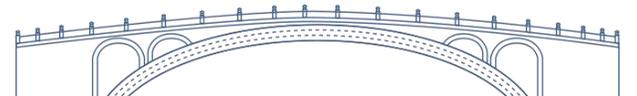
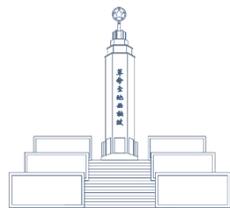
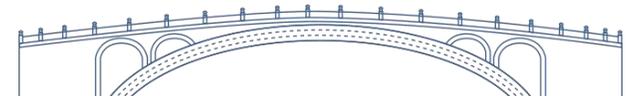
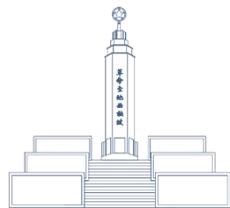


Shijiazhuang FC Electronic Technology Co., Ltd.

December 2025



1. company profile

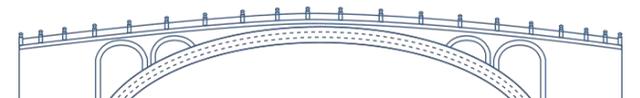
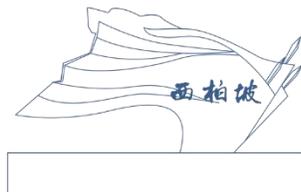
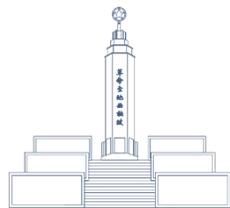


Shijiazhuang Packaging & Testing Electronic Technology Co., Ltd. was established in 2022. Its core team has over 20 years of experience in semiconductor technology, making it a key player in Shijiazhuang's high-performance ceramic SIP industry chain. The company specializes in the research, development, and production of thick and thin-film ceramic processes, as well as advanced packaging for digital SIP modules.

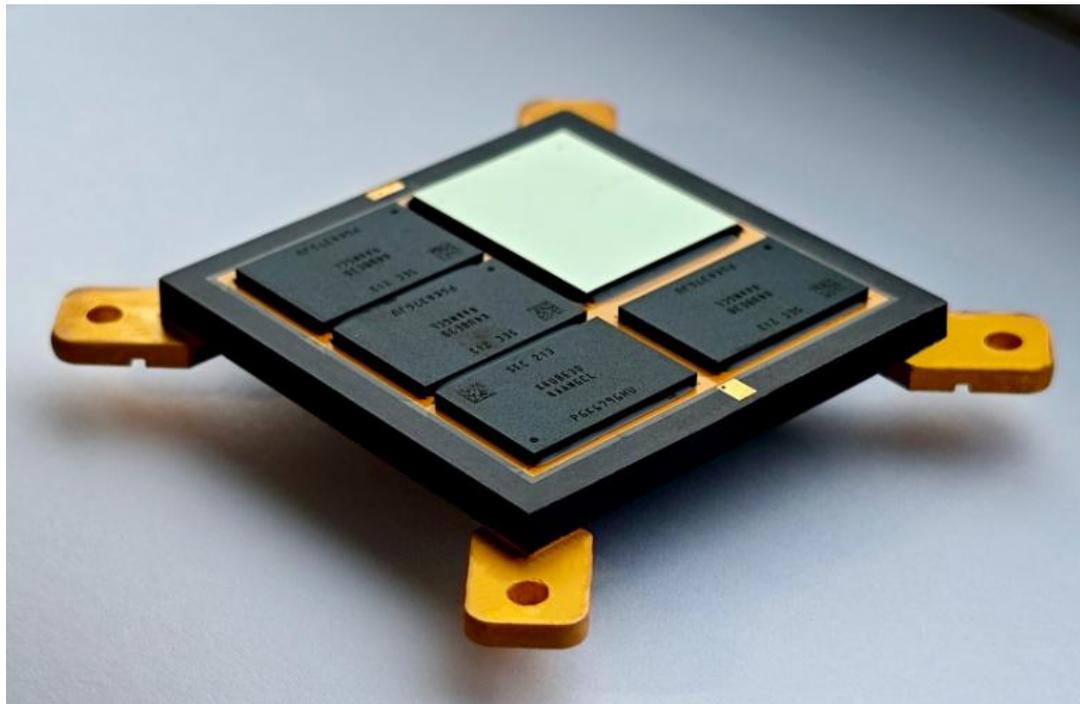
The company specializes in thick-film and thin-film process products, including filters, microwave dielectric ceramics, PTC thermistors, electronic ceramic housings, ceramic IPD passive device integration, ceramic interposers, ceramic heat sinks, and ceramic high-density substrates. Its substrate materials encompass alumina, aluminum nitride, silicon nitride, silicon carbide, and diamond copper, with production capabilities for HTCC, DPC, and TCV processes.

The advanced packaging process capabilities encompass: pad soldering SOP, FC chip mounting, WB wire bonding, deep cavity paste placement, underfill adhesive filling, SMT component surface mounting, injection molding, gas-sealed caps, ball/柱 implantation, and other technical processes. These capabilities enable the production of QFN, BGA, LGA, CCGA, and other product types. The primary products are SIP modules for radio frequency communications, power supplies, computing, and AI chips.

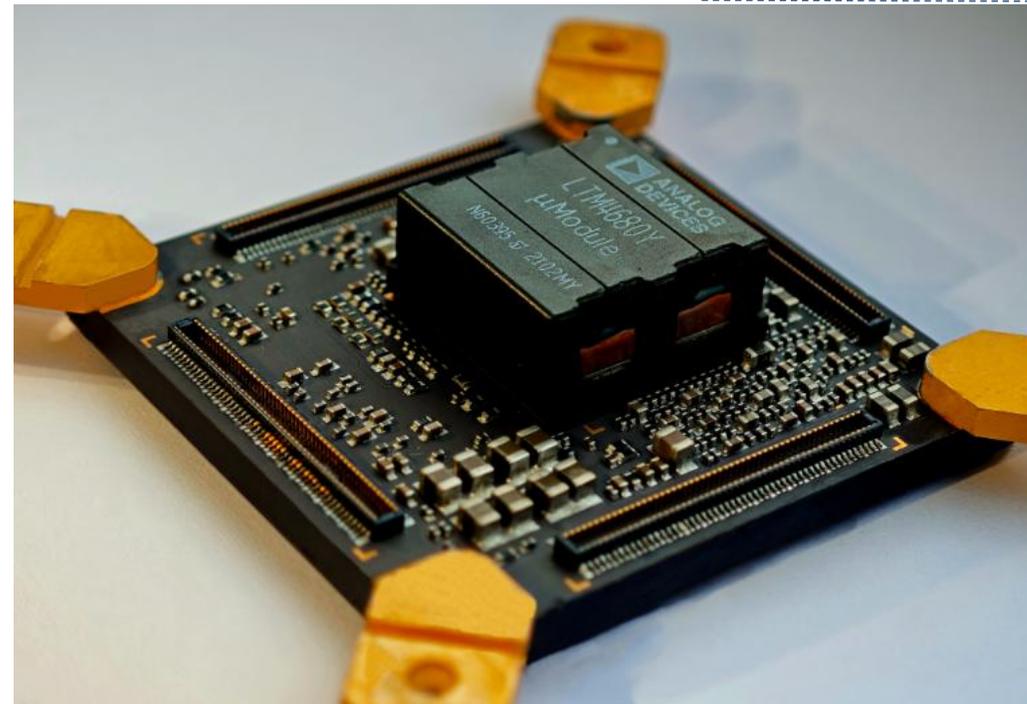
2. SIP encapsulation products



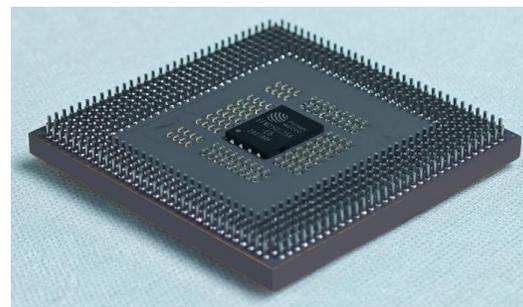
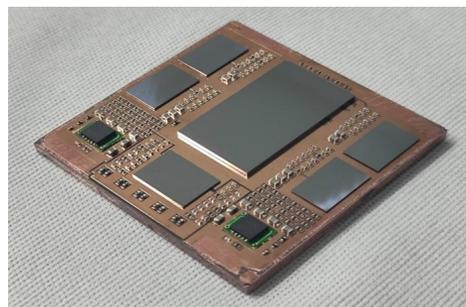
2.1 High-performance AI Board



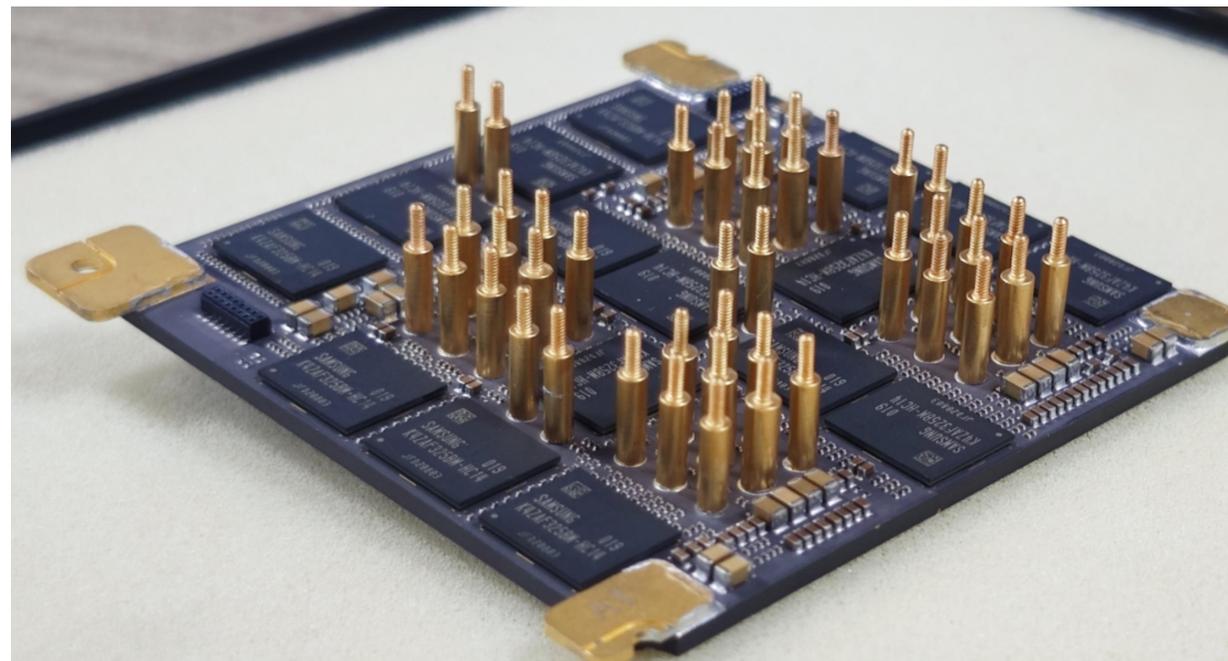
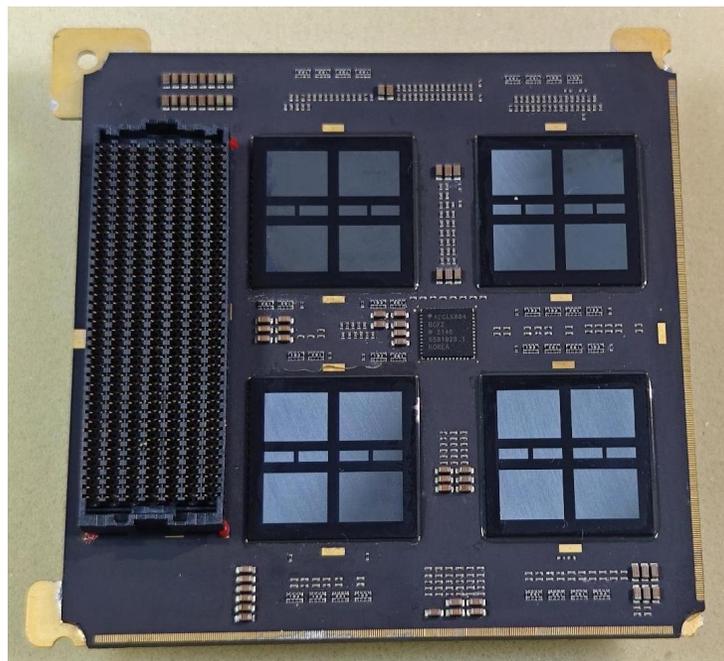
GPU+DDR+Power
Supply



FPGA+SDR+DDR
 $\phi 0.38\text{mm}$ high
lead column

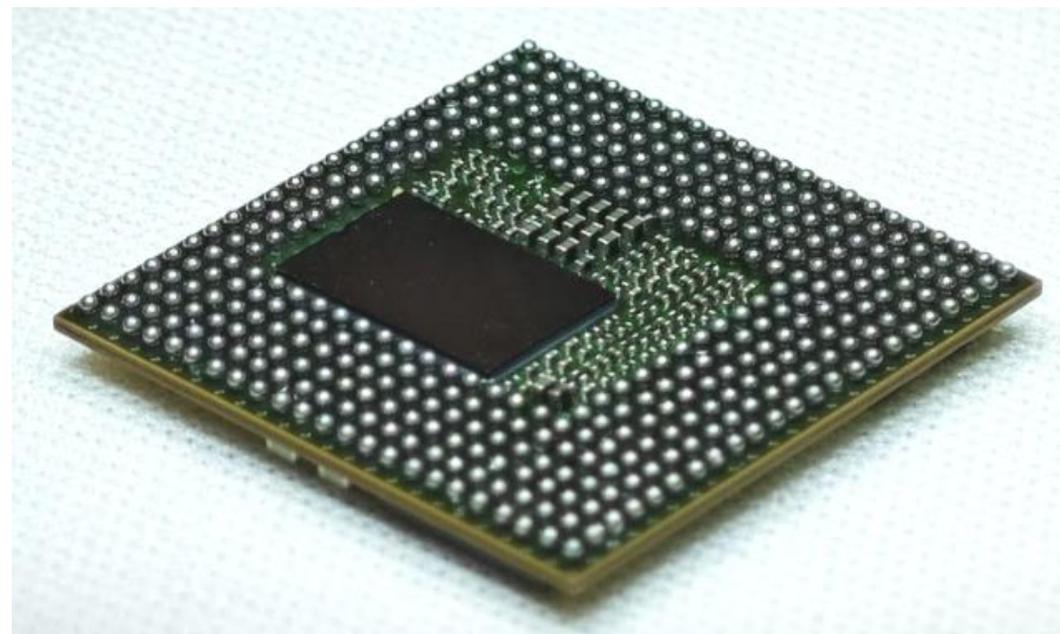
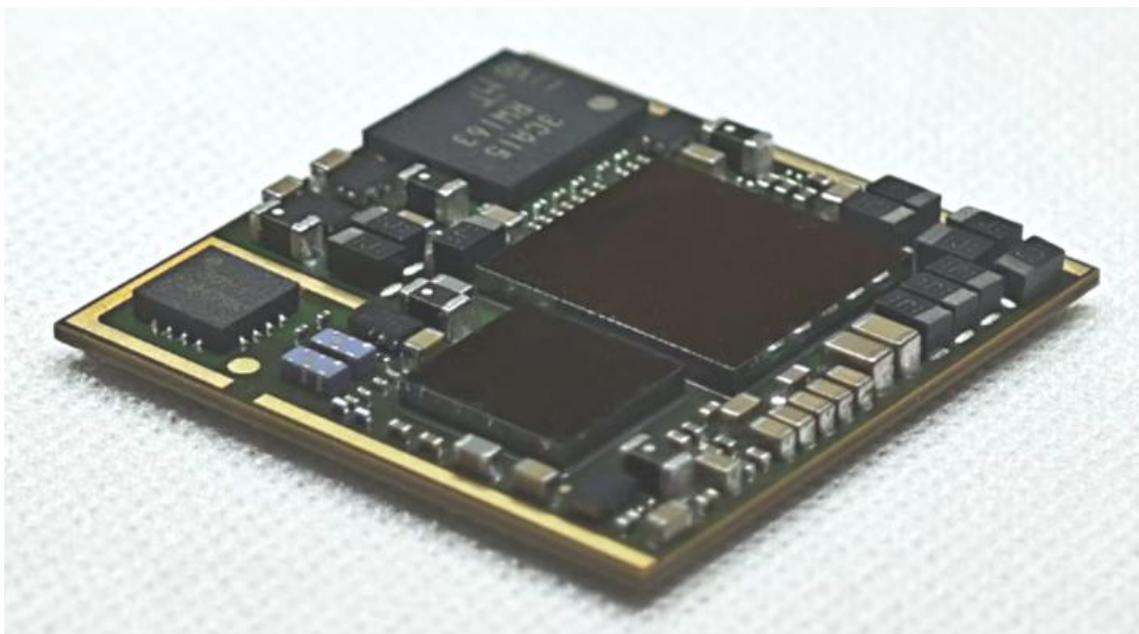


2.2 High-Performance CHIPLET Module

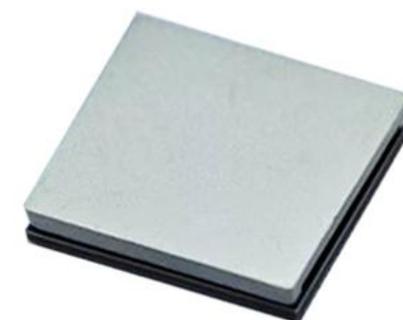
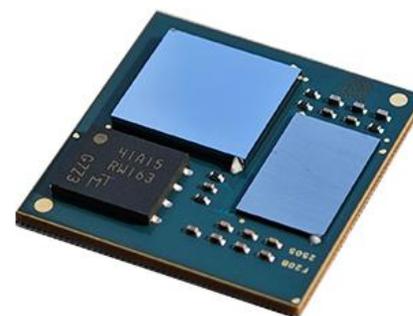
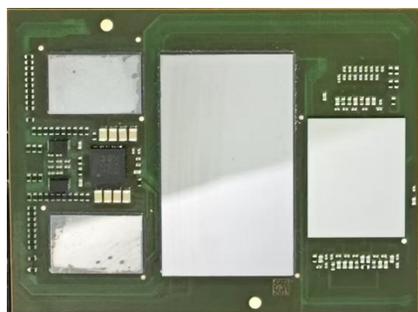


256T computing power, with nearly 15,000 BUMPS per chip
and a minimum PITCH spacing of 150um

2.3 RF SIP Module

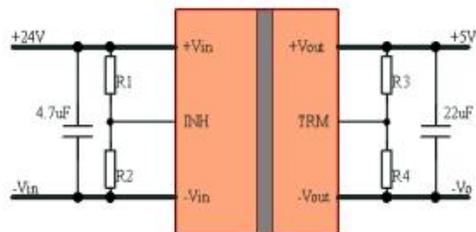
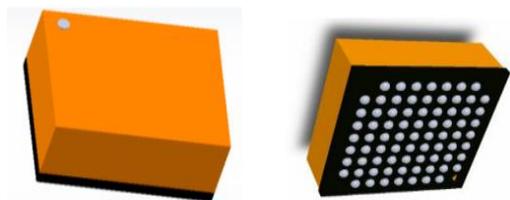


FPGA+SDR+DDR

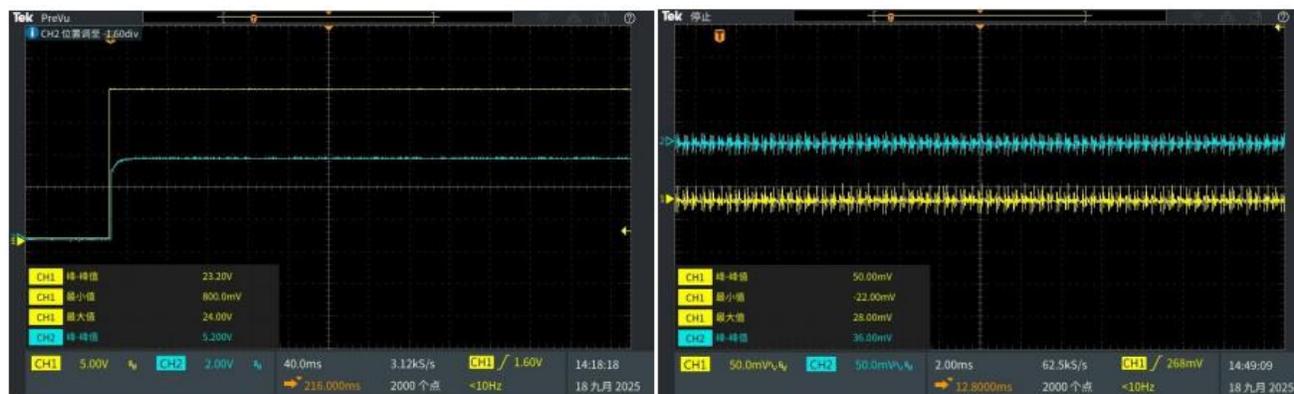


异质求索异构赋能

2.4 DC-DC power SIP module



The high-reliability power module series comes with an integrated transformer and input/output isolation. It includes input, output, control and voltage regulation pins, with a BGA ball-out form. The peripheral application circuit is simple, requiring only the configuration of input and output capacitors. It is specifically designed for applications in on-board power systems where a set of voltages isolated from the input power supply is needed, especially suitable for applications with high space requirements. This product is applicable to: digital circuits, general low-frequency analog circuits, relay drive circuits, data exchange circuits, etc. This solution is very suitable for use as an isolated power supply for biasing power transistors (such as silicon carbide, silicon FETs and IGBTs). It can also meet the isolation and voltage stabilization power supply requirements of sensors, digital chips, single-chip microcomputers, operational amplifiers, network interface chips, and other applications.



Legend: WGO5P24S05TC

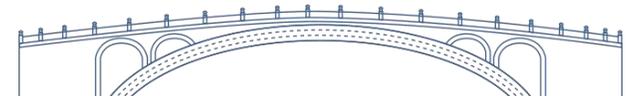
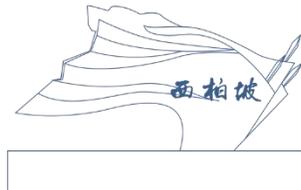
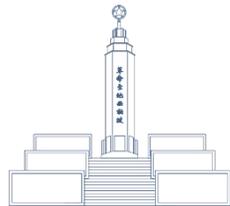
- Input range: 18V to 36V
- Full input and output current up to 1A
- Typical maximum efficiency: 79%
- No-load input current as low as 10mA
- Output current limiting overcurrent protection
- Input and output isolation voltage: 500VDC
- Over-temperature protection (OTP)
- Operating temperature range TC: -55°C to 125°C
- Ceramic BGA package (15.6 x 13 x 7.1mm³)

2.5 Power Amplifiers and Power Amplifier Modules



序号	型号	名称	频率 (GHz)	外形尺寸 (W×D×H) mm	功率增益 (dB)	饱和输出功率 (dBm)	电源耗散功率 (W)	供电电压 (V)
						典型值	典型值	
1	HYPAM02000400P60CW	固态功放	2~4	510×850×300	60	58.5	6500	380
2	HYPAM06001800P55CW	固态功放	6~18	500×440×300	60	56	2800	220
3	HYPAM06001800P58CW	固态功放	6~18	510×850×300	60	58.5	6500	380
4	HYPAM26004000P50CW	固态功放	26~40	440.8×450×132.5 (19inch 3U)	48	51	1400	220
5	HYPAM27003100P50CW	固态功放	27~31	200×250×100	65	50	450	22
6	HYPAM08001200P60P	脉冲功放	8~12	320×320×126.7	70	60	900	32
7	HYPAM08501100P67P	脉冲功放	8.5~11	500×482.5×132	70	67	2000	48
8	HYPAM02001800P44CW	固态功放模块	2~18	210×110×20	50	45	180	28
9	HYPAM02006000P50CW	固态功放模块	2~6	200×100×25	50	50	300	28
10	HYPAM06001800P50CW	固态功放模块	6~18	220×140×24	50	50	560	28
11	HYPAM18002600P50CW	固态功放模块	18~26	240×165×30	50	50	550	24
12	HYPAM26004000P48CW	固态功放模块	26~40	240×165×30	48	49	400	22
13	HYPAM37004200P47CW	固态功放模块	37~42	270×130×35	47	47	350	20
14	HYPAM42004600P50CW	固态功放模块	42~46	280×190×35	50	50.8	800	24
15	HYPAM43004600P47CW	固态功放模块	43~46	270×130×135	45	47	350	24
16	HYPAM32003800P38CW	功放	32~38	70×40×14	40	38	36	28

3.thick film process product



3.1 Microwave Dielectric Ceramics



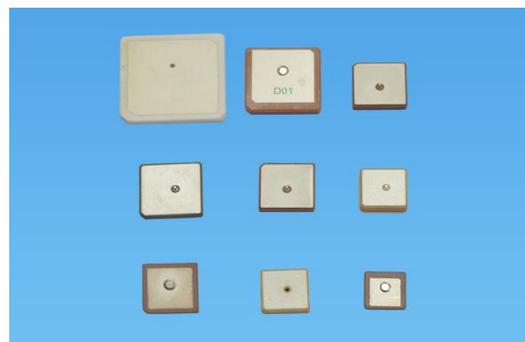
TE_{01δ} Model Microwave Dielectric Resonator DR



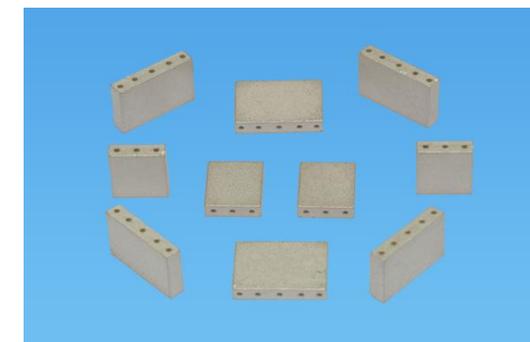
TEM Model of Coaxial Dielectric Resonator CR



TM mode dielectric resonator



Microstrip Dielectric Ceramic Patch Antenna



dielectric ceramic
filter

1) TE_{01δ}-mode microwave dielectric resonator DR



- Product features:
1. High dielectric constant, enabling miniaturization of microwave circuits
 2. High Q value can improve the temperature stability of microwave dielectric oscillator variations
 3. Wide temperature coefficient range, facilitating compensation for temperature design
 4. Small τ_f tolerance and high design repeatability
 5. Excellent time stability with negligible aging effect
 6. High accuracy and good repeatability of dielectric constant, simplifying circuit conditions
 7. Capable of processing products with various special shapes
 8. High sintering density enhances reliability under various environmental
- Scope of application:
1. SHF TV down converter
 2. Global Positioning System
 3. Cellular base station filters and combiners
 4. Radar detectors
 5. Satellite Direct Broadcast Television Receiver (DBS)
 6. Accelerator Gun
 7. Anti-collision Sensor
 8. Multi-channel Microwave Communication System
 9. Mobile phone system
 10. Dielectric resonator antenna
 11. CATV frequency converter
 12. Testing equipment
 13. Telemetry
- Application circuits:
1. Microwave Dielectric Resonator Oscillator (DRO)
 2. Microwave Dielectric Filter
 3. Microwave Integrated Circuit (MIC)
 4. Oscillation Circuit
 5. Frequency Modulator
 6. Voltage-Controlled Oscillator (VCO)
 7. Duplexer
- We can design and produce according to your requirements.

2) TEM Model Coaxial Dielectric Resonator (CR)



Product specifications: 12×12, 8×8, 6×6, 4×4, 3×3, 2×2, etc.

features: 1. Frequency error adjustable to 0.5% and 1%.

2. High dielectric constant and small volume

3. Robust structure

4. Utilizes silver metallization with extremely low

loss

5. It can be used as a parallel resonant circuit and a high Q inductor.

6. Good reproducibility

7. Excellent aging characteristics

8. Excellent weldability

9. High resonant impedance

10. Suitable for surface mount (SMD)

. Applications: 1. Low-phase noise VCO

2. DRO/VCO oscillator

3. Narrowband Filter

4. Duplexer

5. GPS (Global positioning system)

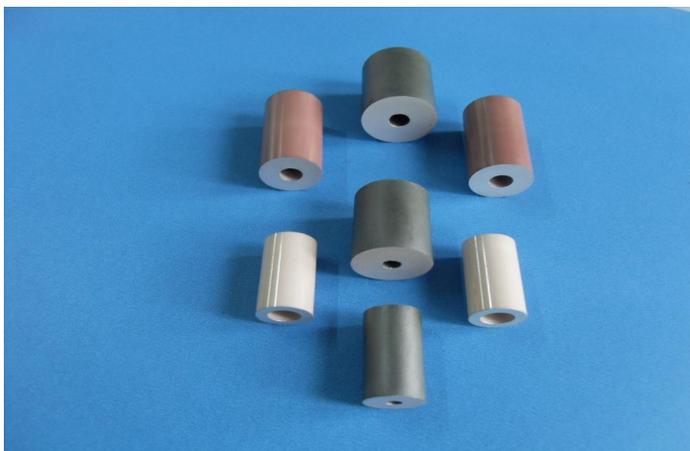
6. UHF radio frequency amplifier

7. Wireless Communication

8. The tuning oscillator

can be customized and manufactured according to customer specifications.

3) TM mode dielectric resonator



Frequency range: 800 – 1000 MHz 1700–2200 MHz and so on

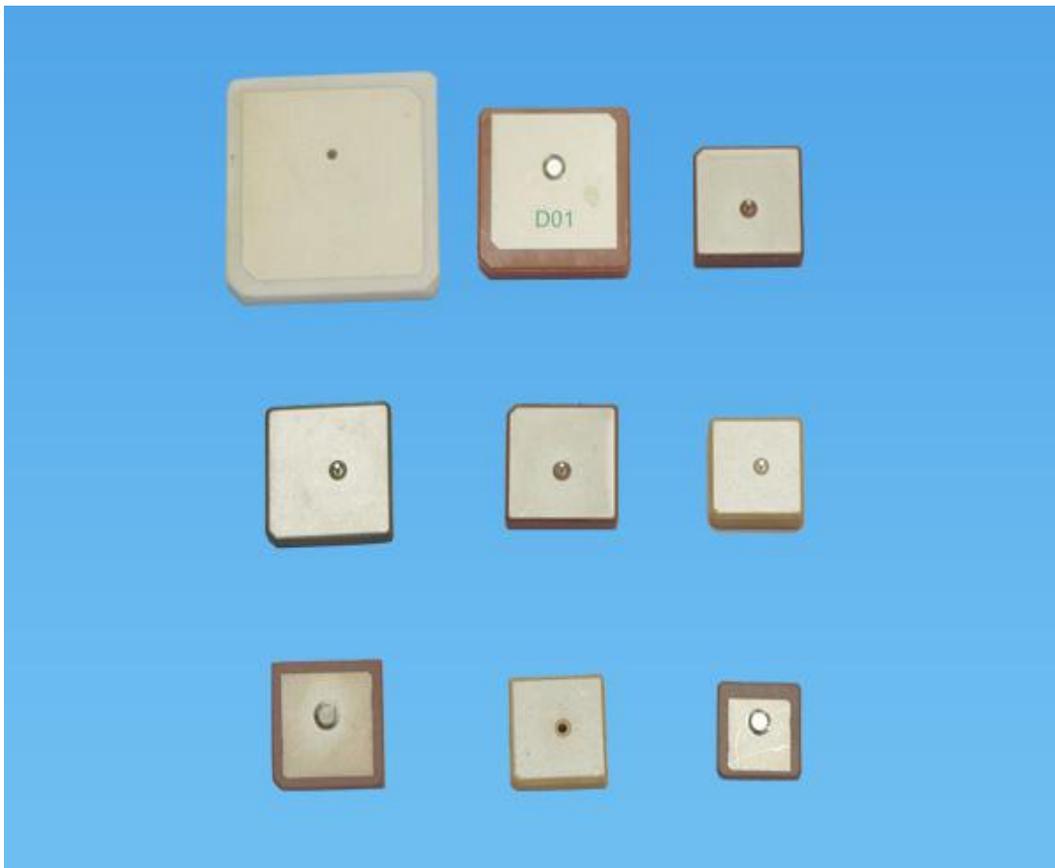
Product Features:

1. Compact size and low cost
2. Excellent frequency and temperature stability
3. High Q value
4. Excellent heat dissipation and high power handling capacity

Application: Filters, etc.

We can design and produce according to your requirements.

4) Microstrip Dielectric Ceramic Patch Antenna



Nominal frequency:

1575.42 ± 1.023 MHz
 1559~1592MHz
 1561.098 ± 2.046 MHz
 1227.60 ± 2.046 MHz
 1189~1215MHz
 1207.14 ± 1.023 MHz
 1268.52 ± 10 MHz
 2450 ± 50 MHz
 2375MHz

Product Features:

1. Compact size, thin profile, lightweight, and low cost
2. Excellent temperature stability
3. Silver electrode is adopted to ensure good frequency characteristics
4. Use of high-density ceramic substrate
5. Excellent dielectric constant consistency
6. Facilitates integration and surface mount (SMD)

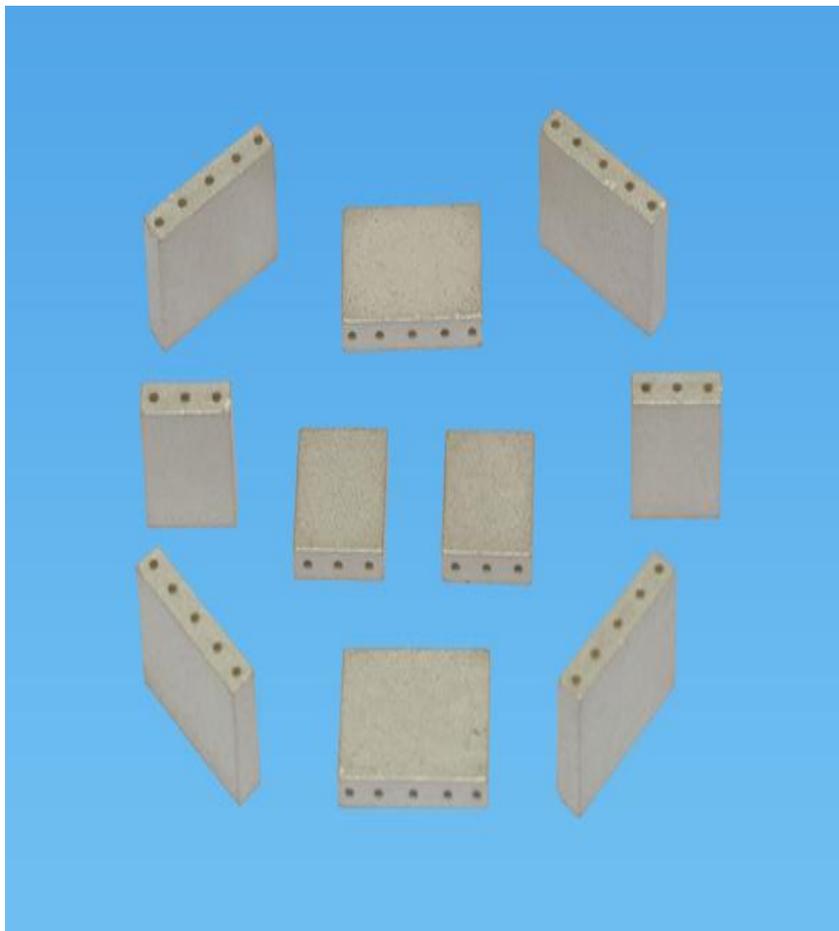
Application scope:

1. Spread spectrum communication
2. Wireless local area network
3. GPS
4. Surveying
5. Navigation
6. Aviation
7. Car navigation
8. Military

Application scenarios: GPS, GALILEO, GLONASS, DMB, WLAN, RFID, Beidou, etc.

We can design and produce according to your requirements.

5) Dielectric ceramic filter



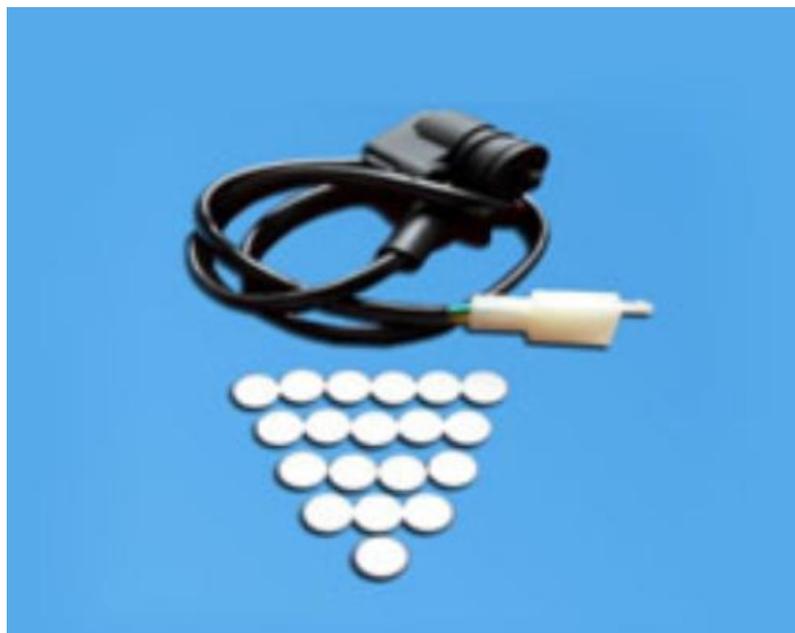
Product Features:

1. Multiple size options and wide frequency range
2. Low frequency and temperature drift
3. Low insertion loss
4. High out-of-band suppression and good rectangular coefficient
5. Robust, stable, and highly reliable

Scope of application: communication base station, cordless telephone, cellular telephone
MMDS、CDMA、W-LAN、TRS、PCS、DECT、DCS、GSM、IMT-2000

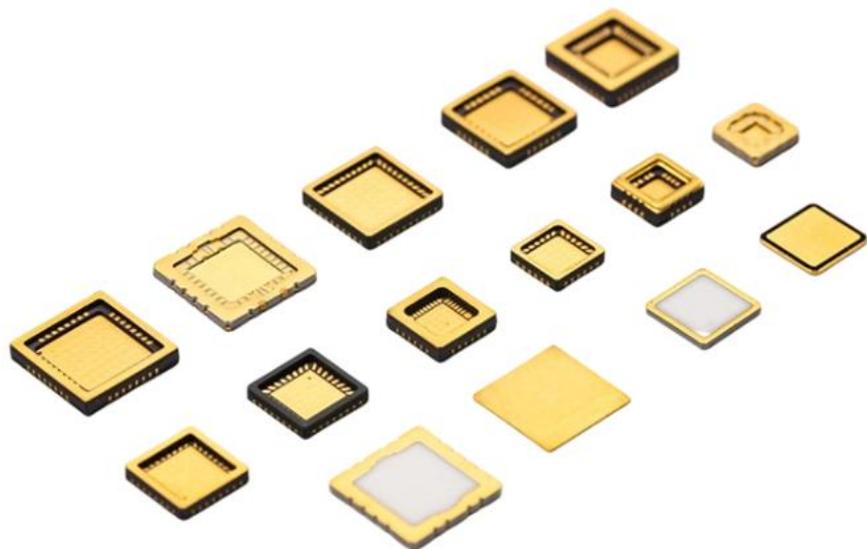
We can design and produce according to your requirements.

3.2 PTCR components

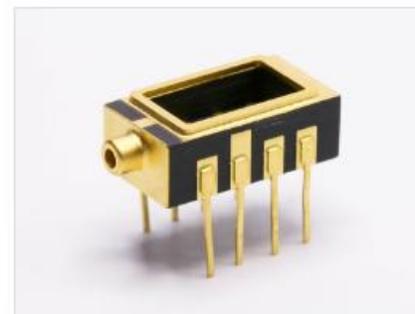


PTCR components, also known as PTC thermistor ceramics, are a type of semiconductor functional ceramics with a positive temperature coefficient. Before reaching the transition temperature, their resistance decreases with rising temperature. Between the transition temperature and thermal runaway temperature, the resistance increases significantly with temperature. PTC components offer unparalleled advantages over traditional electric heating elements, including constant-temperature heating, long natural lifespan, energy efficiency, flame-free operation, excellent safety performance, adjustable heat output, and minimal dependence on power supply voltage. Today, PTC components are widely used in household appliances, power infrastructure, electronic devices, and the automotive industry.

3.3 HTCC Ceramic Package Shell



100G ICR



MiniDi外壳



WSS外壳



MiniPin外壳

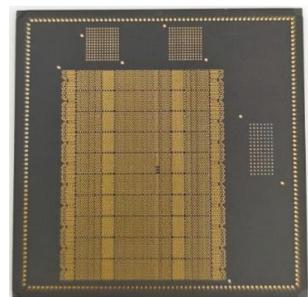
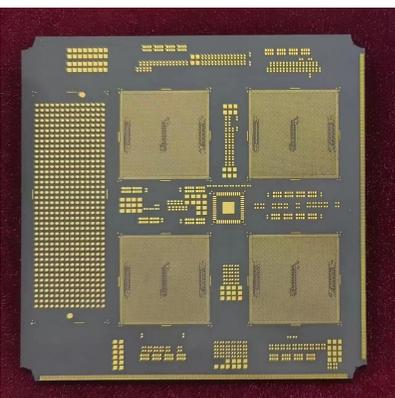
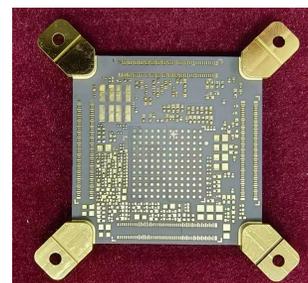
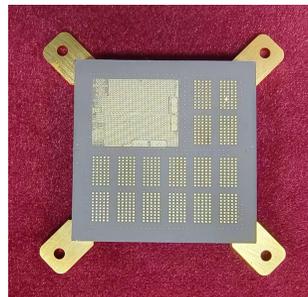
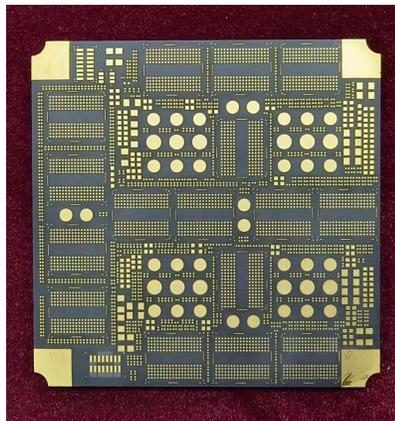


相干集成接收器外壳

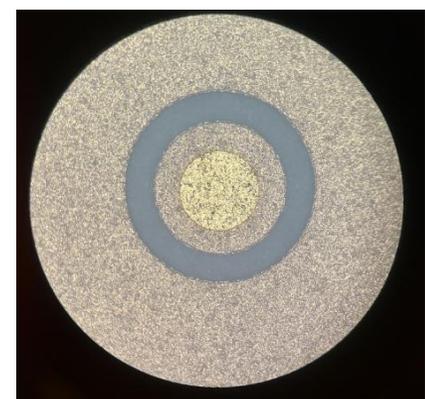
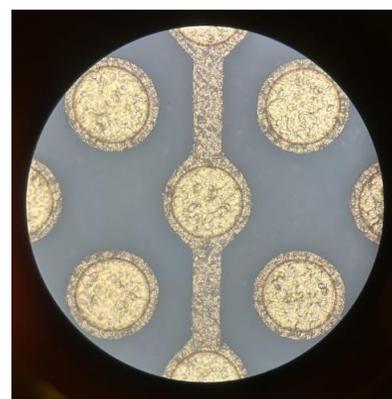
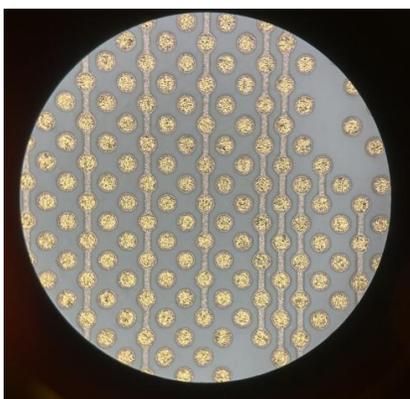
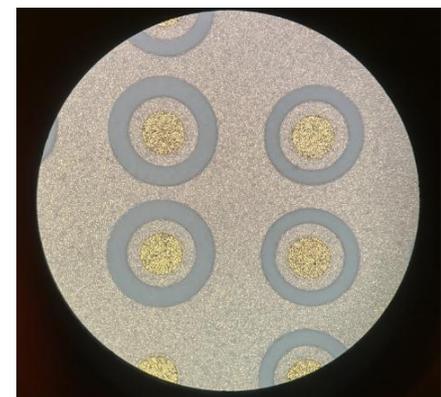
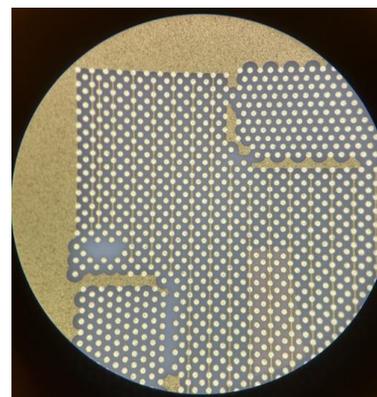
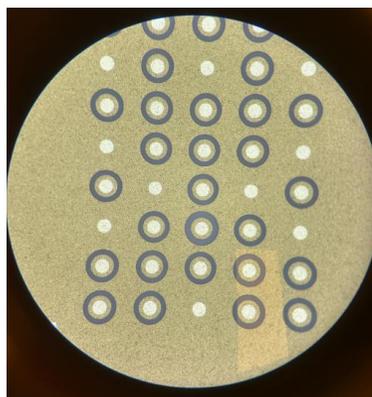


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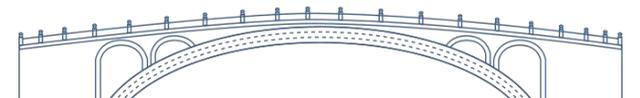
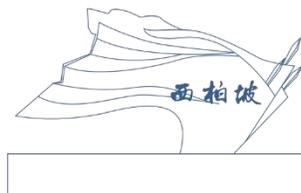
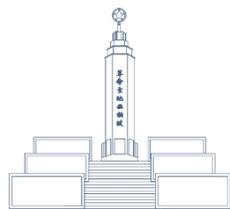
3.4 HTCC Multilayer High-Density Packaging Substrate



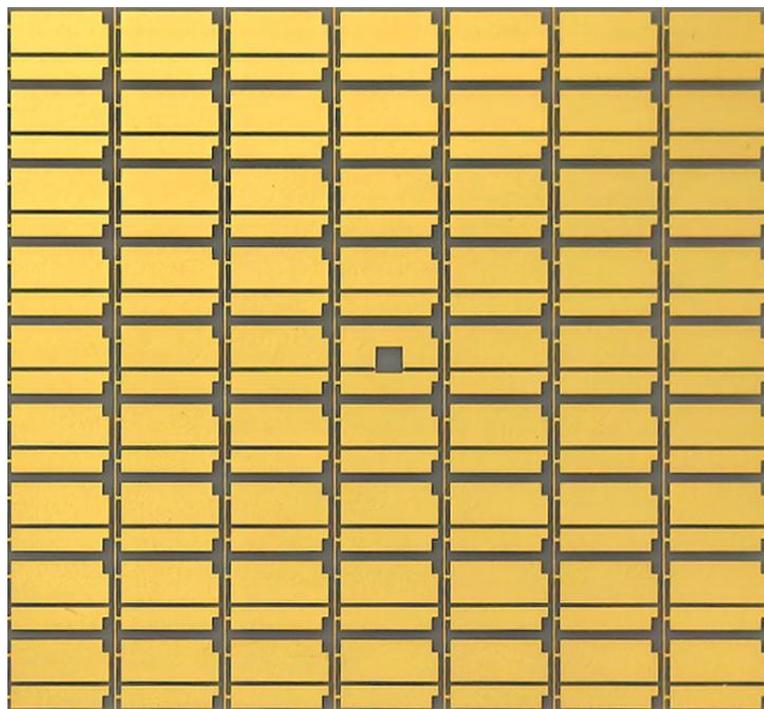
Minimum pitch: 130um, minimum line spacing: 15/15um, minimum pad diameter: 7.0um



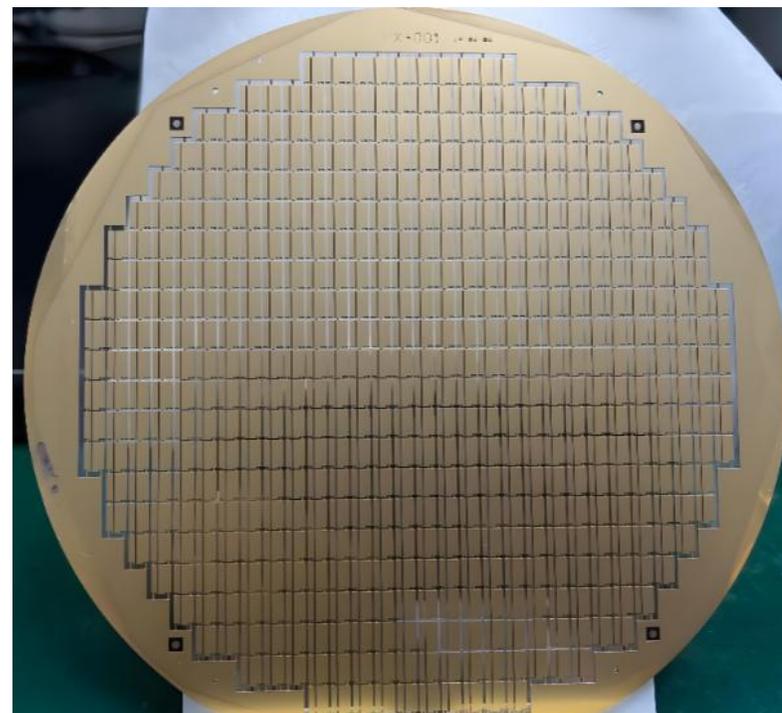
4.Thin film process product



4.1 Heat sink

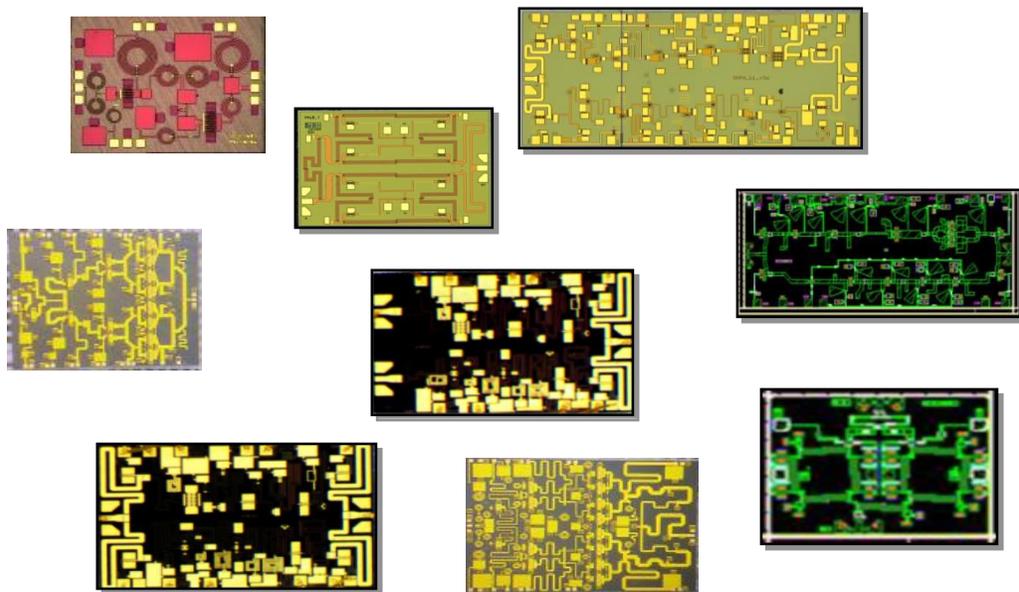


aluminum nitride heat sink

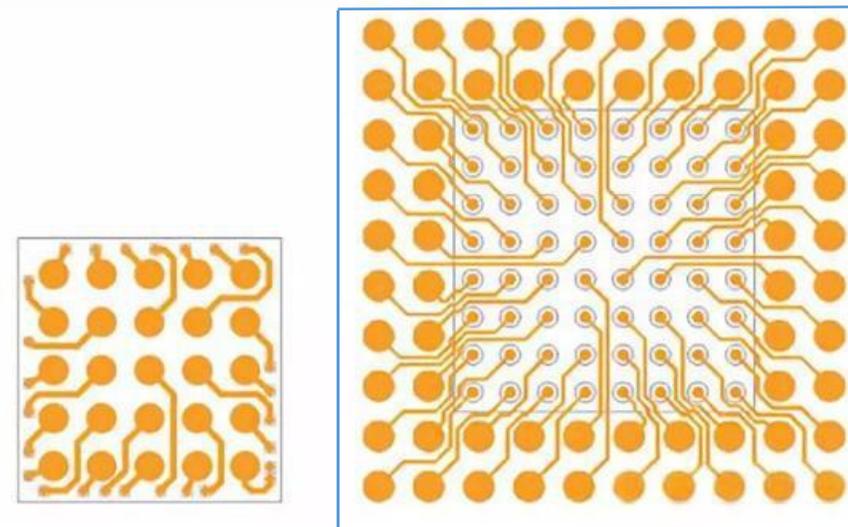


silicon carbide heat sink

4.2 Ceramic IPD Interposer



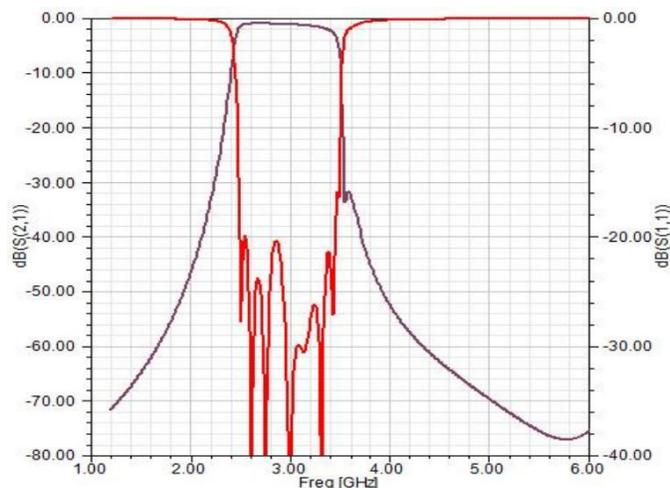
IPD filter



fan in fan out adapter

4.3 filter

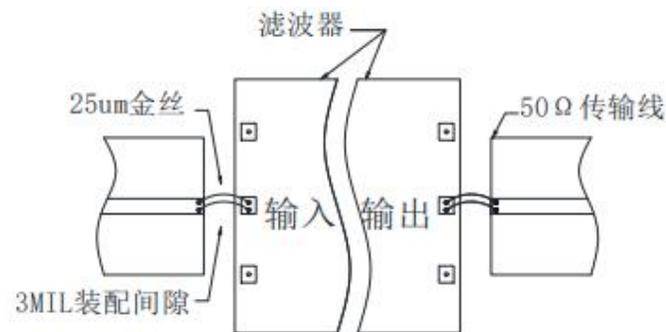
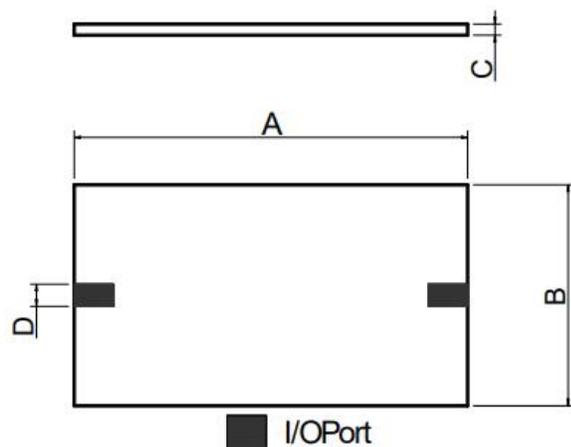
1) Ceramic Thin-Film Chip Series



We currently offer nearly 150 ceramic film chip filter products, covering frequencies from 2GHz to 60GHz. Detailed specifications are available in the list. Custom development and tape-out can be provided to meet new user requirements, including various types of filters (bandpass, lowpass, highpass, and bandstop) and different bandwidth specifications.

Characteristics

- **Thin-film technology, precise simulation**
- **Frequency range:** 2GHz–60GHz
- **Configuration type:** lumped parameters and distributed parameters
- **Filter types:** band-pass, low-pass, high-pass, band-stop
- **Response functions:** Chebyshev, generalized Chebyshev, etc.
- **3dB bandwidth:** 5%–100%
- **Order:** 2nd to 13th order
- **Interface form:** 50-ohm stripline input/output
- **Suitable for:** micro-assembly combinations, multi-chip integrated modules
- **Operating temperature:** -55°C to +85°C



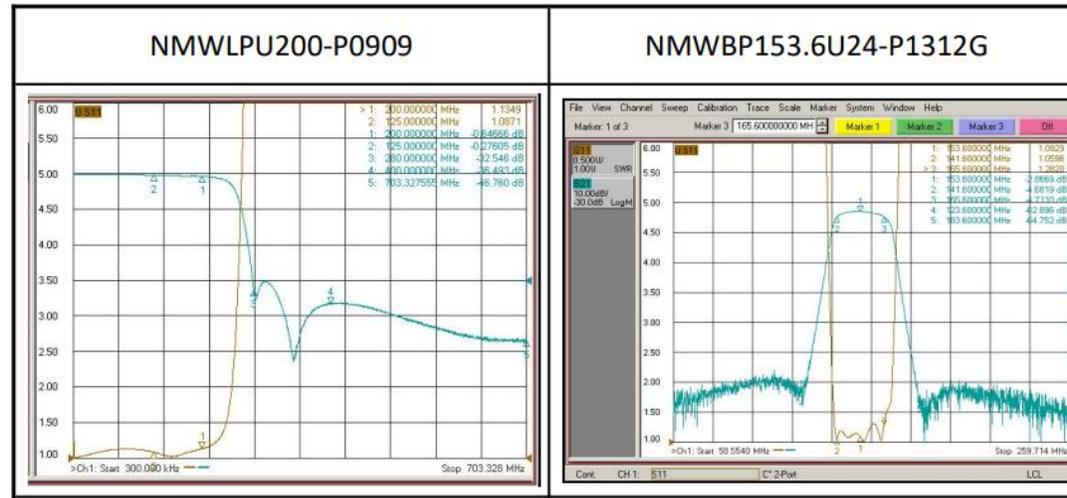
2) Miniature LC Filter



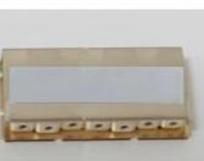
Serial Number	Model number	Center Frequency (MHz)	Center loss (dB)	Bandwidth (MHz)	In-band Vibration (dB)	Standing wave Than	Out-of-band suppression (dBc)
1	NMWLPU100-P0909	----	----	DC-100	1.2	1.25	235 @200MHz
2	NMWLPU200-P0909	----	----	DC-200	1.2	1.42	235 @400MHz
3	NMWLPU280-P0909	----	----	DC-280	1.2	1.40	235 @560MHz
4	NMWLPU400-P0909	----	----	DC-400	1.2	1.24	265 @800MHz

Characteristics

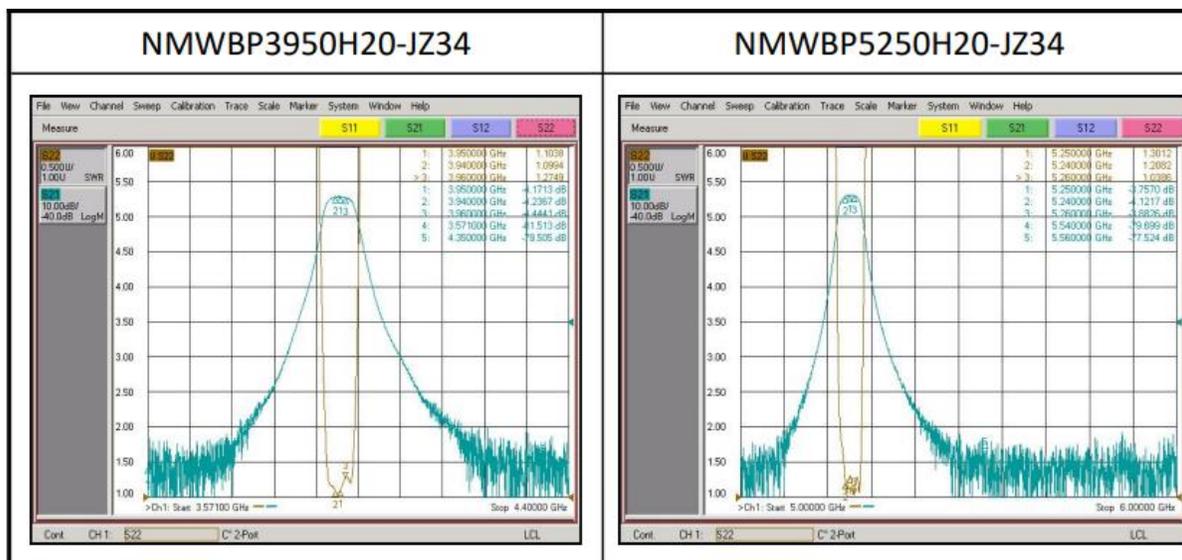
- Frequency range: DC - 6GHz
- Type: Bandpass, Low-pass, High-pass, Band-stop
- Response function: Chebyshev, Butterworth, Bessel and Generalized Chebyshev, etc.
- 3dB bandwidth: 3% - 500%
- Order: 2 - 9 orders
- Collective element, 50 ohms input and output, stable performance
- Interface form: Miniature surface mount, pin type
- Operating temperature: -55 to +85 degrees Celsius



3) Miniaturized discrete dielectric series

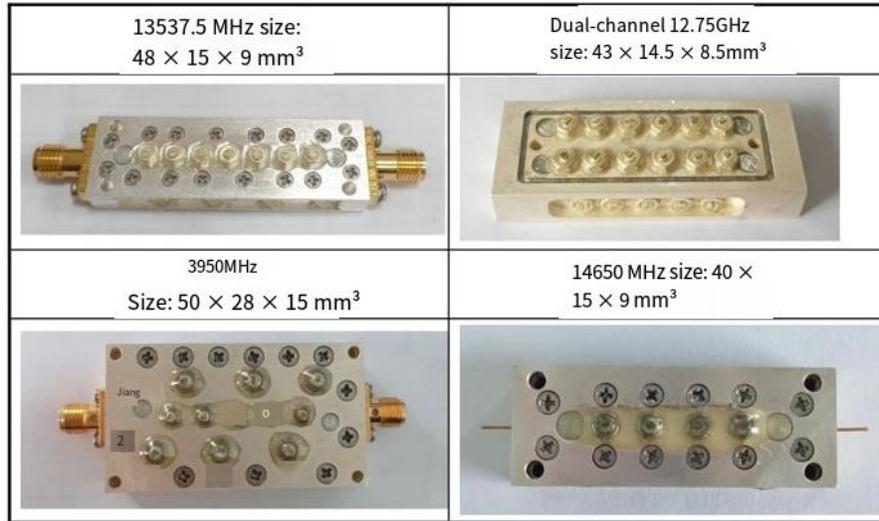
JZ32 size: $8 \times 12 \times 4 \text{ mm}^3$	JZ33 Size: $11 \times 12 \times 4 \text{ mm}^3$	JZ34 Size: $14 \times 12 \times 4 \text{ mm}^3$
		
JZ35 size: $17 \times 12 \times 4 \text{ mm}^3$	JZ36 JZ37 dimensions: $20 \times 12 \times 4 \text{ mm}^3$	JZ38 dimensions: $23 \times 12 \times 4 \text{ mm}^3$
		

Requm Items	Model number	Center Center loss (MHz) Frequency	Center loss (dB)	Bandwidth (MHz)	Intra-band fluctuation (dB)	Standing wave ratio	Out-of-band suppression (dBc)
1	NMWBP1040U90-JZ34	1040	2.0	90	1.0	1.42	240 @865MHz 240 @1270MHz
2	NMWBP1814H8-JZ36	1814	7.0	8	0.5	1.40	240 @1750MHz 255 @1850MHz
3	NMWBP2250H110-JZ6	2250	3.0	110	0.5	1.35	232 @2120MHz 232 @2380MHz
4	NMWBP2362H400-JZ35	2362	1.0	400	0.3	1.40	230@DC-1800MHz 230@2900-4000MHz

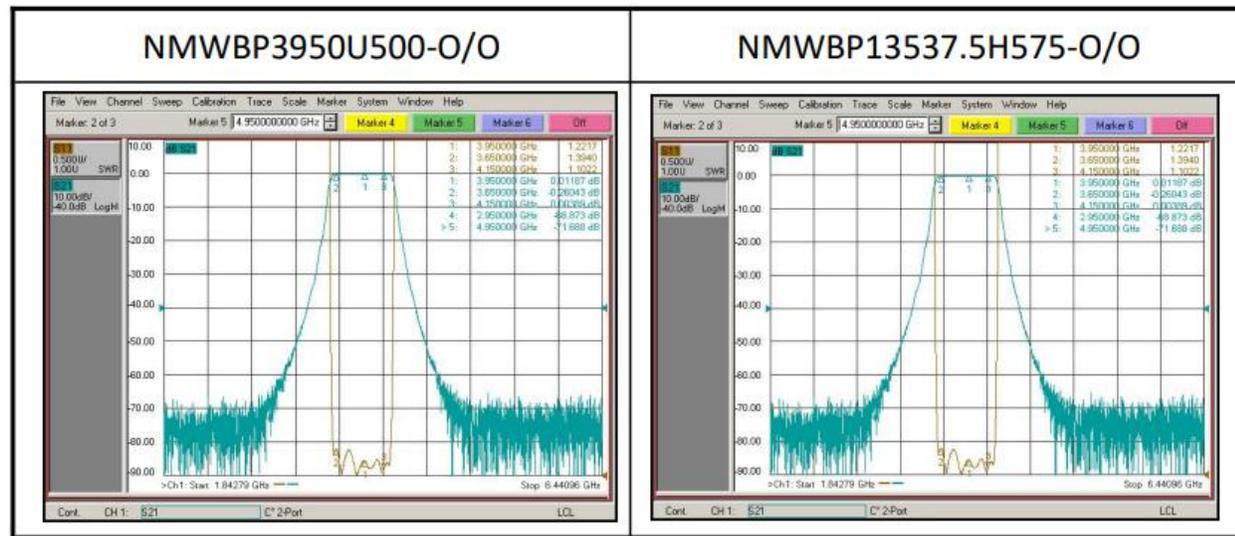


Characteristics
● Frequency range: 400 MHz - 6 GHz
● Type: Bandpass, Bandstop
● Response functions: Chebyshev, Butterworth, Bessel, and Generalized Chebyshev, etc.
● 3dB bandwidth: 0.5% - 5%
● Order: 2 - 7 orders
● High-Q resonator, 50-ohm input and output, small size and light weight
● Interface form: Miniaturized surface-mounted, pin-type and detachable SMA connectors, etc.
● Operating temperature: -55 to +85 degrees Celsius

4) High-performance cavity filter series



Serial Number	Model number	Center Frequency (MHz)	Center loss (dB)	Bandwidth (MHz)	Standing wave ratio	Out-of-band suppression (dBc)	Shape Size (mm)
1	NMWBP1995H30-P/P	1995	0.6	30	1.20	235 @2170MHz	45×35×15
2	NMWBP3500U200-O/O	3500	1.0	200	1.25	245 @3750MHz	70×30×15
3	NMWBP2025U304-P/PJ	2025	2	304	1.40	240 @1725MHz 260 @4125MHz	110×43×16
4	NMWBP3950U500-O/O	3950	0.3	500	1.28	245 @4750MHz	50×28×15
5	NMWBP4490U180-P/P	4490	1.3	180	1.30	245 @4820MHz	40×20×9.5



Characteristics
● Frequency range: 200 MHz - 30 GHz
● Type: Comb-shaped, Interlocking Finger, Coaxial, Waveguide
● Response function: Chebyshev and generalized Chebyshev types, etc.
● 3dB bandwidth: 0.5% - 80%
● Order: 2 - 15 orders
● High-Q metal cavity resonance, 50-ohm input and output, stable and reliable performance
● Interface form: Pin type, SMA-K connector
● Operating temperature: -55 to +85 degrees Celsius

THANKS !

