E Band (60-90GHz)
Highlight Products

Shanghai AT Microwave Ltd.
sales@atmicrowave.com

Products Lines

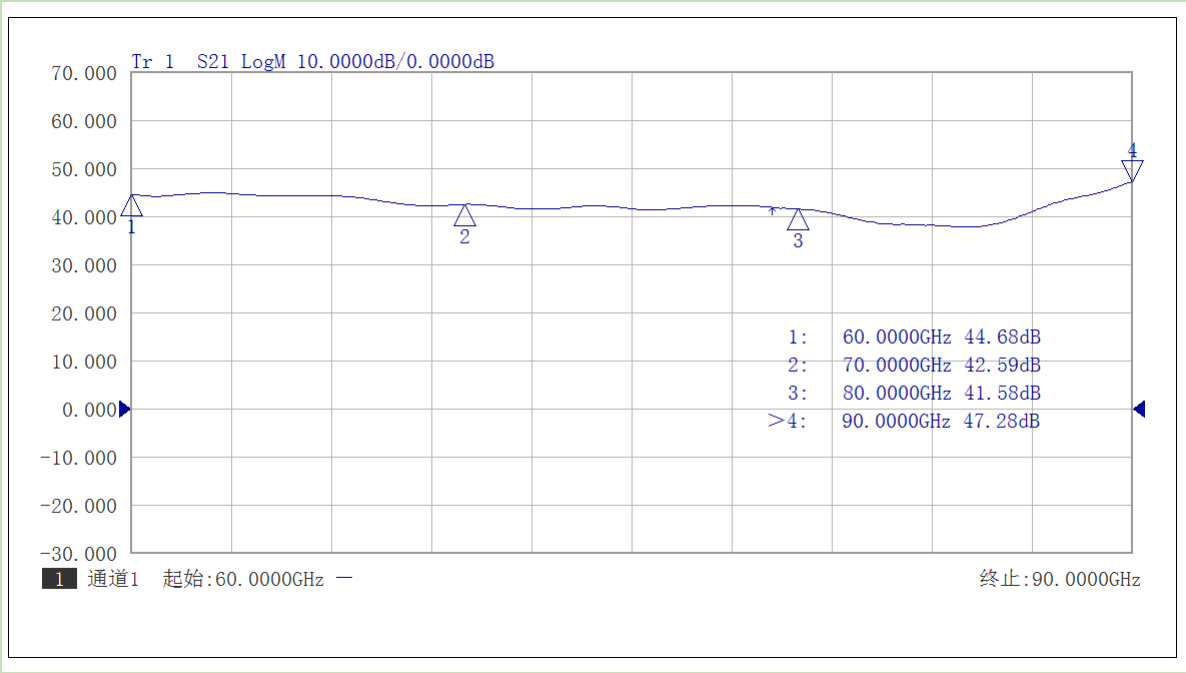
1. Low Noise Amplifier
2. Power Amplifier
3. CPA Series High Linearity Power Amplifier
4. Frequency Multiplier
5. Mixer/IQ Mixer
6. Tx/Rx Module
7. Filter
8. Adapter
9. Waveguide Section
10. Test Equipment

1. Full Band Low Noise Amplifier

PN: AT-LNA-6090-1805
AT-LNA-6090-3805
AT-PA-6090-3518

Advantages

- Frequency: 60-90GHz
- High Gain: 18/38/35dB
- NF:　5dB
- Single Supply

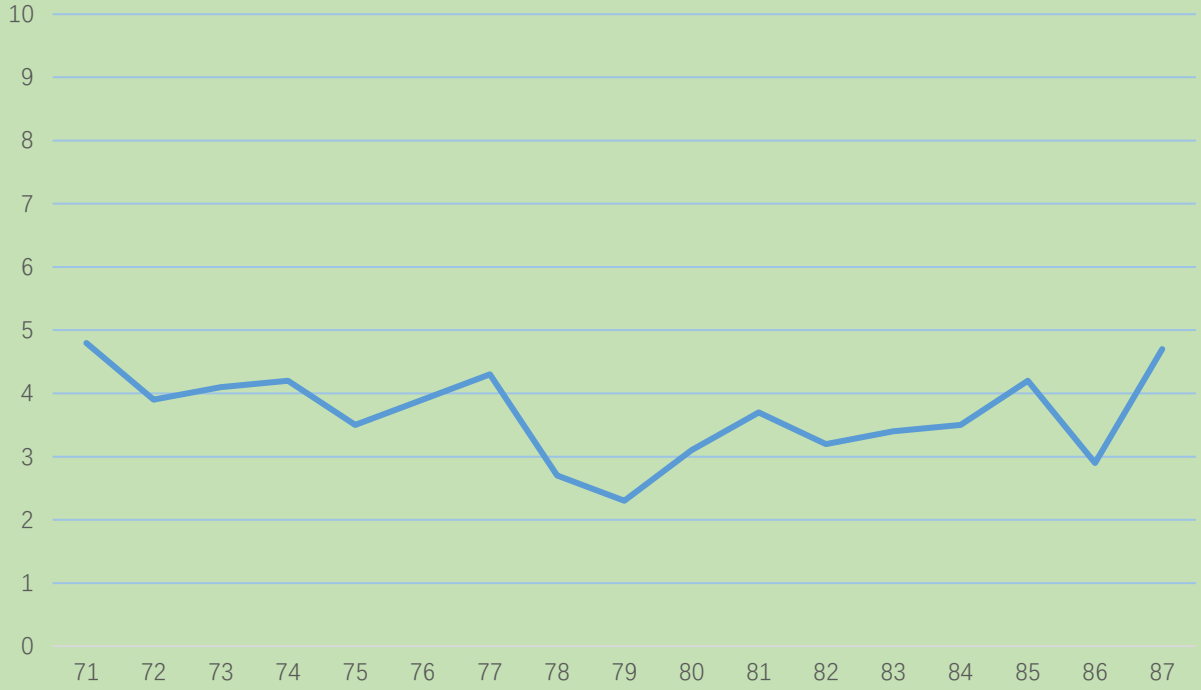


1. Narrow-band Low Noise Amplifier

PN: AT-LNA-7090-2304

Advantages

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



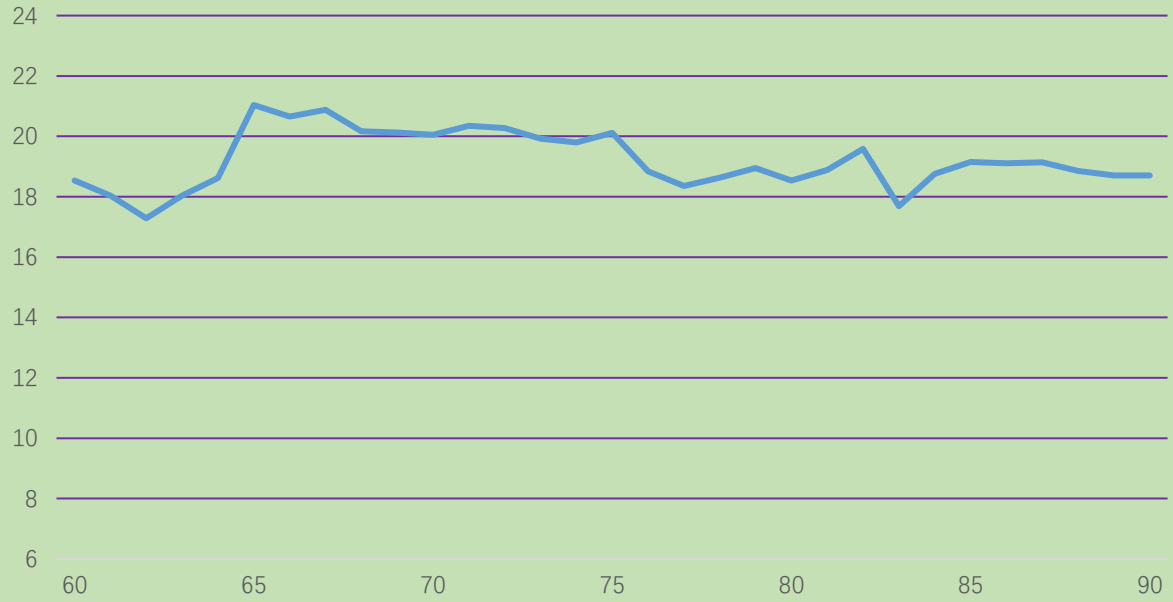
2. Full Band Power Amplifier

PN	Data Sheet	Type	Leadtime	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-PA-5590-1822		E Band	Stock	55	90	18	15	22	WR-12
AT-PA-5585-1618		E Band	10 Weeks	55	85	16	16	18	WR-12
AT-PA-5590-2822		E Band	10 Weeks	55	90	28	15	22	WR-12
AT-PA-6090-1818		E Band	Stock	60	90	18	16	18	WR-12
AT-PA-6090-3518		E Band	Stock	60	90	35	16	18	WR-12
AT-PA-6090-1620		E Band	10 Weeks	60	90	16	16	20	WR-12
AT-PA-6090-3027		High Power	Stock	60	90	30	20	27	WR-12
AT-PA-6090-3331		High Power	Contact us	60	90	33	-	31	WR-12

2. Full Band Power Amplifier

PN: AT-PA-6090-1818

AT-PA-6090-3518



Advantages

- Frequency: 60-90GHz
- Psat:+18dBm
- Small signal gain: 18/38dB
- Single Power Supply

Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

2. Full Band Power Amplifier

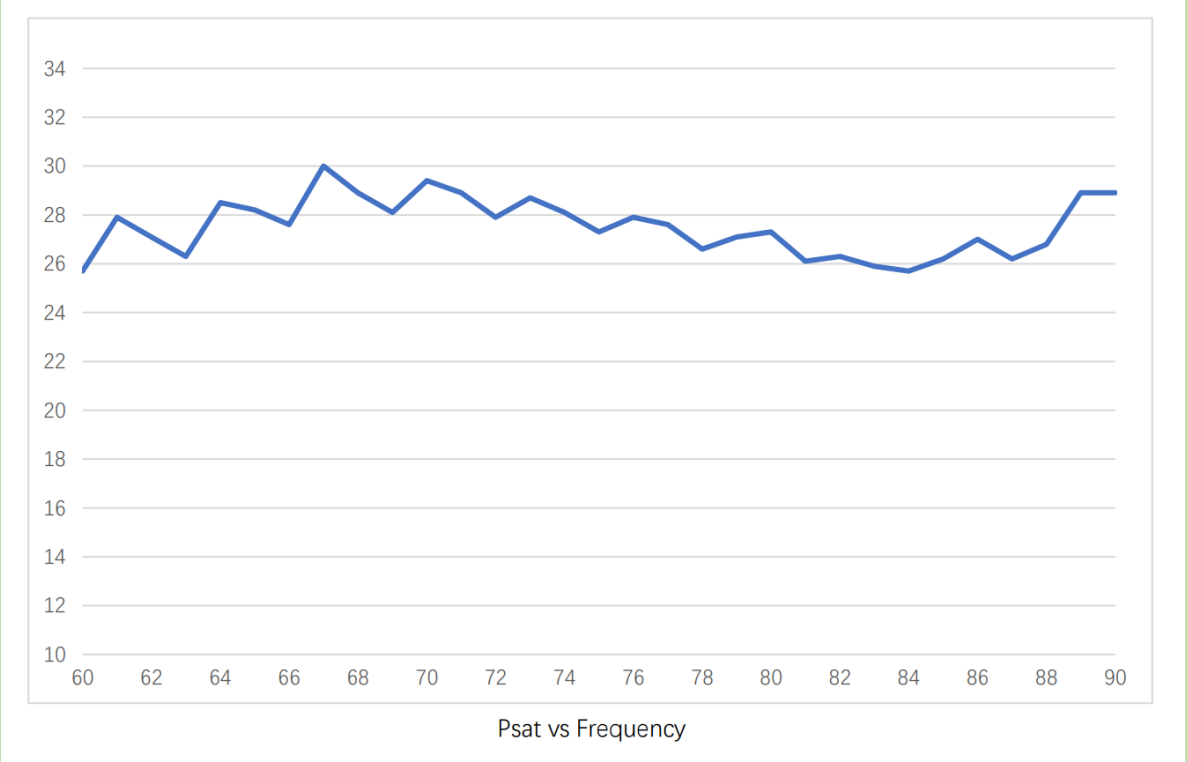
-LCBT Option

PN: AT-PA-6090-3027

AT-PA-6090-3331

Advantages

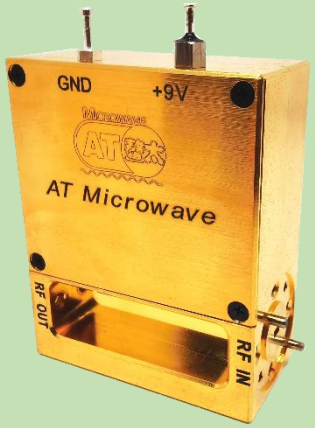
- Frequency: 60-90GHz
- Psat:+27 to +31dBm
- Small signal gain: 30/33dB
- Single Power Supply



AT-PA-6090-3027GN

Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

2. Full Band Power Amplifier

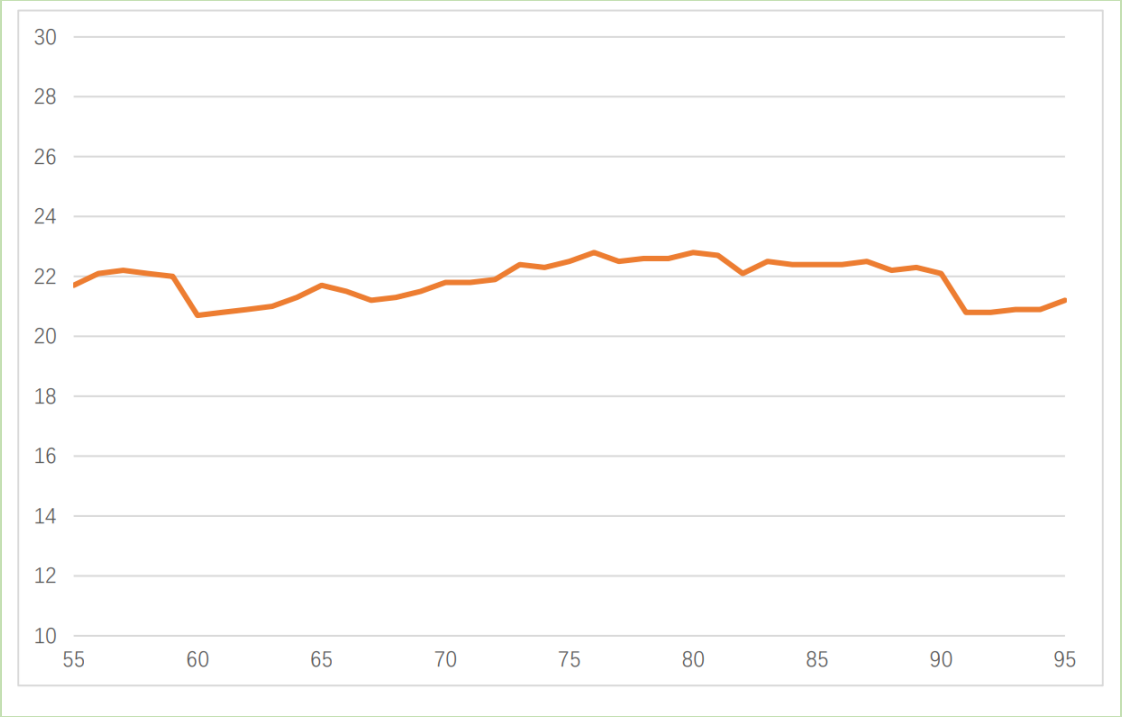


PN: AT-PA-5590-1822

AT-PA-5590-2822

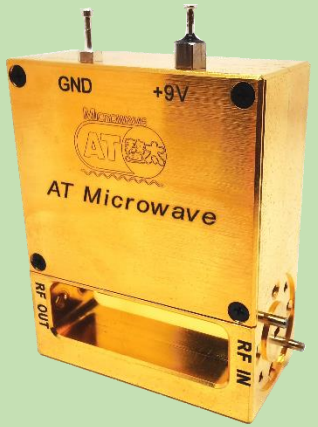
Advantages

- Frequency: 55-90GHz
- Psat:+22dBm
- Small signal gain: 18/28dB
- Single Power Supply



2. Narrow-Band Power Amplifier-High Power

PN	Data Sheet	Type	Leadtime	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-PA-6086-2027		E Band	Stock	60	86	20	25	27	WR-12
AT-PA-6086-2027		E Band	Stock	60	86	20	25	27	WR-12
AT-PA-6086-3027		E Band	10 Weeks	60	86	30	25	27	WR-12
AT-PA-7078-2028E		E1 Band	Stock	70	78	20	27	28	WR-12
AT-PA-7078-3328E		E1 Band	Stock	70	78	33	27	28	WR-12
AT-PA-7078-2028		E1 Band	Stock	70	78	20	27	28	WR-12
AT-PA-7078-3828		E1 Band	Stock	70	78	38	27	28	WR-12
AT-PA-7084-3526E		E Band	Stock	70	84	33	25	26	WR-12
AT-PA-7186-1626		E1 Band	Stock	71	86	16	25	26	WR-12
AT-PA-7586-1825		E2 Band	Stock	75	86	18	23	25	WR-12
AT-PA-7588-1527		E2 Band	Stock	75	88	15	26	27	WR-12
AT-PA-7590-1527E		E2 Band	10 Weeks	75	90	15	26	27	WR-12
AT-PA-7588-1527E		E2 Band	Stock	75	88	15	26	27	WR-12
AT-PA-7588-3327E		E2 Band	Stock	75	88	33	26	27	WR-12
AT-PA-7681-3531		High Power	Stock	76	81	35	-	31	WR-12
AT-PA-7894-1426E-12		W Band	Stock	78	94	14	24	26	WR-12



Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

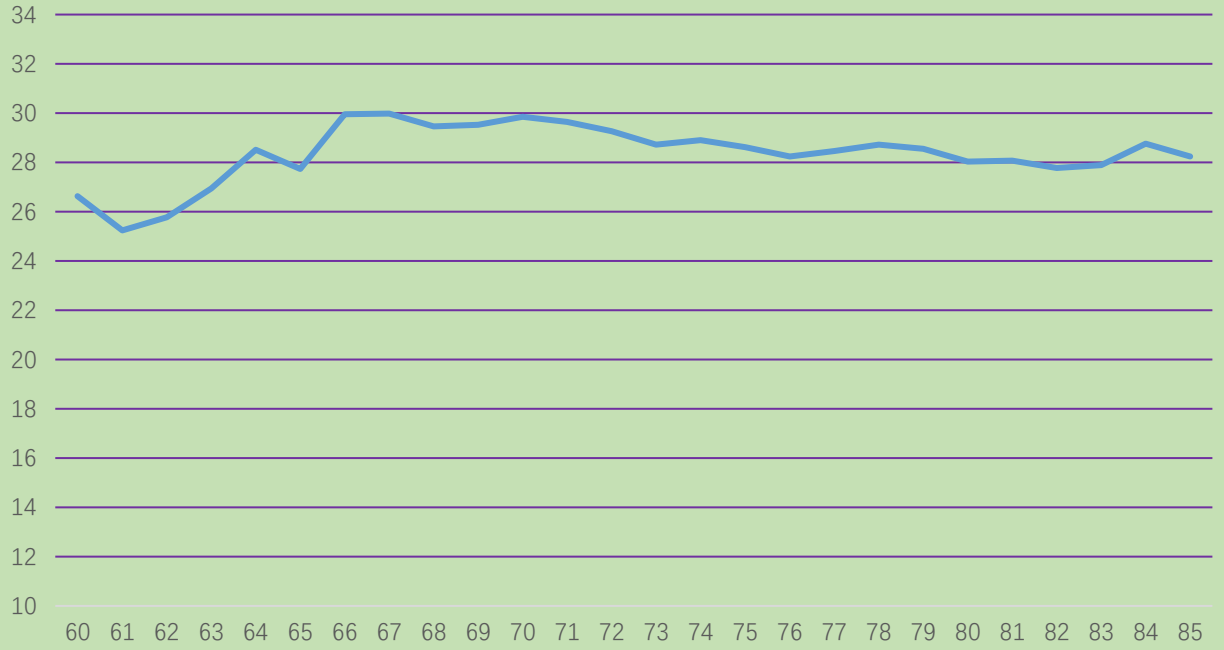
2. Narrow-Band Power Amplifier-High Power

PN: AT-PA-6086-2027

AT-PA-6086-3027

Advantages

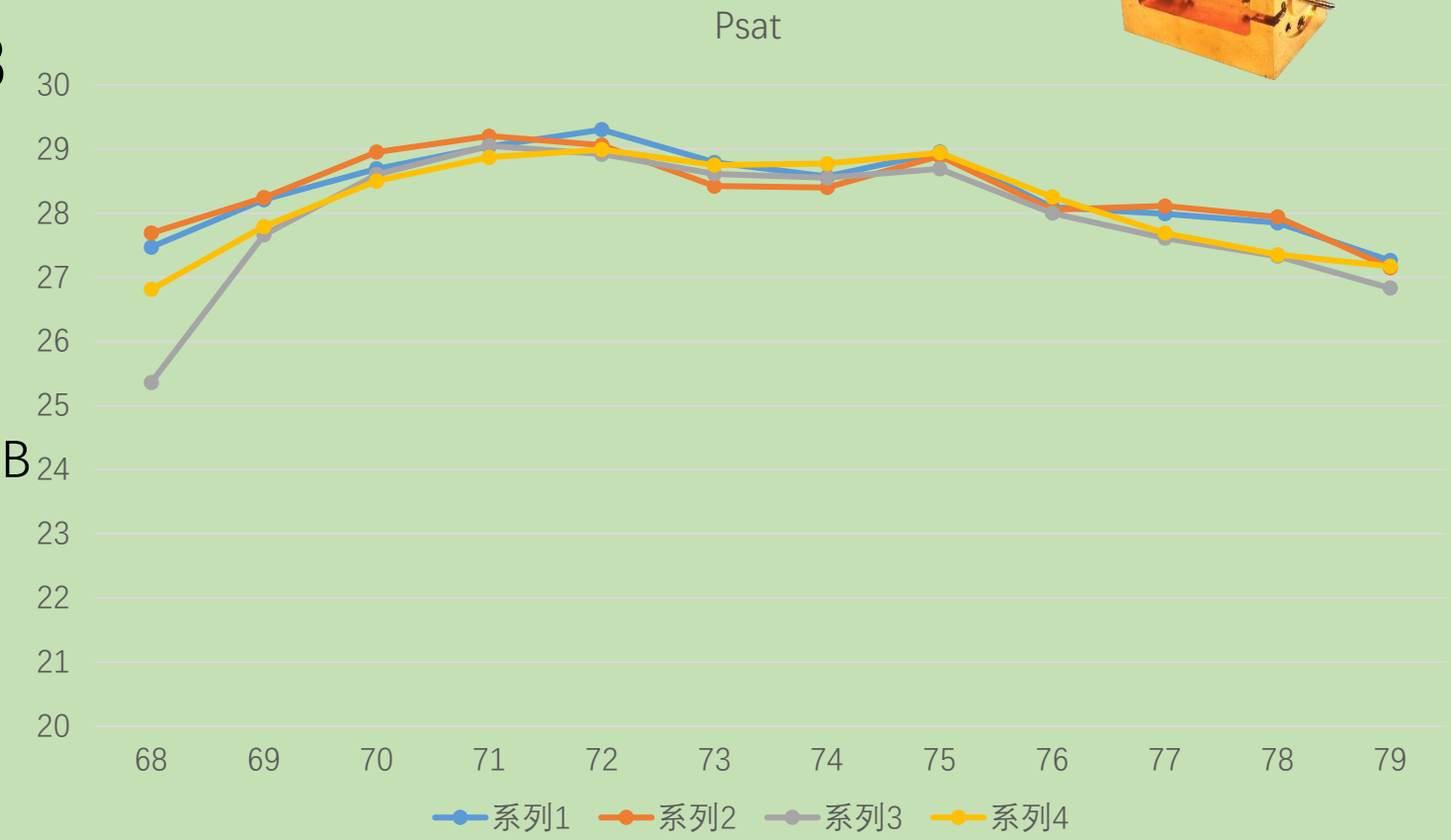
- Frequency: 60-86GHz
- Gain: 20/30dB
- Psat: +27dBm
- Single Power Supply



2. Narrow-band High Power Amplifier

PN: AT-PA-6879-2028

AT-PA-6879-3828

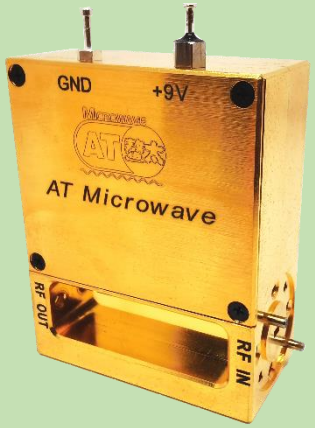


Advantages

- Frequency: 68-79GHz
- Psat:+28dBm
- Small signal gain: 20/38dB
- Single Power Supply

Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

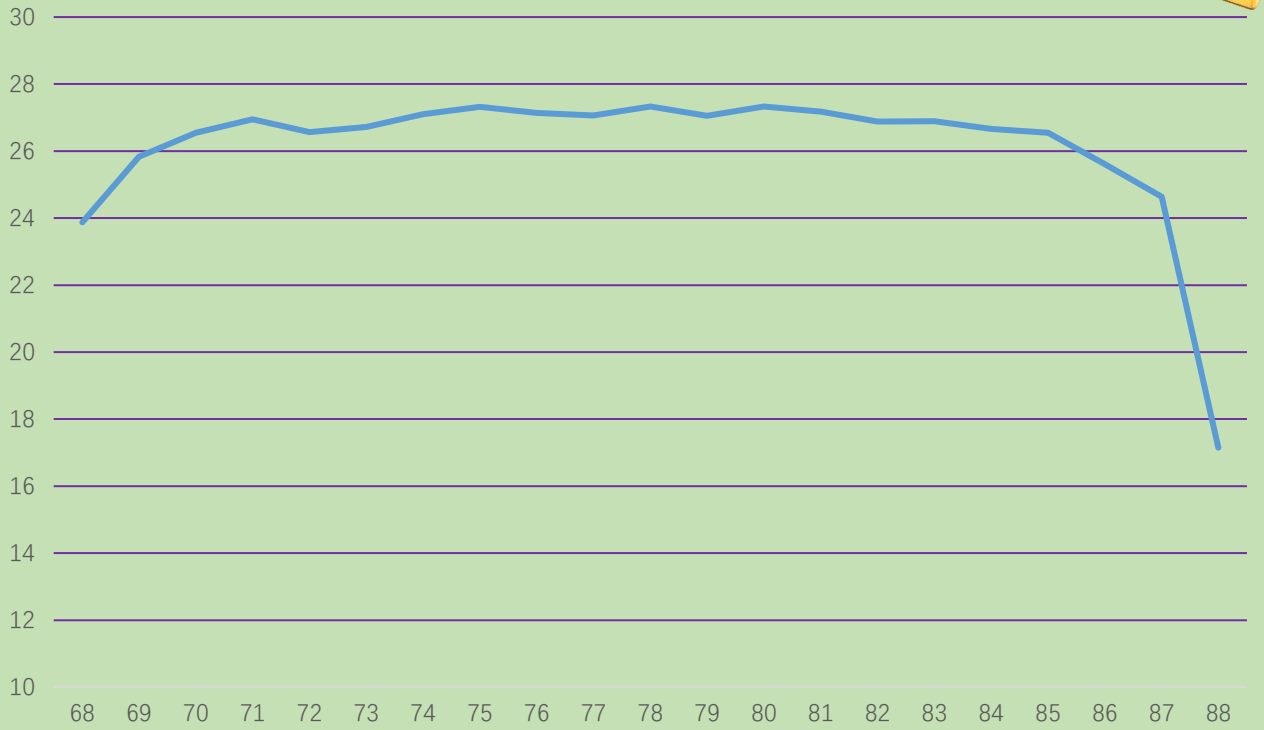
2. Narrow-band High Power Amplifier



PN: AT-PA-7186-3526E

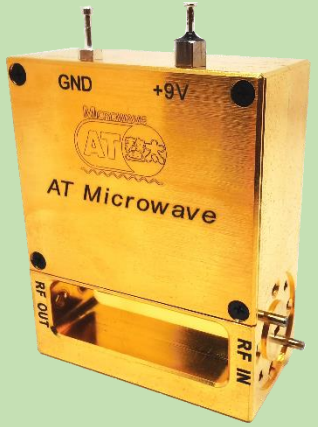
Advantages

- Frequency: 71-86GHz
- Psat:+26dBm
- Small signal gain: 35dB
- Single Power Supply



Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

2. Narrow-band High Power Amplifier

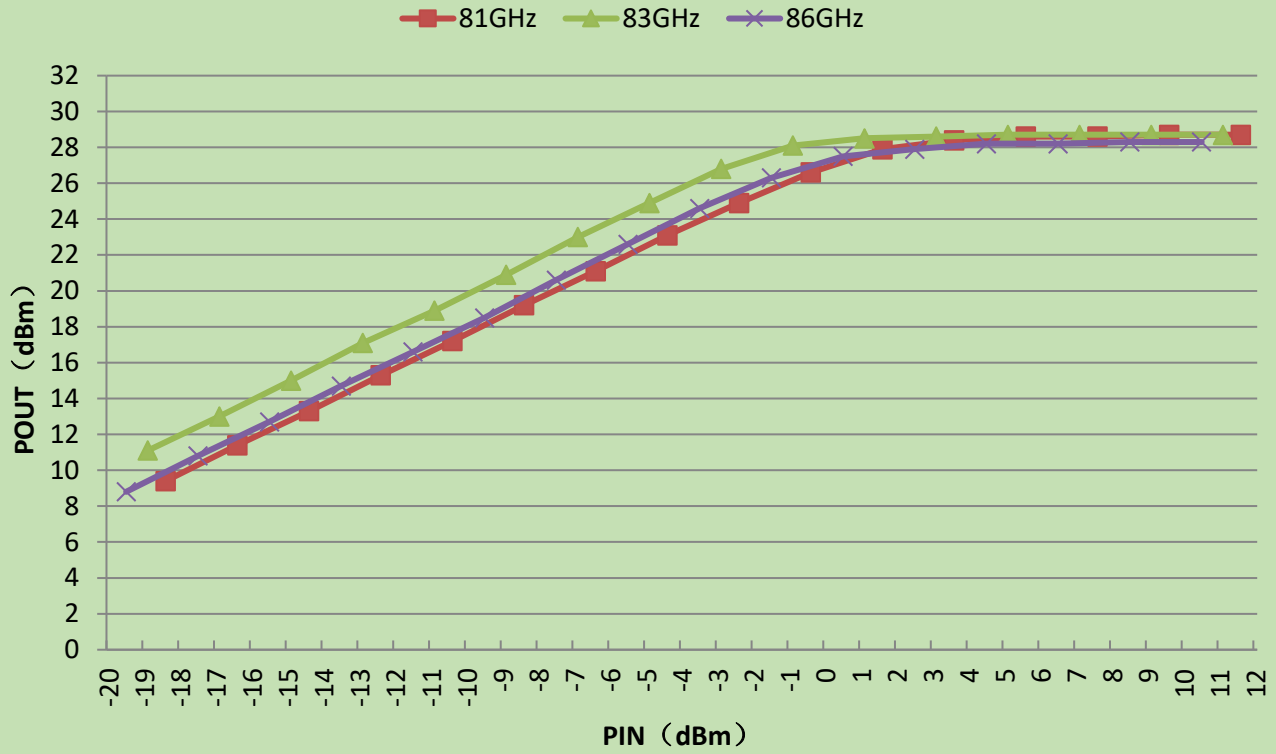


PN: AT-PA-7588-1527

AT-PA-7588-3327E

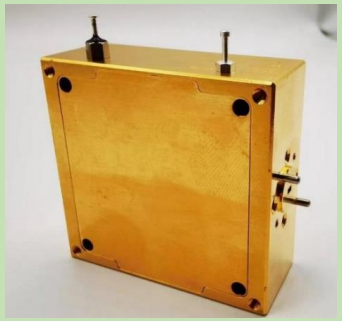
Advantages

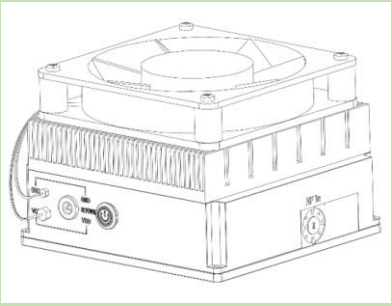
- Frequency: 75-88GHz
- Psat:+27dBm
- Small signal gain: 15/33dB
- Single Power Supply



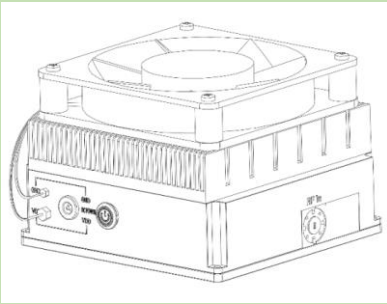
3. CPA Series High Linearity PA

PN	Data Sheet	Type	Leadtime	Low Fre /GHz	High Fre /GHz	Gain /dB	P1 /dBm	Psat /dBm	Connector
AT-CPA-7078-1831G1		High Linear	Stock	70	78	18	29	31	WR-12
AT-CPA-7078-3533G2		High Linear	Contact us	70	78	35	31	33	WR-12
AT-CPA-7078-4533G2		High Linear	Contact us	70	78	45	31	33	WR-12
AT-CPA-7078-3535G3		High Linear	Contact us	70	78	35	33	35	WR-12
AT-CPA-7078-4535G3		High Linear	Contact us	70	78	45	33	35	WR-12
AT-CPA-8088-1429G1		High Linear	Stock	80	88	14	27	29	WR-12
AT-CPA-8088-3032G2		High Linear	Contact us	80	88	30	30	32	WR-12
AT-CPA-8088-4532G2		High Linear	Contact us	80	88	45	30	34	WR-12
AT-CPA-8088-3034G3		High Linear	Contact us	80	88	30	32	34	WR-12
AT-CPA-8088-4534G3		High Linear	Contact us	80	88	45	32	34	WR-12





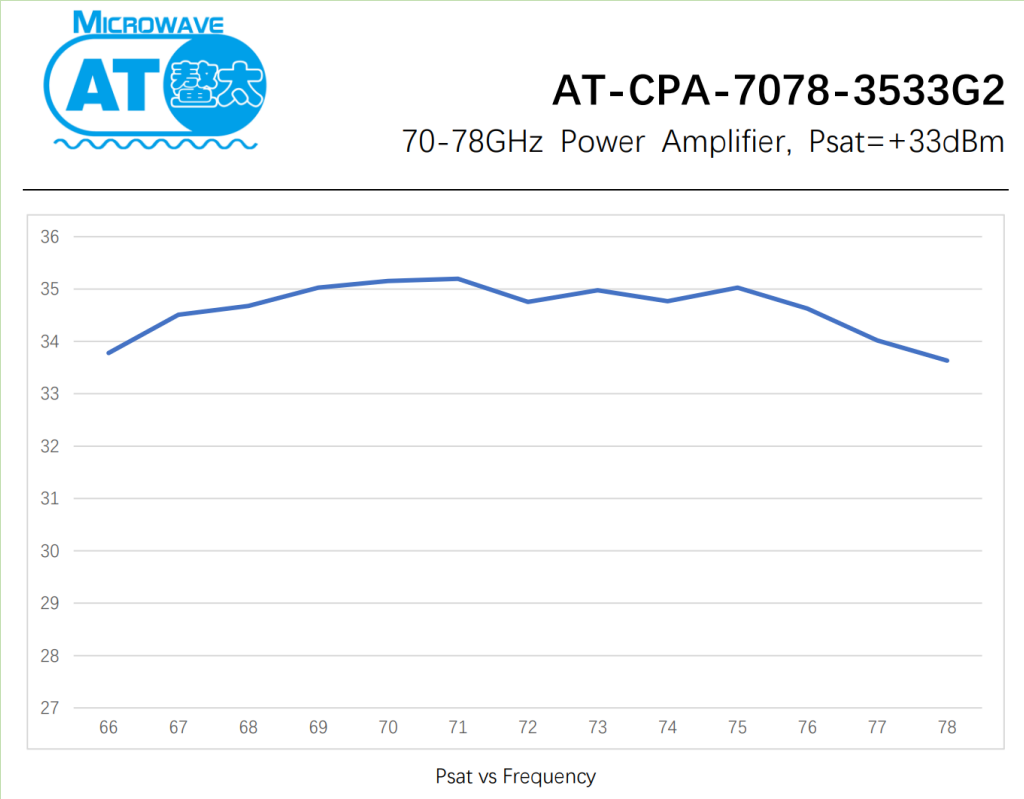
3. CPA Series High Linearity PA



AT-CPA-7078-3533G2

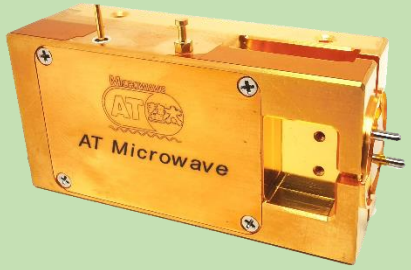
Advantages

- Frequency: 70-78GHz
- P1dB: =31dBm
- Psat:+33dBm
- Small signal gain: 35dB
- Single Power Supply



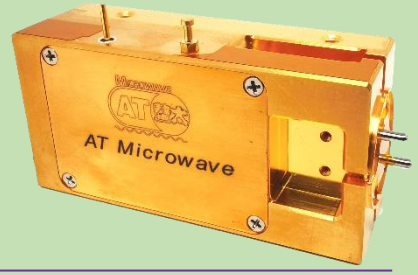
Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

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-AM4-5590-18	E X4		Stock	13.75	22.5	55	90	10	18	WR-12
AT-AM6-5590-22L	E X6 HP		Stock	9.16	15	55	90	0	22	WR-12
AT-AM4-6090-13	E X4		8 Weeks	13.75	22.5	60	90	8	13	WR-12
AT-AM6-6090-13L	E X6		Stock	10	15	60	90	0	13	WR-12
AT-AM6-6090-17L	E X6		Stock	10	15	60	90	3	17	WR-12

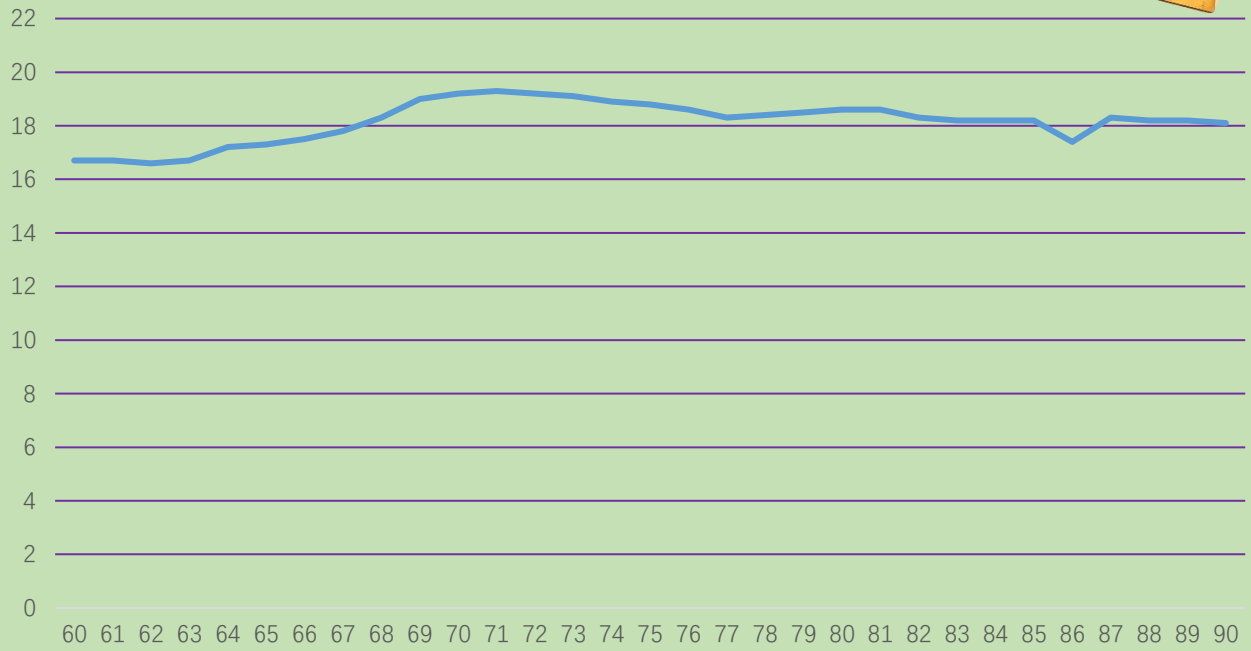
4. Full band Active Frequency Multiplier



AT-AM6-6090-17L

AT-AM4-5590-18

AT-AM4-6090-13L

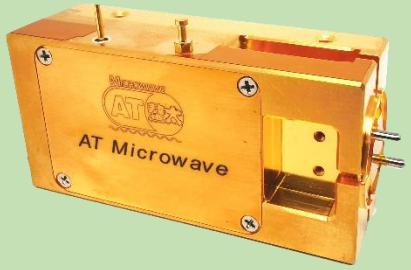


Feature

- Frequency: 55-90GHz
- Pout: +13/18dBm typical
- Input: 10-15GHz
- Low Harmonics

Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

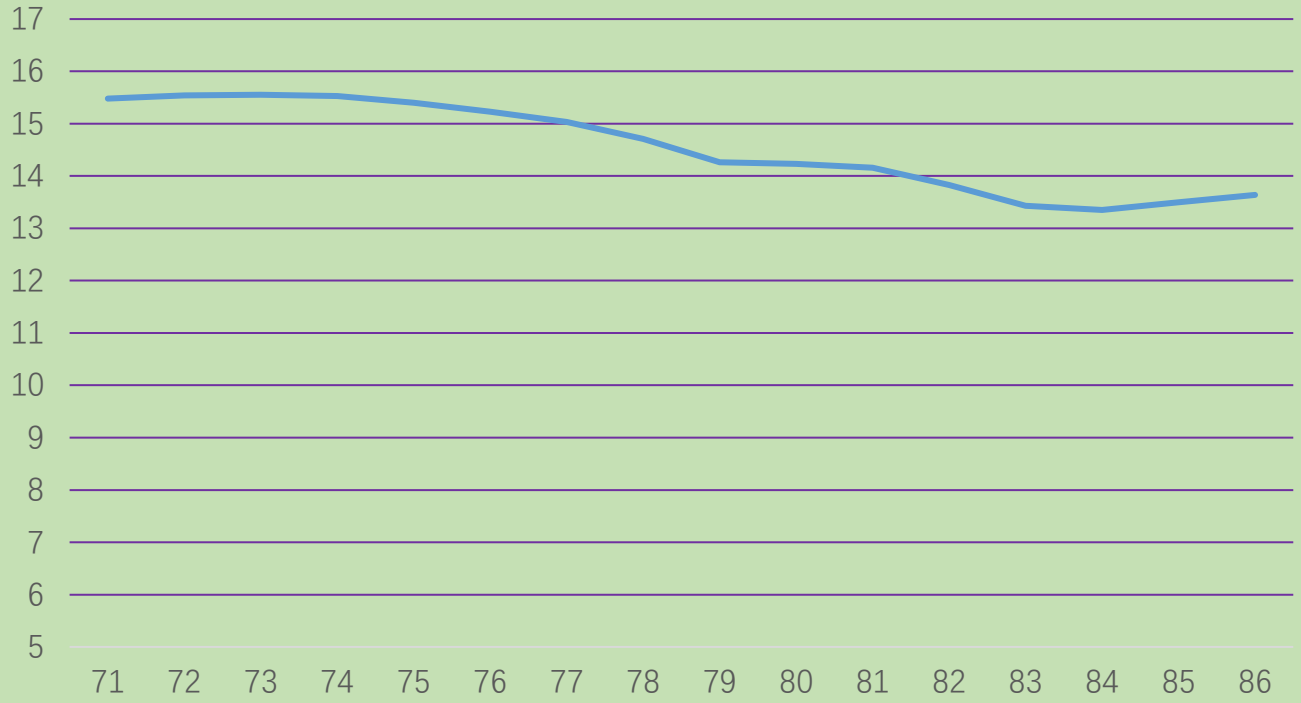
4. Low Cost Active Frequency Multiplier



PN: AT-AM6-7186-12

Advantages

- Frequency: 71-86GHz
- Pout: +12dBm
- Input: 11.8-14.4GHz
- Low Cost



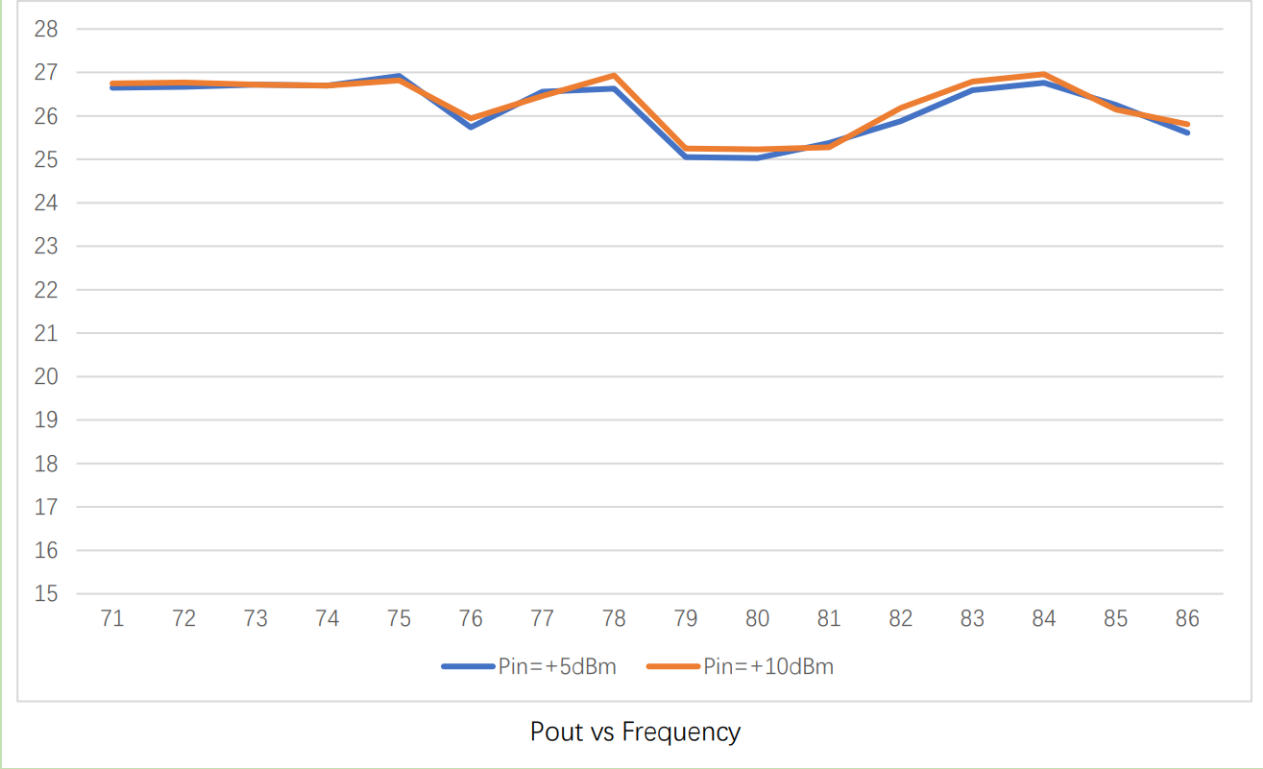
Shanghai AT Microwave Limited sales@atmicrowave.com
www.atmicrowave.com

4. High Power Active Multiplier

PN: AT-AM6-7186-26

Feature

- Frequency: 71-86GHz
- Pout +26dBm Typ
- x6
- Single Power Supply



4. Passive Multiplier

PN: AT-PM3-6090

AT-PM2-6090

Feature

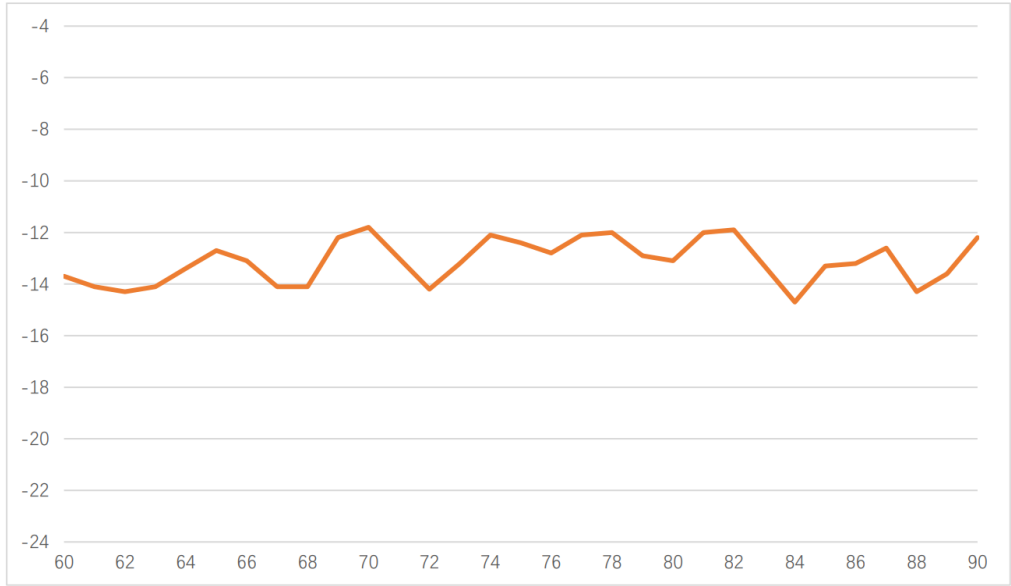
- Frequency: 60-90GHz
- Pout: -3dBm typical
- Input: 20-30GHz
- Low Harmonics

MICROWAVE AT 鳌太

AT-PM2-6090C

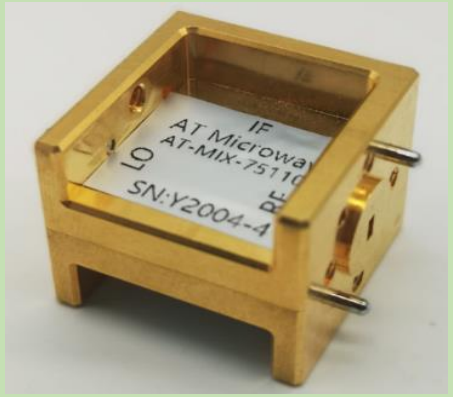
Passive Multiplier x2, 60-90GHz

Test Data



Conversion Loss vs Frequency, Pin=+20dBm

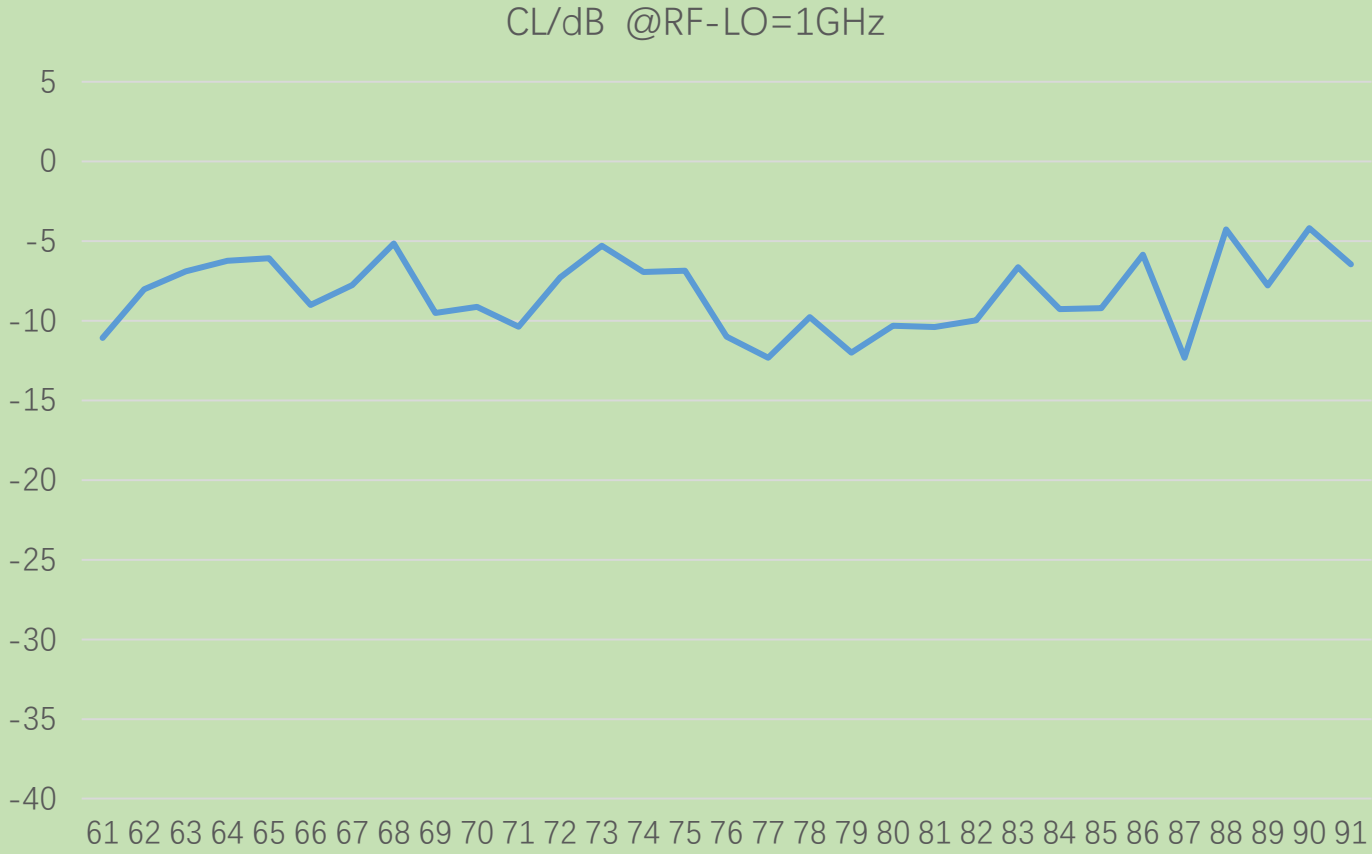
5. Full band Balance Mixer



PN: AT-MIX-6090

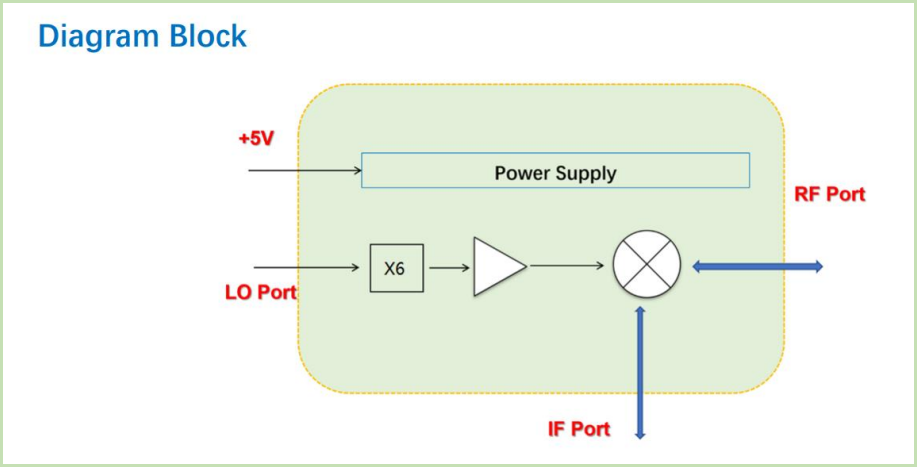
Feature

- RF/LO: 60-90GHz
- IF: DC-30GHz
- Low Conversion Loss
- Low LO power requirement
- High RF/LO Isolation



5. Fundamental Mixer integrated with LO Chain

	PN	Data Sheet	Type	Lead time	RF Low(GHz)	RF High (GHz)	Gain	Connector
☐	AT-4MIX-5590L-C1		E LO X4	10-12 Weeks	55	90	-12	WR-12
☐	AT-6MIX-5590L-C1		E LO X6	Stock	55	90	-12	WR-12
☐	AT-6MIX-7186SIF		E LO X6	Soon	71	86	-12	WR-12
☐	AT-3MIX-7681		E LO X3	Stock	76	81	-12	WR-12

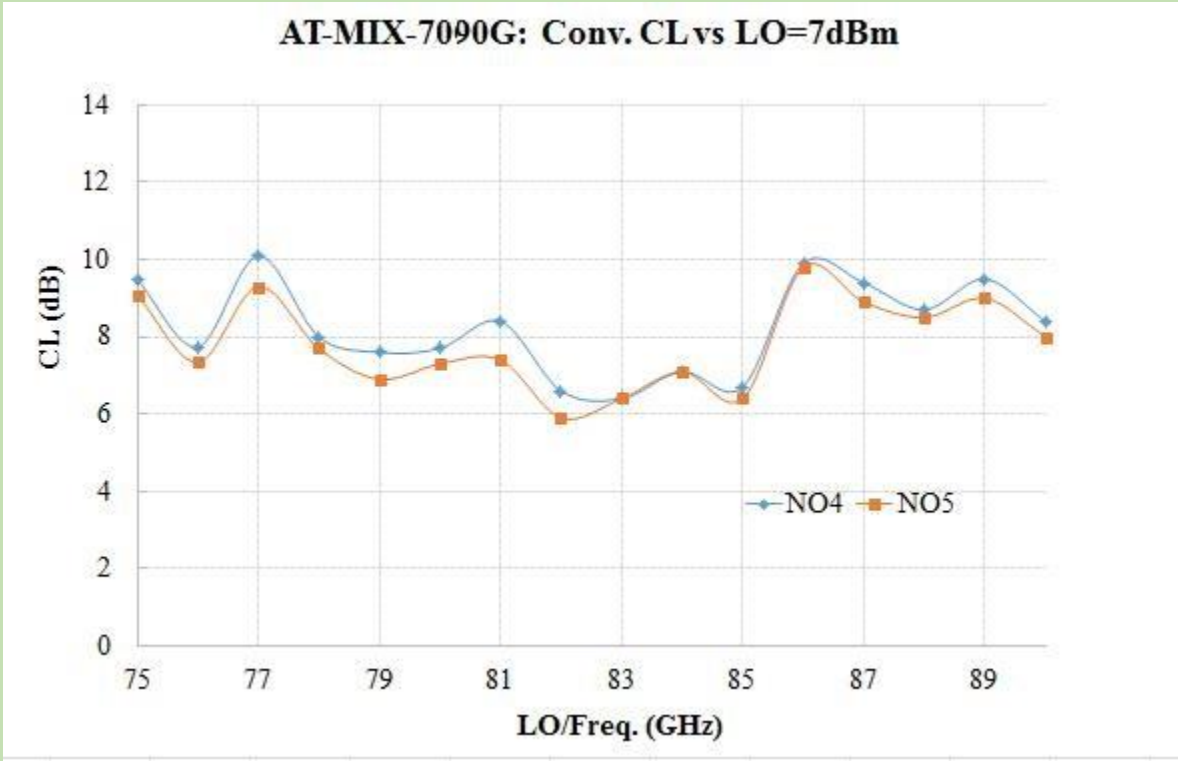


5. Low LO driver Balance Mixer

PN: AT-MIX-7090G

Feature

- RF/LO: 70-90GHz
- IF: DC-12GHz
- Low Conversion Loss
- Low LO power requirement
- High RF/LO Isolation

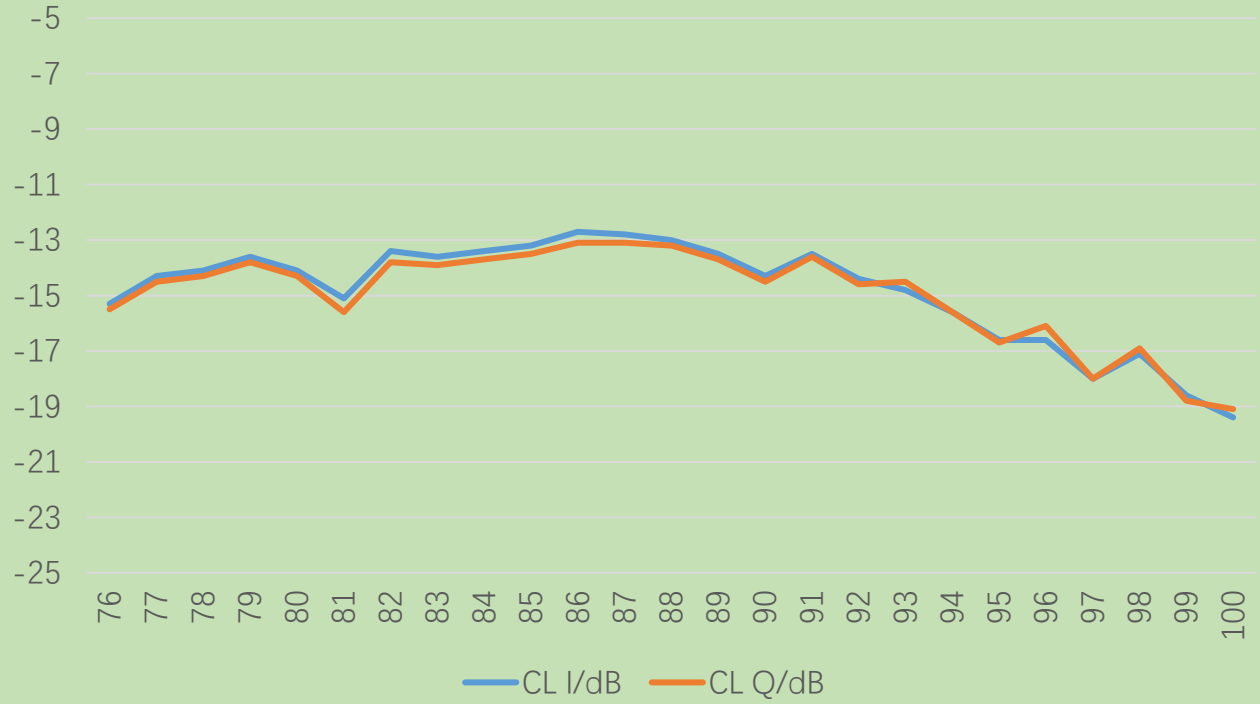


5. Low LO driver IQ Mixer

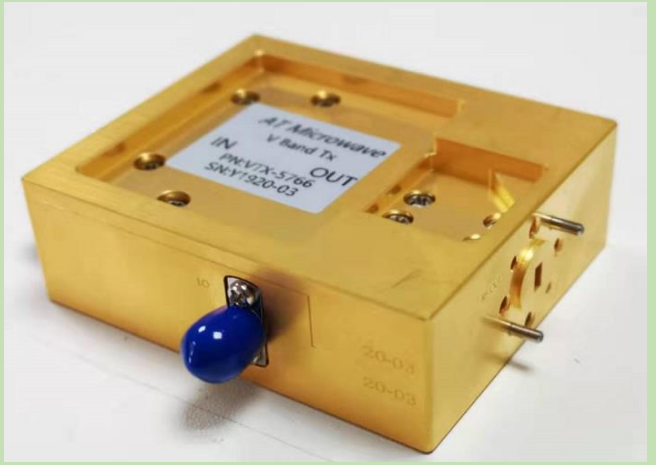
PN: AT-IQM-7090G

Feature

- RF/LO: 75-90GHz
- IF: DC-12GHz
- Low Conversion Loss
- Low LO power requirement
- High RF/LO Isolation



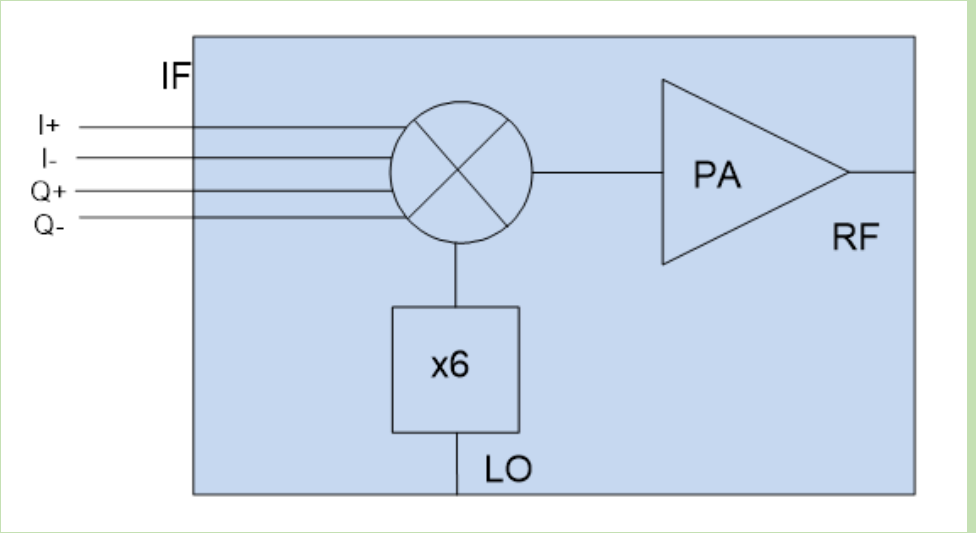
6. Tx Multi-Function Modules



PN: AT-ETX-7176

AT-ETX-8186

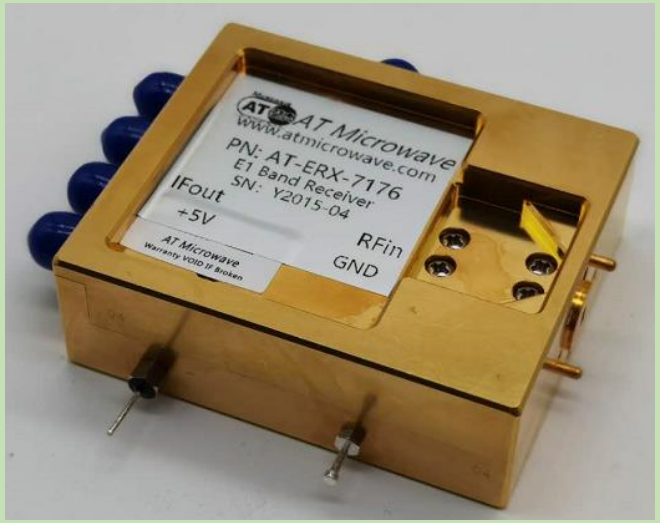
AT-ETX-6671



Feature

- E1: 71-76GHz
- E2: 81-86GHz
- Tx Pout： +18dBm

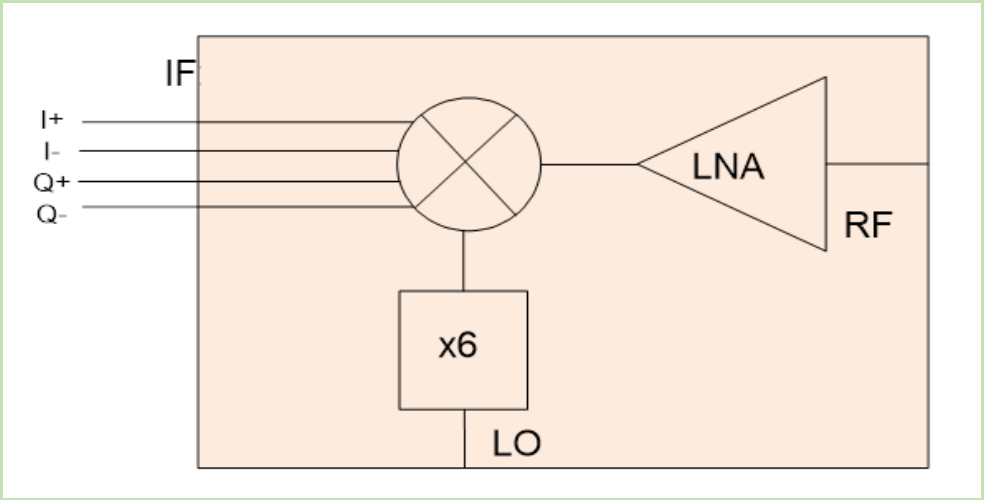
6. Rx Multi-Function Modules



PN: AT-ERX-7176
AT-ERX-8186
AT-ERX-6671

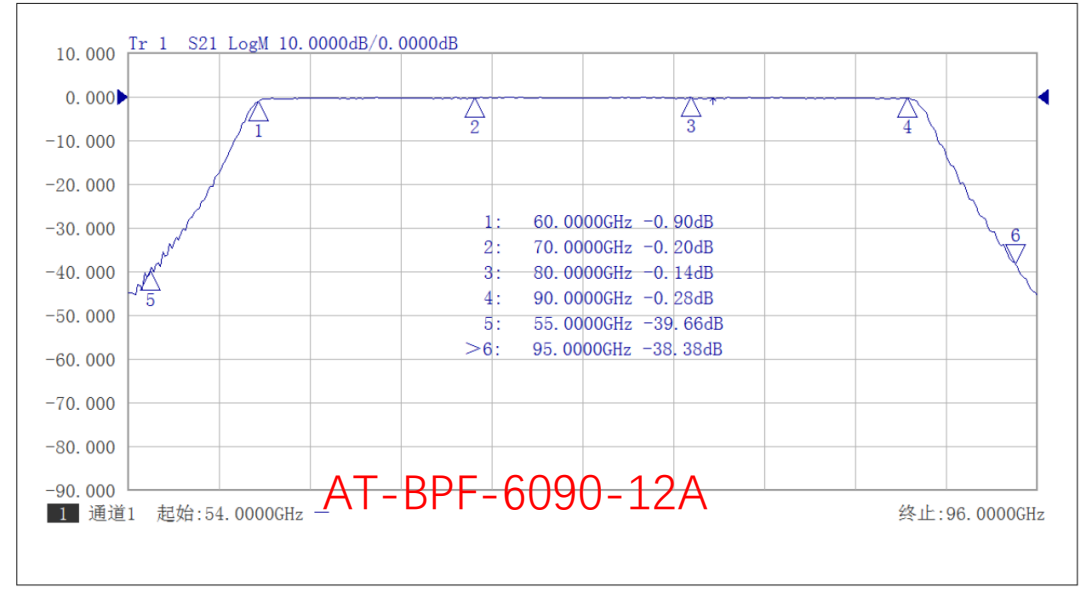
Feature

- E1: 71-76GHz
- E2: 81-86GHz
- Gain: 12dB
- NF=5dB



7. Waveguide Band-Pass, High-Pass Filter

PN	Data Sheet	Type	Lead time	Center Freqency/GHz	Low Freq /GHz	High Freq /GHz	IL /DB	RL/DB	Connecto
AT-BPF-6671-12A		E Band	6-8 Weeks	68.5	66	71	-1	15	WR-12
AT-BPF-7176-12A		E Band	Stock	73.5	71	76	-1	15	WR-12
AT-BPF-7681-12A		E Band	Stock	78.5	76	81	-1	15	WR-12
AT-BPF-8088-12A		E Band	6-8 Weeks	84	80	88	-1	15	WR-12
AT-BPF-8186-12A		E Band	Stock	83.5	81	86	-1	15	WR-12
AT-BPF-8692-12A		E Band	Stock	89	86	92	-1.0	15	WR-12

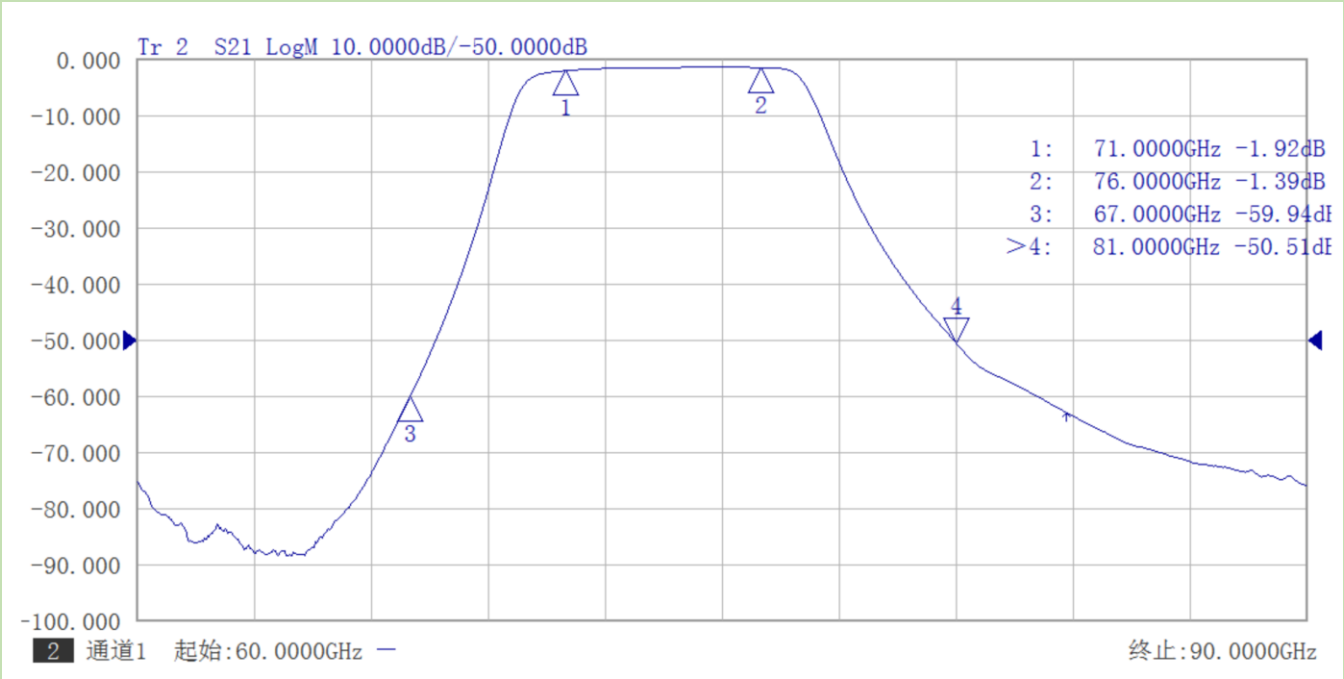


7. Band Pass Filter

PN: AT-BPF-7176-12A
AT-BPF-7681-12A
AT-BPF-8186-12A
AT-BPF-6671-12A

Advantages

- ✓ Frequency: 66-71, 71-76, 76-81, 81-86
- ✓ Insertion Loss: -1dB
- ✓ Rejection: -40dB

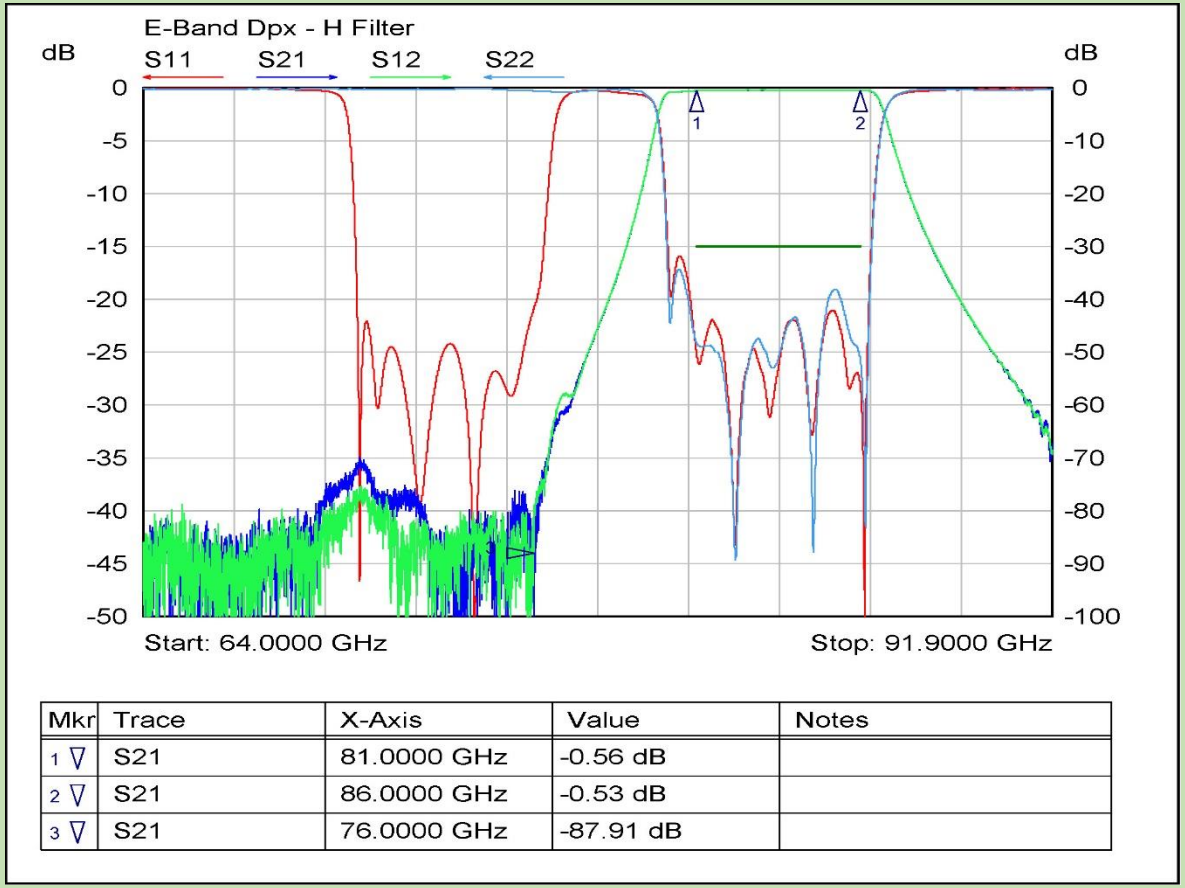


7. Diplexer

PN: AT-DIP-7176-8186

Advantages

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

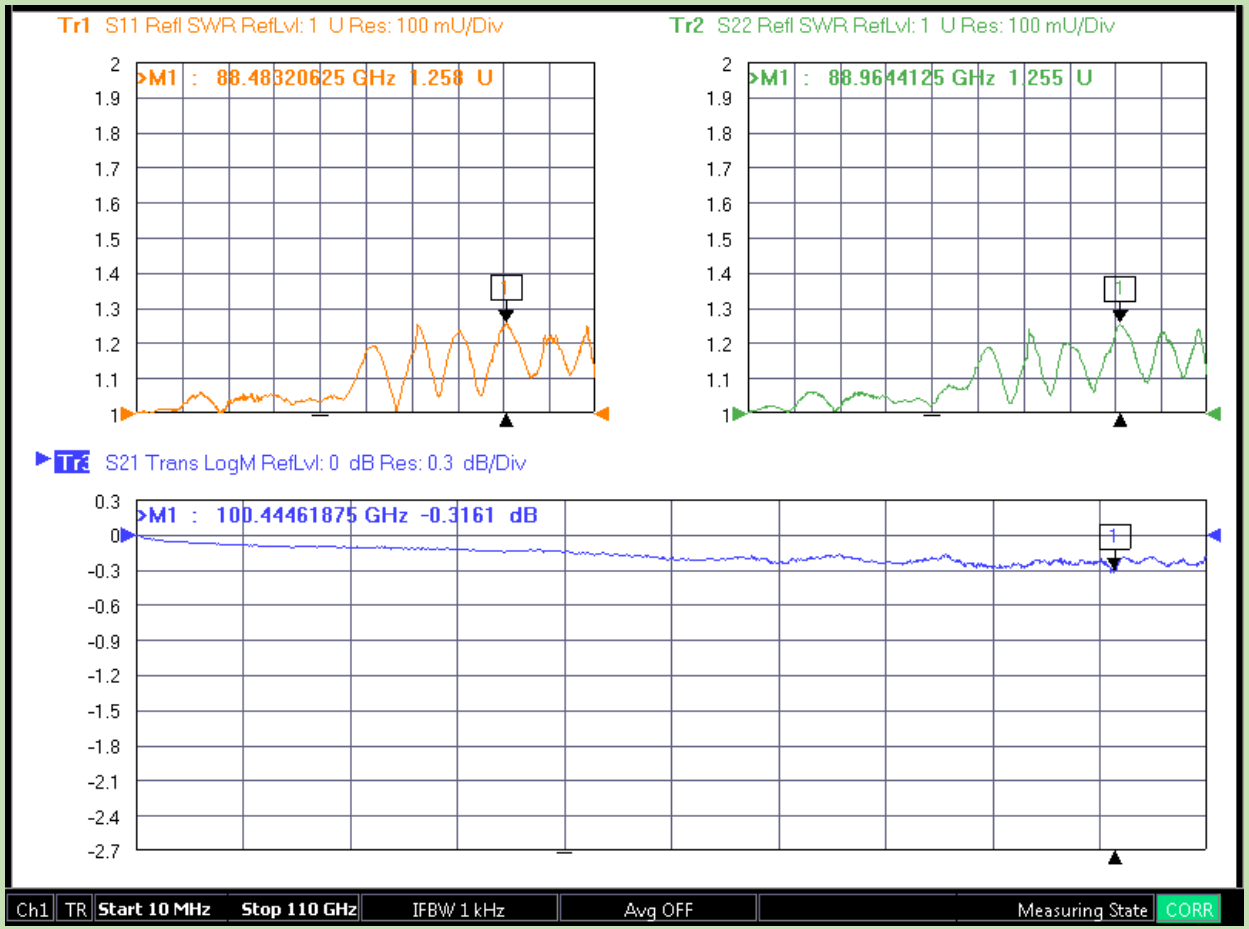


Mkr	Trace	X-Axis	Value	Notes
1 ∇	S21	81.0000 GHz	-0.56 dB	
2 ∇	S21	86.0000 GHz	-0.53 dB	
3 ∇	S21	76.0000 GHz	-87.91 dB	

8. Adapter 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-WR12,

Full E band, 2.0inch

WT Series: Rugged Waveguide Transition

AT-WT-1512-1.0: WR-15 to WR-12, 60-75GHz

AT-WT-1210-1.0: WR-12 to WR-10, 75-90GHz

9. Test Equipment

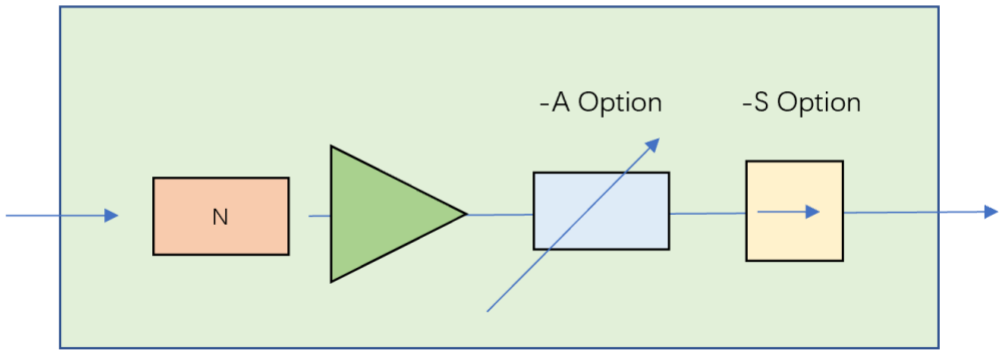
Signal Frequency Extender

AT-SFX6-12

AT-SFX6-12-HP

- ■Frequency: 60-90GHz
- ■Multiplier Time: X6
- ■Pout=+17 to +30dBm

Block Diagram



9. Test Equipment

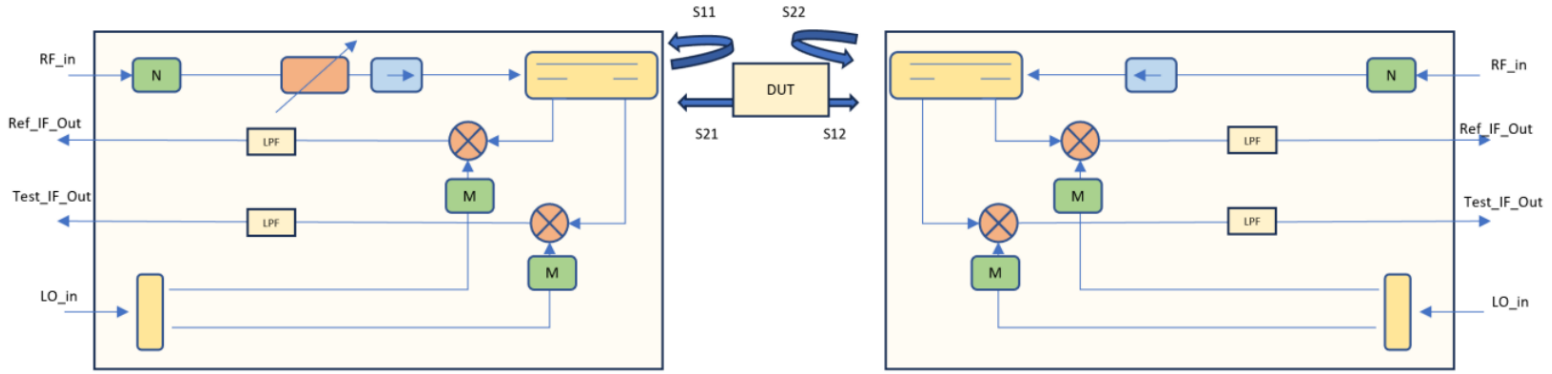
VNA Extender Module

AT-VEX-12

AT-VEX-12HP

- Frequency: 60-90GHz
- Multiplier Time: X6
- Pout=+13/+18dBm

-FTFR Option Diagram Blcok:



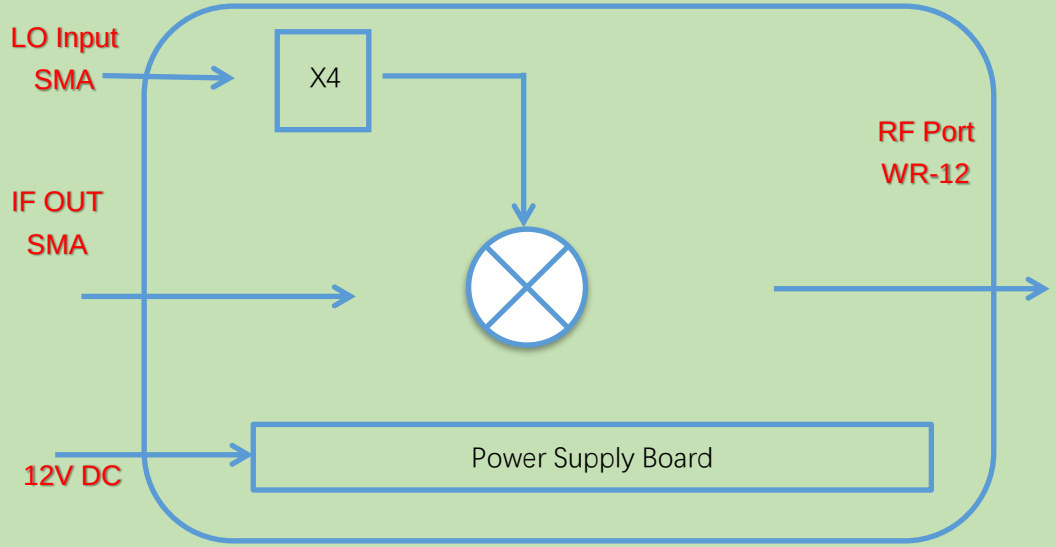
9. Test Equipment

Bench-top Up-Converter

AT-BTUC4-6090

AT-BTUC6-6090

- Frequency: 60-90GHz
- Conversion Loss: -10dB
- Connector: WR-12



9. Test Equipment

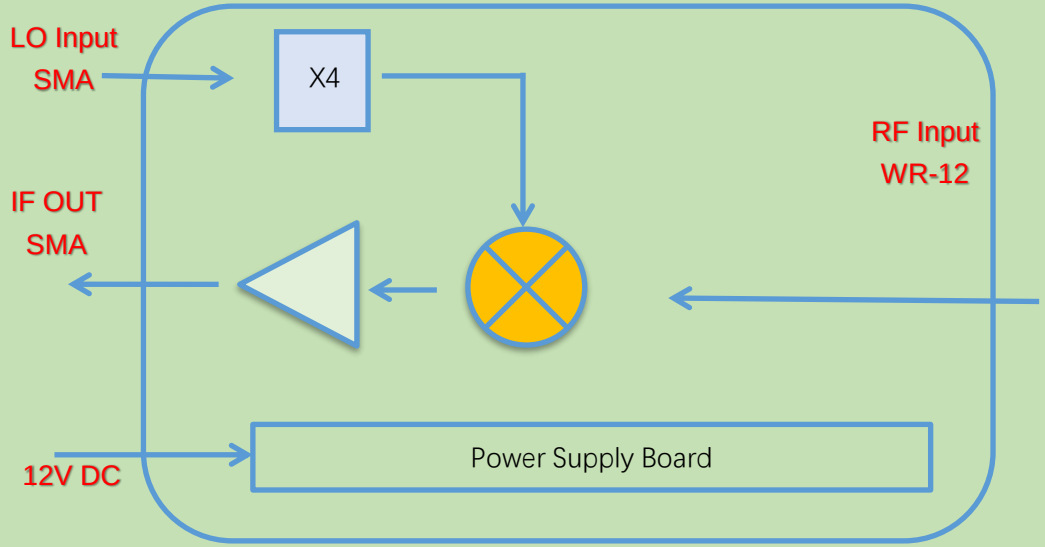
Bench-top Down-converter

For NF test and General Receiver

AT-BTDC6-6090

AT-BTDC4-5590

- Frequency: 60-90GHz
- Gain: 20dB
- Connector: WR-12



9. Test Equipment

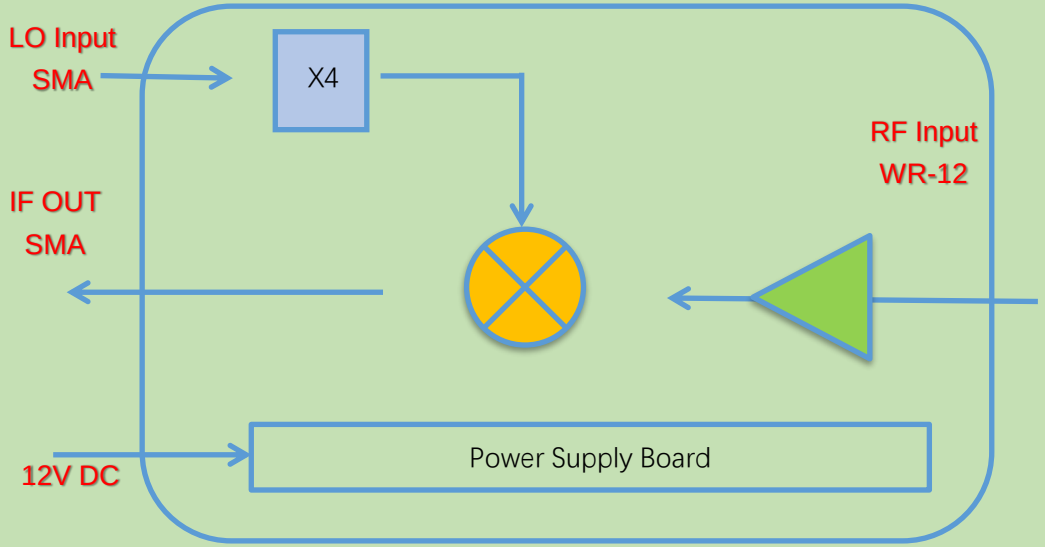
Bench-top Down-converter

Low NF Receiver

AT-BTDC6-6090R

AT-BTDC4-5590R

- Frequency: 60-90GHz
- Gain: 20dB
- Connector: WR-12



9. Test Equipment

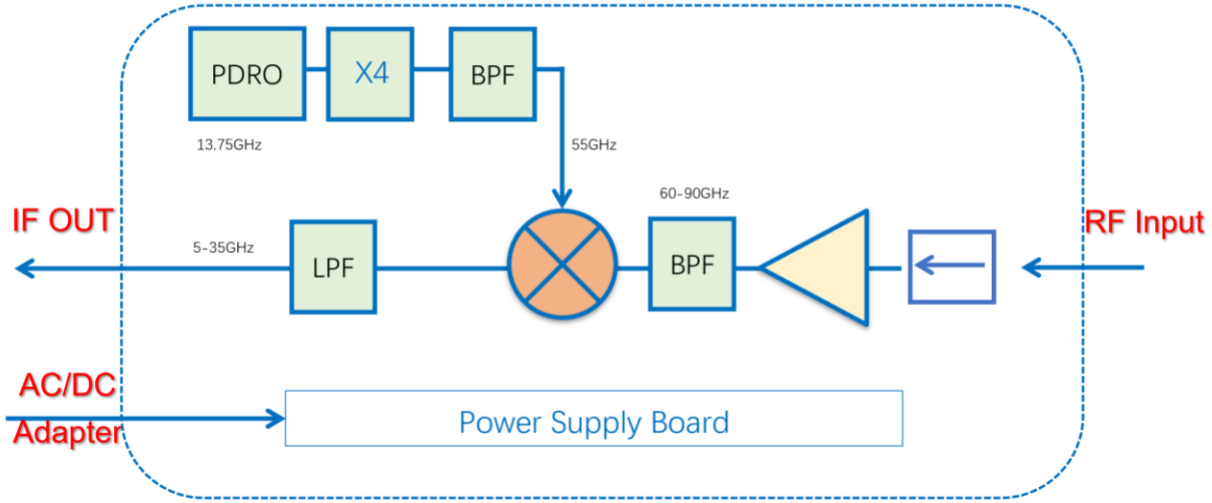
Bench-top Down-converter

For NF TEST

AT-BTEDC-6090R1

- Frequency: 60-90GHz
- Gain: 5dB
- Connector: WR-12

Diagram Block:



9. Test Equipment

Bench-top Low Noise Amplifier

AT-BTLNA-6090-1805

AT-BTLNA-6090-3805

- Frequency: 60-90GHz
- Gain: 18/38dB
- NF: 5dB
- Connector: WR-12

9. Test Equipment

Bench-top Power Amplifier

AT-BTPA-6090-1818
AT-BTPA-6090-3518
AT-BTPA-6090-3027
AT-BTPA-6090-3331

- Frequency: 60-90GHz
- Gain: 18-33dB
- Pout: +18 to +31dBm
- Connector: WR-12