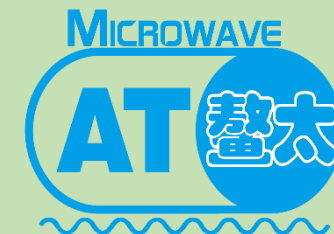


W Band (75-110GHz) Highlight Products

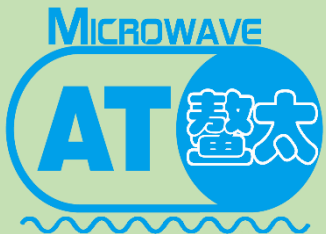
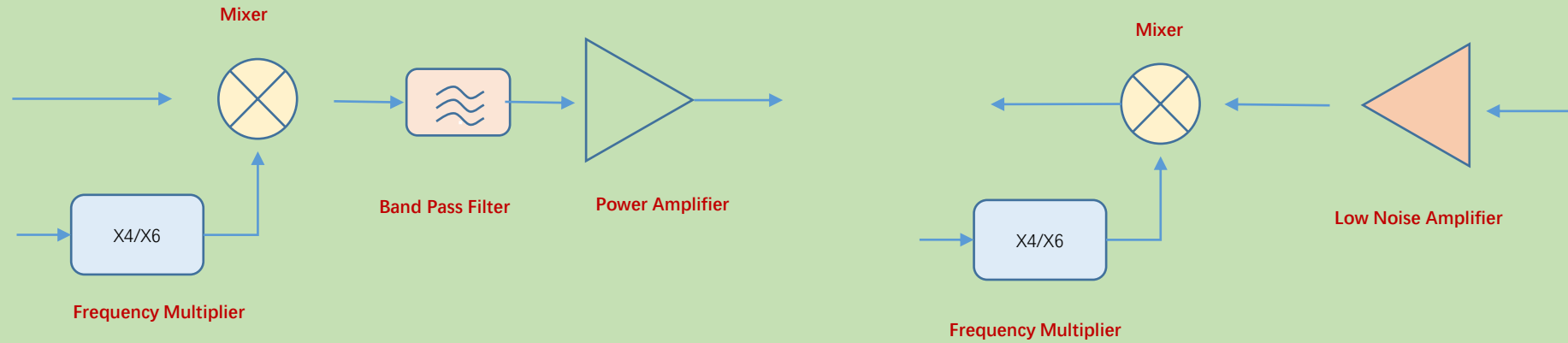
Shanghai AT Microwave Ltd.
sales@atmicrowave.com



Products Lines

1. Low Noise Amplifier
2. Power Amplifier
3. CPA Series: High Linear PA
4. Frequency Multiplier
5. Mixer/IQ Mixer
6. Tx/Rx Module
7. Filter
8. Attenuator
9. Adapter
10. Waveguide Section
11. Test Equipment

W BAND Solution 75-110GHz



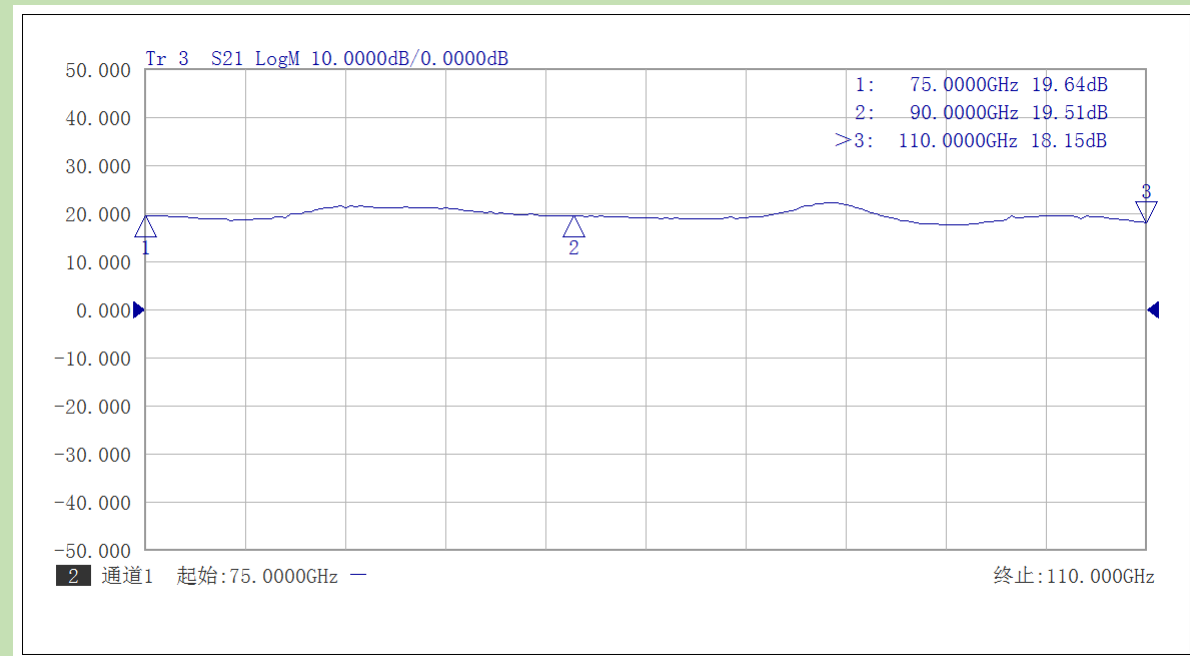
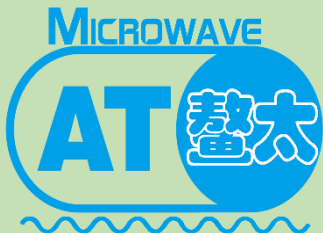
1. Full Band Low Noise Amplifier

PN: AT-LNA-75110-1804
AT-LNA-65115-1804



Advantages

- Frequency: 75-110GHz
- Extended test 65-115GHz
- High Gain: 18dB
- NF: 4dB
- Single Supply

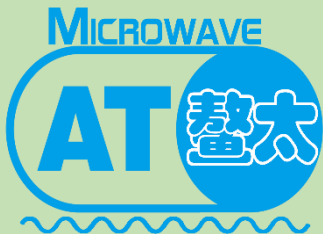
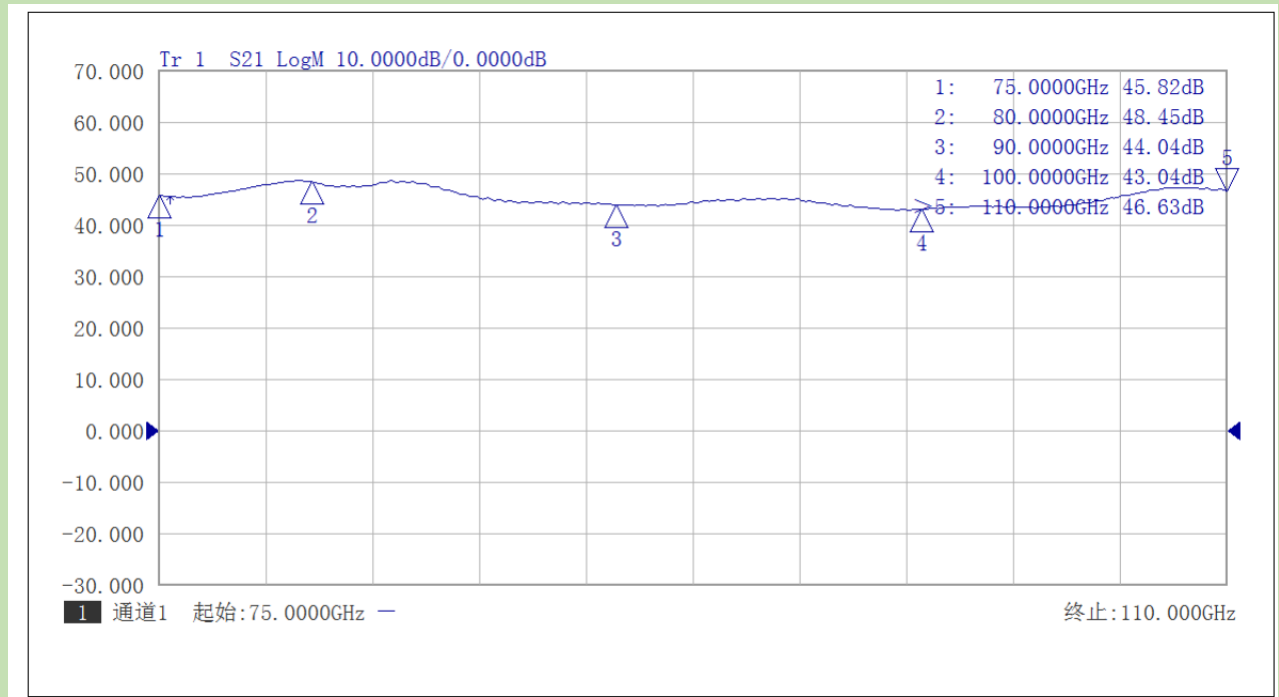


1. Full Band High Gain LNA

PN: AT-LNA-75110-4204
AT-LNA-75110-3504HP

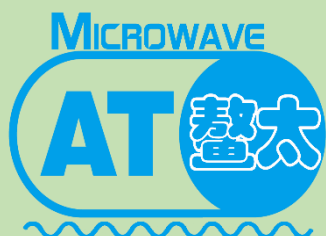
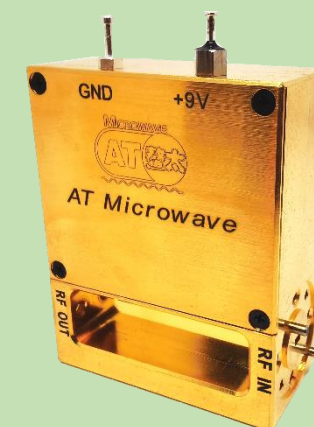
Advantages

- Frequency: 75-110GHz
- High Gain: 42/35dB
- NF: 4dB
- Single Supply



2. Full Band Power Amplifier

PN	Data Sheet	Type	Leadtime	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-PA-75110-1513T		W Band	Stock	75	110	15	10	13	WR-10
AT-LNA-75110-3504HP		W Band	Stock	75	110	35	10	13	WR-10
AT-PA-75110-1620GN		W Band	Stock	75	110	16	16	20	WR-10
AT-PA-75110-1822GN		W Band	Soon	75	110	18	-	22	WR-10
AT-PA-75110-3322GN		W Band	10 Weeks	75	110	33	-	22	WR-10
AT-PA-75110-1026GN		W Band	Stock	75	110	10	-	26	WR-10
AT-PA-75110-2526GND		High Power	Stock	75	110	25	22	26	WR-10
AT-PA-75110-2729GN		High Power	Stock	75	110	27	-	29	WR-10

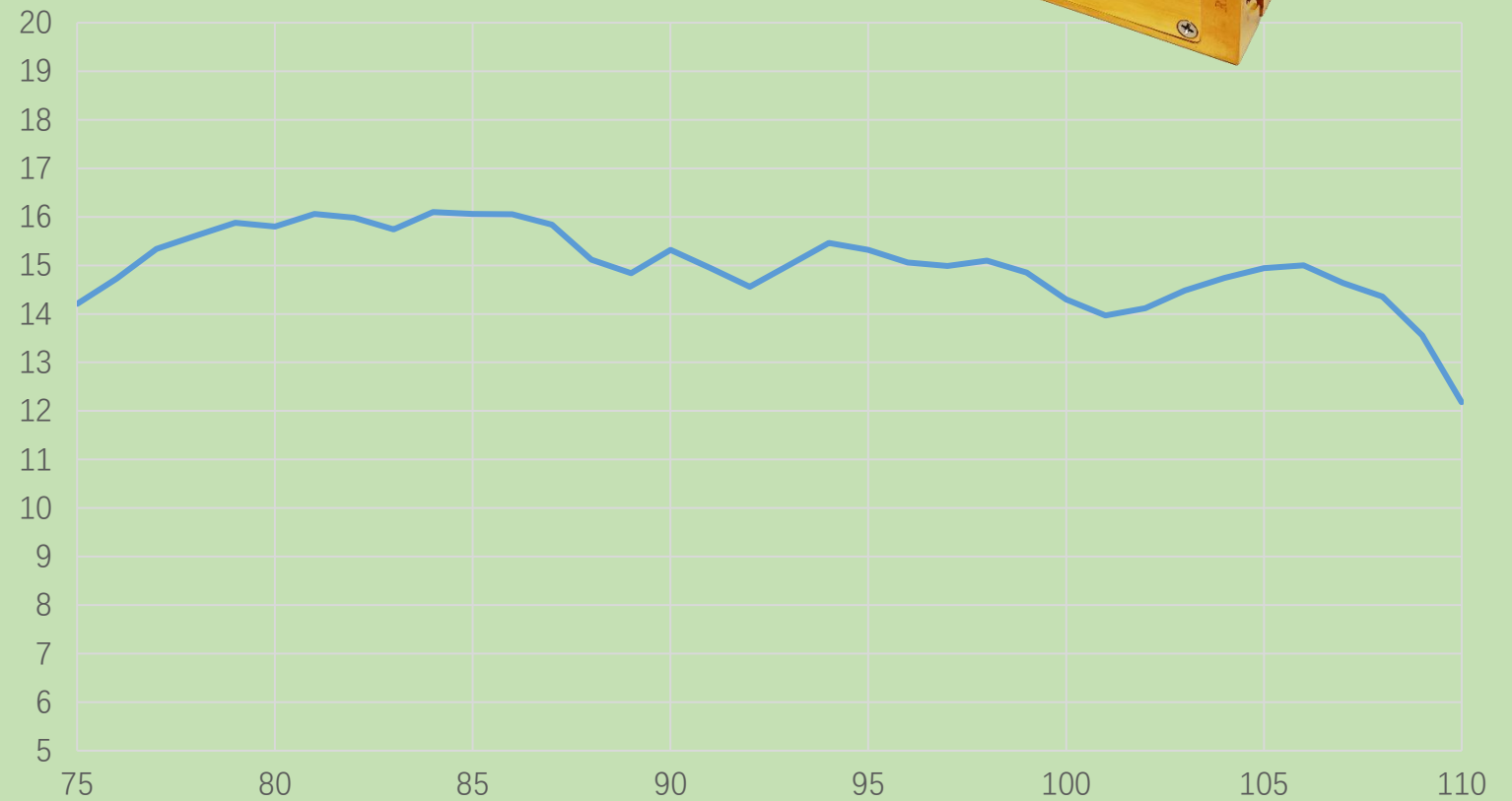
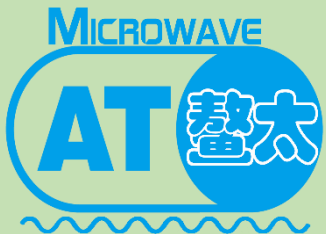


2. Full Band Power Amplifier

PN: AT-PA-75110-1513

Advantages

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

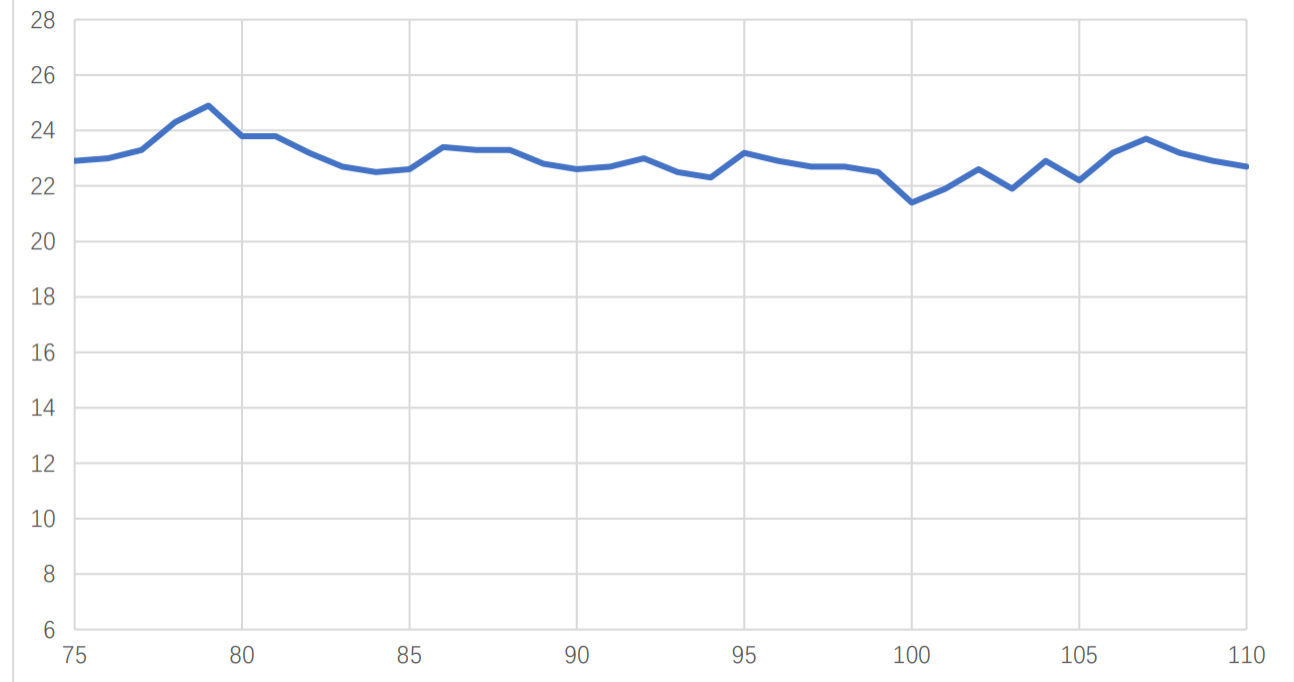
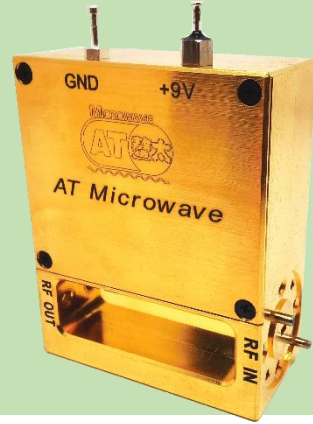


2. GaN Based High Power PA

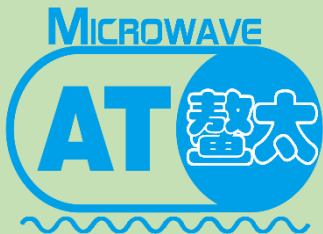
PN: AT-PA-75110-1822
AT-PA-75110-3322

Advantages

- Frequency: 75-110GHz
- **Psat: +22dBm**
- High Gain: 18/33dB
- Single Power Supply



Psat vs Frequency

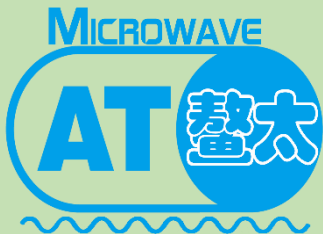


2. GaN Based High Power PA

PN: AT-PA-75110-2729

Advantages

- Frequency: 75-110GHz
- Psat: +29dBm
- High Gain: 27dB
- Single Power Supply

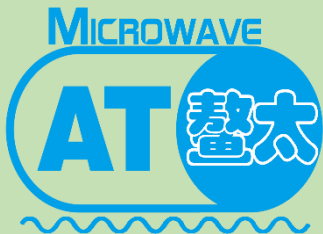
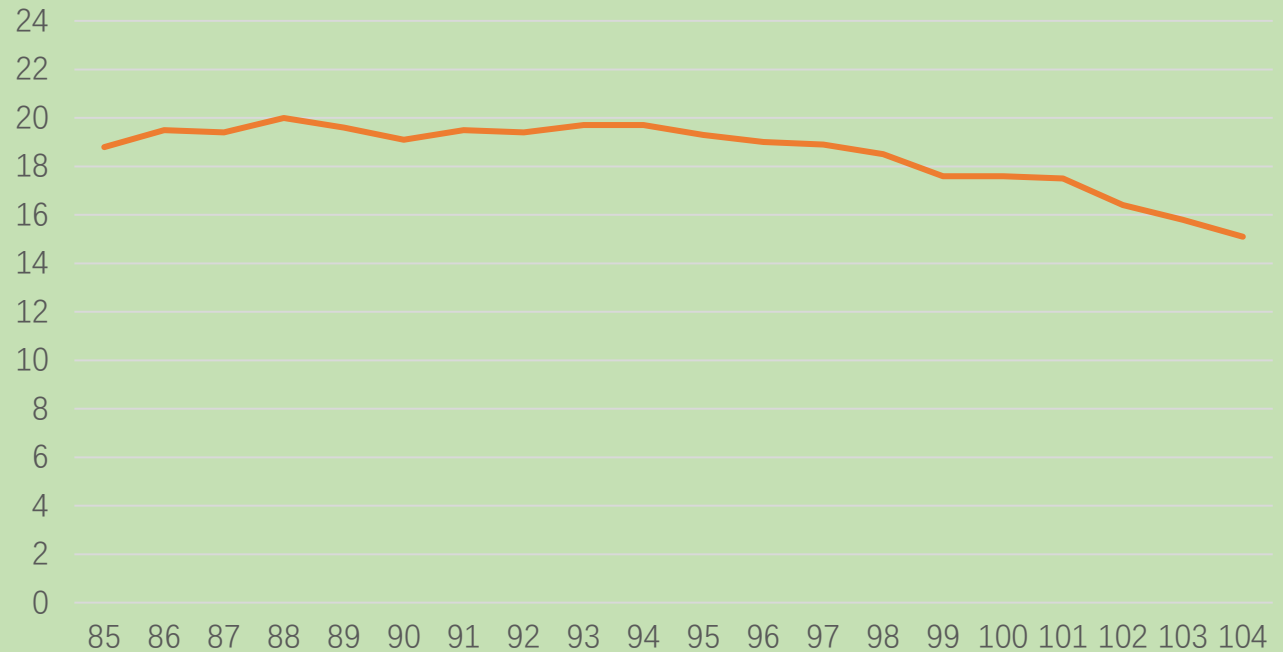


2. High Gain Power Amplifier

PN: AT-PA-88104-2818
AT-PA-88104-1220

Advantages

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

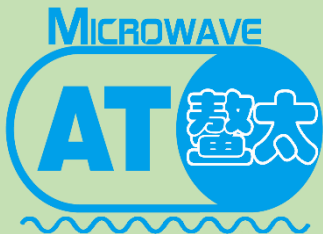
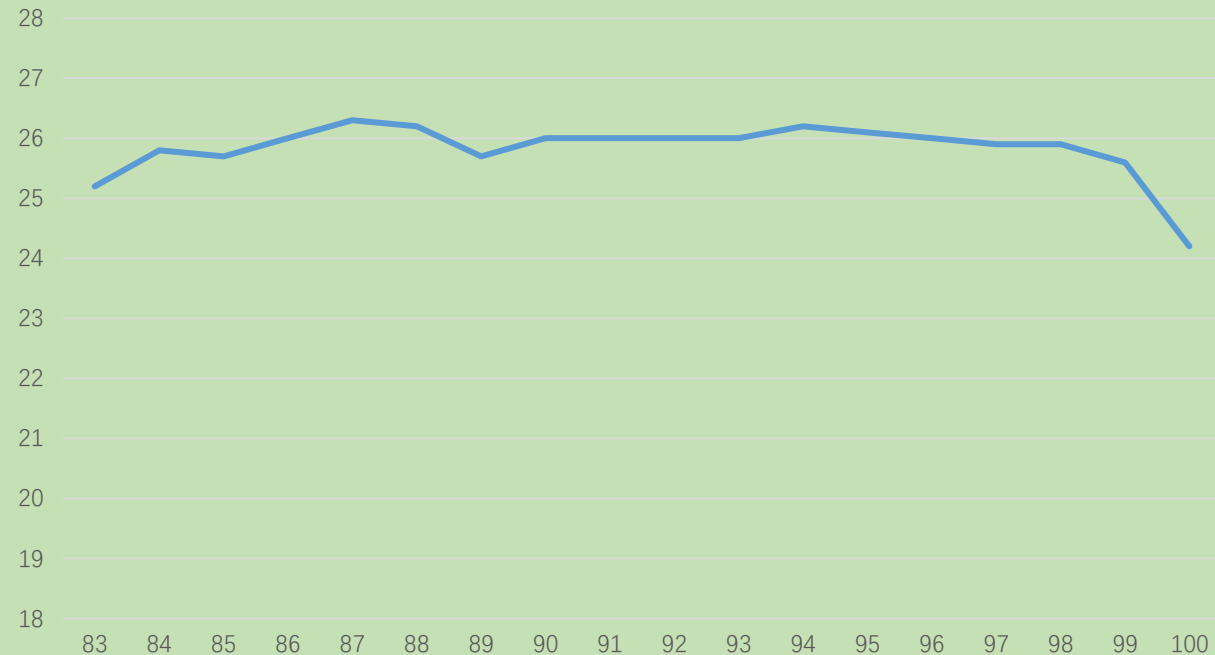


2. High Power Power Amplifier

PN: AT-PA-85100-1226

Advantages

- Frequency: 85-100GHz
- **P_{sat}: +26dBm**
- Small signal gain: 12dB
- Single Power Supply

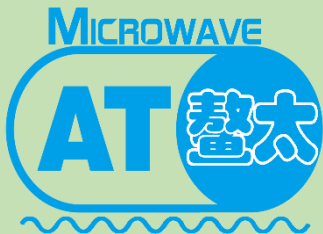
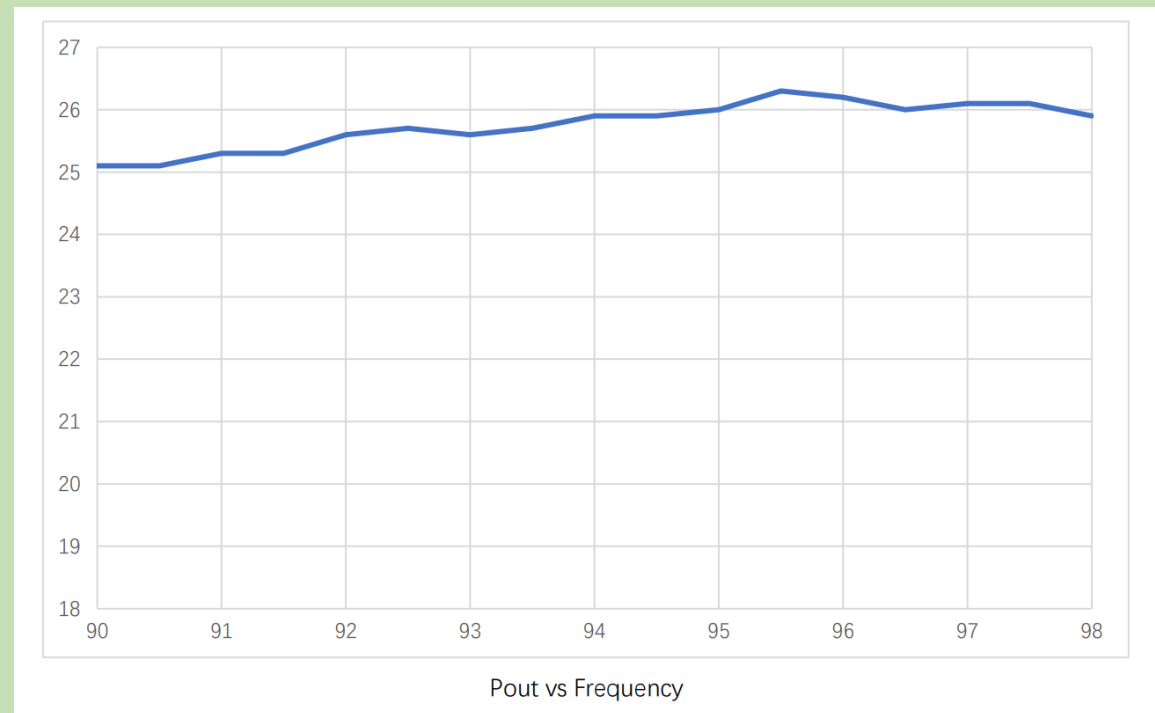
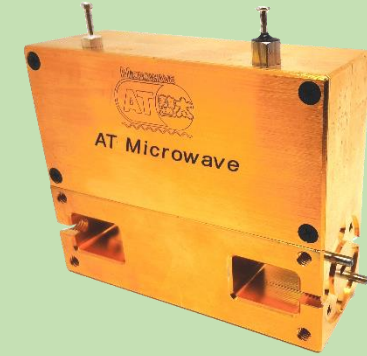


2. High Power Power Amplifier

PN: AT-PA-9098-2526E

Advantages

- Frequency: 90-98GHz
- Psat: +26dBm
- High Gain: 25dB
- Single Power Supply

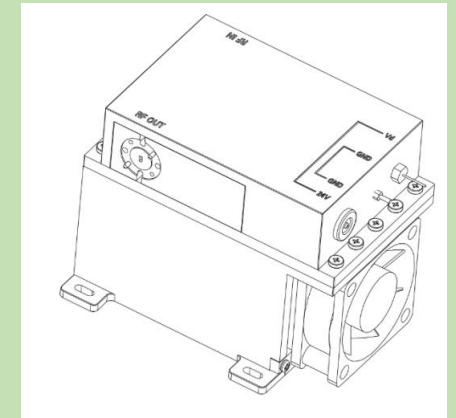
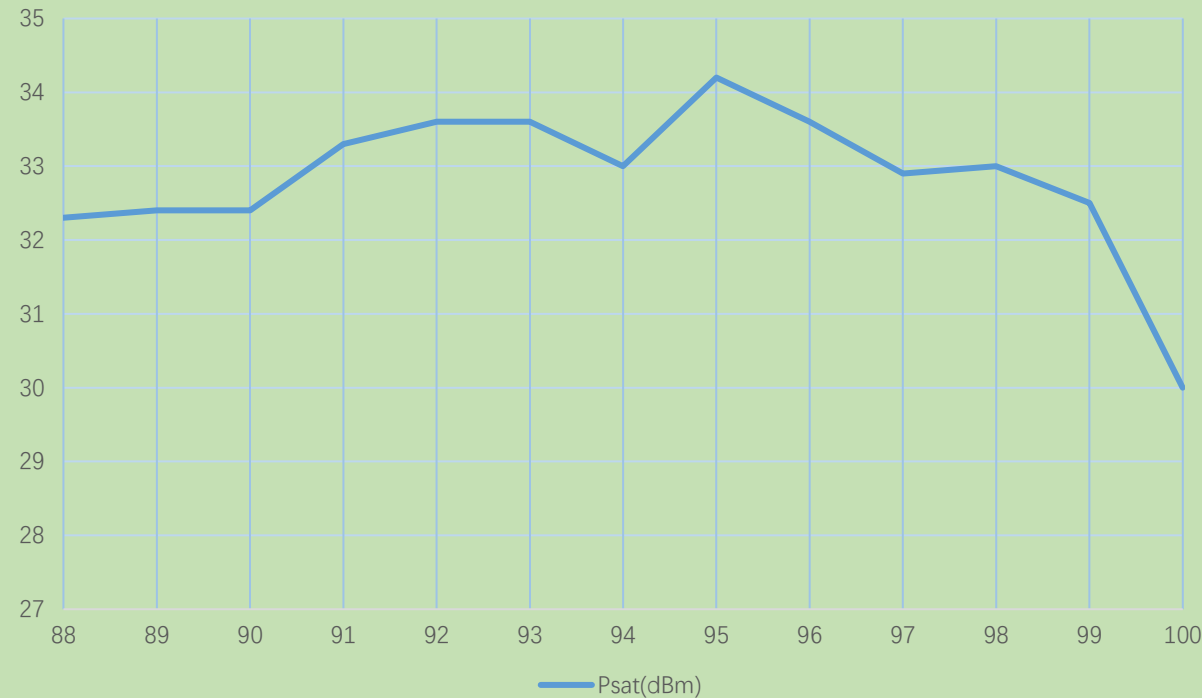
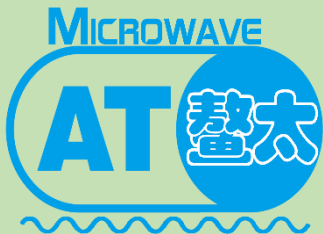


2. GaN Based High Power PA

PN: AT-PA-8898-3533

Advantages

- Frequency: 88-98GHz
- Psat: +33dBm
- High Gain: 35dB
- Single Power Supply



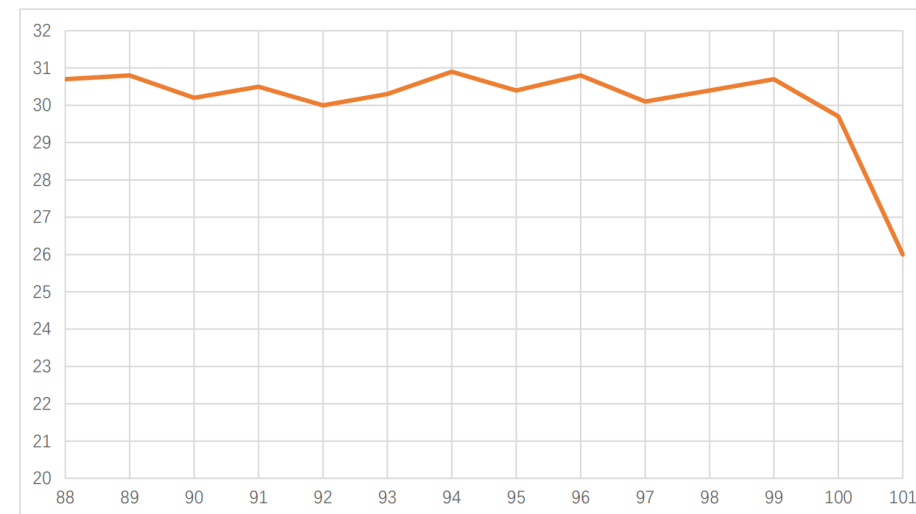
2. CPA Series: High Linear PA

☐	PN	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
☐	AT-CPA-9098-1028G1	90	98	10	26	28	WR-10
☐	AT-CPA-9098-2228G1	90	98	22	26	28	WR-10
☐	AT-CPA-9098-1030G2	90	98	10	28	30	WR-10
☐	AT-CPA-9098-3530G2	90	98	35	28	30	WR-10
☐	AT-CPA-9098-3532G3	90	98	35	30	32	WR-10

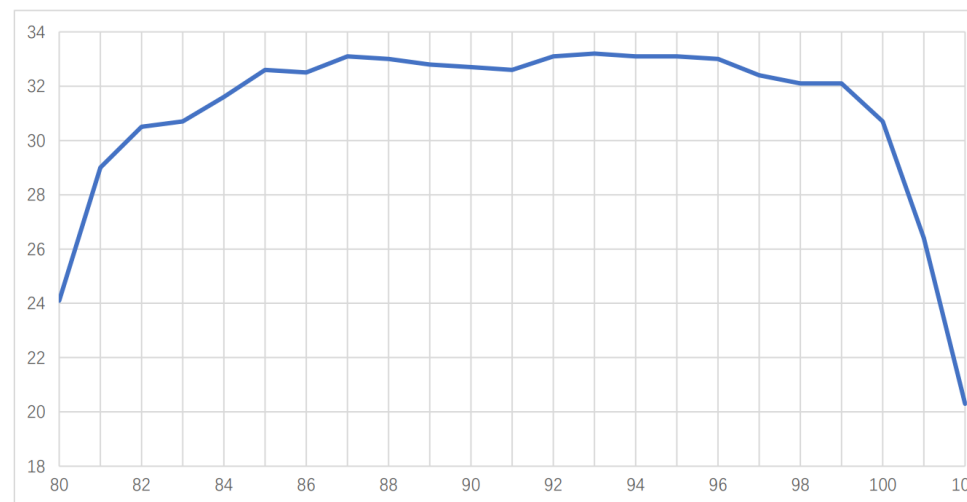


AT-CPA-9098-3532G3

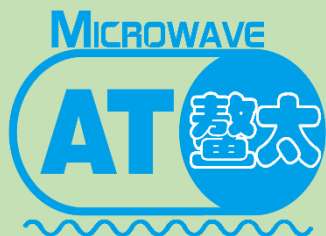
90-98GHz Power Amplifier, Psat=+32dBm



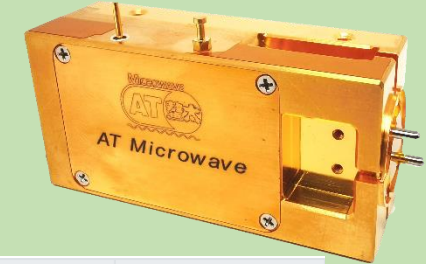
P1dB vs Frequency



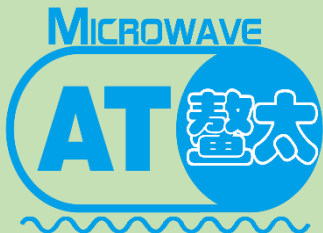
Psat vs Frequency, Pin=+10dBm



3. Full band Active Frequency Multiplier



PN	Type	Data Sheet	Lead time	Input Low (GHz)	Input High (GHz)	Output Low (GHz)	Output High (GHz)	Input Driver /dBm	Output /dBm	Connector
AT-AM4-75110-13	W X4		Stock	18.75	27.5	75	110	13	13	WR-10
AT-AM6-75110-10	W X6		Stock	12.5	18.33	75	110	7	10	WR-10
AT-AM6-75110-10E	W X6		Stock	12.5	18.33	75	110	7	10	WR-10
AT-AM6-75110-13L	W X6		Stock	12.5	18.33	75	110	3	13	WR-10
AT-AM6-75110-20GNL	W X6 HP		Soon	12.5	18.33	75	110	3	20	WR-10
AT-AM6-75110-29GN	W X6 HP		10-12Weeks	12.5	18.33	75	110	3	29	WR-10

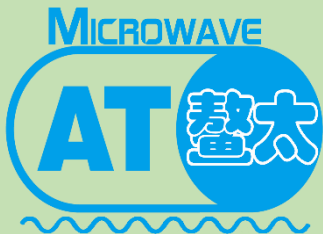
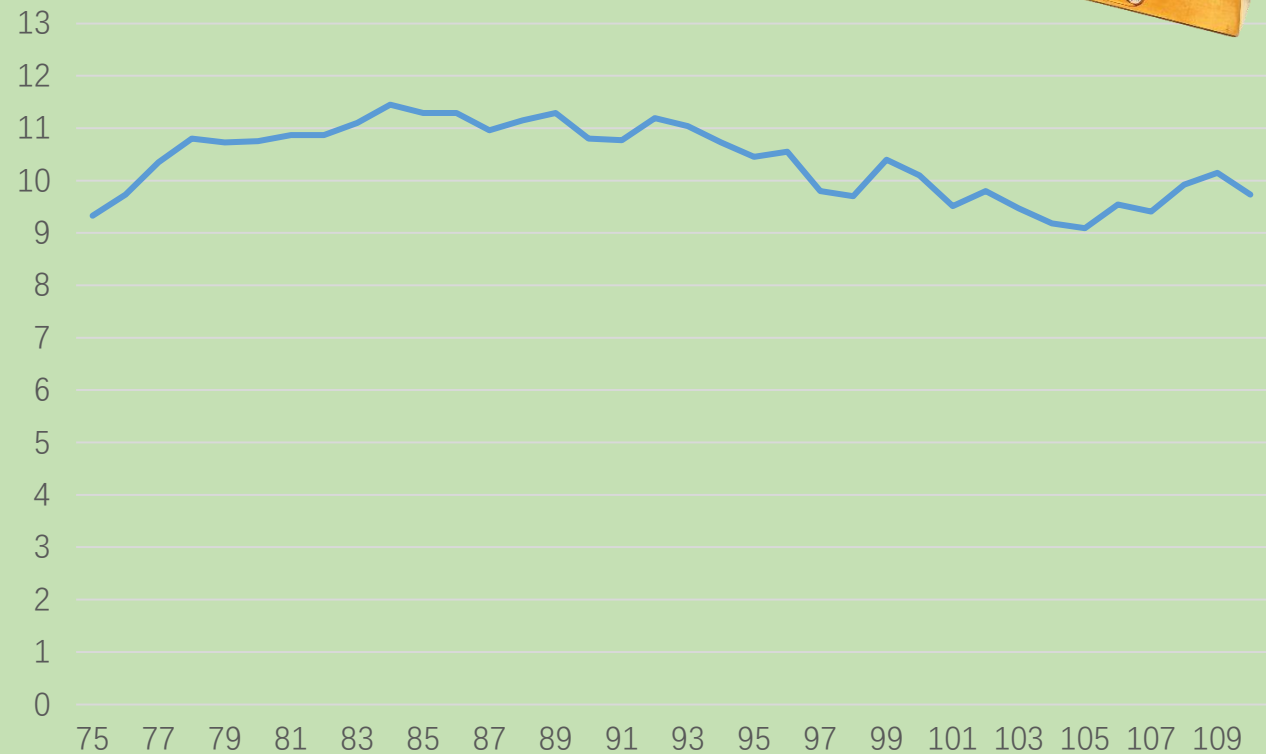
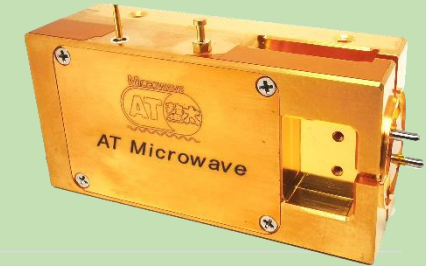


3. Full band Active Frequency Multiplier

PN: AT-AM6-75110-10

Feature

- Frequency: 75-110GHz
- Pout: +10dBm typical
- Input: 12.5-18.33GHz
- Low Harmonics

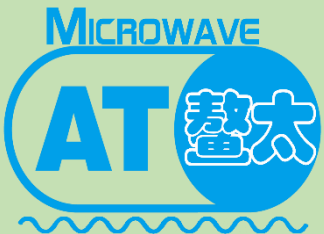
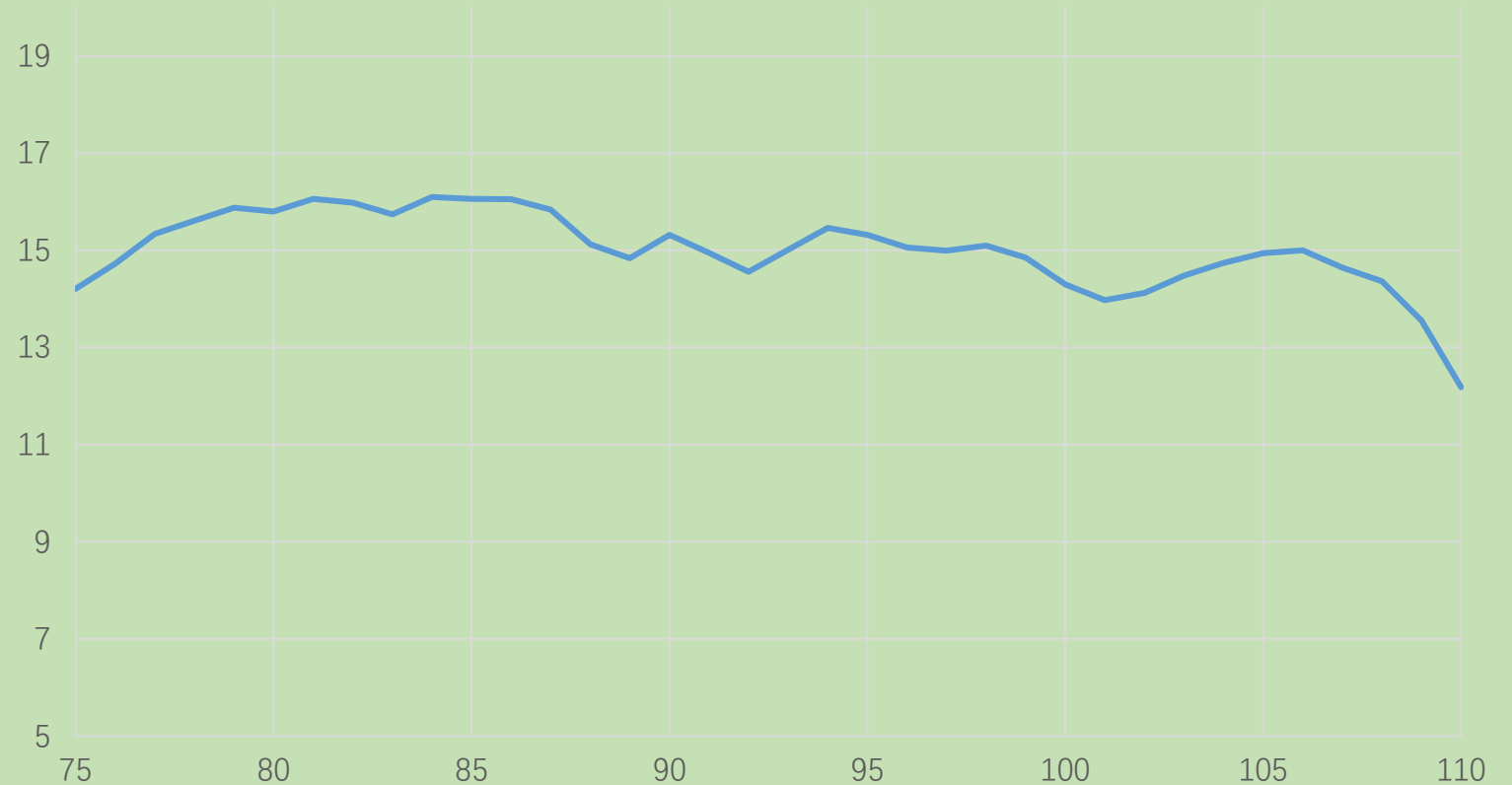
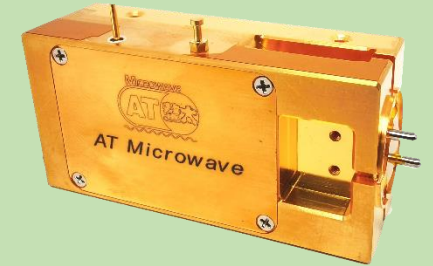


3. Full band Active Frequency Multiplier

AT-AM6-75110-13L

Feature

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

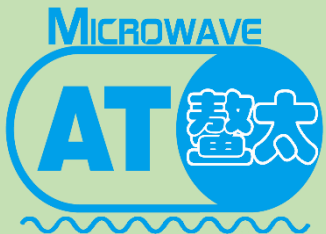


3. Full band Active Frequency Multiplier

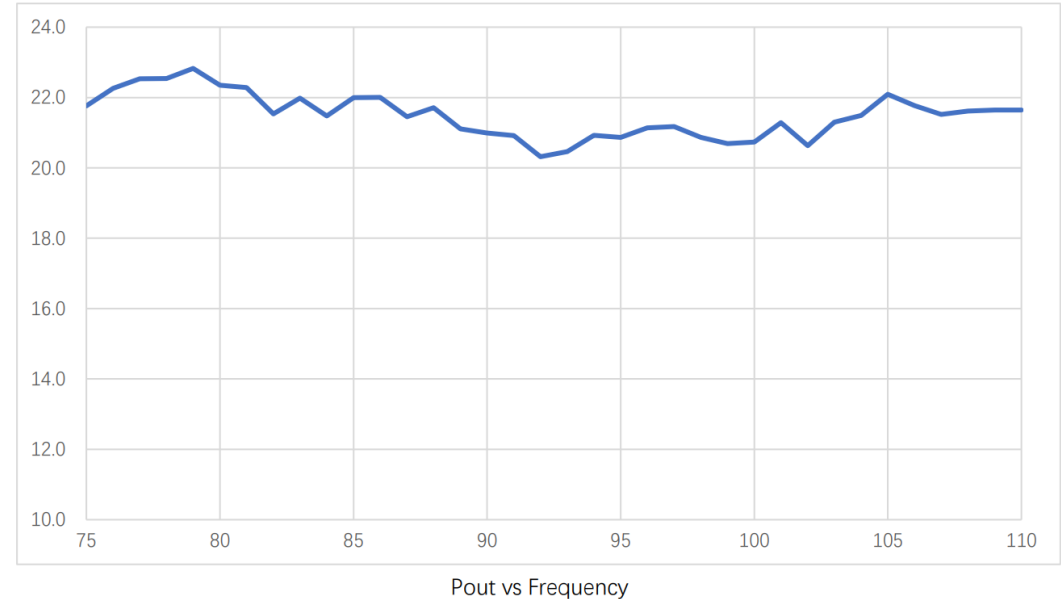
PN: AT-AM6-75110-20L
AT-AM6-75110-22L

Feature

- Frequency: 75-110GHz
- Pout: +20/+22dBm typical
- Input: 12.5-18.33GHz, +3dBm
- Low Harmonics



Test Data:

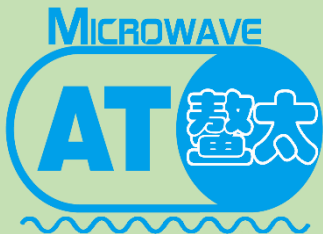
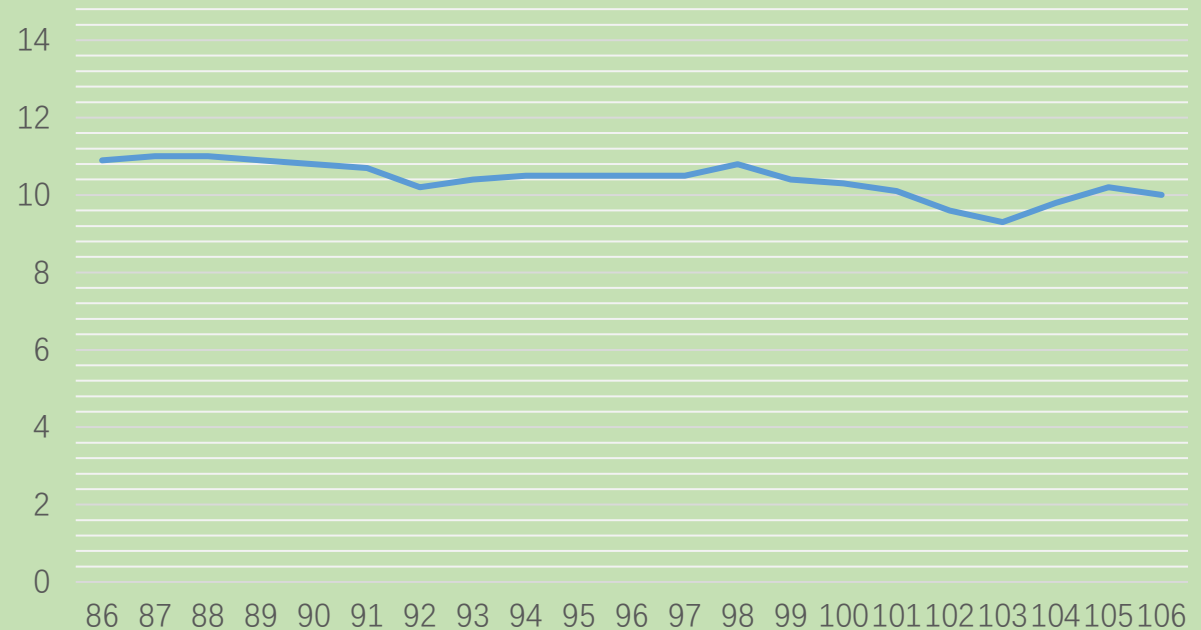
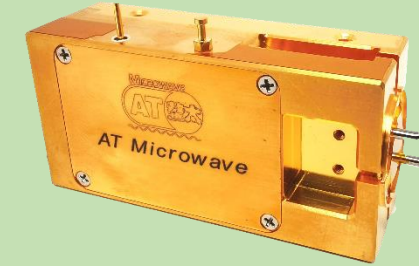


3. Low Cost Active Frequency Multiplier

PN: AT-AM8-86106-10

Advantages

- Frequency: 86-106GHz
- Pout: +10dBm typical
- Input: 10.7-13.3GHz, 0dBm
- Low Cost, In stock

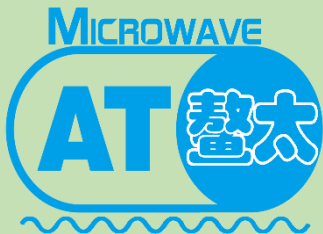
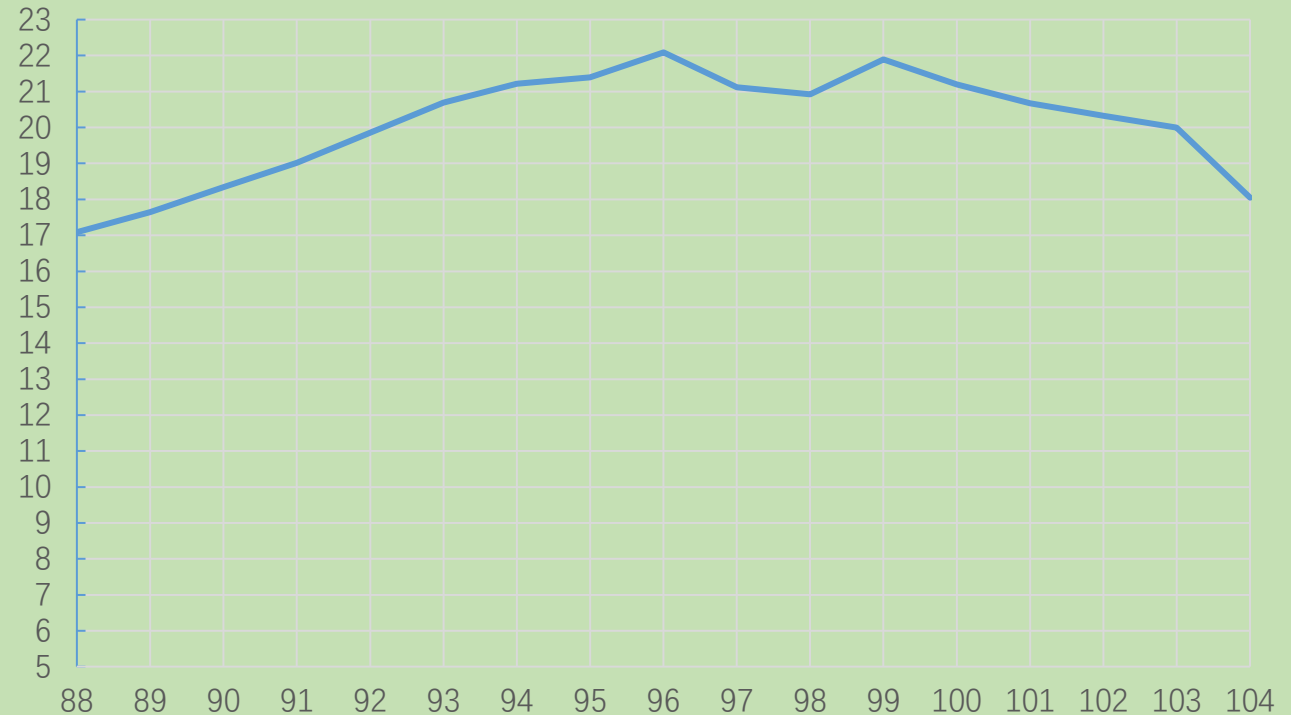
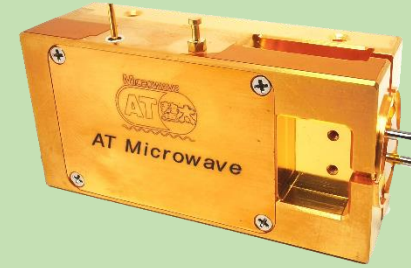


3. High Power Active Multiplier

PN: AT-AM8-88104-18

Advantages

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

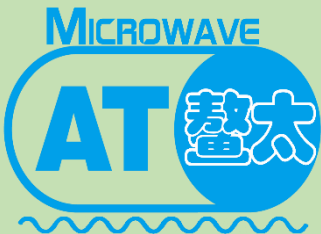
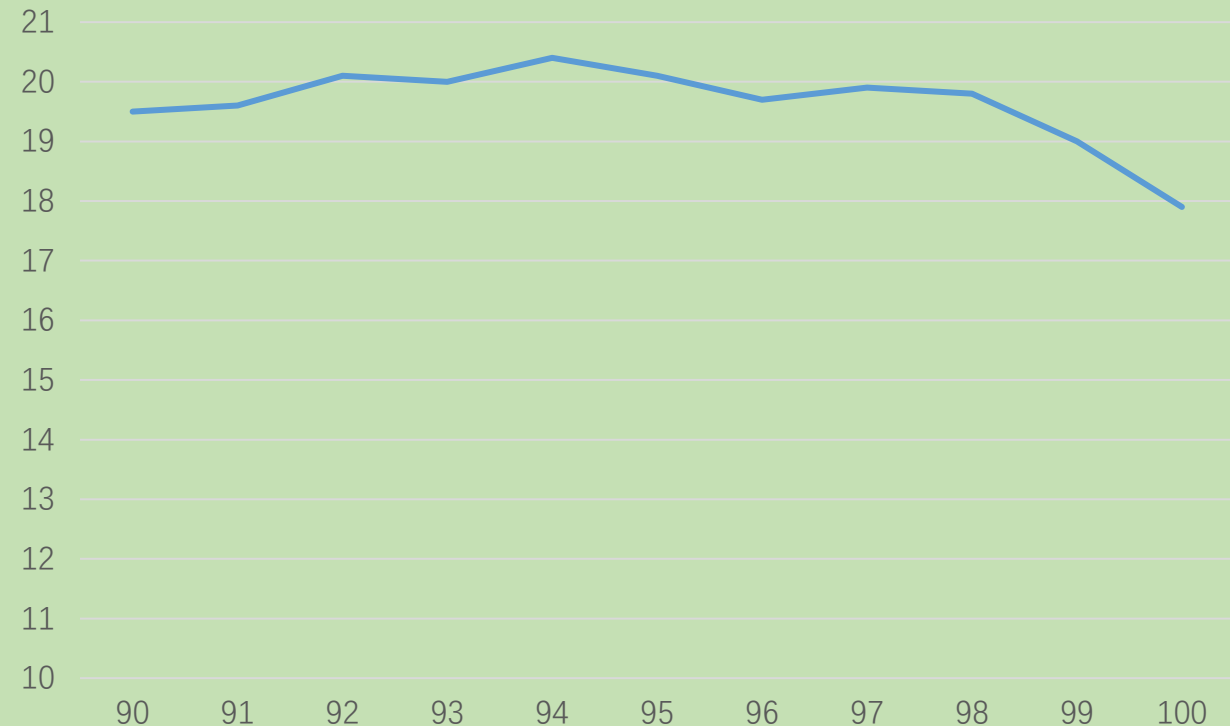


3. High Power Active Multiplier

PN: AT-AM8-9098-20

Feature

- Frequency: 90-98GHz
- Pout +20dBm
- Input: 11.25-12.5GHz, 0dBm
- Single Power Supply



3. Passive Multiplier

PN: AT-PM3-75110
AT-PM2-75110

Feature

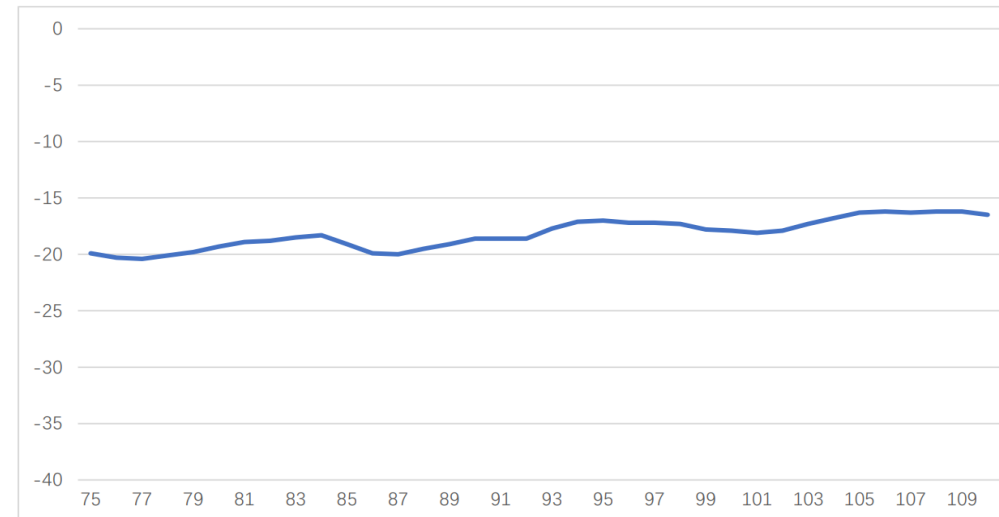
- Frequency: 75-110GHz
- Pout: -3dBm typical
- Input: 25-36.66GHz
- Low Harmonics



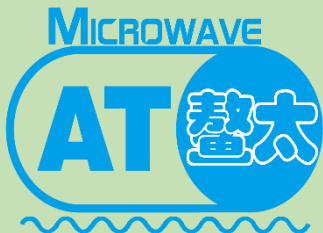
AT-PM3-70110M

Passive Multiplier x3, 70-110GHz

Test Data(25C)



Conversion Loss vs Frequency

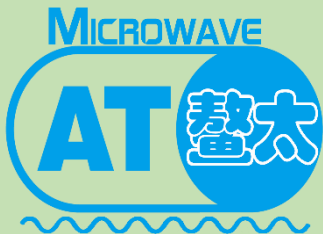
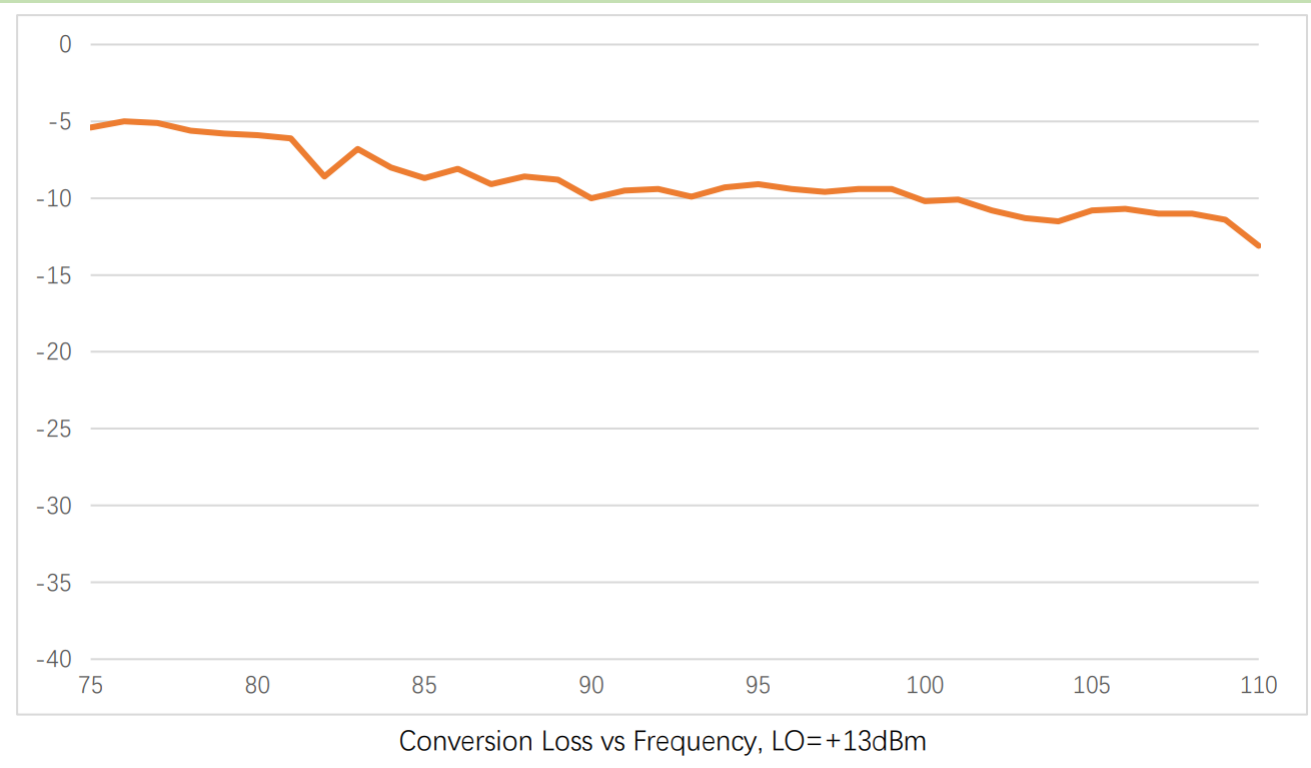
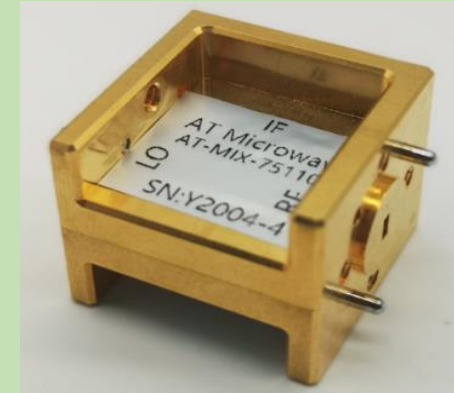


4. Full band Balance Mixer

PN: AT-MIX-75110

Feature

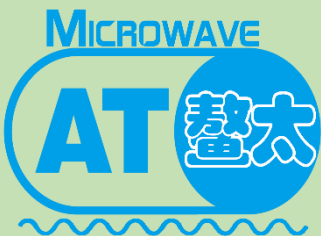
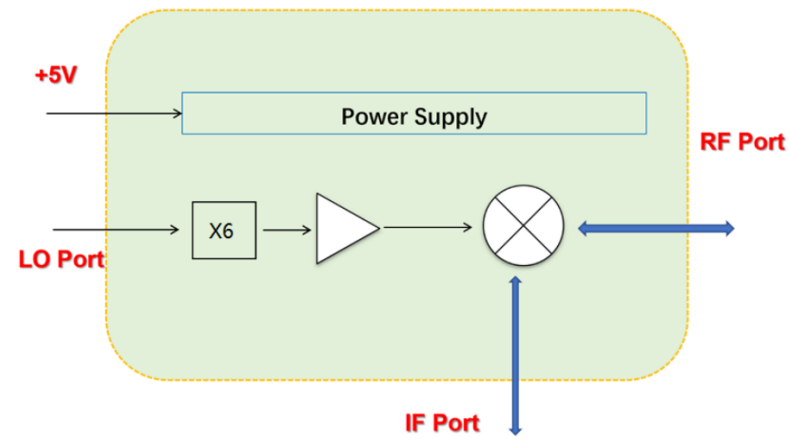
- RF/LO: 75-110GHz
- IF: DC-35GHz
- Low Conversion Loss
- Low LO power requirement
- High RF/LO Isolation



4. Full band Balance Mixer Integrated with LO Chain

☐	PN	Data Sheet	Type	Lead time	RF Low(GHz)	RF High (GHz)	Gain	Connector
☐	AT-6MIX-75110TL		W LO X6	Stock	75	110	-12	WR-10
☐	AT-8MIX-75110L-C1		W LO X8	8-10 Weeks	75	110	-12	WR-10
☐	AT-8MIX-86100SIF		W LO X8	10-12 Weeks	86	100	-12	WR-10

Diagram Block



4. Low LO driver Balance Mixer

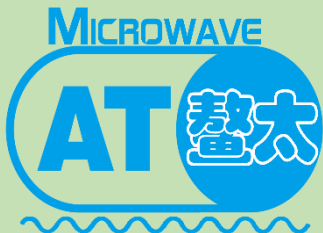
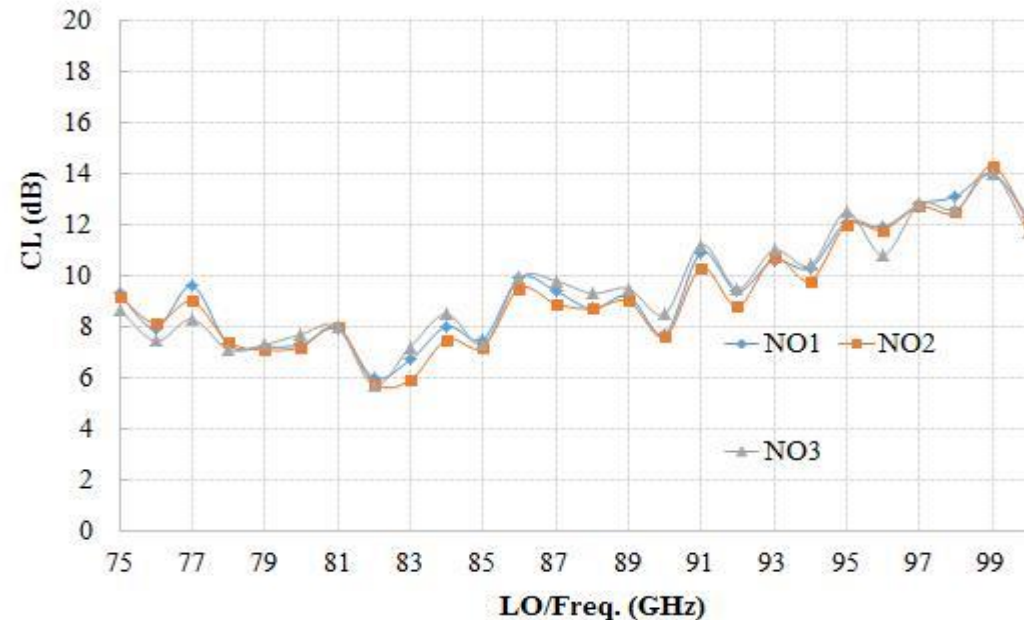
PN: AT-MIX-75100G

Feature

- RF/LO: 75-100GHz
- IF: DC-12GHz
- Low Conversion Loss
- Low LO power requirement
- High RF/LO Isolation



AT-MIX-75100G: Conv. CL vs LO=7dBm

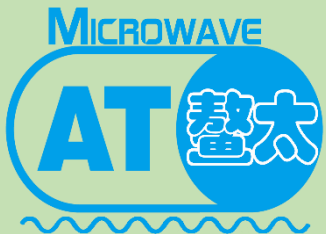
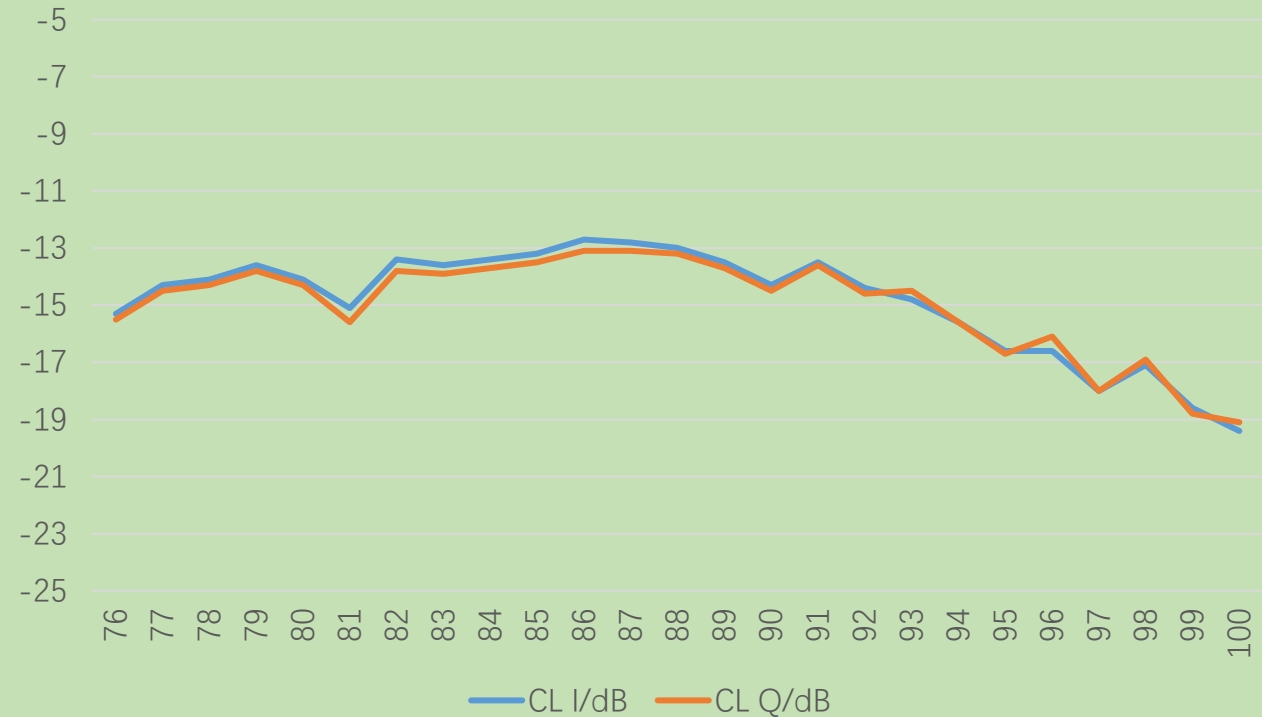


4. Low LO driver IQ Mixer

PN: AT-IQM-75100G

Feature

- RF/LO: 75-100GHz
- IF: DC-12GHz
- Low Conversion Loss
- Low LO power requirement
- High RF/LO Isolation



5. W Band Tx/Rx modules

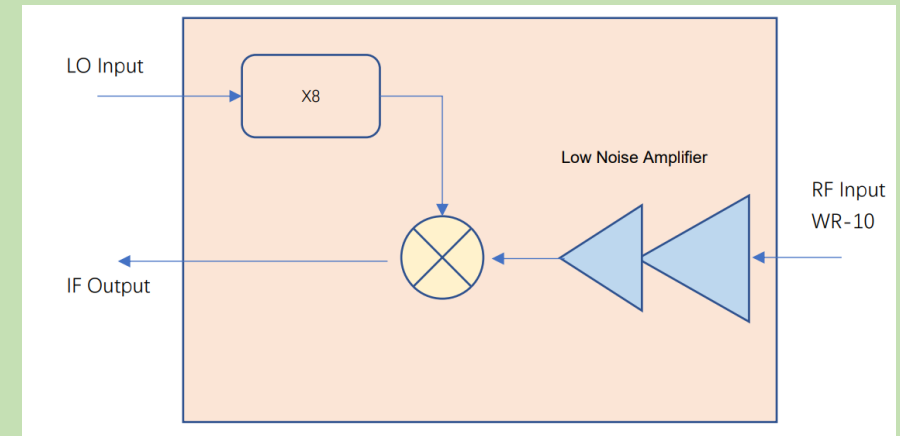
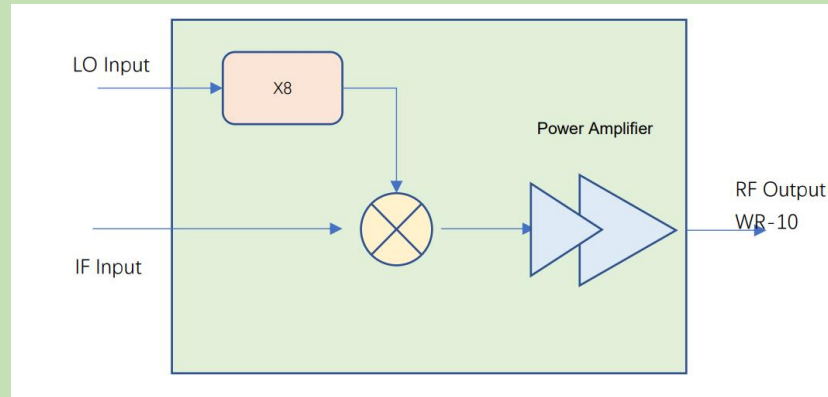
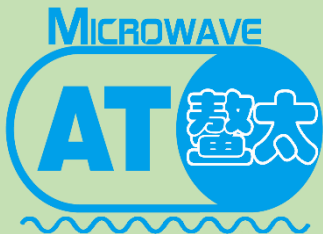
AT-WTX-88104SIF

AT-WRX-86106SIF

Single IF Port input and output

Feature

- Frequency: 88-104GHz
- Gain: +13dB typical
- IF Range: DC-10GHz
- Single Power Supply



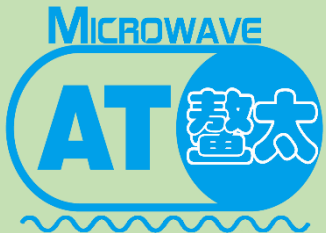
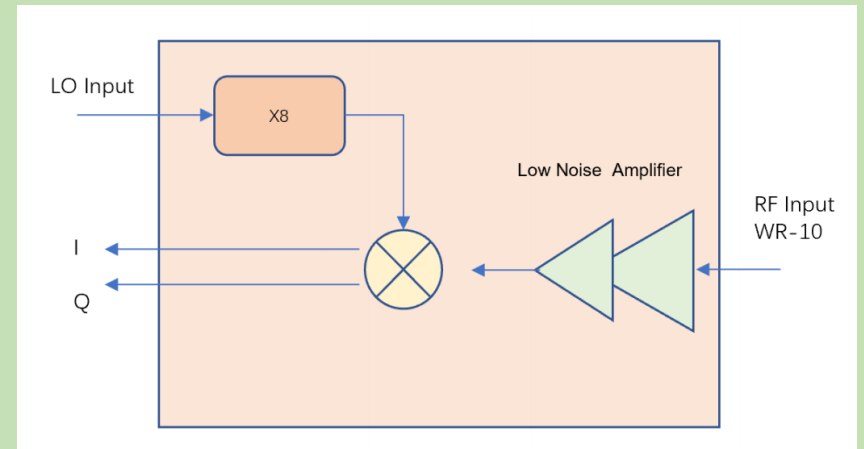
5. W Band Rx modules

AT-WRX-9098IQ

IF Port: I and Q

Feature

- Frequency: 90-98GHz
- Gain: +13dB typical
- IF Range: DC-10GHz
- Single Power Supply



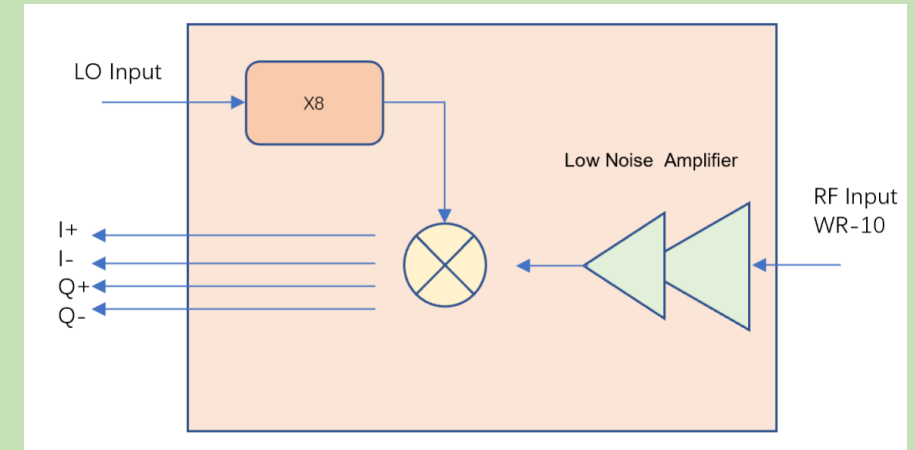
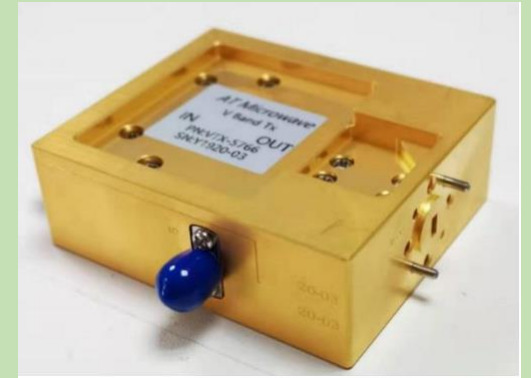
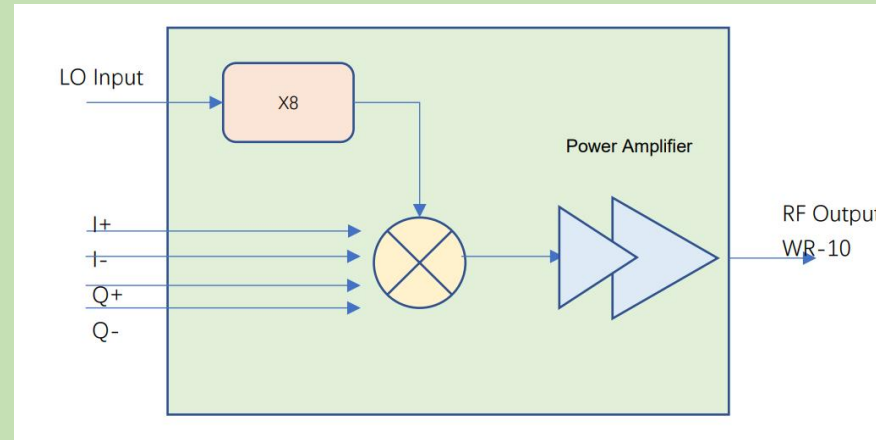
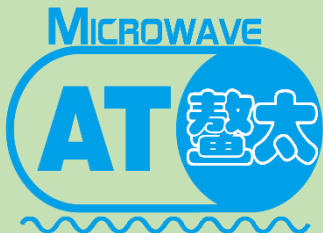
5. W Band Tx/Rx modules

AT-WTX-92100IQD
AT-WRX-92100IQD

IF Port: Differential I and Q

Feature

- Frequency: 92-100GHz
- Gain: +13dB typical
- IF Range: DC-10GHz
- Single Power Supply



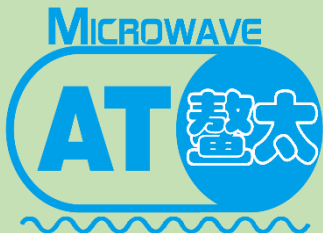
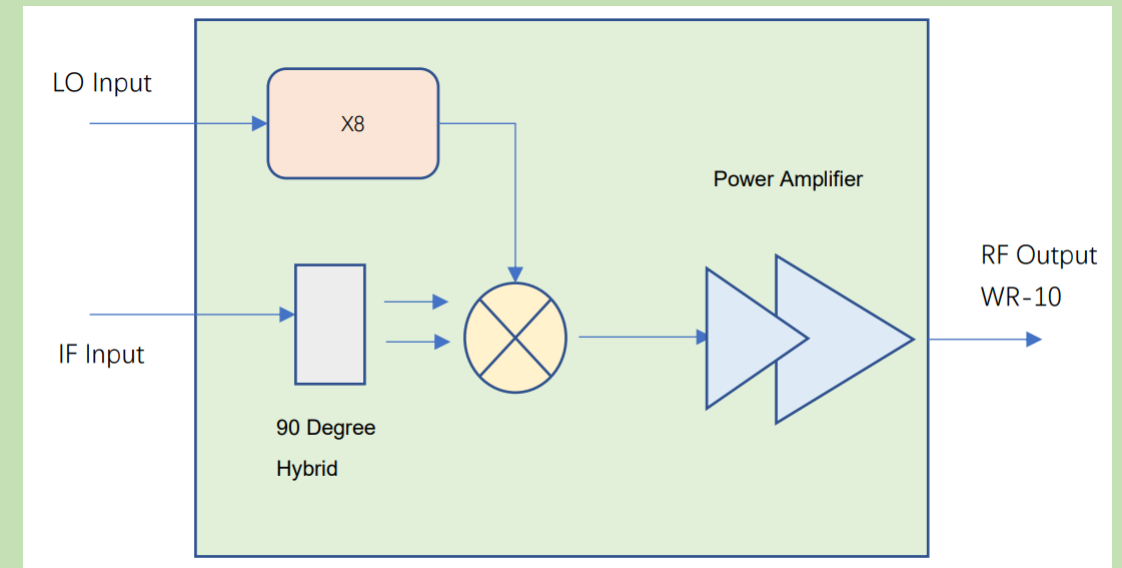
5. W Band Single-side Tx modules

AT-WTX-88100SIR

Hybrid with IF Port, Single-side Tx module

Feature

- Frequency: 88-100GHz
- Gain: +13dB typical
- IF Range: 2-8GHz
- Single Power Supply



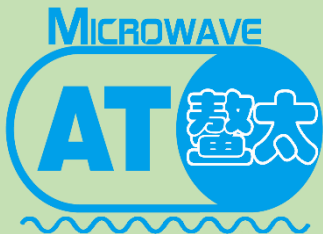
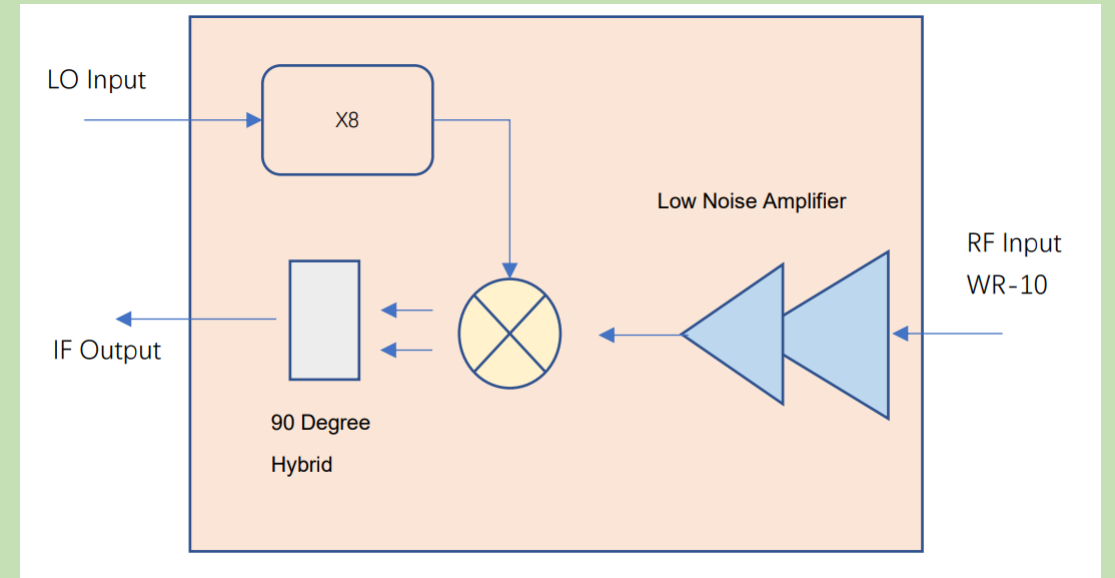
5. W Band Imaging Rejection Rx modules

AT-WRX-88100SIR

Hybrid with IF Port, Imaging Rejection Rx module

Feature

- Frequency: 88-100GHz
- Gain: +13dB typical
- IF Range: 2-8GHz
- Single Power Supply

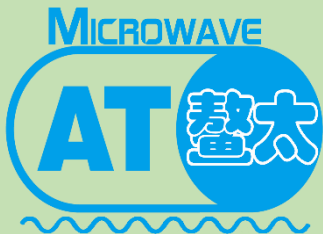
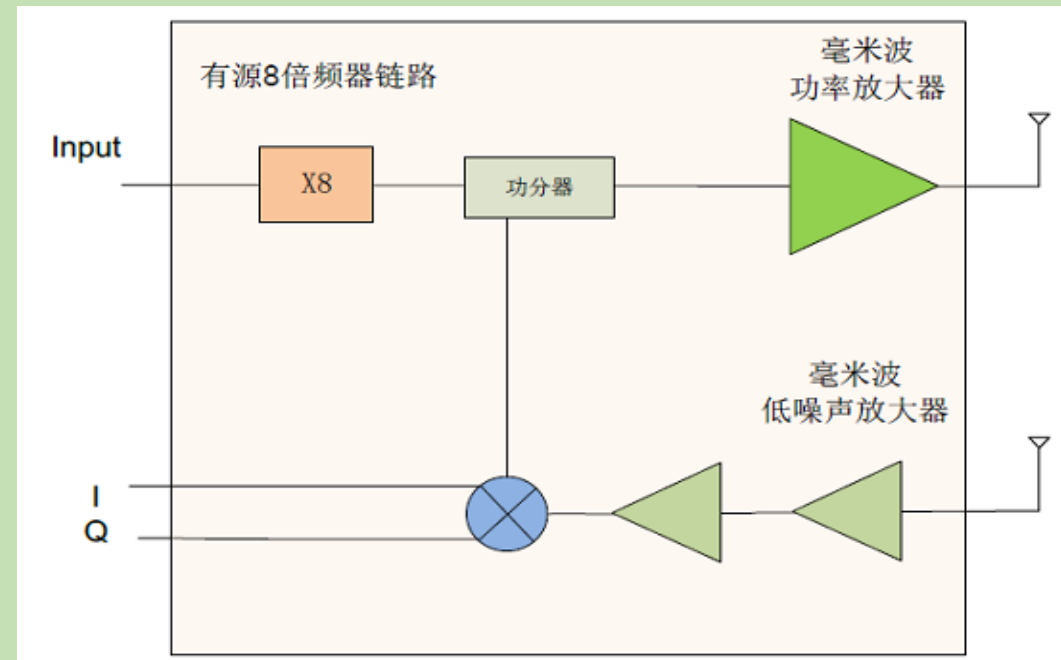


5. FMCW Tx and Rx modules

PN: AT-FMCW-9098TR

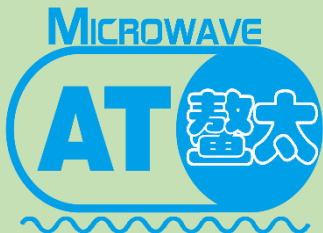
Feature

- Tx 90-98GHz
- Tx Pout: +20dBm
- Rx Gain 20dB
- Rx NF: 4dB

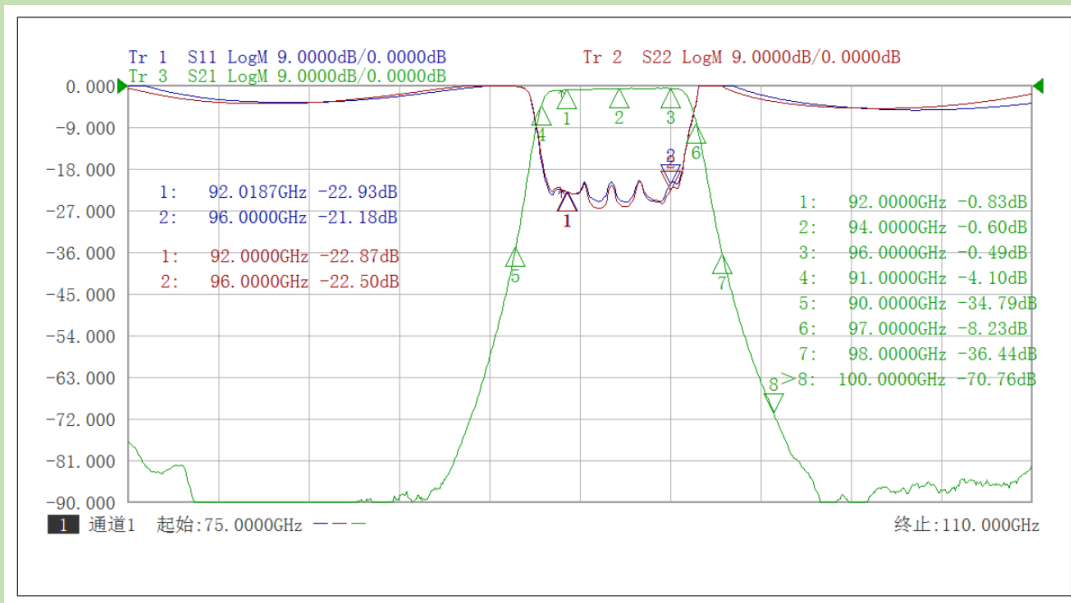
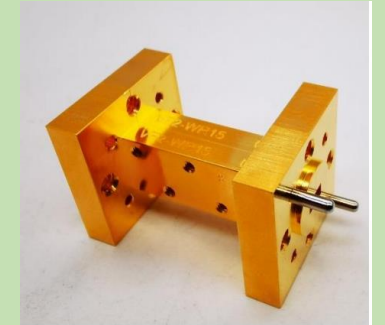


6. Waveguide Band-Pass, High-Pass Filter

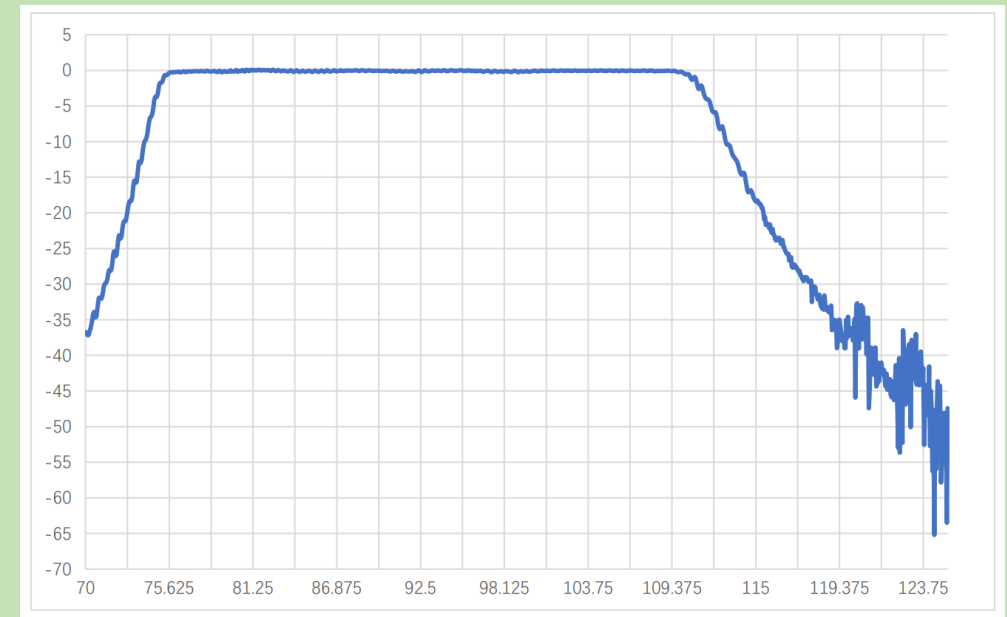
PN	Data Sheet	Type	Lead time	Center Frequency/GHz	Low Freq /GHz	High Freq /GHz	IL /DB	RL/DB	Connector
AT-BPF-7585-10		W Band	Stock	80	75	85	-1	10	WR-10
AT-BPF-70118-10A-FR		W Band	Stock	94	70	118	-1	10	WR-10
AT-BPF-7585-10A		W Band	6-8 Weeks	80	75	85	-1	10	WR-10
AT-BPF-8088-10A		W Band	6-8 Weeks	84	80	88	-1	10	WR-10
AT-BPF-9098-10A		W Band	Stock	94	90	98	-1	15	WR-10
AT-BPF-9296-10A		W Band	6-8 Weeks	94	92	96	-1	15	WR-10
AT-BPF-9396-10A		W Band	Stock	94.5	92.5	96.5	-1	15	WR-10
AT-BPF-92100-10A		W Band	Stock	96	92	100	-1	15	WR-10
AT-BPF-98102-10A		W Band	6-8 Weeks	100	98	102	-1	15	WR-10
AT-BPF-100110-10A		W Band	Stock	105	100	110	-1	15	WR-10
AT-BPF-102108-10A		W Band	6-8 Weeks	105	102	108	-1	15	WR-10



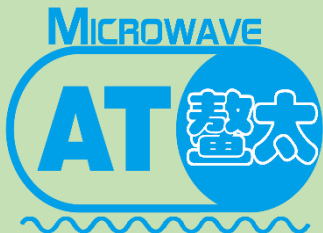
6. Band-Pass Filter



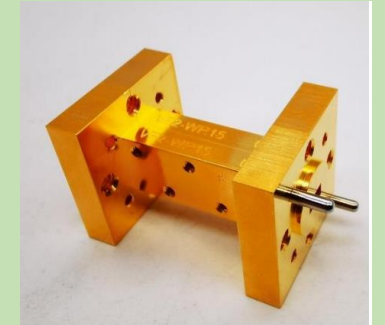
AT-BPF-9296-10A



AT-BPF-75110-10A



6. Band-Pass Filter



AT-BPF-70118-10A-FR

W Band Waveguide Band-Pass Filter, WR-10

AT-BPF-70118-10A-FR

70-118GHz Band-Pass Filter, WR-10

Far Rejection upto 170GHz

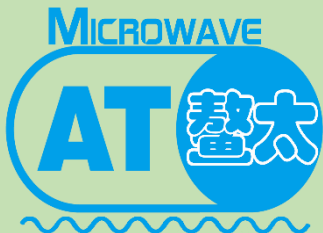
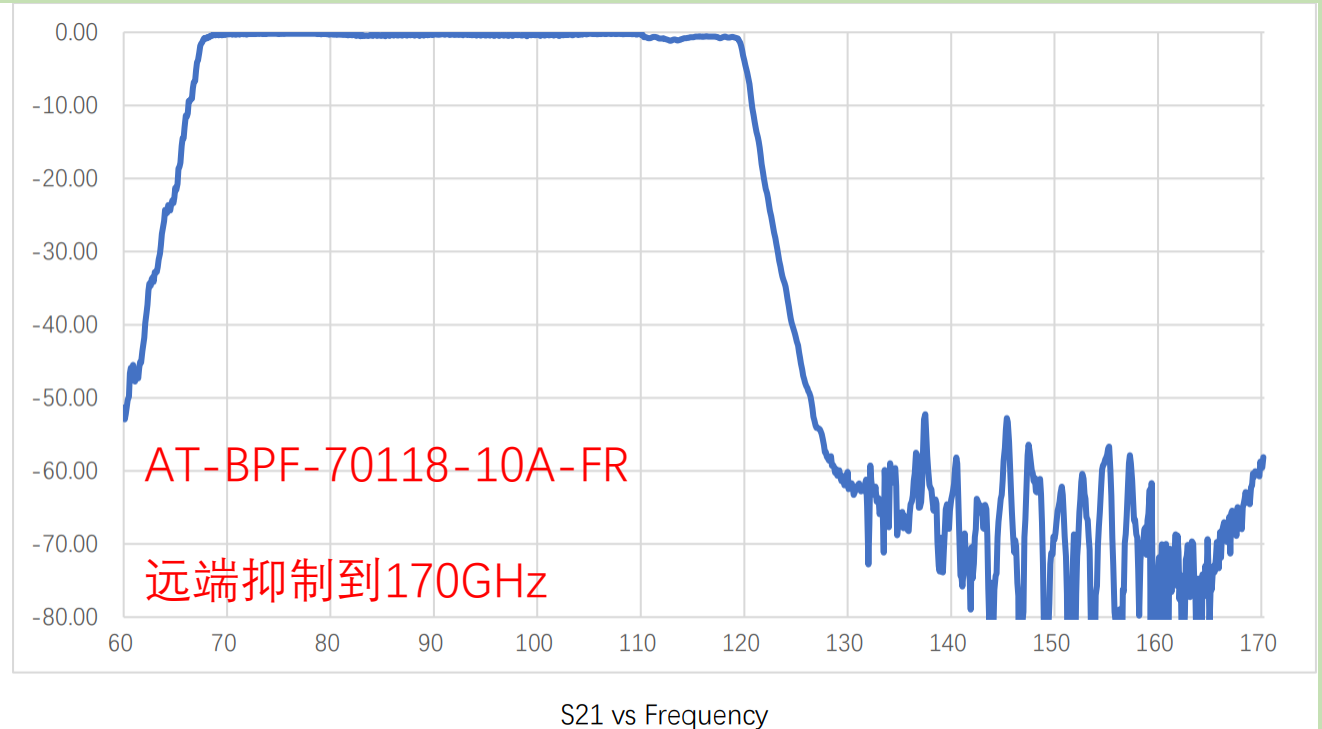


Product Overview

AT Microwave offers high performance band waveguide band-pass filter from 26.5-330GHz. Other frequency bands and rejection requirement can provide according to request.

Based on our excellent design work, precise machine tolerance and outstanding quality plating, we can provide band pass filter with low insertion loss, good return loss and high rejection at the same time.

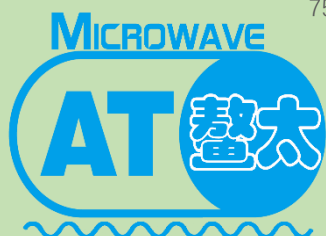
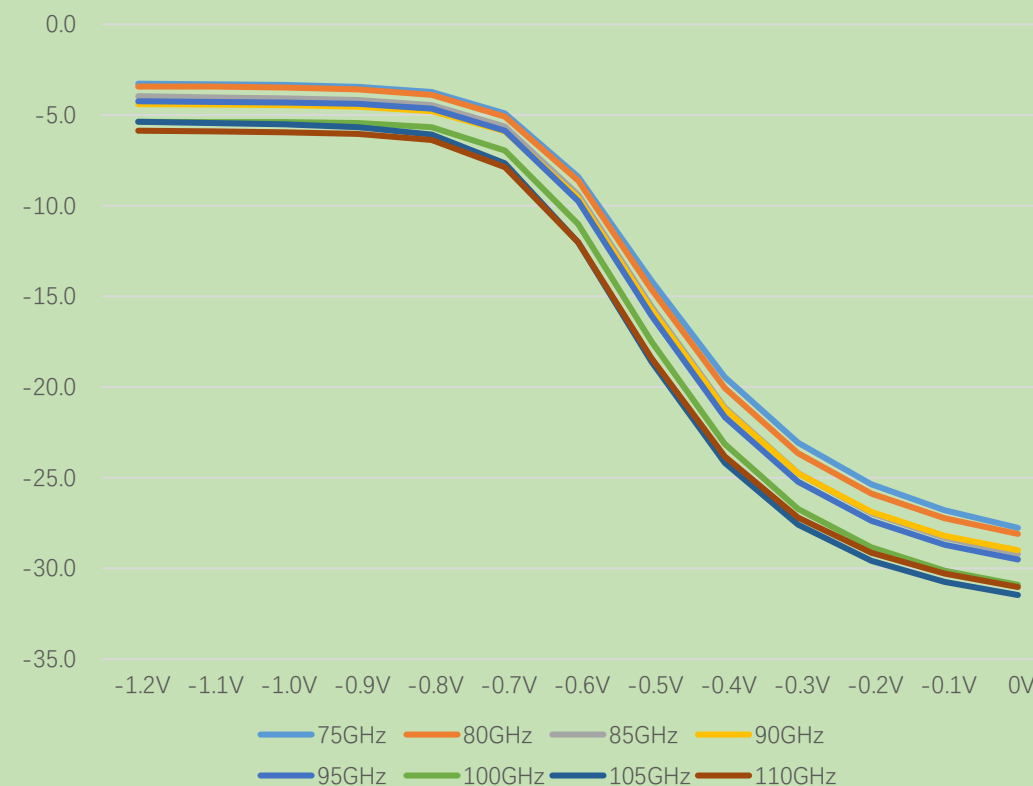
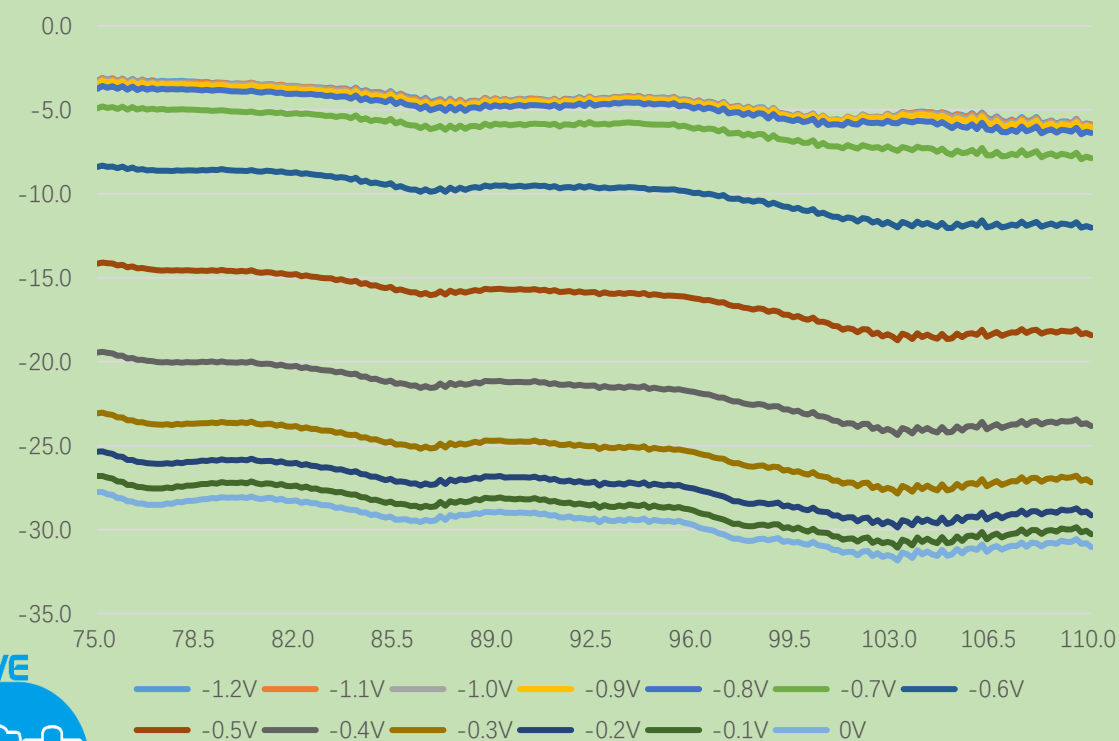
More information, please visit www.atmicrowave.com



7. Voltage Variable Attenuator

PN: AT-VVA-75110G-25

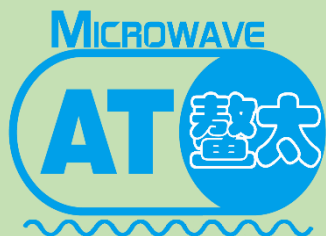
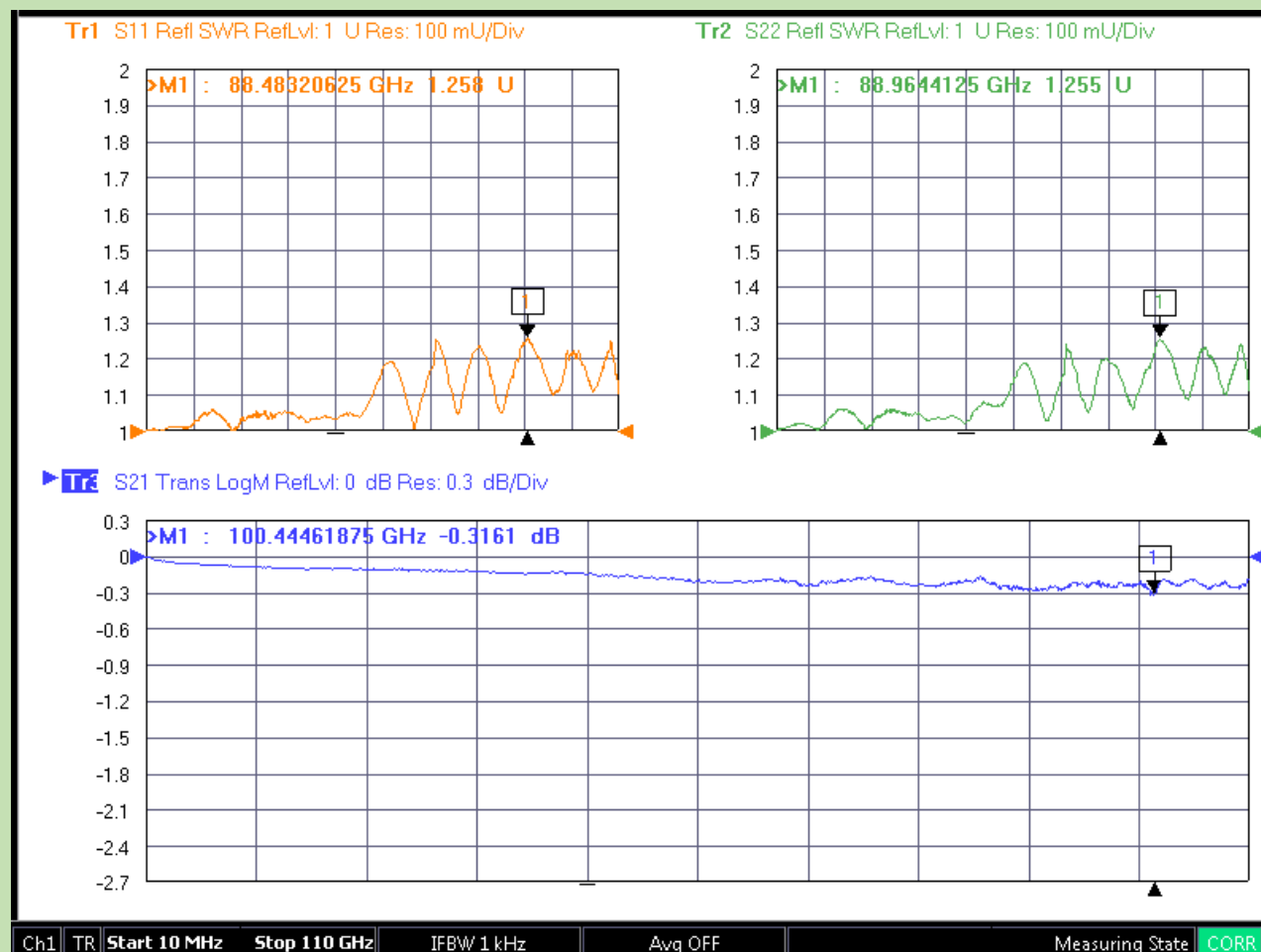
AT-VVA-75110G-35



8. Adapter 1.0mm to 1.0mm

PN: AT-AP-10X10X

Parameter	Frequency Range (GHz)	Min	Typ	Max	Unit
Insertion Loss	DC-40GHz		0.3	0.5	dB
	40-67GHz		0.5	0.8	dB
	67-110GHz		0.7	1	dB
VSWR	DC-40GHz		1.2		
	40-67GHz		1.25		
	67-110GHz		1.35		



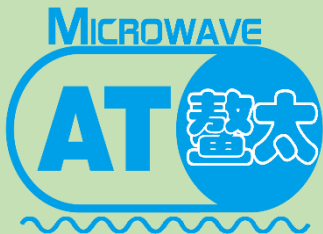
9. Waveguide Section

RSW Series: Rugged Straight Waveguide

AT-RSW-2.0-WR10,
Full W band, 2.0inch

RWT Series: Rugged Waveguide Transition

AT-RWT-1210-1.0: WR-12 to WR-10, 75-90GHz
AT-RWT-1008-1.0: WR-10 to WR-08, 90-110GHz



9. Test Equipment

Signal Frequency Extender

AT-SFX6-10

AT-SFX6-10-HP

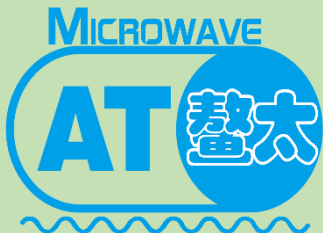
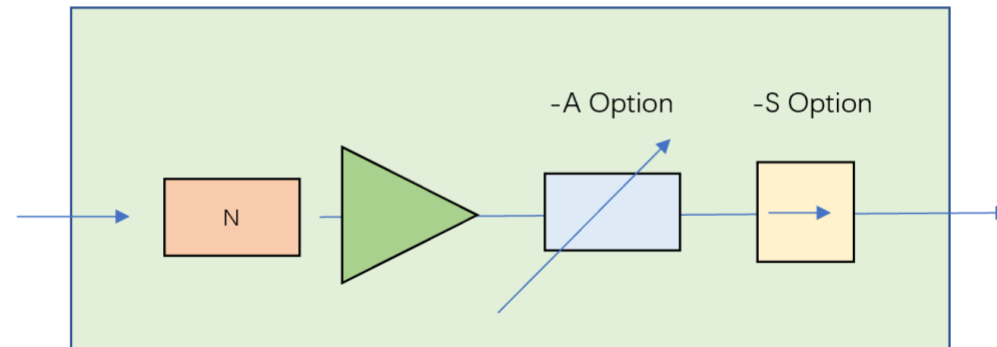
■ Frequency: 75-110GHz

■ Multiplier Time: X6

■ Pout=+13 to +30dBm



Block Diagram



9. Test Equipment

VNA Extender Module

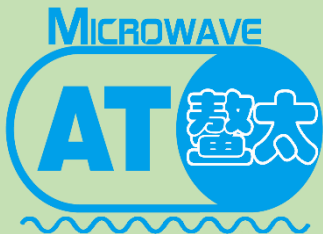
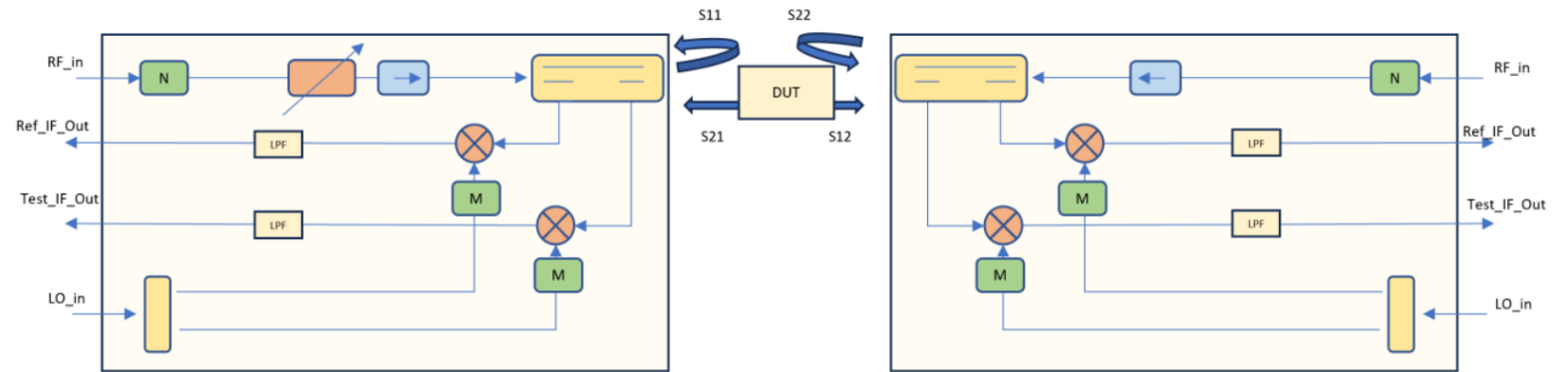
AT-VEX-10

AT-VEX-10HP

- Frequency: 75-110GHz
- Multiplier Time: X6
- Pout= +8/+18dBm



-FTFR Option Diagram Blcok:



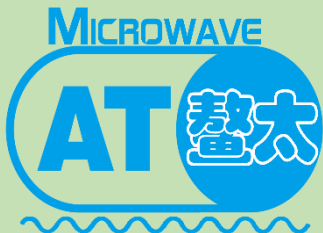
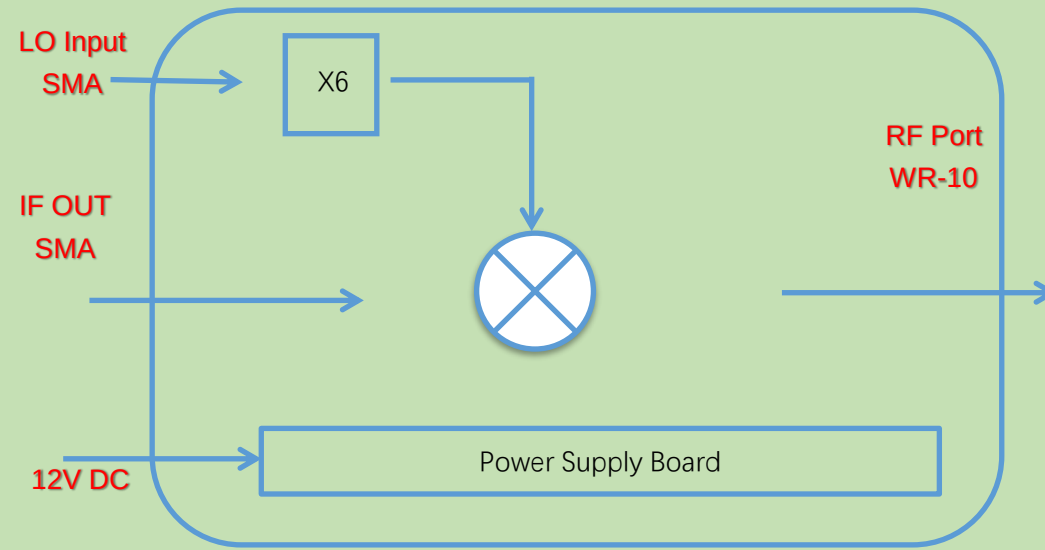
9. Test Equipment

Bench-top Up-Converter

AT-BTUC4-75110

AT-BTUC6-75110

- Frequency: 75-110GHz
- Conversion Loss: -10dB
- Connector: WR-10



9. Test Equipment

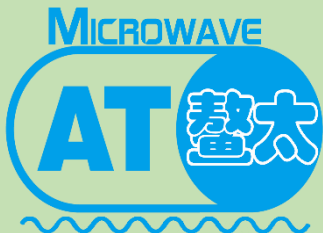
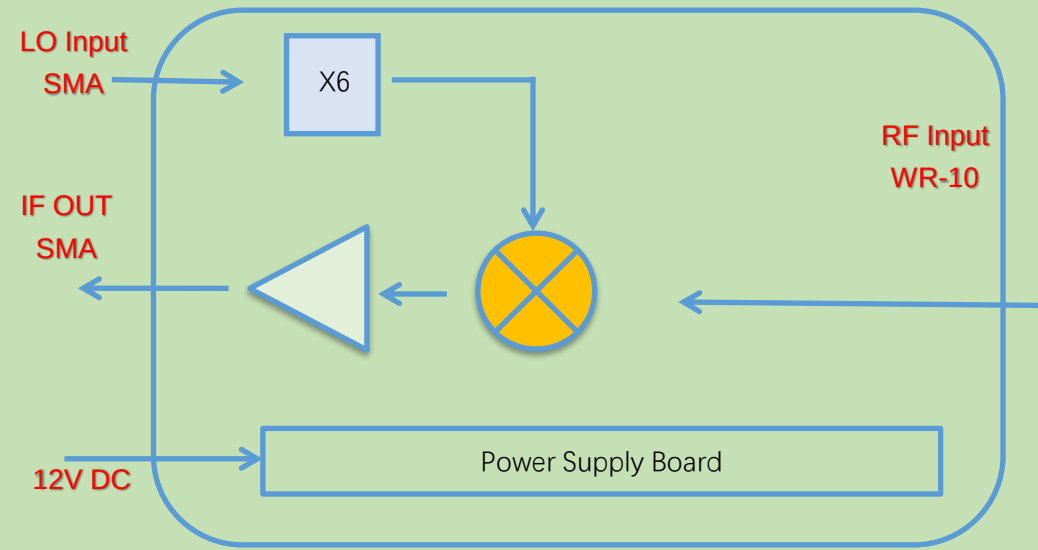
Bench-top Down-converter

For NF test and General Receiver

AT-BTDC6-75110

AT-BTDC6-75110R

- Frequency: 75-110GHz
- Gain: 20dB
- Connector: WR-10



9. Test Equipment

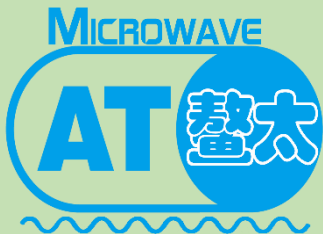
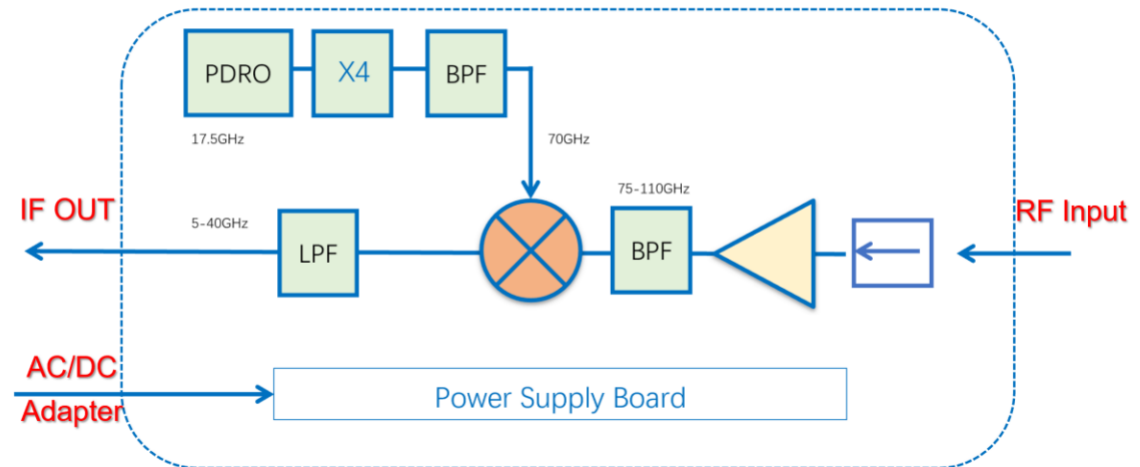
Bench-top **Down-converter** For NF TEST

AT-BTWDC-75110R1

- Frequency: 75110GHz
- Gain: 5dB
- Connector: WR-10



Diagram Block:



9. Test Equipment

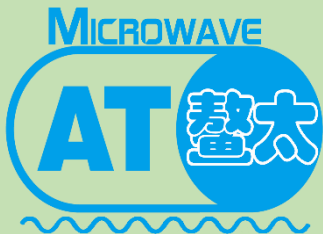
Bench-top Low Noise Amplifier

AT-BTLNA-75110-1804

AT-BTLNA-75110-3804

AT-BTLNA-75110-3504HP

- Frequency: 75-110GHz
- Gain: 18-38dB
- NF: 5dB
- Connector: WR-10



9. Test Equipment

Bench-top Power Amplifier

- Frequency: 75-110GHz
- Gain: 18-33dB
- Pout: +13 to +29dBm
- Connector: WR-10



☐	PN	Data Sheet	Type	Leadtime	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
☐	AT-BTPA-75110-1513		W Band	8-10Weeks	75	110	15	10	13	WR-10
☐	AT-BTPA-75110-3313		W Band	8-10Weeks	75	110	33	10	13	WR-10
☐	AT-BTPA-75110-2426		W Band	8-10Weeks	75	110	24	-	26	WR-10
☐	AT-BTPA-75110-2729		W Band	8-10Weeks	75	110	27	-	29	WR-10

