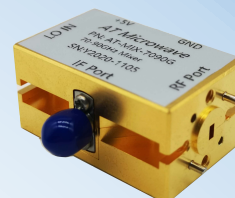
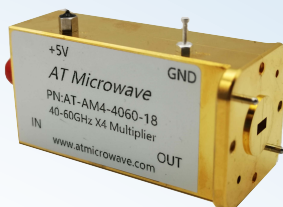
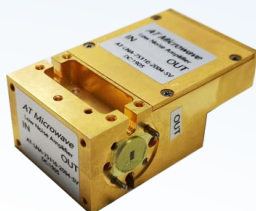




上海鳌太电子科技有限公司

Shanghai AT Microwave Limited



AT Microwave Products Selection Guide 2021

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Part 2: Waveguide Products 40-170GHz

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Part 1: Coaxial Products DC-70GHz

1. Amplifier Module-Coaxial

1.1 Coaxial LNA

Part Number	Low Freq.	High Freq.	Gain	NF	P1dB	Current	Vd	Connector
	(GHz)	(GHz)	(dB)	(dB)	(dBm)	(mA)	(V)	
AT-LNA-0020-1503X	50kHz	20	15	3	15	80	8	SMA
AT-LNA-0020-2803X	50kHz	20	28	3	15	160	8	SMA
AT-LNA-00402304Y	50kHz	40	23	4	10	170	5	2.92mm
AT-LNA-00403504Y	50kHz	40	35	4	10	300	5	2.92mm
AT-LNA-00402304C	0.01	40	23	4	13	170	8	2.92mm
AT-LNA-00403504C	0.01	40	35	4	13	300	8	2.92mm
AT-LNA-00502305C	0.01	50	23	5	13	170	8	2.4mm
AT-LNA-00503505C	0.01	50	35	5	13	300	8	2.4mm
AT-LNA-0003-2801X	0.1	3.5	28	0.8	15	100	8	SMA
AT-LNA-0018-2502X	0.1	18	25	2	15	80	8	SMA
AT-LNA-0018-4002X	0.1	18	40	2	15	120	8	SMA
AT-LNA-00208-3502S	0.2	8	35	2	16	160	8	SMA
AT-LNA-00508-2002S	0.5	8	20	1.8	16	80	8	SMA
AT-LNA-0118-1302X	1	18	13	1.8	15	50	8	SMA
AT-LNA-0118-2702X	1	18	27	1.8	15	100	8	SMA
AT-LNA-0118-4002X	1	18	40	1.8	15	130	8	SMA
AT-LNA-0240-2504C	2	40	25	4	10	150	5	2.92mm
AT-LNA-0240-3804C	2	40	38	4	10	250	5	2.92mm
AT-LNA-0250-2505C	2	50	25	5	10	200	5	2.4mm
AT-LNA-0250-3805C	2	50	38	5	10	300	5	2.4mm
AT-LNA-0618-2202X	6	18	22	2	13	50	8	SMA
AT-LNA-1550-4505XC	15	50	45	5	16	400	8	2.4mm
AT-LNA-1832-2503Y	18	32	25	3	10	200	8	2.92mm
AT-LNA-1832-4503Y	18	32	45	3	10	300	8	2.92mm
AT-LNA-1840-3335Y	18	40	30	3.5	13	200	8	2.92mm
AT-LNA-1840-4035L	18	40	40	3.5	13	220	5	2.92mm
AT-LNA-1840-4035X	18	40	40	3.5	20	350	8	2.92mm
AT-LNA-1840-5035L	18	40	50	3.5	13	250	5	2.92mm
AT-LNA-2244-2325	22	44	23	2.5	6	50	5	2.4mm
AT-LNA-2244-3825	22	44	38	2.5	6	150	5	2.4mm
AT-LNA-4060-1605VC	40	60	16	5	10	150	5	1.85mm
AT-LNA-4060-3305VC	40	60	33	5	14	250	5	1.85mm
AT-LNA-5565-1805VG	52	67	18	5	8	100	5	1.85mm
AT-LNA-5565-3505VG	52	67	35	5	8	200	5	1.85mm

AT-LNA-1840-4035X:

18-40GHz High gain, high power Low Noise Amplifier, 2.92mm Female

Advantages

- ✓ Frequency: 18-40GHz
- ✓ Small signal gain: 40dB
- ✓ NF=3.5dB
- ✓ Pout=+20dBm
- ✓ Single Power Supply



AT-LNA-0250-2505C

2-50GHz Low Noise Amplifier, 2.4mm Female, 25dB and 38dB gain available.

Advantages

- ✓ Frequency: 2-50GHz
- ✓ Small signal gain: 25/38dB
- ✓ NF=5dB
- ✓ Pout=+15dBm
- ✓ Single Power Supply

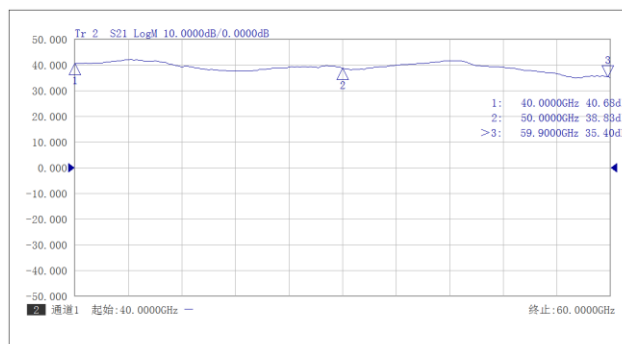


AT-LNA-4060-3306VC

40-60GHz high gain Low Noise Amplifier, 1.85mm Female

Advantages

- ✓ Frequency: 40-60GHz
- ✓ Small signal gain: 33dB
- ✓ Noise Figure 6dB
- ✓ Pout=+16dBm
- ✓ Single Power Supply





1.2 High Power LNA (Pout>+20dBm)

Part Number	Low Freq.	High Freq.	Gain	NF	P1dB	Current	Vd	Connector
	(GHz)	(GHz)	(dB)	(dB)	(dBm)	(mA)	(V)	
AT-LNA-0020-4303P25	0.01	20	43	3	24	350	12	SMA
AT-LNA-0018-4002P25	0.1	18	40	2	24	350	12	SMA
AT-LNA-0040-2504HP	0.01	40	25	4	20	350	8	2.92mm
AT-LNA-0040-3804HP	0.01	40	38	4	20	550	8	2.92mm
AT-LNA-0118-4002P29	1	18	40	2	28	450	12	SMA
AT-LNA-0118-2702P22	1	18	27	2	20	250	8	SMA
AT-LNA-0218-4502P23	2	18	45	2	22	350	12	SMA
AT-LNA-0240-3804HP	2	40	38	4	20	330	8	SMA
AT-LNA-0618-3002P27	6	18	30	2.5	26	450	12	SMA
AT-LNA-0618-5025P29	6	18	50	2.5	27	600	12	SMA
AT-LNA-1840-4035X	18	40	40	3.5	20	350	8	2.92mm
AT-LNA-1840-5035HP	18	40	50	3.5	20	400	8	2.92mm
AT-LNA-2244-4025P23	22	44	40	2.5	22	550	8	2.4mm

1.3 Coaxial Power Amplifier

Part Number	Low Freq.	High Freq.	Gain	P1dB	Psat	Current	Vd	Connector
	(GHz)	(GHz)	(dB)	(dBm)	(dBm)	(mA)	(V)	
AT-PA-0120-1029X	1	20	10	28	29	350	12	SMA
AT-PA-0120-2529X	1	20	25	28	29	500	12	SMA
AT-PA-0220-1820X	2	20	18	19	20	150	8	SMA
AT-PA-0229-2018M	2	29	20	16	18	150	8	2.92mm
AT-PA-0618-3027X	6	18	30	26	27	480	12	SMA
AT-PA-0620-1318X	6	20	13	17	18	130	8	SMA
AT-PA-1550-1517X	15	50	15	15	17	190	8	2.4mm
AT-PA-1550-3017X	15	50	30	15	17	380	8	2.4mm
AT-PA-1823-5020X	18	23	50	18	29	350	8	SMA
AT-PA-1829-2728X	18	29.5	27	26	28	800	8	2.92mm
AT-PA-1840-3020X	18	40	30	19	20	300	8	2.92mm
AT-PA-1840-3530GN	18	40	35	28	30	850	12	2.92mm
AT-PA-2040-3023Y	20	40	30	22	23	560	8	2.92mm
AT-PA-2050-2023T	20	50	20	20	23	500	8	2.4mm
AT-PA-2050-3323T	20	50	33	20	23	700	5	2.4mm
AT-PA-2247-1823C	22	47	18	22	23	500	8	2.4mm
AT-PA-2731-5020X	27	31	50	18	20	350	8	2.92mm
AT-PA-2731-2522X	27	31	25	20	22	150	8	2.92mm
AT-PA-3337-1326X	33	37	13	25	26	700	8	2.92mm
AT-PA-3337-2826X	33	37	28	25	26	800	8	2.92mm
AT-PA-3567-1520VC	35	67	15	18	20	250	8	1.85mm
AT-PA-3767-3320VC	37	67	33	18	20	500	8	1.85mm
AT-PA-5565-1520VG	55	65	15	18	20	250	5	1.85mm
AT-PA-5565-1522VG	55	65	15	20	22	350	5	1.85mm

AT-PA-2040-3023Y

20-40GHz, High gain, Medium Power Amplifier , 2.92mm Female

Advantages

- ✓ Frequency: 20-40GHz
- ✓ Psat:+23dBm
- ✓ Small signal gain: 30dB
- ✓ NF=4dB
- ✓ Single Power Supply

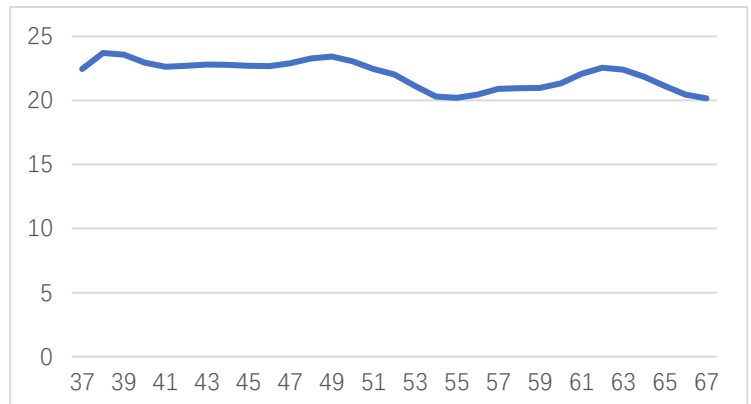


AT-PA-3767-3320VC

37-67GHz Power Amplifier, 1.85mm Female

Advantages

- ✓ Frequency: 37-67GHz
- ✓ P1/Psat:+18/20dBm
- ✓ Small signal gain: 33dB
- ✓ NF=6dB
- ✓ Single Power Supply



1.4 High Power Amplifier($\geq +33\text{dBm}$)

Part Number	Low Freq.	High Freq.	Gain	P1dB	Psat	Current	Vd	Connector
	(GHz)	(GHz)	(dB)	(dBm)	(dBm)	(A)	(V)	
AT-HPA-0206-2534N	2	6	25	33	34	2	10	SMA
AT-HPA-0206-4036N	2	6	40	34	36	2.8	12	SMA
AT-HPA-0206-4038N	2	6	40	36	38	4.5	11	SMA
AT-PHA-0618-3535N	6	18	35	33	35	3	10	SMA
AT-HPA-2227-4034N	22	27	40	32	34	3	8	2.92mm
AT-HPA-2531-4035N	25	31	40	33	35	3	10	2.92mm
AT-HPA-2640-3533N	26.5	40	33	31	33	3.5	8	2.92mm
AT-HPA-3340-4035N	33	40	40	33	35	3.6	8	2.92mm



AT-HPA-2640-3533N

26.5-40GHz High Power Amplifier, Gain=35dB, Pout=+33dBm

Advantages

- ✓ Frequency: 26-40GHz
- ✓ Psat: +33dBm
- ✓ Small signal gain: 35dB
- ✓ Single Power Supply

Application

- ✓ 5G Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

AT-HPA-3340-4035N

33-40GHz, High Gain, High Power=+35dBm
2.92mm Female

Advantages

- ✓ Frequency: 33-40GHz
- ✓ Psat: +34.5dBm
- ✓ Small signal gain: 40dB
- ✓ Single Power Supply



1.5 Broadband Amplifier

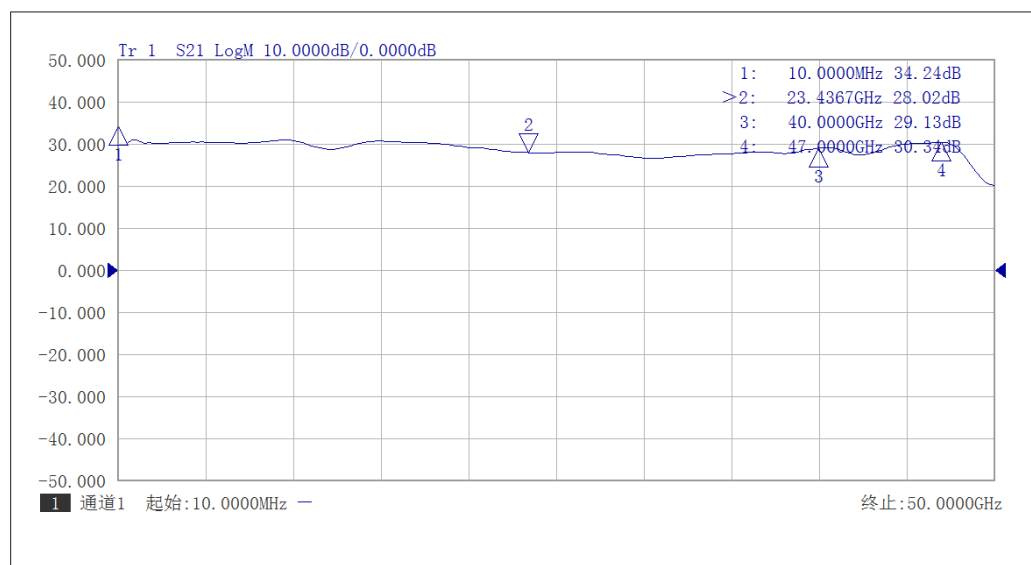
Part Number	Low Freq.	High Freq.	Gain	P1dB	Psat	Current	Vd	Connector
	(GHz)	(GHz)	(dB)	(dBm)	(dBm)	(mA)	(V)	
AT-BB-0006-1328A	0.01	6	13	27	28	500	15	SMA
AT-BB-0006-2428A	0.01	6	24	27	28	800	15	SMA
AT-BB-0020-3021X	0.01	20	30	20	21	300	9	SMA
AT-BB-0026-2527C	0.01	26.5	25	26	27	500	10	SMA
AT-BB-0043-2720C	0.01	43	27	19	20	400	8	2.92mm
AT-BB-0043-4320C	0.01	43	43	19	20	600	8	2.92mm
AT-BB-0047-2720C	0.01	47	27	18	20	400	8	2.4mm
AT-BB-0047-4320C	0.01	47	40	18	20	600	8	2.4mm
AT-BB-0067-1815C	0.01	67	18	13	15	300	8	1.85mm
AT-BB-0067-2515C	0.01	67	25	13	15	450	8	1.85mm
AT-BB-0367-1815C	3	67	18	13	15	220	8	1.85mm
AT-BB-0367-2515C	3	67	25	13	15	350	8	1.85mm

AT-BB-0043-2720C

10MHz-43/47GHz, Broadband Amplifier,
2.92mm, 2.4mm, 1.85mm available

Advantages

- ✓ Frequency: 10MHz-43GHz, 10MHz-47GHz, 10MHz-67GHz
- ✓ Small signal gain: 27dB, 43dB
- ✓ Noise Figure 6dB
- ✓ Pout=+22dBm
- ✓ Single Power Supply

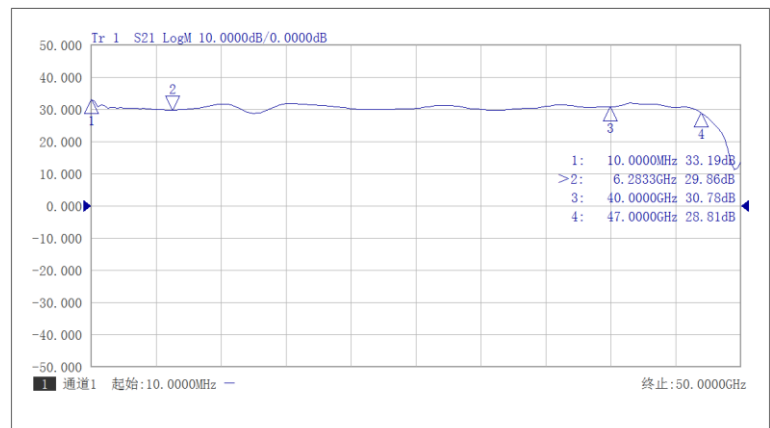


1.6 Optical Modulator Driver

Part Number	Low Freq.	High Freq.	Gain	P1dB	Psat	Current	Vd	Connector
	(kHz)	(GHz)	(dB)	(dBm)	(dBm)	(mA)	(V)	
AT-BBLF-0020-3020C	50	20	30	20	23	300	9	2.92mm
AT-BBLF-0020-2527A	50	20	25	26	27	500	12	2.92mm
AT-BBLF-0028-2520C	50	28	25	20	23	400	8	2.92mm
AT-BBLF-0030-2528A	50	30	25	27	28	400	12	2.92mm
AT-BBLF-0043-2720C	50	43	27	19	20	400	9	2.92mm
AT-BBLF-0047-2720C	50	47	27	18	20	400	9	2.4mm
AT-BBLF-0060-1815C	50	60	18	13	15	300	9	1.85mm
AT-BBLF-0067-1815C	50	67	18	13	15	300	9	1.85mm
AT-BBLF-0067-2515C	50	67	25	13	15	450	9	1.85mm

AT-BBLF-0047-2720C

50kHz-43/47GHz, Broadband Amplifier for Optical Modulator Driver

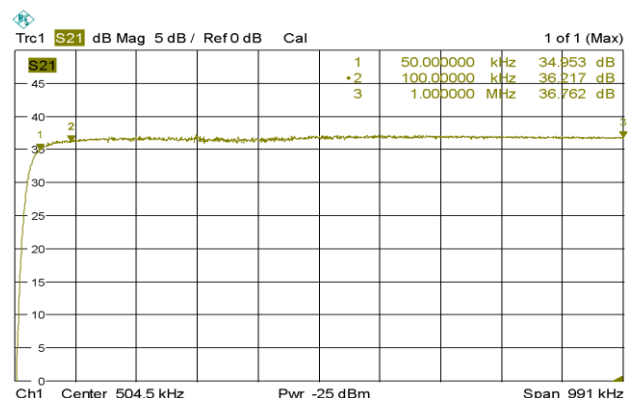


Advantages

- ✓ Frequency: 50kHz-43/47GHz
- ✓ Psat: +22dBm
- ✓ Vout=7.9Vpp
- ✓ Small signal gain: 27dB
- ✓ Single Power Supply

Application

- ✓ Optical Modulator Driver
- ✓ 5G Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar Communication

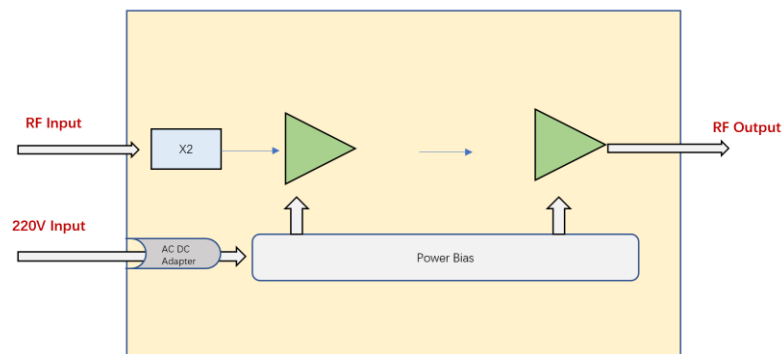


1.7 Low Phase Noise Amplifier

Part Number	Low Freq.	High Freq.	Gain	Psat	Phase Noise	Vd	Connector
	(GHz)	(GHz)	(dB)	(dBm)	dBc/Hz 10kHz		
AT-LPNA-0220-1520C	2	20	15	+20	-163	8	SMA
AT-LPNA-0618-1518C	6	18	15	+18	-163	8	SMA
AT-LPNA-0822-1515C	8	22	15	+15	-163	8	SMA

1.8 Bench-Top Amplifier(+220V)

Part Number	Low Freq.	High Freq.	Gain	P1dB	Psat	NF	Vd	Connector
	(GHz)	(GHz)	(dB)	(dBm)	(dBm)	(dB)	(V)	
AT-BTLNA-0250-3805C	2	50	38	10	13	5	220	2.4mm
AT-BTBB-0043-2720C	0.01	43	43	18	20	6	220	2.92mm
AT-BTBB-0047-2720C	0.01	47	43	18	20	6	220	2.4mm
AT-BTBB-0067-1815C	0.01	67	18	12	15	6	220	1.85mm
AT-BTBB-0067-2715C	0.01	67	27	13	15	6	220	1.85mm



2. Mixer Modules-Coaxial

Part Number	RF/LO Low(GHz)	RF/LO High (GHz)	IF Low /GHz	IF High (GHz)	LO Drive (dBm)	Loss [dB]	ISO L- R [dB]	IIP3 [dBm]	Connector
AT-MIX-1432A	14	32	DC	10	11 to 20	10	40	22	2.92mm
AT-MIX-1844	18	44	DC	10	11 to 20	10	40	22	2.92mm
AT-MIX-2238A	22	38	DC	8	9 to 13	8	40	12	2.92mm
AT-MIX-5067A	50/40	67	DC	26	12	10	30	12	1.85mm

3. IQ Mixer-Coaxial

Part Number	RF/LO Low /GHz	RF/LO High /GHz	IF Low /MHz	IF High /GHz	CL[dB]	Image Rejection [dB]	Connector
AT-IQM-0626A	6	26.5	DC	3.5	8.5	29	SMA
AT-IQM-2232A	22	32	DC	3.5	8.5	29	2.92mm
AT-IQM-2040A	20	40	DC	3.5	8.5	29	2.92mm

4. Frequency Source

4.1 X2 Active Coaxial Multiplier

Part Number	Type	Fin Low /GHz	Fin High /GHz	Fout Low/GHz	Fout High/GHz	Input /dBm	Pout	Connector
AT-AM2-0826-13C	Active X2	4	13.5	8	26.5	+3	+13	2.92mm
AT-AM2-1030-13L	Active X2	5	15	10	30	0	+13	2.92mm
AT-AM2-1844-00C	Active X2	9	22	18	44	+5	+0	2.92mm
AT-AM2-1844-17XC	Active X2	9	22	18	44	+5	+17	2.92mm
AT-AM2-2040-15L	Active X2	10	20	20	40	+5	+15	2.92mm
AT-AM2-2040-20L	Active X2	10	20	20	40	+5	+20	2.92mm
AT-AM2-2040-20	Active X2	10	20	20	40	+13	+20	2.92mm
AT-AM2-2050-23T	Active X2	10	25	20	50	+8	+23	2.4mm
AT-AM2-3567-18C	Active X2	17.5	33.5	35	67	+13	+18	1.85mm

4.2 X3 Active Coaxial Multiplier

Part Number	Type	Fin Low /GHz	Fin High /GHz	Fout Low/GHz	Fout High/GHz	Input /dBm	Pout	Connector
AT-AM3-2227-23T	Active X3	22	27	7.33	9	+5	+23	2.92mm
AT-AM3-3234-23T	Active X3	32	34.5	8	11.5	+5	+23	2.92mm
AT-AM3-4245-20T	Active X3	42	45	14	15	+5	+20	2.4mm
AT-AM5-3234-23T	Active X5	32	34.5	6.4	6.9	+5	+23	2.92mm
AT-AM5-4245-20T	Active X5	42	45	8.4	9	+5	+20	2.4mm

AT-AM2-1844-17XC

X2 Active Frequency Doubler, 18-44GHz, Pout=+17dBm

Feature

- ✓ Frequency: 18-44GHz
- ✓ Pout: +17dBm typical
- ✓ Input: 9-22GHz
- ✓ Low Harmonics



4.3 X4 Active Coaxial Multiplier

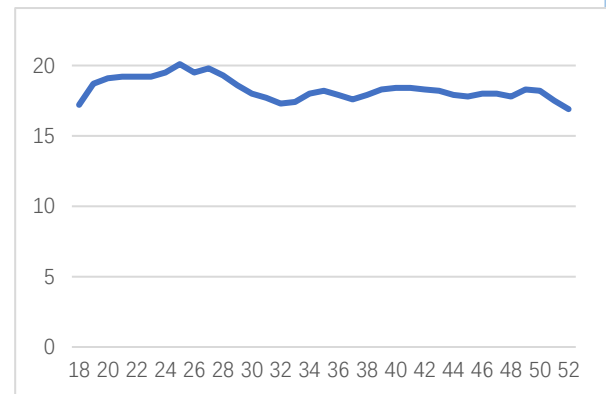
Part Number	Type	Fin Low /GHz	Fin High /GHz	Fout Low/GHz	Fout High/GHz	Input /dBm	Pout	Connector
AT-AM4-2040-13	Active X4	5	10	20	40	+13	+13	2.92mm
AT-AM4-2040-20	Active X4	5	10	20	40	+13	+20	2.92mm
AT-AM4-1852-17X	Active X4	4.5	13	18	52	+13	+17	2.4mm
AT-AM4-2050-20T	Active X4	5	12.5	20	50	+15	+20	2.4mm
AT-AM4-2060-13	Active X4	5	15	20	60	+13	+13	1.85mm
AT-AM4-3560	Active X4	8.75	15	35	60	+13	-3	1.85mm
AT-AM4-3567-13C	Active X4	8.75	16.75	35	67	+13	+13	1.85mm
AT-AM4-3567-18C	Active X4	8.75	16.75	35	67	+13	+18	1.85mm

AT-AM4-1852-17X

X4 Active Frequency Multiplier, 18-52GHz, Pout=+17dBm

Feature

- ✓ Frequency: 18-52GHz
- ✓ Pout: +17dBm typical
- ✓ Input: 4.5-11GHz
- ✓ Low Harmonics



AT-AM4-3567-18C

X4 Active Frequency Multiplier, 35-67GHz, Pout=+18dBm
1.85mm Female

Feature

- ✓ Frequency: 35-67GHz
- ✓ Pout: +17dBm typical
- ✓ Input: 8.75-16.75GHz
- ✓ Low Harmonics



4.3 Passive Multiplier

Part Number	Type	Freq Low /GHz	Freq High /GHz	Fout Low/GHz	Fout High/GHz	Drive /dBm	CL /DB	Connector
AT-PM2-1840C	Passive X2	9	20	18	40	17	-15	2.92mm
AT-PM2-1850C	Passive X2	9	25	18	50	17	-15	2.4mm
AT-PM2-2060C	Passive X2	10	30	20	60	7	-11	1.85mm
AT-PM2-4067A	Passive X2	20	33.5	40	67	10	-12	1.85mm
AT-PM3-5070	Passive X3	16.6	23.33	50	70	18	-18	1.85mm

4.4 Frequency Divider

Part Number	Type	Input Low (GHz)	Input High (GHz)	Input Power (dBm)	Output Power (dBm)	100kHz SSB Phase Noise (dBc/Hz)	Connector
AT-FD2-30	Divide-by-2	0.5	30	-15 to +8	-3	-152	2.92mm
AT-FD4-30	Divide-by-4	0.5	30	-15 to +8	-3	-152	2.92mm
AT-FD8-30	Divide-by-8	0.5	30	-15 to +8	-3	-152	2.92mm
AT-FDN-30	N=1/2/4/8	0.5	30	-15 to +8	-3	-152	2.92mm

4.5 VCO Module

Part Number	Type	Freq Low (GHz)	Freq High (GHz)	Output Power (dBm)	Vtune	100kHz SSB Phase Noise (dBc/Hz)	Connector
AT-VCO-0408A	VCO	4	8	+3	0~18	-100	SMA
AT-VCO-0408A-20	HP VCO	4	8	+20	0~18	-100	SMA
AT-VCO-0510A	VCO	5	10	+3	0~18	-100	SMA
AT-VCO-0510A-20	HP VCO	5	10	+20	0~18	-100	SMA
AT-VCO-0612A	VCO	6	12	0	0~23	-95	SMA
AT-VCO-0612A-20	HP VCO	6	12	+20	0~23	-95	SMA
AT-VCO-0816A	VCO	8	16	+3	0~23	-95	SMA
AT-VCO-0816A-20	HP VCO	8	16	+20	0~23	-95	SMA
AT-VCO-1020A	VCO	10	20	+3	0~23	-95	SMA
AT-VCO-1020A-12	HP VCO	10	20	+12	0~23	-95	SMA
AT-VCO-1020A-18	HP VCO	10	20	+18	0~23	-95	SMA
AT-VCO-2040-20	HP VCO	20	20	+20	0~23	-85	2.92mm

4.6 PDRO

Part Number	Reference	Frequency (GHz)	Output Power (dBm)	Harmonics	Spurs	100kHz Phase Noise (dBc/Hz)	Connector
AT-PDRO-9R4-ER	External	9.4GHz	+10	-20	-70	-120	SMA
AT-PDRO-12-ER	External	12GHz	+10	-20	-70	-120	SMA
AT-PDRO-18-ER	External	18GHz	+10	-20	-70	-110	SMA
AT-PDRO-28-ER	External	28GHz	+10	-20	-70	-108	SMA
AT-PDRO-9R4-IR	Internal	9.4GHz	+10	-20	-70	-120	SMA
AT-PDRO-12-IR	Internal	12GHz	+10	-20	-70	-120	SMA
AT-PDRO-18-IR	Internal	18GHz	+10	-20	-70	-110	SMA
AT-PDRO-28-IR	Internal	28GHz	+10	-20	-70	-108	SMA

5. Adapter-Coaxial

In-Series Adapter

Part Number	Type	Low Fre GHz	High Fre GHz	Connector #1	Connector #2	Insertion Loss /dB	VSWR
AT-AP-10X10X	In-Series	DC	110	1.0mm	1.0mm	0.8	1.35
AT-AP-18X18X	In-Series	DC	67	1.85mm	1.85mm	0.5	1.25
AT-AP-24X24X	In-Series	DC	50	2.4mm	2.4mm	0.5	1.25
AT-AP-29X29X	In-Series	DC	40	2.92mm	2.92mm	0.35	1.2
AT-AP-35X35X	In-Series	DC	32	3.5mm	3.5mm	0.2	1.2
AT-AP-SXSX	In-Series	DC	26.5	SMA	SMA	0.2	1.15
AT-AP-NXNX	In-Series	DC	18	N	N	0.2	1.15
AT-AP-BXBX	In-Series	DC	2	BNC	BNC	0.2	1.15

Between Series Adapter

Part Number	Type	Low Fre GHz	High Fre GHz	Connector #1	Connector #2	Insertion Loss /dB	VSWR
AT-AP-10X18X	Between-Series	DC	67	1.0mm	1.85mm	0.8	1.35
AT-AP-18X24X	Between-Series	DC	50	1.85mm	2.4mm	0.4	1.3
AT-AP-18X29X	Between-Series	DC	40	1.85mm	2.92mm	0.35	1.25
AT-AP-18X35X	Between-Series	DC	32	1.85mm	3.5mm	0.3	1.2
AT-AP-24X29X	Between-Series	DC	40	2.4mm	2.92mm	0.2	1.2
AT-AP-24X35X	Between-Series	DC	32	2.4mm	3.5mm	0.2	1.2
AT-AP-24XSX	Between-Series	DC	26.5	2.4mm	SMA	0.2	1.2
AT-AP-29X35X	Between-Series	DC	32	2.9mm	3.5mm	0.2	1.2
AT-AP-29XSX	Between-Series	DC	26.5	2.9mm	SMA	0.2	1.2
AT-AP-35XSX	Between-Series	DC	26.5	3.5mm	SMA	0.2	1.2
AT-AP-NXSX	Between-Series	DC	18	N	SMA	0.15	1.15

90 Degree Right-Angle Adapter

Part Number	Type	Low Fre GHz	High Fre GHz	Connector #1	Connector #2	Insertion Loss /dB	VSWR
AT-AP-29X29X-RA	Right-Angle	DC	40	2.92mm	2.92mm	0.5	1.2
AT-AP-35X35X-RA	Right-Angle	DC	32	3.5mm	3.5mm	0.2	1.2
AT-AP-SXSX-RA	Right-Angle	DC	26.5	SMA	SMA	0.2	1.15
AT-AP-NXNX-RA	Right-Angle	DC	18	N	N	0.2	1.15

Flange Adapter

Part Number	Type	Low Fre GHz	High Fre GHz	Connector #1	Connector #2	Insertion Loss /dB	VSWR
AT-AP-SFSF-FL	Flange	DC	26.5	SMA	SMA	0.2	1.15
AT-AP-KFKF-FL	Flange	DC	40	2.92mm	2.92mm	0.5	1.2
AT-AP-24F24F-FL	Flange	DC	50	2.4mm	2.4mm	0.8	1.2
AT-AP-18F18F-FL	Flange	DC	67	1.85mm	1.85mm	1	1.3

6. Cable Assembly

Part Number	Frequency /GHz	Insertion Loss /Db	VSWR	Diameter /mm	Connector
AF110 Series	DC-110	12.5	1.45	4.5	1.0mm
PS67 Series	DC-67	5	1.4	10	1.85mm
PS50 Series	DC-50	3.3	1.3	10	2.4mm
PS40 Series	DC-40	2.9	1.3	10	2.92mm
PS26 Series	DC-26.5	2.25	1.3	10	SMA
PS26L Series	DC-26.5	1.25	1.3	10	SMA

7. Filter-Coaxial

Coaxial Band Pass Filter

Part Number	Type	Center Frequency/GHz	Frequency Low 1dB Cut off/GHz	Freq High 1Db Cut off/GHz	Connector
AT-BPF-1113	BPF	12	11	13	SMA
AT-BPF-1518	BPF	16.5	15	18	SMA
AT-BPF-2226	BPF	24	22	26	2.92mm
AT-BPF-2432	BPF	28	24	32	2.92mm
AT-BPF-3242	BPF	37	32	42	2.92mm

8. Equalizer

Part Number	Type	Freq Low /GHz	Freq High /GHz	Loss at DC /Db	Loss at High/dB	Connector
AT-EQ03-26	Equalizer	DC	26.5	-3	-1.5	SMA
AT-EQ06-26	Equalizer	DC	26.5	-6	-1.5	SMA
AT-EQ10-26	Equalizer	DC	26.5	-10	-1.5	SMA
AT-EQ06-40	Equalizer	DC	40	-6	-2.5	2.92mm
AT-EQ10-40	Equalizer	DC	40	-10	-2.5	2.92mm
AT-EQ06-50	Equalizer	DC	50	-6	-3.0	2.4mm
AT-EQ10-50	Equalizer	DC	50	-10	-3.0	2.4mm

9. Analog Phase Shifter

9.1 180 Degree

Part Number	Type	Freq Low /GHz	Freq High /GHz	Phase /Degree	Control Vt /V	Connector
AT-APS-0207-180	180 Degree	2	7	180	0-14	SMA
AT-APS-0313-180	180 Degree	3	13	180	0-13	SMA
AT-APS-0518-180	180 Degree	5	18	180	0-13	SMA

9.2 360 Degree

Part Number	Type	Freq Low /GHz	Freq High /GHz	Phase /Degree	Control Vt /V	Connector
AT-APS-0102-360	360 Degree	0.95	2	360	0-14	SMA
AT-APS-0204-360	360 Degree	1.8	3.8	360	0-14	SMA
AT-APS-0306-360	360 Degree	3	6	360	0-14	SMA
AT-APS-0712-360	360 Degree	7	12.5	360	0-14	SMA
AT-APS-1118-360	360 Degree	11	18	360	0-14	SMA
AT-APS-1826-360	360 Degree	18	26.5	360	0-16	SMA
AT-APS-2431-360	360 Degree	24.5	31	360	0-14	2.92mm

10. Limiter

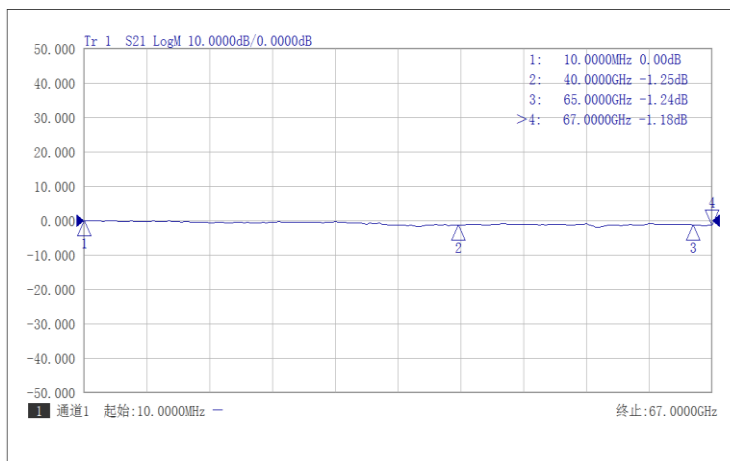
Part Number	Type	Freq Low /GHz	Freq High /GHz	Insertion Loss/Db	P1 /dBm	Leakage /dBm	Max Input /dBm	Connector
AT-LM06	Broadband	DC	6	0.3	+15	+17	+33	SMA
AT-LM12	Broadband	DC	12	0.4	+15	+17	+39	SMA
AT-LM18	Broadband	DC	18	0.4	+16	+19	+33	SMA
AT-LM20	Broadband	DC	18	0.7	+14	+16	+37	SMA
AT-LM40	Broadband	DC	40	1	+15	+18	+36	2.92mm

11. DC Block

Part Number	Type	Freq Low /MHz	Freq High /GHz	Insertion Loss/Db	Voltage /V	Connector
AT-DC-29M29F	DC Block	0.03	40	1	16	2.92mm
AT-DC-24M24F	DC Block	0.03	50	1	16	2.4mm
AT-DC-18M18F	DC Block	0.03	67	1	16	1.85mm

AT-DC-18M18F

30kHz-67GHz DC Block, 1.85mm Female

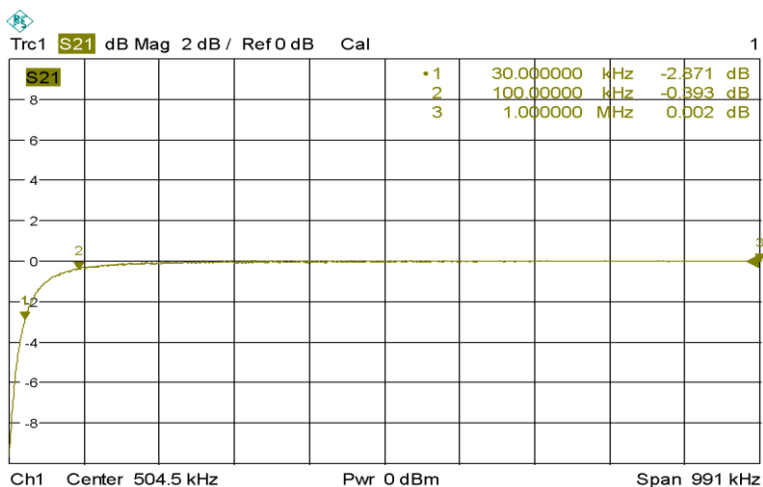


Advantages

- ✓ Frequency: 30kHz-67GHz
- ✓ Insertion Loss: -1.5dB
- ✓ Max Voltage: 16V
- ✓ Power Handling: +27dBm

Application

- ✓ 5G Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System
- ✓ Optical Application



12. Attenuator

12.1 Analog Voltage Control Attenuator

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL/Db	Range /dB	Voltage /V	Connector
AT-VVA-2050-35A	Analog	20	50	3	30	-5 to 0	2.4mm
AT-VVA-3067-20	Analog	30	67	3.5	20	-1.2 to 0	1.85mm
AT-VVA-3067-35	Analog	30	67	3.5	35	-1.2 to 0	1.85mm
AT-VVA-0050C	Analog	50kHz	50	3	25	-5 to 0	2.4mm
AT-VVA-0067C	Analog	50kHz	67	3.5	35	-5 to 0	1.85mm

12.2 Digital Control Attenuator

Part Number	Type	Freq Low /GHz	Freq High /GHz	Attenuation /dB	Step /dB	Connector
AT-DAT-0040-30	6bit Digital	9kHz	40	0 to 31.5	0.5	2.92mm
AT-DAT-0040-60	7bit Digital	9kHz	40	0 to 63	0.5	2.92mm
AT-DAT-0060-22	4bit Digital	0.01	60	0 to 22	2	1.85mm
AT-DAT-0060-44	5bit Digital	0.01	60	0 to 44	2	1.85mm

12.3 Fixed Attenuator

Part Number	Type	Freq Low /GHz	Freq High /GHz	Attenuation /dB	Connector 1	Connector 2
AT-FAT-XX-27	Fixed	DC	27	3/6/10/20/30	SMA Female	SMA Mal
AT-FAT-XX-40	Fixed	DC	40	3/6/10/20/30	2.92mm Female	2.92mm Male
AT-FAT-XX-50	Fixed	DC	50	3/6/10/20/30	2.4mm Female	2.4mm Male
AT-FAT-XX-67	Fixed	DC	67	3/6/10/20/30	1.85mm Female	1.85mm Male

13. Termination

Part Number	Type	Freq Low /GHz	Freq High /GHz	VSWR	Power/ W	Impedance /Ohms	Connector
AT-T50-SX	Termination	DC	18	1.2	2	50	SMA
AT-T50-35X	Termination	DC	27	1.2	2	50	3.5mm
AT-T50-29X	Termination	DC	40	1.25	1	50	2.92mm
AT-T50-24X	Termination	DC	50	1.35	1	50	2.4mm
AT-T50-18X	Termination	DC	67	1.5	1	67	1.85mm

14. Switch

14.1 GaAs MMIC Based Switch

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL /DB	Isolation /db	P1/dBm	Control /V	Connector
AT-SPDT-3567B	SPDT	35	67	-6	-25	-	-1.2V/0	1.85mm
AT-SPDT-0060	SPDT	9kHz	60	-4	-35	+23	+/-3.3V	1.85mm
AT-SPDT-0070C	SPDT	9kHz	70	-4	-35	+23	+/-3.3V	1.85mm

14.2 GaAs PIN Reflector Based Switch

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL /DB	Isolation /dB	P1 /dBm	Style	Connector
AT-SPST-0050XH-R	SPST	0.05	50	-2.5	33	+28	Reflective	2.4mm
AT-SPST-0040XH-R	SPST	0.1	40	-2.4	38	+30	Reflective	2.92mm
AT-SPST-0040XL-A	SPST	0.1	40	-3.1	33	+21	Absorptive	2.92mm
AT-SPST-1040XH-R	SPST	10	40	-2.4	38	+28	Reflective	2.92mm
AT-SPDT-0040XH-R	SPDT	0.05	40	-2.6	43	+28	Reflective	2.92mm
AT-SPDT-0040XL-R	SPDT	0.1	40	-2.9	50	+24	Reflective	2.92mm
AT-SPDT-0220GXH-R	SPDT	2	20	-2.3	46	+26	Reflective	SMA
AT-SPDT-1040XL-R	SPDT	10	40	-2.9	35	+20	Reflective	2.92mm
AT-SP3T-0040XH-R	SP3T	0.05	40	-2.7	42	+28	Reflective	2.92mm
AT-SP3T-0040XL-R	SP3T	0.05	40	-2.7	45	+24	Reflective	2.92mm
AT-SP3T-0220EXH-R	SP3T	2	20	-2.3	46	+25	Reflective	SMA
AT-SP3T-1040XL-R	SP3T	10	40	-2.7	39	+23	Reflective	2.92mm
AT-SP4T-0020XH-R	SP4T	0.05	20	-2.2	52	+28	Reflective	SMA
AT-SP4T-0026XL-R	SP4T	0.1	26	-2.2	52	+23	Reflective	SMA
AT-SP4T-0220XH-R	SP4T	2	20	-2.4	57	+25	Reflective	SMA
AT-SP4T-1040XL-R	SP4T	10	40	-3.2	40	+22	Reflective	2.92mm
AT-SP5T-0040XH-R	SP5T	0.1	40	-3.2	50	+28	Reflective	2.92mm
AT-SP5T-1040XL-R	SP5T	10	40	-3.5	44	+22	Reflective	2.92mm
AT-SP6T-0040XH-R	SP6T	0.1	40	-3.2	51	+28	Reflective	2.92mm
AT-SP6T-1040XL-R	SP6T	10	40	-3.3	51	+24	Reflective	2.92mm
AT-SP8T-0040XH-R	SP8T	0.1	40	-3.2	51	+28	Reflective	2.92mm
AT-SP8T-1040XL-R	SP8T	10	40	-3.6	45	+25	Reflective	2.92mm
AT-SP16T-0040XH-R	SP16T	0.1	40	-8	51	+23	Reflective	2.92mm



15. Power Divider

15.1 Resistor Power Divider

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL /DB	Amplitude Balance /dB	Degree Balance /Degree	VSWR	Connector
AT-RPD2-26	2Ways	DC	26.5	-6	+/-0.3	+/-4	1.5	SMA
AT-RPD2-40	2Ways	DC	40	-6	+/-0.3	+/-4	1.5	2.92mm
AT-RPD2-50	2Ways	DC	50	-6	+/-0.8	+/-7	1.5	2.4mm
AT-RPD2-67	2Ways	DC	67	-6	+/-0.8	+/-8	2.0	1.85mm
AT-RPD4-40	2Ways	DC	40	-12	+/-0.6	+/-7	1.5	2.92mm

15.2 Wilkinson Power Divider

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL /DB	Amplitude Balance /dB	Degree Balance /Degree	VSWR	Connector
AT-PD2-0R518	2Ways	0.5	18	-0.9	+/-0.3	+/-5	1.6	SMA
AT-PD2-0126	2Ways	1	26.5	-1.2	+/-0.5	+/-6	1.7	SMA
AT-PD2-0140	2Ways	1	40	-2.2	+/-0.5	+/-8	2.0	2.92mm
AT-PD2-0240	2Ways	2	40	-1.8	+/-0.4	+/-5	1.8	2.92mm
AT-PD2-0640	2Ways	6	40	-1.5	+/-0.4	+/-5	1.7	2.92mm
AT-PD2-1840	2Ways	18	40	-1.5	+/-0.4	+/-4	1.6	2.92mm
AT-PD4-0R518	4Ways	0.5	18	-2.5	+/-0.4	+/-8	2.0	SMA
AT-PD4-0218	4Ways	2	18	-1.8	+/-0.4	+/-6	1.8	SMA
AT-PD4-0240	4Ways	2	40	-2	+/-0.5	+/-10	2.1	2.92mm
AT-PD4-1840	4Ways	18	40	-1.6	+/-0.4	+/-8	1.8	2.92mm
AT-PD8-0R518	8Ways	0.5	18	-6.5	+/-0.8	+/-12	2.0	SMA
AT-PD8-0118	8Ways	1	18	-4	+/-0.5	+/-10	1.8	SMA
AT-PD8-0126	8Ways	1	26.5	-6	+/-0.8	+/-12	2.2	SMA
AT-PD8-0640	8Ways	6	40	-3.2	+/-0.5	+/-6	2.5	2.92mm
AT-PD8-1840	8Ways	18	40	-2.5	+/-0.5	+/-6	2	2.92mm
AT-PD16-0618	16Ways	6	18	-3.5	+/-0.5	+/-6	2	SMA
AT-PD16-1840	16Ways	18	40	-3.5	+/-0.5	+/-6	2	2.92mm



16. Hybrid

90 Degree Hybrid

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL /DB	Amplitude Balance /dB	Degree Balance /Degree	VSWR	Connector
AT-H90-0106	90 Degree	1	6	1	+/-0.7	+/-5	1.25	SMA
AT-H90-0218	90 Degree	2	18	1.3	+/-0.7	+/-6	1.5	SMA
AT-H90-0618	90 Degree	6	18	1	+/-0.6	+/-5	1.5	SMA

180 Degree Hybrid

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL /DB	Amplitude Balance /dB	Degree Balance /Degree	VSWR	Connector
AT-H180-0102	180 Degree	1	2	0.5	+/-0.5	+/-10	1.25	SMA
AT-H180-0218	180 Degree	2	18	2.3	+/-0.7	+/-10	1.5	SMA

17. Power Detector

Part Number	Type	Freq Low /GHz	Freq High /GHz	Power Range	Dynamic /dB	Vdd	Connector
AT-DET-0043E	Envelope	0.5	43.5	-25 to +15	40	+5V	2.92mm
AT-PD-5067-N1	Envelope	50	67	-20 to 0	20	+5V	1.85mm

Part 2: Waveguide Products 40-170GHz

1. Low Noise Amplifier-Waveguide

1.1 Full-band LNA



Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain	NF	Connector
AT-LNA-3350-2505C	Full Q Band	33	50	25	5	WR-22
AT-LNA-4060-1805C	Full U Band	40	60	18	5	WR-19
AT-LNA-4060-3805C	Full U Band	40	60	38	5	WR-19
AT-LNA-5075-1805T	Full V Band	50	75	18	5	WR-15
AT-LNA-5075-3805T	Full V Band	50	75	38	5	WR-15
AT-LNA-6090-1805T	Full E Band	60	90	18	5	WR-12
AT-LNA-6090-3805T	Full E Band	60	90	38	5	WR-12
AT-LNA-6090-3805HP	Full E Band	60	90	38	5	WR-12
AT-LNA-75105-2004	W Band	75	105	20	4	WR-10
AT-LNA-75110-1804T	W Band	75	110	18	4	WR-10
AT-LNA-75110-3504	Full W Band	75	110	35	4	WR-10
AT-LNA-75110-3504HP	Full W Band	75	110	35	4	WR-10
AT-LNA-110170-1806T	Full D Band	110	170	18	6	WR-06

AT-LNA-75110-2004

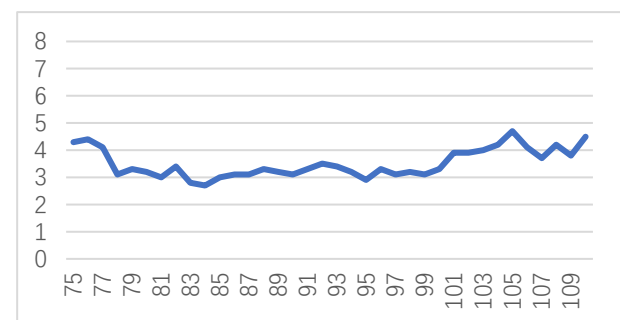
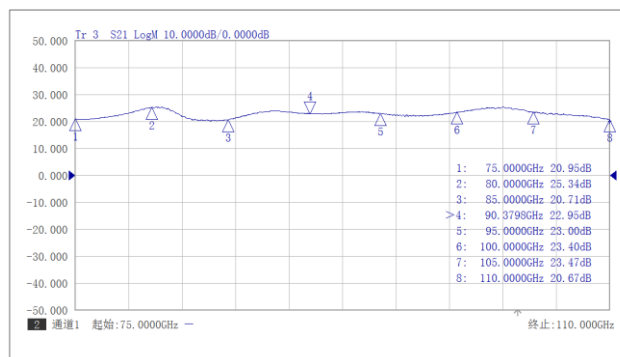
Full W Band Low Noise Amplifier, 75-110GHz, Gain=20dB, NF=4dB

Advantages

- ✓ Frequency: 75-110GHz
- ✓ High Gain: 20dB
- ✓ NF: 4dB
- ✓ Single Supply

Application

- ✓ W band Imaging
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

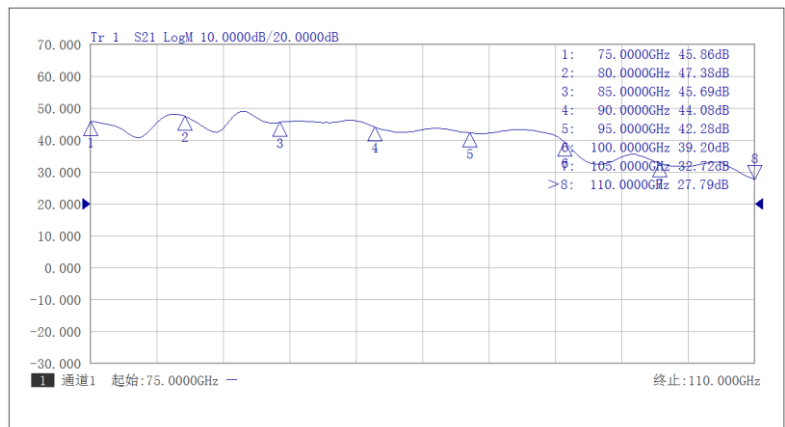


AT-LNA-75110-3504

Full W Band Low Noise Amplifier, 75-110GHz, High Gain=35dB, NF=4dB
WR-10

Advantages

- ✓ Frequency: 75-110GHz
- ✓ High Gain: 35dB
- ✓ NF: 4dB
- ✓ Single Supply



AT-LNA-110170-1806T

Full D Band Low Noise Amplifier, 110-170GHz, High Gain=18dB, NF=6dB
WR-06

Advantages

- ✓ Frequency: 110-170GHz
- ✓ High Gain: 18dB
- ✓ NF: 6dB
- ✓ Single Supply

Application

- ✓ D Band Communication
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

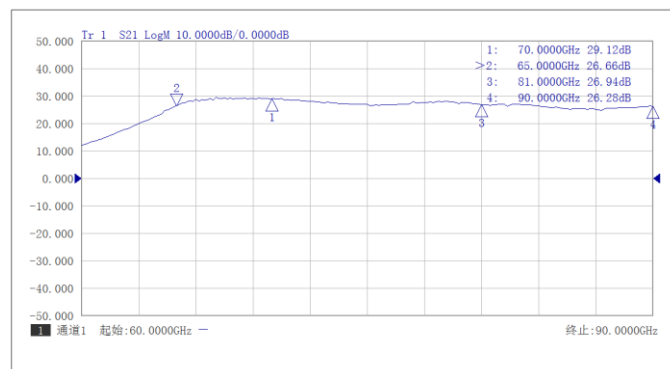


1.2 Narrow-Band LNA

Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain	NF	Connector
AT-LNA-5070-1805C	V Band	50	70	18	5	WR-15
AT-LNA-5070-3505C	V Band	50	70	35	5	WR-15
AT-LNA-7080-1805	E1 Band	70	80	18	5	WR-12
AT-LNA-7080-3505	E1 Band	70	80	35	5	WR-12
AT-LNA-7786-2005	E2 Band	77	86	20	5	WR-12
AT-LNA-7786-3805	E2 Band	77	86	38	5	WR-12
AT-LNA-7090-2304T	E Band	70	90	23	4	WR-12
AT-LNA-7590-2004	E Band	75	90	20	4	WR-12
AT-LNA-75105-2004	W Band	75	105	20	4	WR-10
AT-LNA-80105-1555	W Band	80	105	15	5.5	WR-10
AT-LNA-80105-3055	W Band	80	105	30	5.5	WR-10
AT-LNA-140200-2006T	G Band	140	200	20	6	WR-05
AT-LNA-195230-2008T	H Band	195	230	20	8	WR-4.3

AT-LNA-7090-2304T

70-90GHz Low Noise Amplifier, Gain=23dB , NF=4dB, WR-12

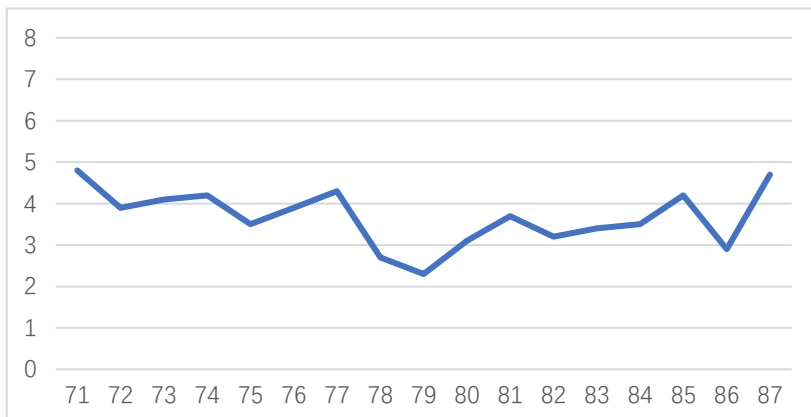


Advantages

- ✓ Frequency: 70-90GHz
- ✓ Gain: 23dB
- ✓ NF: 4dB
- ✓ Single Power Supply

Application

- ✓ E band Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



2. Power Amplifier

2.1 Full-band Power Amplifier

Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-PA-3350-1517X	Full Q Band	33	50	15	15	17	WR-22
AT-PA-3350-3017X	Full Q Band	33	50	30	15	17	WR-22
AT-PA-4060-1820C	Full U Band	40	60	18	18	20	WR-19
AT-PA-4060-3820C	Full U Band	40	60	38	18	20	WR-19
AT-PA-5075-1820T	Full V Band	50	75	18	18	20	WR-15
AT-PA-5075-3820T	Full V Band	50	75	38	18	20	WR-15
AT-PA-5585-1518	Full E Band	55	85	15	16	18	WR-12
AT-PA-6090-1313	Full E Band	60	90	13	10	13	WR-12
AT-PA-6090-2513	Full E Band	60	90	25	10	13	WR-12
AT-PA-6090-1818T	Full E Band	60	90	18	17	18	WR-12
AT-LNA-6090-3805HP	Full E Band	60	90	38	17	18	WR-12
AT-PA-6090-1620N	Full E Band	60	90	16	15	20	WR-12
AT-PA-6090-1027N	Full E Band	60	90	10	22	27	WR-12
AT-PA-6090-2727N	Full E Band	60	90	27	22	27	WR-12
AT-PA-6090-2531N	Full E Band	60	90	25	26	31	WR-12
AT-PA-75110-1513T	Full W Band	75	110	15	10	13	WR-10
AT-LNA-75110-3504HP	Full W Band	75	110	35	10	13	WR-10
AT-PA-75110-1620N	Full W Band	75	110	16	15	20	WR-10
AT-PA-75110-1026N	Full W Band	75	110	10	22	26	WR-10
AT-PA-75110-2426N	Full W Band	75	110	24	22	26	WR-10



AT-PA-4060-3820C

Full U Band, 40-60GHz, High Gain=38dB, Pout=+20dBm
WR-19 Waveguide

Advantages

- ✓ Frequency: 40-60GHz
- ✓ Psat:+20dBm
- ✓ Small signal gain: 38dB
- ✓ Single Power Supply

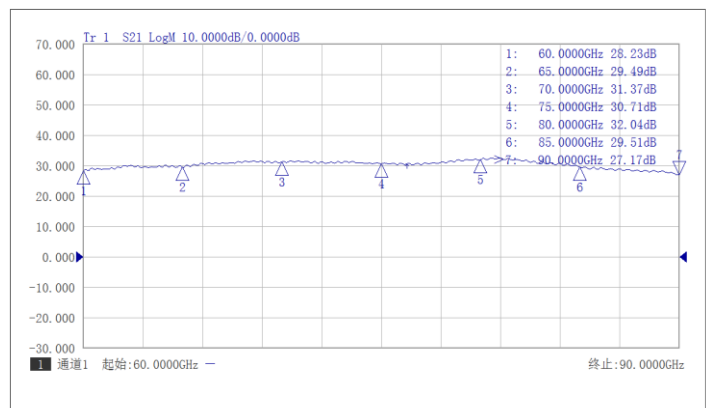


AT-PA-6090-2513

Full E Band, 60-90GHz, High gain=25dB, Pout=+13dBm, WR-12 Waveguide

Advantages

- ✓ Frequency: 60-90GHz
- ✓ Psat:+13dBm
- ✓ Small signal gain: 25dB
- ✓ Single Power Supply

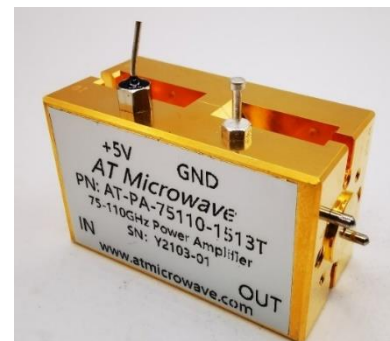


AT-PA-75110-1513T

Full W Band, 75-110GHz, gain=15dB, Pout=+13dBm, WR-10

Advantages

- ✓ Frequency: 75-110GHz
- ✓ Psat:+13dBm
- ✓ Small signal gain: 15dB
- ✓ Single Power Supply



2.2 Medium PA(<+25dBm)

Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-PA-4570-1820C	V Band	45	70	18	+18	+20	WR-15
AT-PA-5070-1820C	V Band	50	70	18	+18	+20	WR-15
AT-PA-5070-3820C	V Band	50	70	38	+18	+20	WR-15
AT-PA-5565-1620	V Band	55	65	16	+18	+20	WR-15
AT-PA-5565-1623	V Band	55	65	16	+22	+23	WR-15
AT-PA-5585-1518	E Band	55	85	15	+16	+18	WR-12
AT-PA-7186-2017	E Band	71	86	20	+15	+17	WR-12
AT-PA-80105-1510	W Band	80	105	15	+8	+10	WR-10
AT-PA-80100-1620	W Band	80	100	16	+16	+20	WR-10
AT-PA-88104-1220	W Band	88	104	12	+18	+20	WR-10
AT-PA-88104-2818	W Band	88	104	28	+16	+18	WR-10
AT-PA-90110-1217Y	W Band	90	110	12	+15	+17	WR-10
AT-PA-88110-1622GT	W Band	88	110	16	+18	+22	WR-10
AT-PA-88115-1622GT	F Band	88	110	16	+18	+22	WR-08
AT-PA-90116-1217	F Band	96	116	12	+15	+17	WR-08
AT-PA-80115-1622	F Band	80	115	16	+16	+22	WR-08
AT-PA-88115-1622T	F Band	88	115	16	+16	+22	WR-08
AT-PA-195220-1810	G Band	195	220	18	+8	+10	WR-05
AT-PA-210230-1813	H Band	210	230	18	+10	+13	WR-4.3

AT-PA-88104-2818

W Band, 88-104GHz, Gain=12/28Db, Pout=+18dBm

Advantages

- ✓ Frequency: 88-104GHz
- ✓ Psat:+18dBm
- ✓ Small signal gain: 12/28dB
- ✓ Single Power Supply



2.3 High Power PA(>=+25dBm)

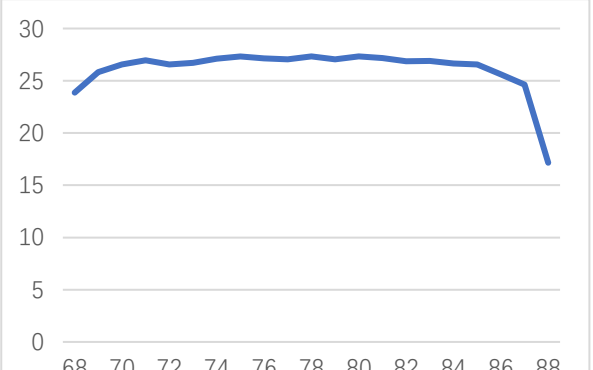
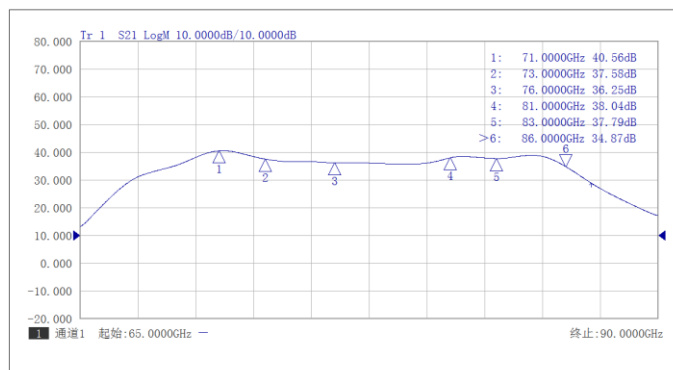
Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-PA-5766-1027	V Band	57	66	10	25	27	WR-15
AT-PA-5766-2527	V Band	57	66	25	25	27	WR-15
AT-PA-7186-1626	E1 Band	71	86	16	25	26	WR-12
AT-PA-7186-3326	E1 Band	71	86	33	25	26	WR-12
AT-PA-7176-2032GT	E1 Band	71	76	20	28	32	WR-12
AT-PA-6879-2028	E1 Band	68	79	20	27	28	WR-12
AT-PA-6879-3828	E1 Band	68	79	38	27	28	WR-12
AT-PA-7586-1825	E2 Band	75	86	18	24	25	WR-12
AT-PA-7586-2725	E2 Band	75	86	27	24	25	WR-12
AT-PA-7588-1527	E2 Band	75	88	15	26	27	WR-12
AT-PA-7588-3327	E2 Band	81	86	33	26	27	WR-12
AT-PA-6090-1027N	Full E Band	60	90	10	22	27	WR-12
AT-PA-6090-2727N	Full E Band	60	90	27	22	27	WR-12
AT-PA-85100-1226	W Band	85	100	12	24	26	WR-10
AT-PA-9098-2726	W Band	90	98	27	25	26	WR-10
AT-PA-9296-3030	W Band	92	96	30	+28	+30	WR-10
AT-PA-9294-1233	W Band	92	94	12	TBD	+33	WR-10
AT-PA-75110-1026N	Full W Band	75	110	10	22	26	WR-10
AT-PA-75110-2426N	Full W Band	75	110	24	22	26	WR-10

AT-PA-7186-3326

E Band, 71-86GHz, High gain, High Power Amplifier, WR-12

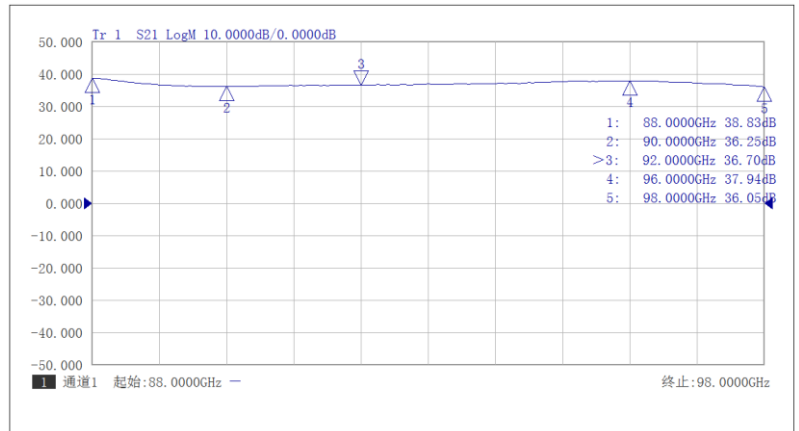
Advantages

- ✓ Frequency: 71-86GHz
- ✓ Psat:+26dBm
- ✓ Small signal gain: 33dB
- ✓ Single Power Supply



AT-PA-8898-3030

W Band, 88-98GHz, Gain=30Db, Pout=+30dBm

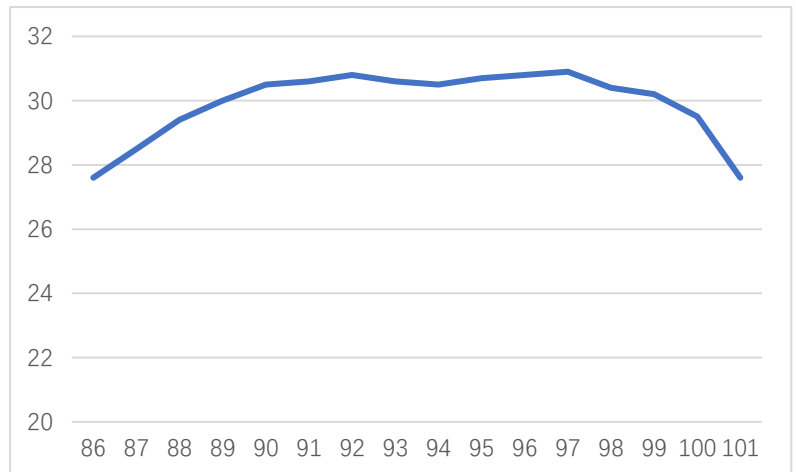


Advantages

- ✓ Frequency: 88-98GHz
- ✓ Psat:+30dBm
- ✓ Small signal gain: 30dB
- ✓ Single Power Supply

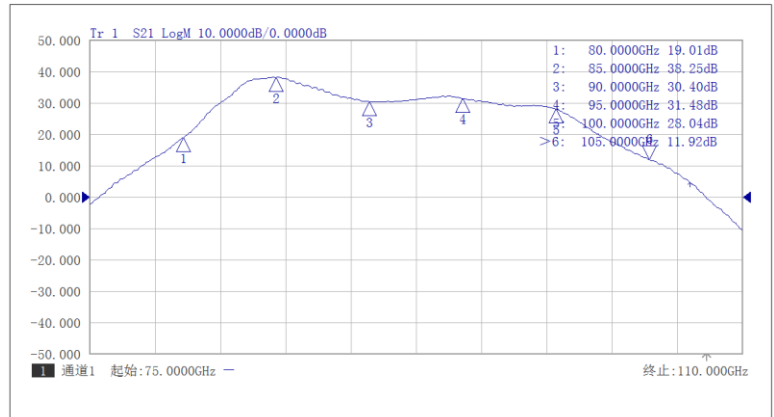
Application

- ✓ W band Imaging
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



AT-PA-9098-2726

W Band, 90-98GHz, Gain=27dB, Pout=+26dBm

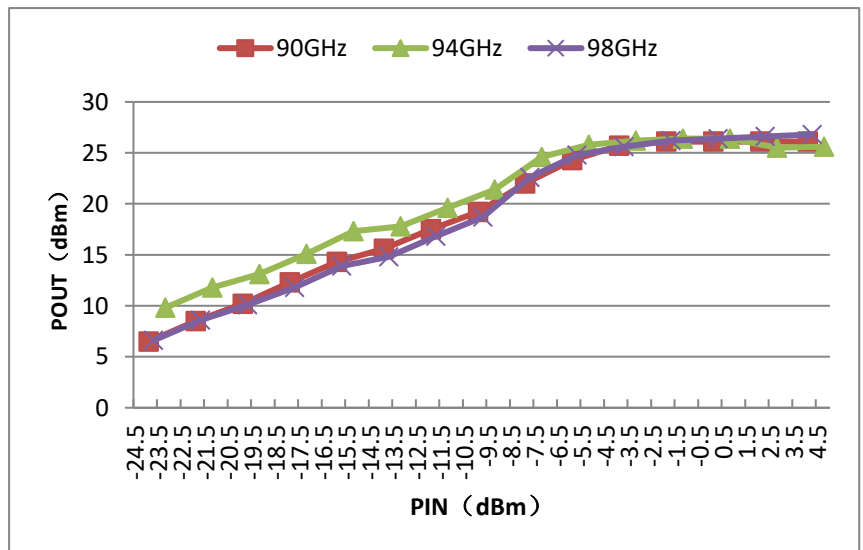


Advantages

- ✓ Frequency: 90-98GHz
- ✓ Psat:+26dBm
- ✓ Small signal gain: 27dB
- ✓ Single Power Supply

Application

- ✓ W band Imaging
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



3. Mixer Waveguide

Part Number	RF Low (GHz)	RF (GHz)	LO Low (GHz)	LO High (GHz)	IF Low /GHz	IF High (GHz)	LO (dBm)	Loss [dB]	Bias	Connector
AT-MIX-3350L	33	50	33	50	DC	21	+13	-12	NO	WR-22
AT-MIX-3350H	33	50	33	50	DC	21	+18	-12	NO	WR-22
AT-MIX-3350S	33	50	33	50	DC	21	+22	-12	NO	WR-22
AT-MIX-4060L	40	60	40	60	DC	21	+13	-12	NO	WR-19
AT-MIX-4060H	40	60	40	60	DC	21	+18	-12	NO	WR-19
AT-MIX-5075L	50	75	50	75	DC	26.5	+13	-12	NO	WR-15
AT-MIX-5075H	50	75	50	75	DC	26.5	+13	-10	NO	WR-15
AT-MIX-6090L	60	90	60	90	DC	12	+13	-12	NO	WR-12
AT-MIX-7090G	70	90	70	90	DC	12	+7	-10	+5	WR-12
AT-MIX-75100G	75	100	75	100	DC	12	+7	-10	+5	WR-10
AT-MIX-75110L	75	110	75	110	DC	12	+13	-12	NO	WR-10
AT-MIX-75110WT	75	110	75	110	DC	35	+13	-12	NO	WR-10

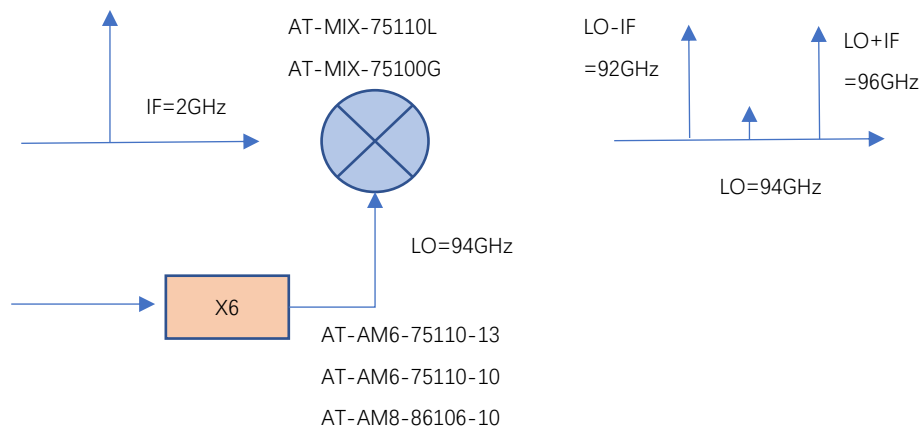


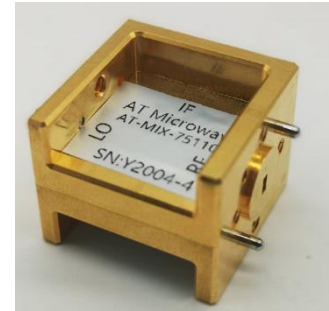
Figure A: General Balance Mixer with Both High and Low Side Output

AT-MIX-5075H

Full V Band Balance Mixer, RF/LO: 50-75GHz, IF:DC-26GHz

Feature

- ✓ RF/LO: 50-75GHz
- ✓ IF: DC-26GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

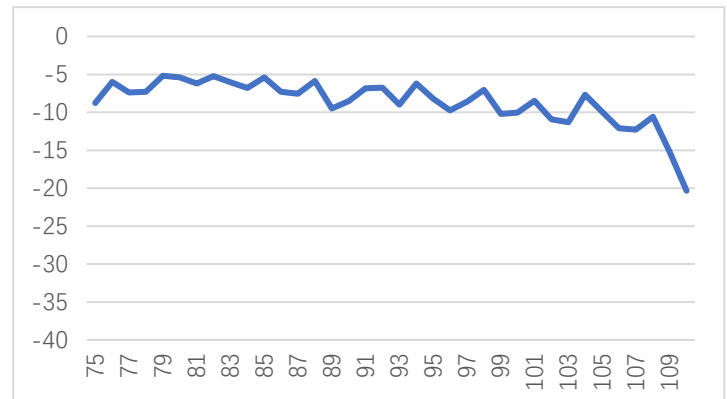


AT-MIX-75-110L

Full W Band Balance Mixer, RF/LO: 75-110GHz, IF:DC-12GHz

Feature

- ✓ RF/LO: 75-110GHz
- ✓ IF: DC-12GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation



4. IQ Mixer-Waveguide

Part Number	RF Low /GHz	RF High /GHz	LO Low /GHz	LO High /GHz	IF Low /GHz	IF High /GHz	LO /dBm	Image Rejection [dB]	Connector
AT-IQM-3350L	33	50	33	50	DC	20	+13	25	WR-22
AT-IQM-3350H	33	50	33	50	DC	20	+17	25	WR-22
AT-IQM-3350S	33	50	33	50	DC	20	+22	25	WR-22
AT-IQM-4060L	40	60	40	60	DC	20	+13	25	WR-19
AT-IQM-4060H	40	60	40	60	DC	20	+17	25	WR-19
AT-IQM-5065L	50	65	50	65	DC	20	+13	25	WR-15
AT-IQM-5065H	50	65	50	65	DC	20	+18	25	WR-15
AT-IQM-7090G	70	90	70	90	DC	12	+7	25	WR-12
AT-IQM-75100G	75	100	75	100	DC	12	+7	25	WR-10
AT-IQHM-140170	140	170	11.6	14.16	DC	6	+10	15	WR-06

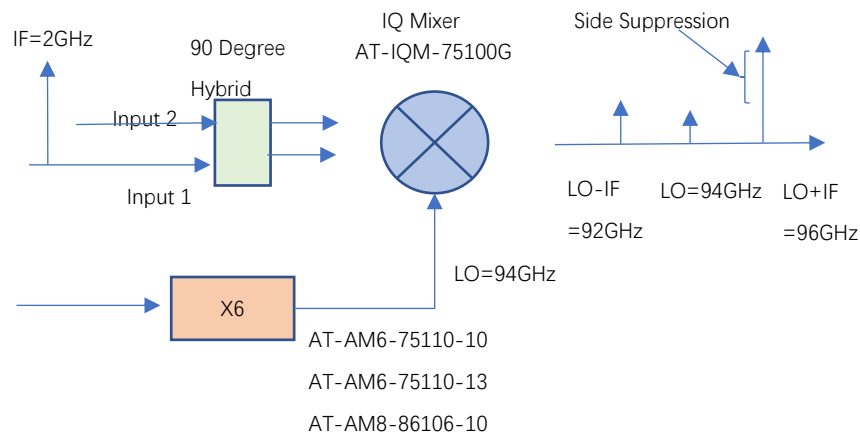


Figure B: IQ Mixer works as side suppression mixer

AT-IQM-75100G

W Band, 75-100GHz IQ Mixer,

Feature

- ✓ RF/LO: 75-100GHz
- ✓ IF: DC-10GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation



5. Frequency Multiplier

5.1 Full Band Active Multiplier

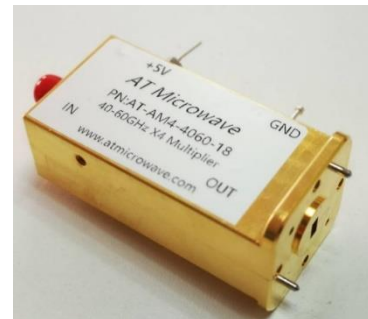
Part Number	Type	Output Low(GHz)	Output High (GHz)	Input Low (GHz)	Input High (GHz)	Output /dBm	Connector
AT-AM4-3350-15	X4 Q Band	33	50	8.25	12.5	+15	WR-22
AT-AM4-3350-17X	X4 Q Band	33	50	8.25	12.5	+17	WR-22
AT-AM4-3350-23	X4 Q Band	33	50	8.25	12.5	+23	WR-22
AT-AM4-4060-15	X4 U Band	40	60	10	15	+15	WR-19
AT-AM4-4060-18	X4 U Band	40	60	10	15	+18	WR-19
AT-AM4-5075-15	X4 V Band	50	75	12.5	18.75	+15	WR-15
AT-AM4-5075-18	X4 V Band	50	75	12.5	18.75	+18	WR-15
AT-AM4-6090-13	X4 E Band	60	90	15	22.5	+13	WR-12
AT-AM4-5590-18T	X4 E Band	60	90	15	22.5	+18	WR-12
AT-AM6-6090-10	X6 E Band	60	90	10	15	+10	WR-12
AT-AM6-6090-20	X6 E Band	60	90	10	15	+20	WR-12
AT-AM6-6090-25	X6 E Band	60	90	10	15	+20	WR-12
AT-AM6-5590-15T	X6 E Band	60	90	10	15	+15	WR-12
AT-AM6-75110-05T	X6 W Band	75	110	12.5	18.33	+5	WR-10
AT-AM6-75110-10	X6 W Band	75	110	12.5	18.33	+10	WR-10
AT-AM6-75110-13	X6 W Band	75	110	12.5	18.33	+13	WR-10
AT-AM6-75110-20	X6 W Band	75	110	12.5	18.33	+20	WR-10
AT-AM6-75110-25	X6 W Band	75	110	12.5	18.33	+20	WR-10
AT-AM8-90140C	X8 F Band	90	140	11.25	17.5	+3	WR-08
AT-AM12-110170T	X12 D Band	110	170	9.16	14.17	0	WR-06

AT-AM4-4060-18

X4 Active Frequency Multiplier, Full U Band, 40-60GHz, WR-19

Feature

- ✓ Frequency: 40-60GHz
- ✓ Pout: +18dBm typical
- ✓ Input: 10-15GHz
- ✓ Low Harmonics
- ✓ Single Power Supply



AT-AM4-5075-18

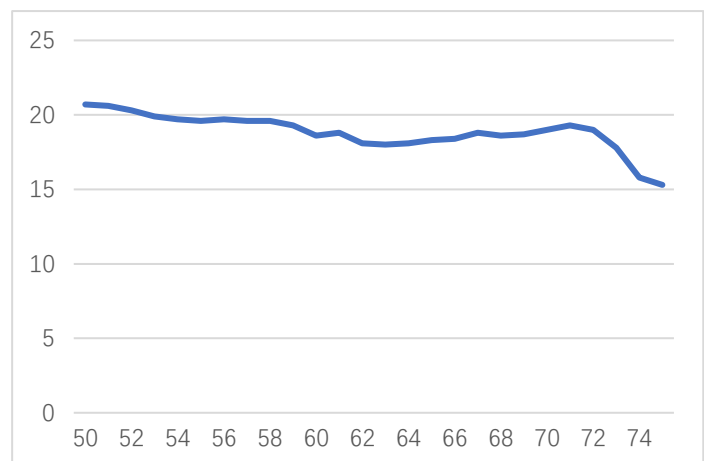
X4 Active Frequency Multiplier, Full V Band

Feature

- ✓ Frequency: 50-75GHz
- ✓ Pout: +18dBm typical
- ✓ Input: 12.5-18.75GHz
- ✓ Low Harmonics

Application

- ✓ V band Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



AT-AM6-6090-15T

Full E BAND Active Frequency Multiplier

60-90GHz, WR-12

X4, X6 Available

Feature

- ✓ Frequency: 60-90GHz
- ✓ Pout: +10/15/18dBm typical
- ✓ Input: 10-15GHz
- ✓ Low Harmonics



AT-AM6-75110-13

Full W BAND Active Frequency Multiplier, 75-110GHz, Pout=+13dBm

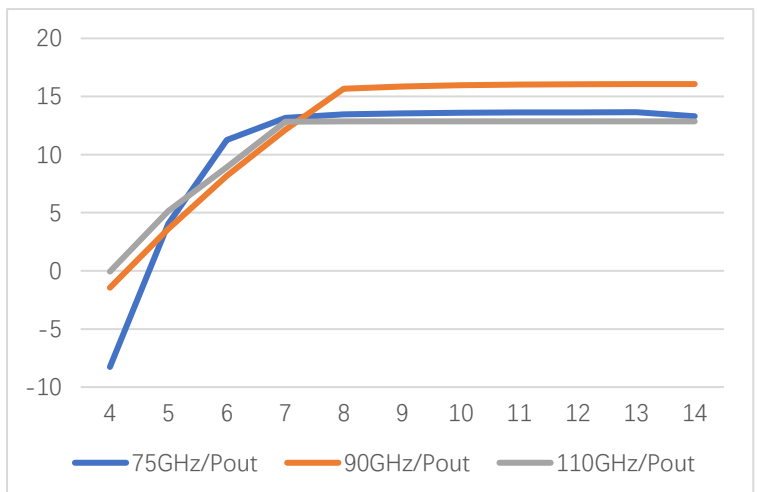
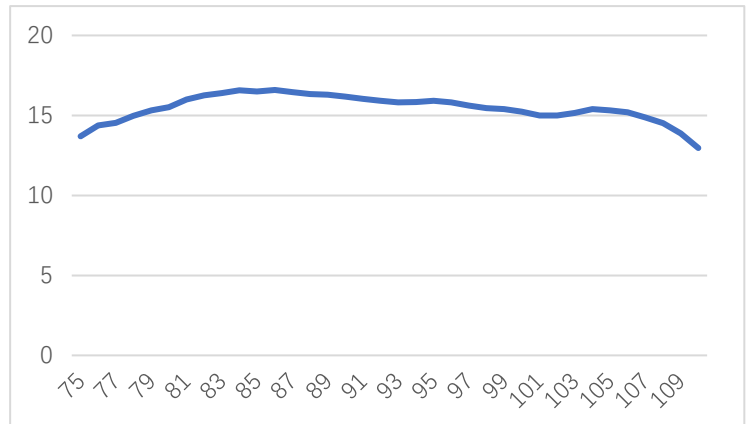


Feature

- ✓ Frequency: 75-110GHz
- ✓ Pout: +13dBm typical
- ✓ Input: 12.5-18.33GHz
- ✓ Low Harmonics

Application

- ✓ W band Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



5.2 Narrow Band Active Multiplier

Part Number	Type	Output Low(GHz)	Output High (GHz)	Input Low (GHz)	Input High (GHz)	Output /dBm	Connector
AT-AM4-4570-18	V X4	45	70	11.25	18.75	+18	WR-15
AT-AM6-5766-13	V X6	57	66	9.5	11	+13	WR-15
AT-AM6-5585-15	E X6	56	85	9.33	14.16	+15	WR-12
AT-AM6-7186-12	E X6	71	86	11.8	14.4	+12	WR-12
AT-AM8-86106-10	W X8	86	106	10.7	13.3	+10	WR-10
AT-AM4-8595-00	W X4	85	95	21.25	23.75	+0	WR-10
AT-AM4-8595-15	W X4	85	95	21.25	23.75	+15	WR-10
AT-AM8-110150T	D X8	110	150	13.75	18.75	-3	WR-06
AT-AM12-110150T	D X12	110	150	9.17	12.5	-3	WR-06

AT-AM6-7186-12

Low Cost, In stock, E Band X6 Multiplier, 71-86GHz, Pout=+12dBm

Application

- ✓ E Band Communication
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

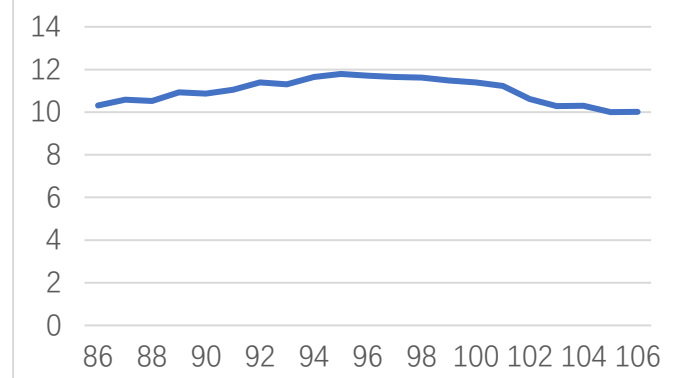


AT-AM8-86106-10

Low Cost, In stock, W Band, X8, Pout=+10dBm

Advantages

- ✓ Frequency: 86-106GHz
- ✓ Pout: +10dBm typical
- ✓ Input: 10.7-13.3GHz, 0dBm
- ✓ Single Supply: +5V, LDO inside



5.3 High Power Active Multiplier

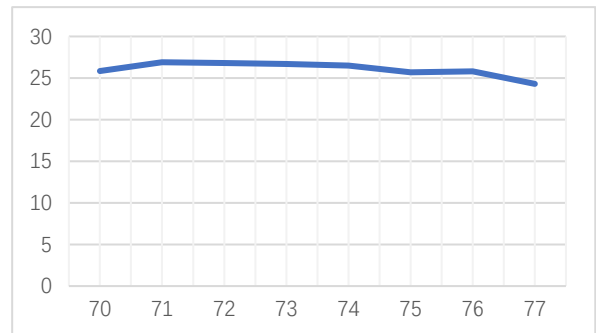
Part Number	Type	Output Low(GHz)	Output High (GHz)	Input Low (GHz)	Input High (GHz)	Output /dBm	Connector
AT-AM6-5766-23	V HP X6	57	66	9.5	11	+23	WR-15
AT-AM6-7077-25	E1 HP X6	70	77	11.66	12.83	+25	WR-12
AT-AM6-7186-26	E1 HP X6	71	86	11.8	14.4	+26	WR-12
AT-AM6-7586-25	E2 HP X6	75	86	12.5	14.4	+25	WR-12
AT-AM6-7586-27	E2 HP X6	75	86	12.5	14.4	+27	WR-12
AT-AM6-6090-20	X6 E Band	60	90	10	15	+20	WR-12
AT-AM6-6090-25	X6 E Band	60	90	10	15	+20	WR-12
AT-AM8-9098-20	W HP X8	90	98	11.25	12.25	+20	WR-10
AT-AM8-88104-18	W HP X8	88	104	22	12.3	+18	WR-10
AT-AM6-75110-20	X6 W Band	75	110	12.5	18.33	+20	WR-10
AT-AM6-75110-25	X6 W Band	75	110	12.5	18.33	+20	WR-10

AT-AM6-7077-25

High Power, E BAND, 70-77GHz, Pout=+25dBm

Application

- ✓ E Band Communication
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



AT-AM8-88104-18

W Band, X8, 88-104GHz, Pout=+18dBm

Advantages

- ✓ Frequency: 88-104GHz
- ✓ Pout: +18dBm typical
- ✓ Input Frequency: 11-13GHz
- ✓ Low Input Power: 0dBm
- ✓ Low Harmonics



5.4 Passive Multiplier

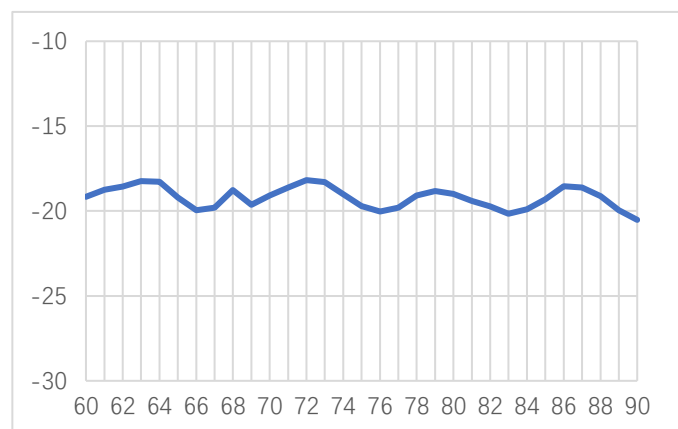
Part Number	Type	Output Low (GHz)	Output High (GHz)	Pout /dBm	Input Low (GHz)	Input High (GHz)	Input Connector	Output Connector
AT-PM2-5075M	Passive X2	50	75	0	25	37.5	2.92mm	WR-15
AT-PM2-6090C	Passive X2	60	90	0	30	45	2.92mm	WR-15
AT-PM2-70120C	Passive X2	70	120	+3	35	60	1.85mm	WR-10
AT-PM2-90140C	Passive X2	90	140	+3	45	70	WR-15	WR-08
AT-PM2-110150T	Passive X2	110	150	-3	55	75	WR-12	WR-06
AT-PM2-110170T	Passive X2	110	170	0	55	85	WR-12	WR-06
AT-PM3-5075M	Passive X3	50	75	0	16.66	25	2.92mm	WR-15
AT-PM3-6090M	Passive X3	60	90	0	20	30	2.92mm	WR-12
AT-PM3-75110M	Passive X3	75	110	0	25	36.66	2.92mm	WR-10
AT-PM3-110150T	Passive X3	90	140	0	36.7	50	2.4mm	WR-06

AT-PM3-6090M

X3 Passive Multiplier

Feature

- ✓ Frequency: 60-90GHz
- ✓ CL: -20dB typical
- ✓ Input: 20-30GHz
- ✓ Low Harmonics



5.5 Broadband VCO

Part Number	Type	Output Low(GHz)	Output High (GHz)	Vtune/V	Output /dBm	Connector
AT-VCO-3350-23	Q Band	33	50	2-11	+23	WR-22
AT-VCO-4060-18	U Band	40	60	0.5-8	+18	WR-19
AT-VCO-5075-15	V Band	50	75	4-16	+15	WR-15
AT-VCO-6090-10	E Band	60	90	0.5-8	+13	WR-12
AT-VCO-6090-15	E Band	60	90	0.5-8	+13	WR-12
AT-VCO-75110-13	W Band	75	110	4-14V	+13	WR-10
AT-VCO-90140	F Band	90	140	4-14V	0	WR-08



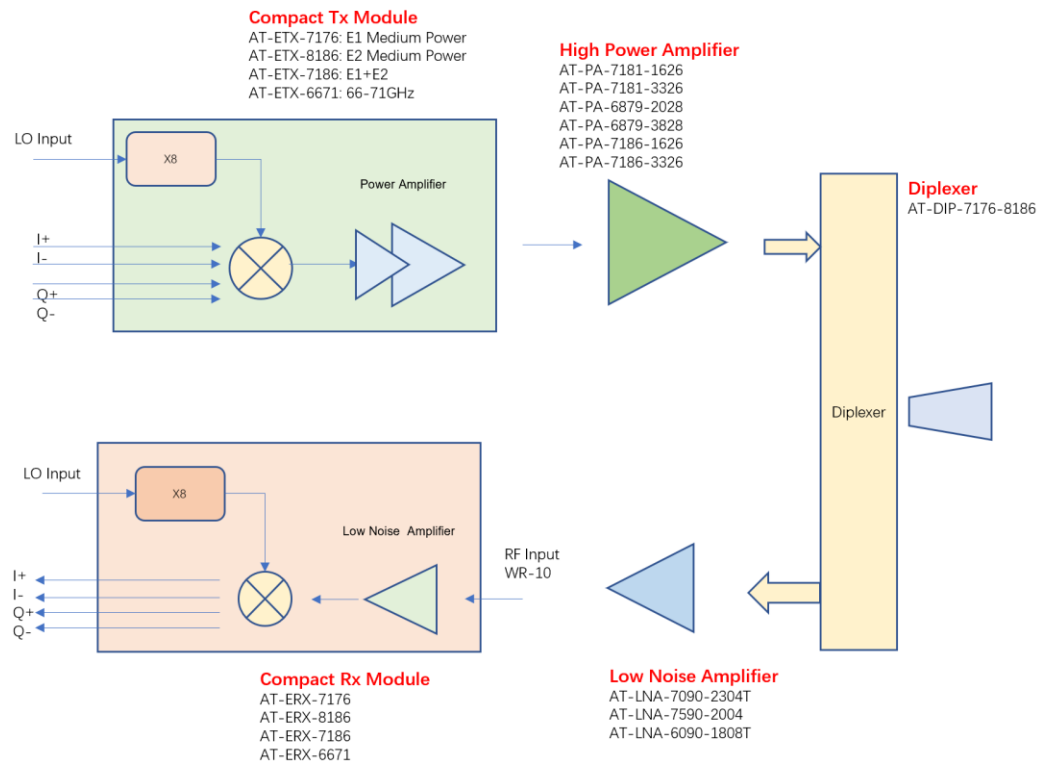
5.6 PDRO

Part Number	Reference	Frequency (GHz)	Output Power (dBm)	Harmonics	Spurs	100kHz Phase Noise (dBc/Hz)	Connector
AT-PDRO-61-15IR	Internal	61GHz	+15	-20	-70	-80	WR-15
AT-PDRO-61-23IR	Internal	61GHz	+23	-20	-70	-80	WR-15
AT-PDRO-75-12IR	Internal	75GHz	+12	-20	-70	-75	WR-12
AT-PDRO-75-25IR	Internal	75GHz	+25	-20	-70	-75	WR-12
AT-PDRO-94-10IR	Internal	94GHz	+10	-20	-70	-70	WR-10
AT-PDRO-94-20IR	Internal	94GHz	+20	-20	-70	-70	WR-10
AT-PDRO-94-30IR	Internal	94GHz	+30	-20	-70	-70	WR-10

6. Tx/Rx Modules and System

6.1 Transmitter Modules

Part Number	Type	Output Low/GHz	Output High/GHz	Gain /dB	Pout /dBm	NF /dB	Connector
AT-VTX-5766	V Tx	57	66	18	+18	-	WR-15
AT-VTX-6671	V Tx	66	71	15	+18	-	WR-15
AT-ETX-6671	E Tx	66	71	15	+18	-	WR-12
AT-ETX-7186	E Tx	71	86	15	+15	-	WR-12
AT-ETX-6978	E1 Tx	69	78	15	+20	-	WR-12
AT-ETX-6978SIR-ISC	E1 Tx	69	78	15	+20	-	WR-12
AT-ETX-6978SIR-IX	E1 Tx	69	78	15	+20	-	WR-12
AT-ETX-7886	E2 Tx	78	86	15	+20	-	WR-12
AT-ETX-7886-ISC	E2 Tx	78	86	15	+20	-	WR-12
AT-ETX-7886-IX	E2 Tx	78	86	15	+20	-	WR-12
AT-WTX-88100SIR	W Tx	88	100	13	+17	-	WR-10
AT-WTX-88100IQD	W Tx	88	100	10	+17	-	WR-10
AT-WTX-9096IQ	W Tx	90	96	13	+17	-	WR-10
AT-WTX-86104SIF	W Tx	86	104	10	+17	-	WR-10



AT-ETX-7176, 8186, 6671

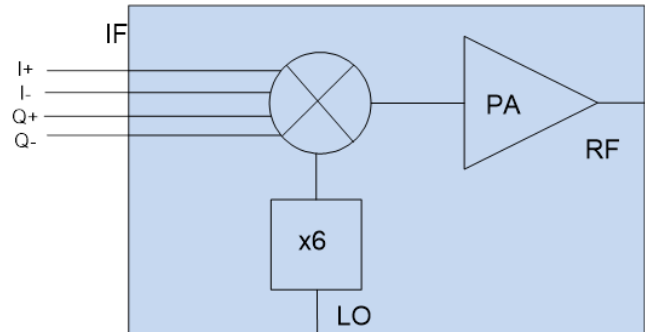
Compact Tx Module

Feature

- ✓ Frequency: 71-86GHz
- ✓ Gain: 15dB typical
- ✓ IF Range: DC-10GHz
- ✓ Pout: +15dBm Typical

Application

- ✓ E Band Communication
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



AT-WTX-88100SIR

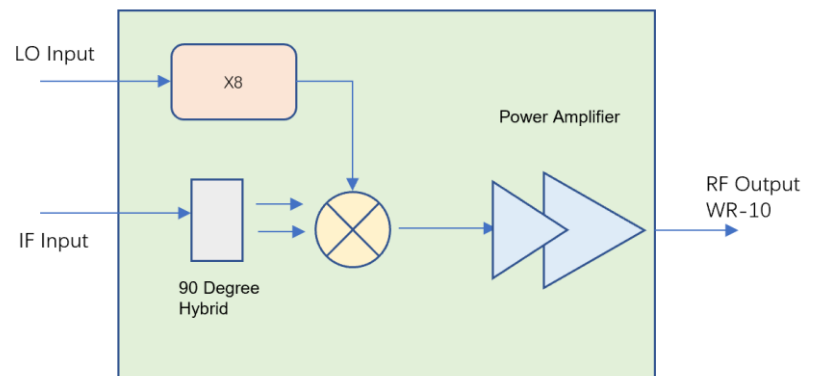
W Band Compact Tx Module

Feature

- ✓ Frequency: 88-100GHz
- ✓ Gain: +23dB typical
- ✓ NF: 4dB
- ✓ IF Range: 2.5-8.5Hz
- ✓ Single Power Supply

Application

- ✓ W band Imaging
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



6.2 Receiver Modules

Part Number	Type	Output Low/GHz	Output High/GHz	Gain /dB	NF /dB	Connector
AT-VRX-5766	V Rx	57	66	12	5	WR-15
AT-VRX-6671	V Rx	57	66	3	5	WR-15
AT-ERX-6671	E Rx	57	66	3	5	WR-12
AT-ERX-7176	E1 Rx	71	76	12	6	WR-12
AT-ERX-7078HG	E1 Rx	70	78	18	6	WR-12
AT-ERX-7078HGSIR-ISC	E1 Rx	70	78	18	6	WR-12
AT-ERX-7078HGSIR-IX	E1 Rx	70	78	18	6	WR-12
AT-ERX-8186	E1 Rx	81	86	12	6	WR-12
AT-ERX-7886HG	E2 Rx	78	86	18	6	WR-12
AT-ERX-7886HG-ISC	E2 Rx	78	86	18	6	WR-12
AT-ERX-7886HG-IX	E2 Rx	78	86	18	6	WR-12
AT-ERX-7186	E1/2 Rx	71	86	10	4	WR-12
AT-WRX-88100SIR	W Rx	88	100	23	4	WR-10
AT-WRX-88100IQ-D	W Rx	88	100	23	4	WR-10
AT-WRX-9096SIR	W Rx	90	96	23	4	WR-10
AT-WRX-9096IQ	W Rx	90	96	23	4	WR-10
AT-WRX-90100	W Rx	90	100	12	6	WR-10
AT-WRX-86106SIF	W Rx	86	106	20	4	WR-10

AT-ERX-7176, 8186, 6671, 7186

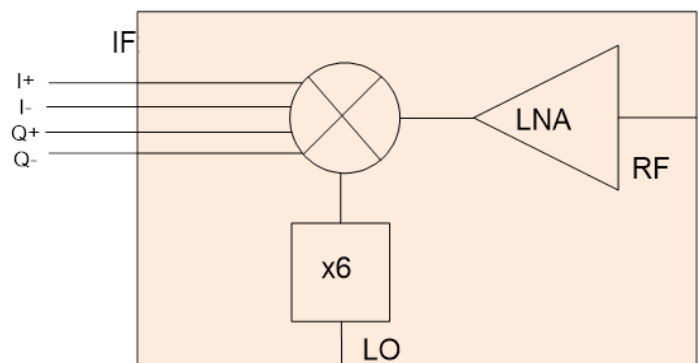
Compact Rx Module

Feature

- ✓ Frequency: 71-86GHz
- ✓ Gain: 10dB typical
- ✓ IF Range: DC-10GHz
- ✓ NF=4dB Typical
- ✓ Single Power Supply

Application

- ✓ E Band Communication
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System



AT-WRX-9096SIR

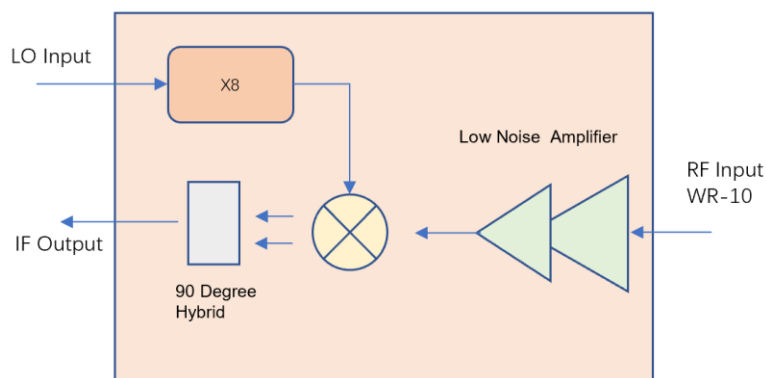
Compact W Band Imaging Rejection Rx Module, 90-96GHz

Feature

- ✓ Frequency: 90-96GHz
- ✓ Gain: +23dB typical
- ✓ IF Range: 2.5-8.5Hz
- ✓ Single Power Supply

Application

- ✓ W band Imaging
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

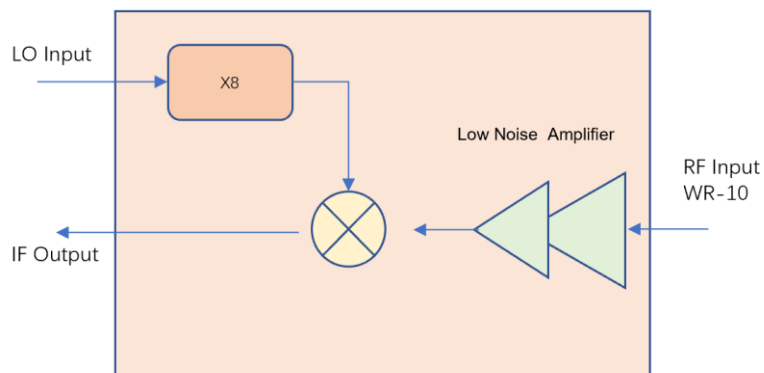


AT-WRX-86106SIF

Compact W Band Rx, 86-106GHz

Feature

- ✓ Frequency: 86-106GHz
- ✓ Gain: +20dB typical
- ✓ IF Range: DC-10GHz
- ✓ Single Power Supply



6.3 Transceiver Module

Part Number	Type	Output Low/GHz	Output High/GHz	Gain /dB	Pout /dBm	NF /dB	Connector
AT-FMCW-9096TR	W TxRx	90	96	20	+18	4	WR-10

AT-FMCW-9096TS

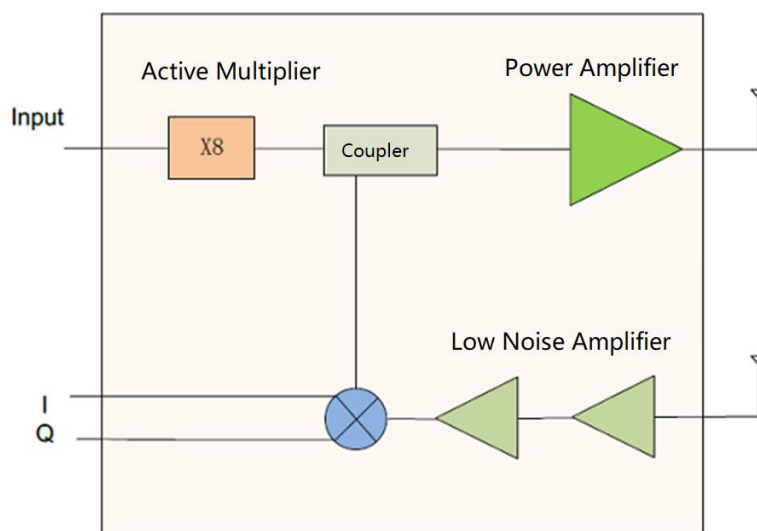
Compact W Band Tx and Rx Module

Feature

- ✓ Frequency: 90-96GHz
- ✓ Tx Pout=+20dBm
- ✓ X8 Multiplier inside
- ✓ Rx NF: 4dB
- ✓ RX Gain: 20dB

Application

- ✓ FOD Application
- ✓ W Imaging
- ✓ Test Equipment
- ✓ ROF
- ✓ Defense



7. Test Equipment

7.1 Bench-top LNA

Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain	NF	Connector
AT-BTLNA-4060-3805C	Full U Band	40	60	38	5	WR-19
AT-BTLNA-5075-3805T	Full V Band	50	75	38	5	WR-15
AT-BTPA-6090-2513	Full E Band	60	90	25	6	WR-12
AT-BTLNA-75110-3504	Full W Band	75	110	35	4	WR-10

7.2 Bench-top PA

Part Number	Type	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-BTPA-4060-3820C	Full U Band	40	60	38	18	20	WR-19
AT-BTPA-5075-3818T	Full V Band	50	75	38	16	18	WR-15
AT-BTPA-6090-2513	Full E Band	60	90	25	10	13	WR-12
AT-BTPA-75110-3313T	Full W Band	75	110	33	10	13	WR-10

7.3 Frequency Extender

Part Number	Type	Output Low(GHz)	Output High (GHz)	Input Low (GHz)	Input High (GHz)	Output /dBm	Connector
AT-BTAM4-4060-18	Full U X4	40	60	10	15	+18	WR-19
AT-BTAM4-5075-18	Full V X4	50	75	12.5	15	+18	WR-15
AT-BTAM6-6090-10	Full E X6	60	90	10	15	+10	WR-12
AT-BTAM6-6090-20	Full E X6	60	90	10	15	+20	WR-12
AT-BTAM6-6090-25	Full E X6	60	90	10	15	+25	WR-12
AT-BTAM6-75110-08	Full W X6	75	110	12.5	18.33	+08	WR-10
AT-BTAM6-75110-13	Full W X6	75	110	12.5	18.33	+13	WR-10
AT-BTAM6-75110-20	Full W X6	75	110	12.5	18.33	+20	WR-10
AT-BTAM6-75110-25	Full W X6	75	110	12.5	18.33	+25	WR-10
AT-BTAM8-90140-00	Full F X8	90	140	11.25	17.5	+0	WR-08

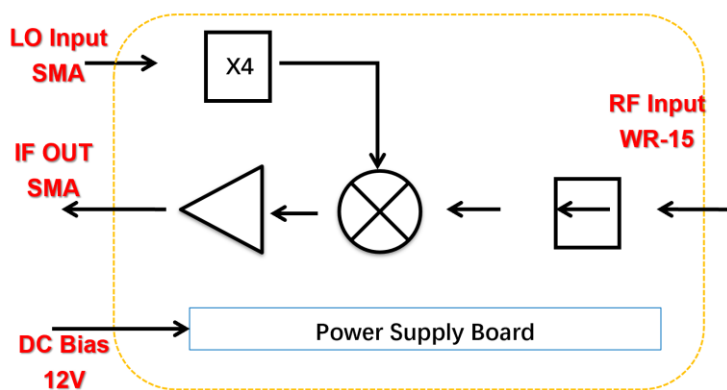


7.4 Bench-Top Down-Converter

Part Number	Type	RFLow (GHz)	RF High (GHz)	LO Low (GHz)	LO High (GHz)	Gain /dB	NF /dB	Connector
AT-BTDC-4060	U Band	40	60	10	15	18	13	WR-19
AT-BTDC-4060-R	U Band	40	60	10	15	23	5	WR-19
AT-BTDC-5075	V Band	50	75	12.5	18.75	18	15	WR-15
AT-BTDC-5075-R	V Band	50	75	12.5	18.75	23	5	WR-15
AT-BTDC-6090	E Band	60	90	10	15	18	15	WR-12
AT-BTDC-6090-R	E Band	60	90	10	15	23	6	WR-12
AT-BTDC-75110	W Band	75	110	12.5	18.33	18	15	WR-10
AT-BTDC-75110-R	W Band	75	110	12.5	18.33	23	5	WR-10

7.5 Bench-Top Up-Converter

Part Number	Type	RF Low(GHz)	RF High (GHz)	LO Low (GHz)	LO High (GHz)	Gain /dB	Connector
AT-BTUC-4060P	U Band	40	60	10	15	-15	WR-19
AT-BTUC-4060G	U Band	40	60	10	15	+3	WR-19
AT-BTUC-5075P	V Band	50	75	12.5	18.75	-15	WR-15
AT-BTUC-5075G	V Band	50	75	12.5	18.75	+3	WR-15
AT-BTUC-6090P	E Band	60	90	10	15	-15	WR-12
AT-BTUC-6090LG	E Band	60	90	10	15	-2	WR-12
AT-BTUC-6090HG	E Band	60	90	10	15	15	WR-12
AT-BTUC-75110P	W Band	75	110	12.5	18.33	-15	WR-10
AT-BTUC-75110P	W Band	75	110	12.5	18.33	+5	WR-10



8. Voltage Variable Attenuator

Part Number	Type	Freq Low /GHz	Freq High /GHz	IL/Db	Range /dB	Voltage /V	Connector
AT-VVA-4060-20	Analog	40	60	-3	0 to 20	-1.2 to 0	WR-19
AT-VVA-4060-35	Analog	40	60	-6	0 to 35	-1.2 to 0	WR-19
AT-VVA-5075-20	Analog	50	75	-3	0 to 20	-1.2 to 0	WR-15
AT-VVA-5075-35	Analog	50	75	-6	0 to 35	-1.2 to 0	WR-15
AT-VVA-6090-20	Analog	60	90	-3	0 to 20	-1.2 to 0	WR-12
AT-VVA-6090-35	Analog	60	90	-6	0 to 35	-1.2 to 0	WR-12
AT-VVA-75110-25	Analog	75	110	-3	0 to 25	-1.2 to 0	WR-10
AT-VVA-75110-35	Analog	75	110	-6	0 to 35	-1.2 to 0	WR-10

AT-VVA-75110-25

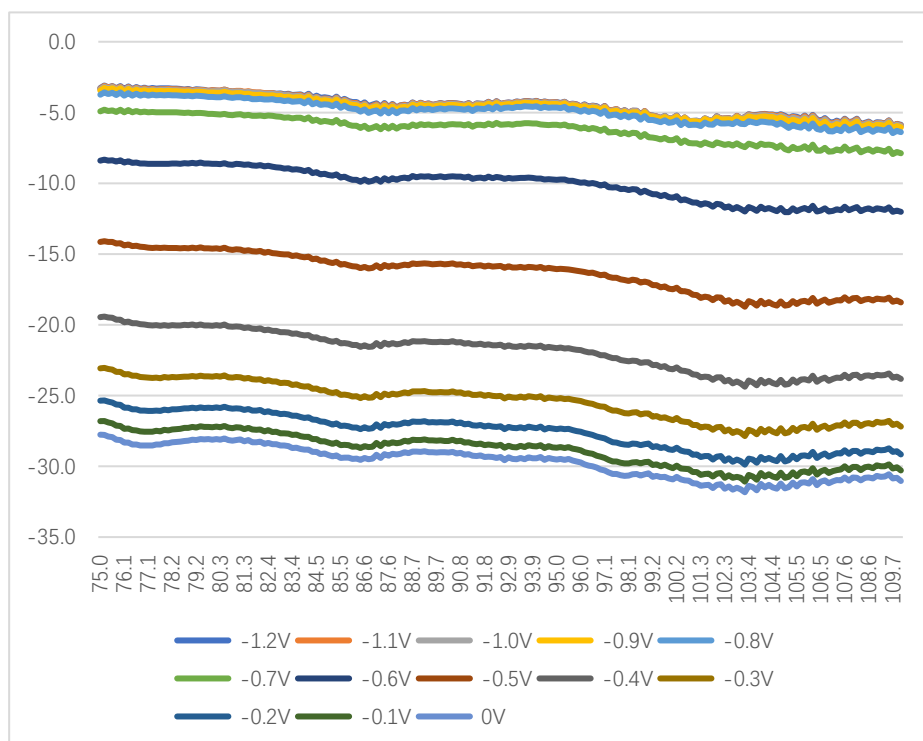
Voltage Controlled Attenuator, 25/35dB

Feature

- ✓ Frequency: 75-110GHz
- ✓ Low insertion Loss, -4 dB
- ✓ Attenuation Range: 25dB
- ✓ Very fast speed

Application

- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System
- ✓ Telecom Communication



9. Waveguide to Coaxial Adapter

Part Number	Type	Low Fre GHz	High Fre GHz	Connector #1	Connector #2	Insertion Loss /dB	VSWR
AT-WC-2829X-R	Waveguide	26.5	40	WR-28	2.92mm	0.5	1.2
AT-WC-2824X-R	Waveguide	26.5	40	WR-28	2.4mm	0.5	1.2
AT-WC-2229X-R	Waveguide	33	40	WR-22	2.92mm	0.5	1.2
AT-WC-2224X-R	Waveguide	33	50	WR-22	2.4mm	0.5	1.2

10.Filter-Waveguide

10.1 Band Pass Filter

Part Number	Freq Low /GHz	Freq High /GHz	Low Stop /GHz	Rejection /dB	High Stop /GHz	Rejection /dB	Connector
AT-BPF-5065	50	65	DC-46	40	71-75	40	WR-15
AT-BPF-6671-12	66	71	DC-62	40	75-90	40	WR-12
AT-BPF-7176	71	81	DC-67	40	81-90	40	WR-12
AT-BPF-7681	76	81	DC-73	40	84-105	40	WR-12
AT-BPF-8186	81	86	DC-78	40	88-105	40	WR-12
AT-BPF-7585-12	75	85	DC-71	40	90-110	40	WR-12
AT-BPF-7585	75	85	DC-71	40	90-110	40	WR-10
AT-BPF-9096	90	96	DC-86	40	100-110	40	WR-10
AT-BPF-9296	92	96	DC-88	40	100-110	40	WR-10
AT-BPF-92100	92	100	DC-88	40	104-110	40	WR-10
AT-BPF-120	119.5	120.5	DC-105	40	125-140	40	WR-08

10.2 High Pass Filter

Part Number	Pass Low /GHz	Pass High /GHz	Band IL/dB	Rejection Band /GHz	Rejection /dB	Connector
AT-HPF-50-15	50	75	-1	DC-46	40	WR-15
AT-HPF-62-15	62	75	-1	DC-57	40	WR-15
AT-HPF-60-12	60	90	-1	DC-56	40	WR-12
AT-HPF-75-12	75	90	-1	DC-70	40	WR-12
AT-HPF-75-10	75	110	-1	DC-70	40	WR-10
AT-HPF-83-10	83	110	-1	DC-78	40	WR-10
AT-HPF-96-10	96	110	-1	DC-92	40	WR-10

10.3 Diplexer

Part Number	Low Band /GHz	High Band /GHz	IL Pass /dB	Rejection /dB	RL /dB	Connector
AT-DIP-7176-8186	71-76	81-86	-0.7	60	-15	WR-12

AT-BPF-9296

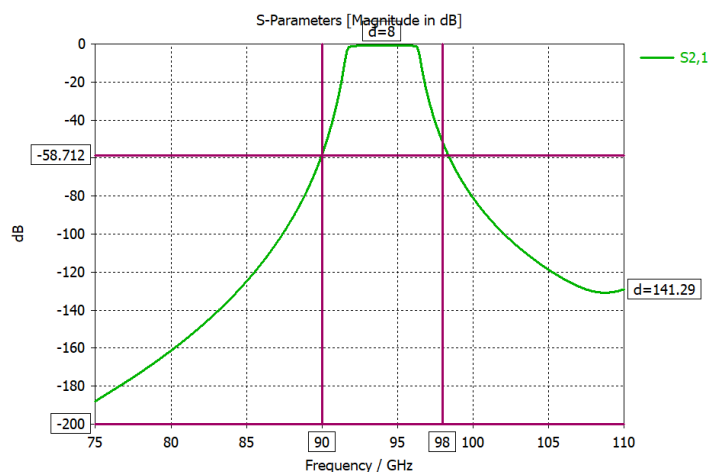
Compact Band Pass Filter

Advantages

- ✓ Low Insertion Loss
- ✓ Good Return Loss
- ✓ High Stop Band Suppression
- ✓ Sharp Roll-Off

Application

- ✓ FOD Application
- ✓ W Imaging
- ✓ Test Equipment
- ✓ ROF
- ✓ Defense



AT-DIP-7176-8186

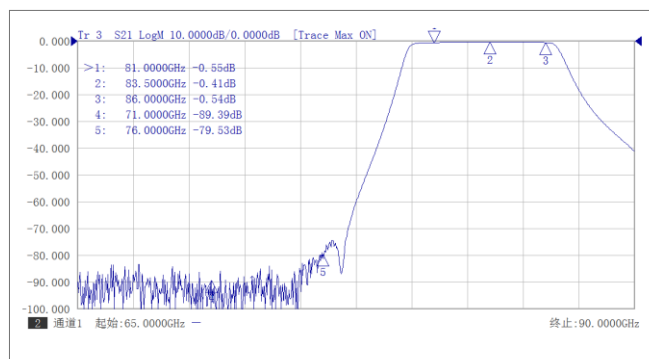
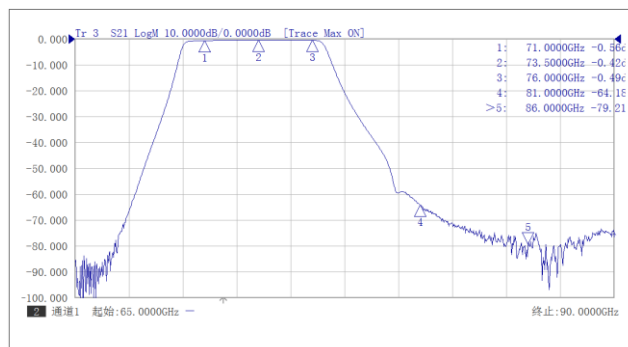
E1/E2 Diplexer, 71-76GHz, 81-86GHz

Advantages

- ✓ Low Insertion Loss
- ✓ Good Return Loss
- ✓ High Stop Band Suppression
- ✓ Sharp Roll-Off

Application

- ✓ FOD Application
- ✓ E Band Communication
- ✓ Test Equipment
- ✓ ROF
- ✓ Defense



11. Detector

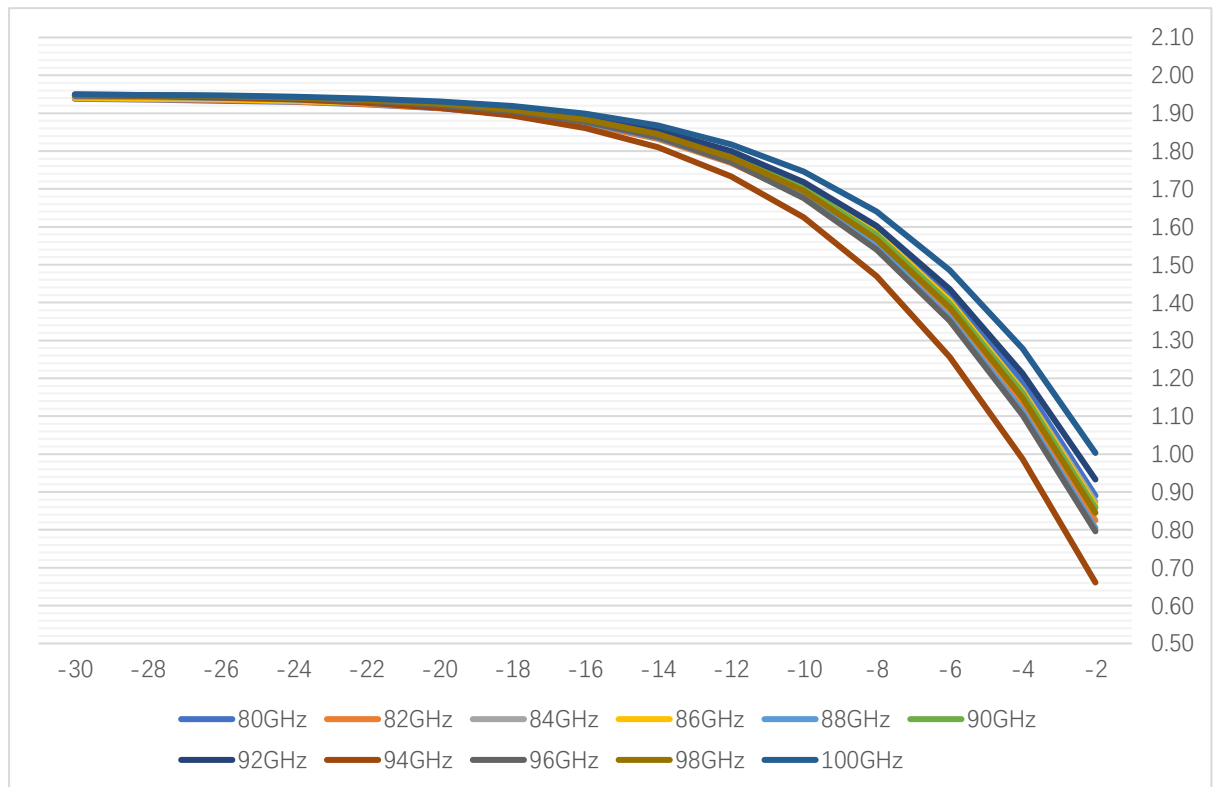
Part Number	Type	Frequency Range/GHz	Sensitivity V/W	Slope	Waveguide
AT-PD-5075-N1	V Band	50-75	1500	Negative	WR-15
AT-PD-6090-N1	E Band	60-90	2000	Negative	WR-12
AT-PD-75110-N1	W Band	75-110	3000	Negative	WR-10
AT-PD-90140-N1	F Band	90-140	1200	Negative	WR-08
AT-PD-110170-N1	D Band	110-170	900	Negative	WR-06

AT-PD-75110-N1

75-110GHz Power Detector, WR-10

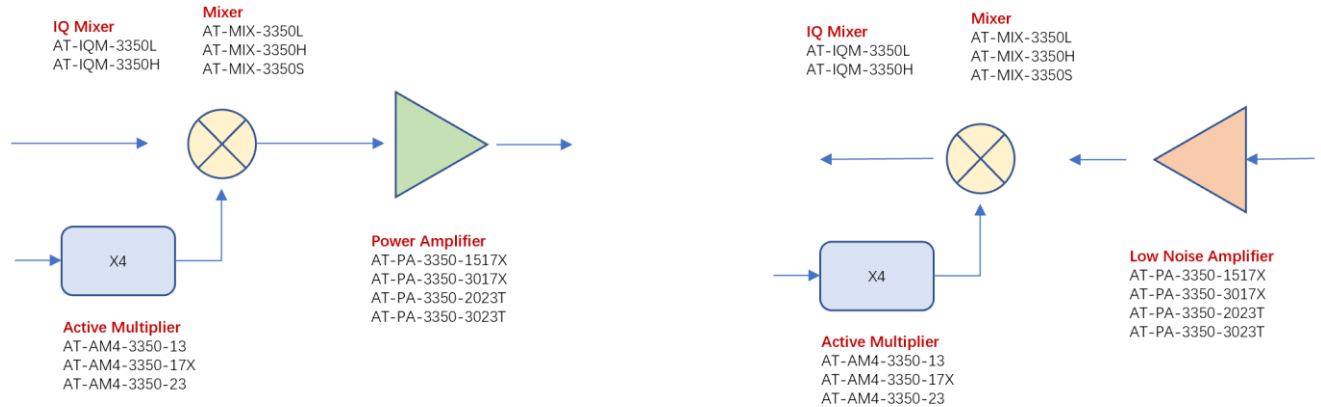
Feature

- ✓ Frequency: 75-110GHz
- ✓ High Sensitivity
- ✓ Max Linear -5dBm
- ✓ Envelope Detector.

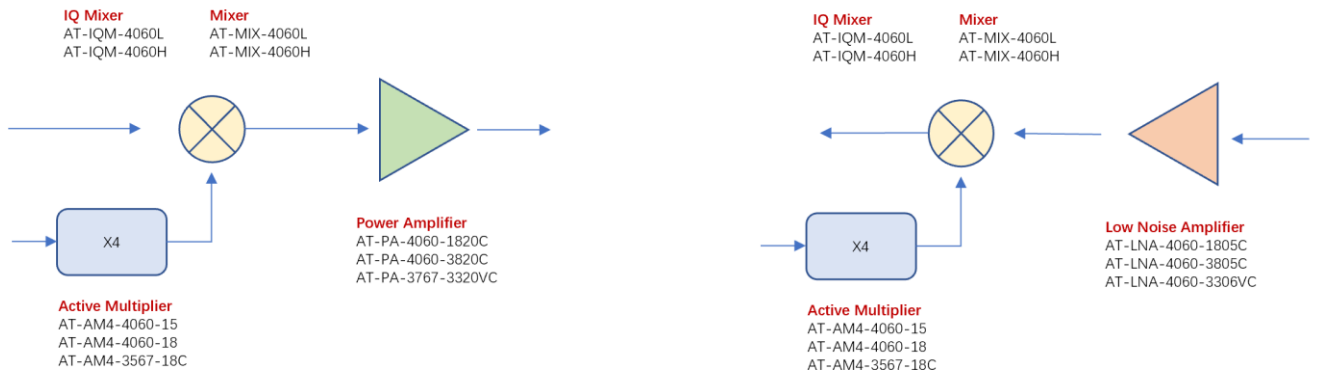


Solution

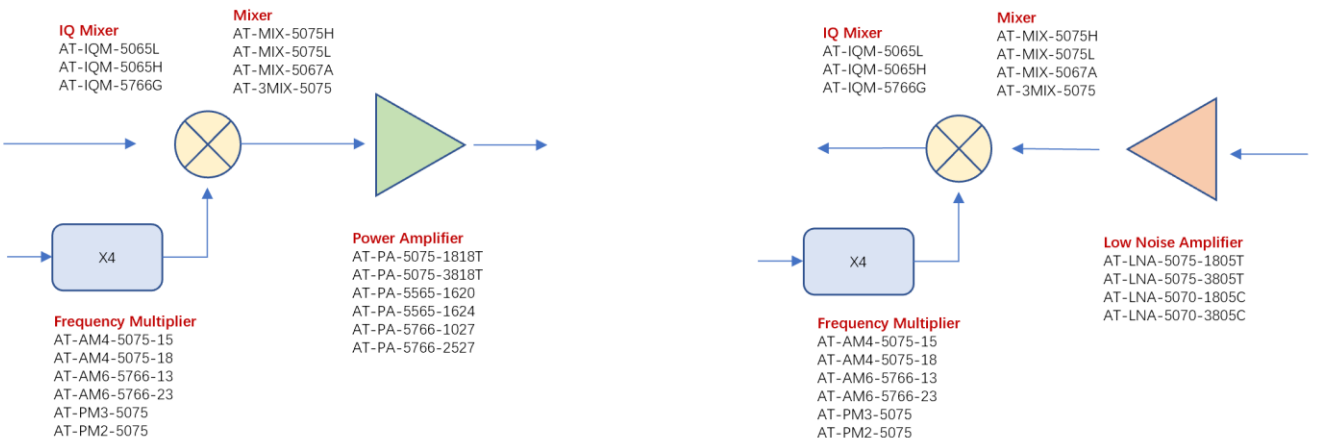
Q BAND 33-50GHz



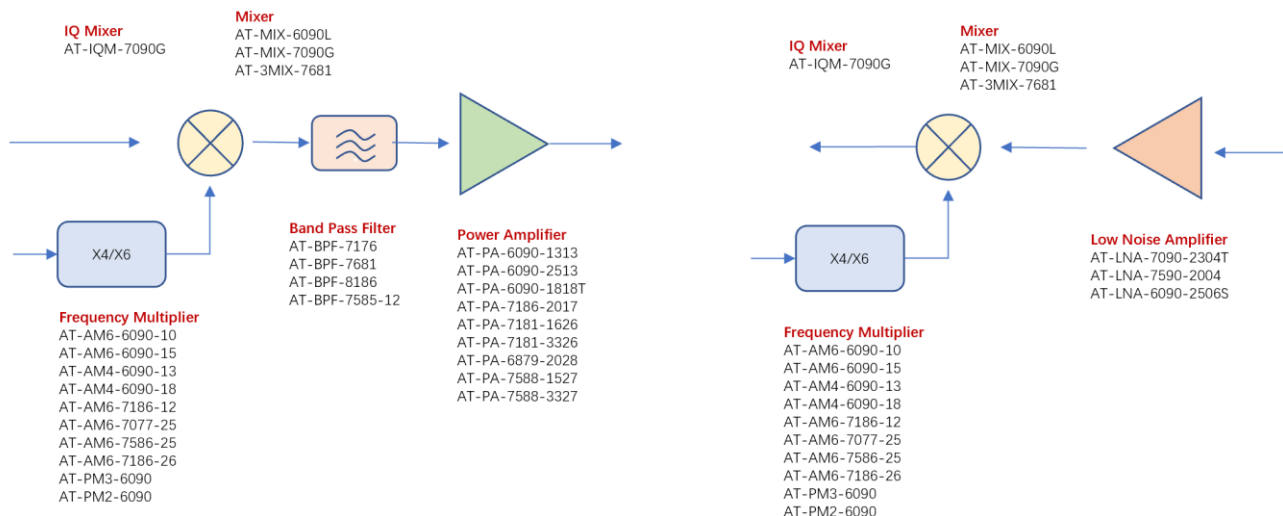
U Band 40-60GHz



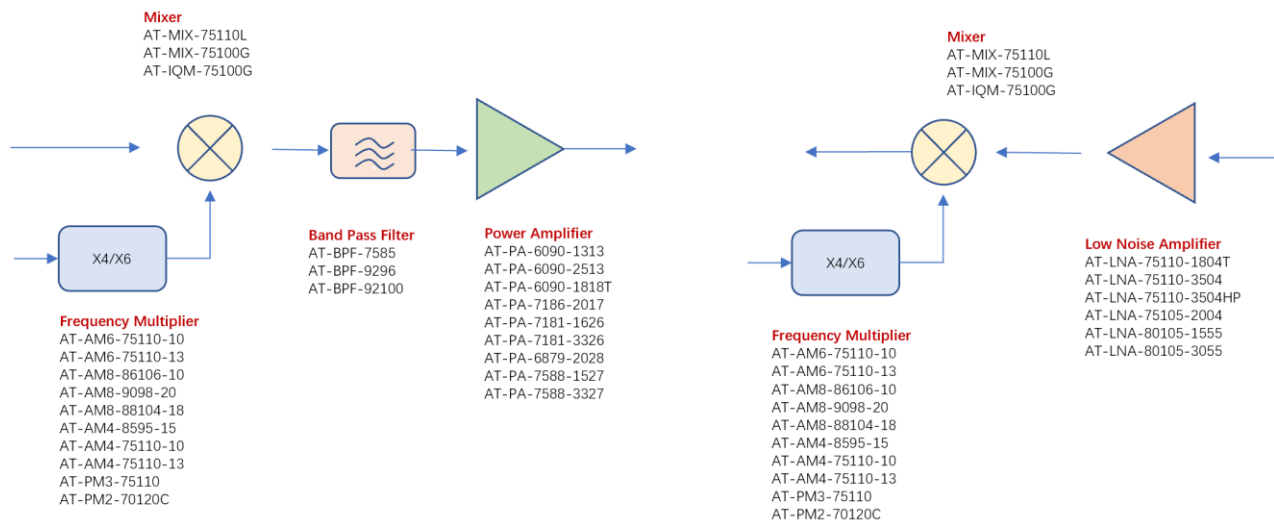
V Band 50-75GHz



E Band 60-90GHz



W BAND 75-110GHz



Appendix 1 Waveguide Port and Frequency

WAVEGUIDE PARAMETERS						
EIA SIZE	OPERATING RANGE (GHz)	MODE CUT-OFF FREQUENCY (GHz) TE ₁₀ TE ₀₁ TE ₁₁			POWER RATING (KW)	
WR-650	1.12 - 1.70	-			18100	
WR-430	1.70 - 2.60	1.37	274	3.07	10500	
WR-340	2.20 - 3.30	1.74	3.47	3.88	5900	
WR-284	2.60 - 3.95	2.08	4.40	4.87	3400	
WR-229	3.30 - 4.90	2.58	5.15	5.76	1600	
WR-187	3.95 - 5.85	3.15	6.77	7.47	940	
WR-159	4.90 - 7.05	3.71	7.42	8.30	790	
WR-137	5.85 - 8.20	4.30	9.49	10.42	560	
WR-112	7.05 - 10.00	5.26	11.87	12.99	350	
WR-102	7.00 - 11.00	5.78	11.57	12.93	300	
WR-90	8.20 - 12.40	6.56	14.75	16.15	200	
WR-75	10.0 - 15.00	7.87	15.74	17.59	170	
WR-62	12.40 - 18.00	9.49	18.98	21.22	120	
WR-51	15.00 - 22.00	11.57	23.14	25.87	80	
WR-42-K	18.0 - 26.50	14.05	34.71	37.45	43	
WR-34	22.00 - 33.00	17.36	34.71	38.81	34	
WR-28-Ka	26.50 - 40.00	21.08	42.15	47.13	22	
WR-22-Q	33.00 - 50.00	26.35	52.69	58.91	14	
WR-19-U	40.00 - 60.00	31.39	62.78	70.19	11	
WR-15-V	50.00 - 75.00	39.88	79.75	89.16	6	
WR-12-E	60.00 - 90.00	48.37	96.75	108.17	4.2	
WR-10-W	75.00 - 110.00	59.02	118.03	131.96	2.8	
WR-8-F	90.00 - 140.00	73.77	147.54	164.95	1.8	
WR-6-D	110.00 - 170.00	90.79	181.58	203.02	1.16	
WR-5-G	140.00 - 220.00	115.72	231.43	258.75	.73	
WR-4-H	170.00 - 260.00	137.52	-	-	-	
WR-3-J	220.00 - 325.00	173.28	-	-	-	
WR-2.8	325.00 - 400.00	211.00	-	-	-	
WR-2.2	325.00 - 500.00	268.00	-	-	-	

Your Preferred Microwave and mmWave Modules Supplier
DC-170GHz

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