



Qualwave Inc is the top designer and manufacturer of microwave and millimeter wave products. We supply both active and passive components in a wide frequency range from DC to 110GHz all over the world. We provide a series of standard products to meet the needs of most customers. Meanwhile we customize products according to special requirements.



1. Cables/ Assemblies (Flexible Cables/ Semiflex Cables/ Semirigid Cables)

QT: Test Cable Assemblies	QZ: Ultra-Flexible Cables
QA: Ultra Low Loss & Phase Stable, Flexible Cables	QG: Low Loss, Flexible Cables
QB: Stable Loss, VSWR, Phase vs Flexing, Flexible Cables	RG: Low Cost, Flexible Cables
QR: Low Loss Wireless Communication Cables	QD: Hand Formable, Semiflex Cables
QH: Flexible, Alternative to Semirigid Cables	QE: Low PIM, Semirigid Cables
DC ~ 110GHz, Phase Stable, Low Loss, High Power, Various connectors are available.	



2. Connectors (End Launch Connectors/ Vertical Launch Connectors/ PCB Connectors/ Cable Connectors/ Multi-Channel Connectors/ Launch Accessories)

Frequency: DC~110GHz

VSWR: $\leq 1.35@110\text{GHz}$, $1.25@67\text{GHz}$, $1.15@50\text{GHz}$

Connectors: 1.0mm/ 1.85mm/ SSMP/ 2.4mm/ 2.92mm/ SMP/ 3.5mm/ SMA/ N/ TNC/ BNC etc.

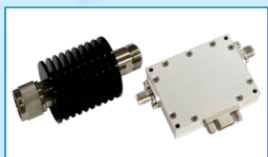


3. Adapters (Coaxial Adapters & Waveguide to Coax Adapters)

Frequency: DC ~ 110GHz

VSWR: $\leq 1.35@110\text{GHz}$, $1.2@40\text{GHz}$, $1.15@18\text{GHz}$

Bulk Head/ Flange Mount/ Right Angle/ Tee



4. Attenuators (Fixed Attenuators/ Variable Attenuators/ Digital Controlled Attenuators/ Voltage Controlled Attenuators)

Frequency: DC ~ 110GHz

Attenuation: 0~110dB

Power: up to 5KW CW

Connectors: 1.0mm/ 1.85mm/ 2.4mm/ 2.92mm/ 3.5mm/ SMA/ N/ TNC/ L29



5. Terminations (Coaxial Terminations/ Waveguide Terminations/ Mismatch Terminations)

Frequency: DC ~ 110GHz

Power: up to 2.5KW

VSWR: $\leq 1.08@75.8\text{GHz}$, $1.03@40\text{GHz}$



6. Switches (RF Coaxial/ PIN Diode/ Waveguide/ Surface Mount Relay Switches)

Path: SPDT ~ SP12T, DPDT, 2P3T

Voltage: +12V, +24V, +28V

Frequency: DC~110GHz

Isolation: 80dB@40GHz

Actuator: Failsafe/ Latching/ Normally Open

Operation Life: 100000 ~ 2M Cycles

VSWR: $< 1.3@40\text{GHz}$, $1.2@18\text{GHz}$

Connectors: 2.92mm/ SMA/ N/ F/ BNC

Insertion Loss: $< 0.4\text{dB}@40\text{GHz}$, $0.35\text{dB}@18\text{GHz}$

High Power/ Terminated/ TTL/ Indicator are available.



7. Amplifiers (Power Amplifiers/ Low Noise Amplifiers (modules & systems))

Frequency: 4K~260GHz

Power: up to 2KW

Gain: 12 ~ 68dB

Noise Figure: as low as 0.7dB



8. Frequency Sources (PLDRO/ PLVCO/ PLXO/ DRO/ VCO/ DRVCO/ Frequency Synthesizers)

Frequency: 100MHz ~ 40GHz

Reference: External/ Internal

Power: 10dBm or higher

Phase Noise: -110dBc/Hz typical @1KHz Offset



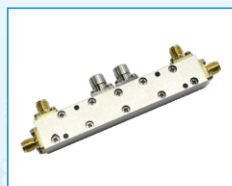
9. Probes

Frequency: DC~110GHz	Material: Beryllium Copper	Mounting Style: 45°
Configuration: GSG	Pitch: 100/150/200/250μm	Tip Size: 25/50μm



10. Power Dividers/ Combiners

Frequency: DC ~ 110GHz	Isolation: 16 ~ 25dB
Path: 2 ~ 32 ways	Amplitude Balance: ±0.2dB ~ ±1dB
Power: up to 50KW	Phase Balance: ±2° ~ ±8°
Insertion Loss: 0.2 ~ 1.5dB typical	



11. Couplers (Single Directional Couplers/ Dual Directional Couplers/ 90 Degree Hybrid Couplers/ 180 Degree Hybrid Couplers, Coaxial or Waveguide)

Frequency: up to 110GHz	Isolation: 18 ~ 80dB typical
Power: up to 50KW	Insertion Loss: 0.2 ~ 1.5dB typical
Coupling: 3dB, 6dB, 10dB, 16dB, 20dB, 30dB, 40dB, 50dB, 60dB etc.	



12. Antennas (Standard Gain Horn Antennas/Broadband Horn Antennas/ Conical Horn Antennas)

Frequency: up to 116GHz	Gain: 10, 12, 15, 18, 20, 22, 25dB etc.
Interface: WR770~WR10/ C890~C22/ 1.0mm/ 1.85mm/ 2.4mm/ 2.92mm/ SMA/ N	



13. Filters (Low Pass Filters/ Band Pass Filters/ High Pass Filters/ Band Reject Filters)

Frequency: up to 110GHz	Customization is available.
Stopband Attenuation: up to 90dB	



14. Phase Shifters (Manual/ Digital Controlled/ Voltage Controlled Phase Shifters)

Frequency: DC ~ 40GHz	Display: Analog/ Digital
Power: up to 100W	Connectors: 2.92mm, SMA, N
Phase Adjustment: 0 ~ 900°/ GHz	



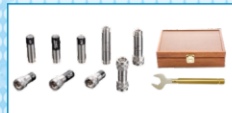
15. DC Blocks

Frequency: 700KHz~110GHz	Voltage: 16V, 25V, 50V, 100V, 3000V
Connectors: 1.0mm, 1.85mm, 2.4mm, 3.5mm, 2.92mm, SMA, N, 4.3-10, 7/16	



16. Detectors

Frequency: 10MHz ~ 110GHz	Input Connector: 2.92mm, SMA, N, WR28~WR10
Sensitivity: 100~300mV/mW	Output Connector: 2.92mm, SMA, N, BNC
Polarity: Negative/ Positive	



17. Calibration Kits

Frequency: DC~67GHz	VSWR: ≤1.15@40GHz, 1.06@26.5GHz
Conenector: 7mm/ 1.85mm/ 2.4mm/ 2.92mm/ 3.5mm/ L16/ N	



18. Circulators/ Isolators (Coaxial/ Drop-In/ Waveguide/ Surface Mount/ Microstrip)

Frequency: 10MHz ~ 110GHz	Isolation: 16 ~ 50dB
Bandwidth: up to 4 Octaves	Insertion Loss: 0.3 ~ 1dB typical
Average power: up to 1.5KW CW	



19. Other Products

Mixers: 0.001~110GHz	Equalizer: up to 40GHz	Limiters: 0.03~18GHz
Bias Tees: 0.005~40GHz	Frequency Multipliers/ Frequency Dividers: up to 110GHz	
Rotary Joints: DC~50GHz	Impedance Matching Pads: 50/ 75 Ohms	
Baluns: 100K~110GHz	RF Surge Protectors: DC~6GHz	