA	M	48	46	39	37	35	35	25	25	-	-	-	1	
ANNEQ-50X+	DC-20	SMA	M Quick-Turn	48	46	43	39	33	26	26	31	-	-	-	1	
ANNE-50+	DC-18	SMA	M	50	46	41	40	38	45	30	-	-	-	-	1	
ANNE-50CN+	DC-18	SMA	M w/Chain	50	46	41	40	38	45	30	-	-	-	-	1	
ANNEF-50+	DC-18	SMA	F	46	45	40	40	41	32	23	-	-	-	-	1	
KARN-50-18+	DC-18	N-Type	M	46	44	41	41	41	41	28	-	-	-	-	2	
SMPF-TERM50+	DC-18	SMP	F	47	46	45	35	30	24	22	-	-	-	-	1	
TERM-25W-183N+	DC-18	N-Type	M	33	36	25	31	30	36	22	-	-	-	-	25	
TERM-25W-183S+	DC-18	SMA	M	33	32	32	25	28	24	29	-	-	-	-	25	
TERM-50W-183N+	DC-18	N-Type	M	31	38	29	29	21	44	24	-	-	-	-	50	
TERM-50W-183S+	DC-18	SMA	M	34	31	41	32	21	30	26	-	-	-	-	50	
ANNE-50L+	DC-12	SMA	M	48	46	39	34	31	27	-	-	-	-	-	1	
TERM-500W-14N+	0.7-10	N-Type	F	20	23	25	25	-	-	-	-	-	-	-	500	
KARN-50+	DC-8	N-Type	Male	46	44	40	37	35	-	-	-	-	-	-	2	
KARN-50CN+	DC-8	N-Type	M w/chain	46	44	40	37	35	-	-	-	-	-	-	2	
ANNE-50RP+	DC-6	SMA	M Reverse Polarity	35	35	35	35	-	-	-	-	-	-	-	1	
ROSE-50+	DC-6	SMB	F	50	49	45	45	-	-	-	-	-	-	-	0.50	
TTRM-50+	DC-6	TNC	M	24	24	22	21	-	-	-	-	-	-	-	2	
BTRM-50+	DC-2	BNC	M	30	21	-	-	-	-	-	-	-	-	-	0.50	
LOUIS-50	DC-2	DIN 1.0/2.3	M	42	36	-	-	-	-	-	-	-	-	-	0.125	
BTRM-75+	DC-1	BNC	M-75Ω	33	-	-	-	-	-	-	-	-	-	-	0.50	

TERM-500W-14N+\*, Up to 500 Watts

TERMINATIONS

SWITCHES

# TEST SOLUTIONS



Software-controlled building blocks in-stock for automation of lab and production test environments

- Ultra-reliable mechanical switches capable of extended life up to 10-million switch cycles!
- Solid-state switches with extremely fast switching times
- USB, Ethernet, SPI and RS232 control interfaces available
- Single and multi-channel solutions available

## LAB SWITCH BOXES, USB/Ethernet, DC to 40 GHz

Model	Frequency Range (GHz)	Switch Type	Control Interfaces	Number of Switches	Insertion Loss (dB), Typ.	Isolation (dB), Typ.	VSWR (:1), Typ.	RF Power (W), Max.
RC-2SP4T-40	DC-40	SP4T	USB & Ethernet	2	0.30	80	1.3	20
RC-2SP6T-40	DC-40	SP6T	USB & Ethernet	2	0.40	80	1.7	20
RC-1SP6T-26	DC-26.5	SP6T	USB & Ethernet	1	0.25	90	1.35	20
RC-2SP6T-26	DC-26.5	SP6T	USB & Ethernet	2	0.25	90	1.35	20
RC-2SP4T-26	DC-26.5	SP4T	USB & Ethernet	2	0.20	80	1.35	20
RC-1SP4T-A18	DC-18	SP4T	USB & Ethernet	1	0.25	80	1.2	20
RC-1SPDT-A18	DC-18	SPDT	USB & Ethernet	1	0.25	80	1.2	20
RC-2MTS-18	DC-18	Transfer	USB & Ethernet	2	0.20	86	1.15	10
RC-2SP4T-A18	DC-18	SP4T	USB & Ethernet	2	0.25	80	1.2	20
RC-2SPDT-A18	DC-18	SPDT	USB & Ethernet	2	0.25	80	1.2	20
RC-3SPDT-A18	DC-18	SPDT	USB & Ethernet	3	0.25	80	1.2	20
RC-4SPDT-A18	DC-18	SPDT	USB & Ethernet	4	0.25	80	1.2	20
RC-8SPDT-A18	DC-18	SPDT	USB & Ethernet	8	0.25	80	1.2	20
USB-1SP4T-A18	DC-18	SP4T	USB	1	0.25	80	1.2	20
USB-1SPDT-A18	DC-18	SPDT	USB	1	0.25	80	1.2	20
USB-2SPDT-A18	DC-18	SPDT	USB	2	0.25	80	1.2	20
USB-3SPDT-A18	DC-18	SPDT	USB	3	0.25	80	1.2	20
USB-4SPDT-A18	DC-18	SPDT	USB	4	0.25	80	1.2	20
USB-8SPDT-A18	DC-18	SPDT	USB	8	0.25	80	1.2	20
RC-1SP6T-A12	DC-12	SP6T	USB & Ethernet	1	0.20	90	1.2	20
RC-2SP6T-A12	DC-12	SP6T	USB & Ethernet	2	0.20	90	1.2	20

## PROGRAMMABLE ATTENUATORS, USB/SPI/etc., 1 MHz to 40 GHz

Model	Frequency Range (MHz)	Control Interface	Number of Channels	Atten. Range (dB), Typ	Atten. Step (dB), Typ	Insertion Loss (0 dB Setting) (dB), Max	Atten. Accuracy (dB), Typ	Max Input Power (dBm)	IP3 (dB), Typ
RCDAT-40G-30	100-40000	USB & Ethernet	1	30	0.5	16.0	± 1.0	24	38
RCDAT-30G-30	100-30000	USB & Ethernet	1	30	0.5	16.0	± 0.8	24	38
RUDAT-13G-90	10-13000	USB, SPI & RS232	1	90	0.5	17.5	± 0.6	23	41
RUDAT-13G-60	10-13000	USB, SPI & RS232	1	60	0.5	14	± 0.5	23	41
RCDAT-8000-30	1-8000	USB & Ethernet	1	30	0.25	6.0	± 0.4	28	52
RCDAT-8000-60	1-8000	USB & Ethernet	1	60	0.25	10.0	± 0.75	28	51
RCDAT-8000-90	1-8000	USB & Ethernet	1	90	0.25	10.0	± 0.8	28	51
RC4DAT-8G-95	1-8000	USB & Ethernet	4	95	0.25	12.0	± 0.8	28	51
RC4DAT-6G-60	1-6000	USB & Ethernet	4	63	0.25	7.5	± 0.6	23	53
RC4DAT-6G-95	1-6000	USB & Ethernet	4	95	0.25	10.0	± 0.4	20	54
RC4DAT-6G-30	1-6000	USB & Ethernet	4	30	0.25	5.0	± 0.35	23	53
RCDAT-6000-30	1-6000	USB & Ethernet	1	30	0.25	5.0	± 0.4	20	56
RCDAT-6000-60	1-6000	USB & Ethernet	1	60	0.25	7.5	± 0.3	20	55
RCDAT-6000-90	1-6000	USB & Ethernet	1	90	0.25	10.0	± 0.4	20	54
RCDAT-6000-110	1-6000	USB & Ethernet	1	110	0.25	11.5	± 0.45	20	53
RUDAT-6000-30	1-6000	USB & RS232	1	30	0.25	5.0	± 0.3	20	50
RUDAT-6000-60	1-6000	USB & RS232	1	60	0.25	7.0	± 0.3	20	50
RUDAT-6000-90	1-6000	USB & RS232	1	90	0.25	10.0	± 0.4	20	50
RUDAT-6000-110	1-6000	USB & RS232	1	110	0.25	11.5	± 0.45	20	53
RCDAT-4000-120	1-4000	USB & Ethernet	1	120	0.25	10.5	± 0.5	20	53
RUDAT-4000-120	1-4000	USB & RS232	1	120	0.25	10.5	± 0.5	20	53
RCDAT-3000-63W2	50-3000	USB & Ethernet	1	63	1.0	7.5	± 0.4	33	54
ZVVA-3000	20-3000	USB & RS232	1	25	0.1	6	± 0.7	23	52

## POWER SENSORS, USB/Ethernet, 0.009 MHz to 8 GHz

Model	Frequency Range (MHz)	Control	Sensor Type	Impedance (Ω)	Input Power (dBm), Min	Input Power (dBm), Max	Dynamic Range (dB), Typ	Measurement Speed (ms)
PWR-8P-RC	10-8000	USB & Ethernet	Peak & Avg.	50	-60	+20	80	0.002
PWR-8FS	1-8000	USB	CW	50	-30	+20	50	10
PWR-8GHS	1-8000	USB	CW	50	-30	+20	50	30
PWR-8GHS-RC	1-8000	USB & Ethernet	CW	50	-30	+20	50	30
PWR-6GHS	1-6000	USB	CW	50	-30	+20	50	30
PWR-6LGHS	50-6000	USB	CW	50	-45	+10	55	30
RPWR-6LRMS-RC	50-6000	USB & Ethernet	RMS	50	-45	+10	55	30
PWR-6RMS-RC	50-6000	USB & Ethernet	RMS	50	-35	+20	55	30
RPWR-4GHS	0.009-4000	USB	CW	50	-30	+20	50	30
PWR-2.5GHS-75	0.1-2500	USB	CW	75	-30	+20	50	30

# TEST ACCESSORIES PRODUCT GUIDE

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