

2023



Suzhou HangJing Elec&Tech Co., Ltd

Frequency Oscillator Experts

<https://www.hci.com.hk>



About us

- Suzhou Hang Jing Elec & Tech Co.,Ltd was established in 2014 in Suzhou of Jiangsu Province.
- We are an enterprise that integrates the R&D, production, sales and service of electronic components.
- Capabilities: 82kk pcs/month
- Factory Area: 8000m²
- Quality System ISO9001:2015 Certification
- Military System GJB9001C-2017 Certification
- Own more than 20 patent certificates
- Beijing branch, Shenzhen / Wuhan office



Suzhou Headquarters

No.1, First Qunxing Road, Suzhou Industrial Park, Jiangsu Province, China

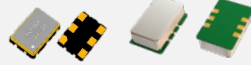
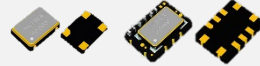


Beijing Branch

Revised Building, Beiqijia Town, Changping District, Beijing

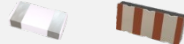


Product Series

Passive Components	Quartz Crystal	Model	Package Size (mm)	Frequency Range	Load Capacitance	Operating temperature	Product display
		SMD Crystal	SMD 1210~SMD 7050	6.000~96.000MHz	4-20pF or Specify	-20°C~+70°C -40°C~+85°C Or Specify	
		DIP Crystal	HC-49S HC-49SMD	3.200~150.000MHz	6-20pF or Specify		
		kHz Crystal	SMD 1210~SMD 8038 2x6 3x8	32.768kHz 30~350kHz	6pF、7pF、9pF、 12.5pF or Specify		
Active Components	Oscillator	Model	Package Size (mm)	Frequency Range	Output Mode	Operating temperature	Product display
		Oscillator	SMD 2016~SMD 7050 Full/Half Size	32.768KHz; 1.000~2000.000MHz	CMOS、LV-PECL、LVDS、 HCSL、CML	-40°C~+85°C -40°C~+105°C -40°C~+125°C Or Specify	
		VCXO	SMD 3225~SMD 1490	1.250~2000.000MHz	CMOS、LV-PECL、LVDS、		
		TCXO	SMD 2016~SMD 7050	5.000~55.000MHz	CMOS、Clipped Sine Wave		
		OCXO	SMD 9.7*7.5~25.4*22.1 DIP 20.3*12.7~36.3*27.2	5.000~500.000MHz	Rectangular、Sine Wave		



Product Series

SAW Series	Model	Package Size (mm)	Frequency Range	Operating temperature	Product Display
	SAW Filter	SMD 1109~SMD 5050 TO39 D11 F11	800~2605MHz	-40°C~+85°C Or Specify	
	SAW Resonator	SMD 1109~SMD 5050 TO39 D11 F11	154-1000MHz		
Ceramic Series	Model	Package Size (mm)	Frequency Range	Operating temperature	Product display
	Ceramic Resonator MHz	ZTA /T SMD 2.2x1.8 ~ SMD 7.4x3.4	2.000~60MHz	-20°C~+80°C -25°C ~ 85°C Or Specify	
	Ceramic Resonator kHz	ZTB 6.0x5.0 ~ 11x8.0	150kHz~1500kHz		
	Ceramic Filter	6.5x6.0 ~11.9x6.5	450~455kHz 10.7MHz		
	Crystal Filter	DIP 7.9X3.3 ~18x12 SMD 7050	10~60MHz	-40°C~+85°C Or Specify	



Tuning Fork kHz Crystal

kHz Crystal	Product Series	Frequency Range	Feature	Oscillation
	FR10S4(10.4×4.1)	32.768kHz (30~350kHz)	-Frequency tolerance±10ppm / ±20ppm at 25°C -Operating temperature : -20°C~+70°C or -40°C~+85°C -High reliability environmental performance -RoHS Compliant / Pb Free	Tuning Fork
	FR10SH(10.4×4.1)			
	FR08S4(8.0×3.8)			
	FR07S4(7.0×1.5)			
	FL37S2(7.0×3.1)			
	FL26S2 (Φ2×6)			
	FL26T2(Φ2×6) FL38T2(Φ3×8)			
	FC41M2(4.1×1.5)			
	FC31M2(3.2×1.5)			
	FC21M2(2.0×1.2)			
	FC11M2(1.6×1.0)			

Seam Seal Crystal

Seam Seal Crystal (MHz)	Product Series	Frequency Range	Feature	Oscillation
	XC10M4(1.2×1.0)	36 ~ 100MHz	-Seam with vacuum Sealed for small size -Frequency stability: $\pm 10\text{ppm} \sim \pm 30\text{ppm}$ @ -20~70°C / -40~85°C -High precision and high frequency stability -Excellent heat resistance and environmental characteristics -Designed for automatic mounting and reflow soldering -RoHS Compliant / Pb Free	Fundamental 3rd Overtone
	XC11M4(1.6×1.2)	24 ~ 100MHz		
	XC21M4(2.0×1.6)	16 ~ 100MHz		
	XC22M4(2.5×2.0)	12 ~ 100MHz		
	XC32M4(3.2×2.5)	8 ~ 100MHz		
	XC53M4(5.0×3.2)	8 ~ 100MHz		
	XC63M4(6.0×3.5)	8 ~ 100MHz		
	XC75M4(7.0×5.0)	6 ~ 100MHz		

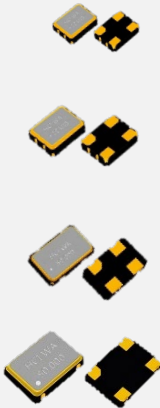
Mecal Can Crystal

MECAL CAN Crystal	Product Series	Frequency Range	Feature	Oscillation
	HC-49U	1.8 ~ 150MHz	-A great number of standard frequencies -Higher frequency available and lower equivalent series resistance -RoHS Compliant / Pb Free	Fundamental 3rd Overtone Fundamental 3 rd / 5 th
	HC-49S	3.2~ 64MHz		
	HC-49S-3PIN	3.2~ 64MHz		
	HC-49S SMD	3.2~ 64MHz		
	HC-49S SMD-3PAD	3.2~ 64MHz		
	UM-1/UM-5	3.2~ 64MHz		

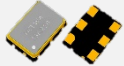
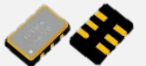
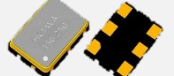
Glass Seal Crystal

Glass Crystal	Product Series	Frequency Range	Feature	Oscillation
	XC63G2(6.0×3.5)	8 ~ 55MHz	-High reliable environmental performance	Fundamental
	XC53G2(5.0×3.2)	8 ~ 55MHz	-Contains Pb in sealing glass exempted by RoHS directive	

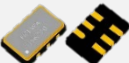
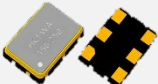
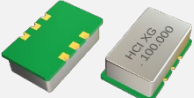
Crystal Oscillators(HCMOS)

OSC	Product Series	Frequency Range	Feature	Oscillation
	CO11H4(1.6×1.2)	1 ~ 200MHz 32.768kHz	-Frequency stability (overall): ±25ppm~±50ppm@ -40~85°C -Extended Industrial Operating Temperature Range:-40°C~+105°C / - 55~+125°C -Wide voltage range:1.8V~3.3V -Tight stability and highly reliable oscillators -Low Noise Typical: 0.3ps at 12kHz to 20MHz Frequency Offsets -RoHS Compliant / Pb Free	Fundamental 3rd Overtone
	CO21H4(2.0×1.6)	1 ~ 200MHz 32.768kHz		
	CO22H4(2.5×2.0)	1 ~ 200MHz 32.768kHz		
	CO32H4(3.2×2.5)	1 ~ 200MHz 32.768kHz		
	CO53H4(5.0×3.2)	1 ~ 200MHz 32.768kHz		
	CO75H4(7.0×5.0)	1 ~ 200MHz 32.768kHz		
	CD14H4(20.4×13.1) CD08H4(12.9×12.9)	1 ~ 200MHz		

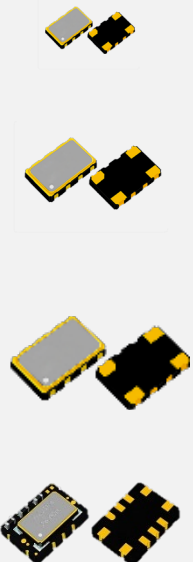
Differential Crystal Oscillators(LVDS/LVPECL/HCSL/CML)

Differential OSC	Product Series	Frequency Range	Feature	Oscillation
	CO22P6 CO22D6 (2.5×2.0) CO22C6	1~ 2000MHz	-Differential output : LVPECL, LVDS,HCSL,CML	Fundamental 3rd Overtone
	CO32P6 CO32D6 (3.2×2.5) CO32C6	1 ~ 2000MHz	-Frequency stability (overall): ±25ppm~±50ppm@ -40~85°C -Tight stability and highly reliable oscillators	
	CO53P6 CO53D6 (5.0×3.2) CO53C6	1 ~ 2000MHz	-Very low phase jitter : < 1ps (0.6ps, typ.) RMS -Temperature range: -40 to 85 °C operation	
	CO75P6 CO75D6 (7.0×5.0) CO75C6	1 ~ 2000MHz	-RoHS compliant/Pb-free	

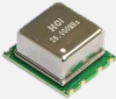
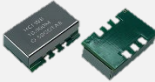
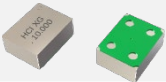
Voltage Controlled Crystal Oscillators(VCXO)

VCXO	Product Series	Frequency Range	Feature	Oscillator
	VC22H6 VC22P6 (2.5×2.0) VC22D6	1.25 ~ 1500MHz	-Output :CMOS LVPECL, LVDS -Frequency stability (overall): $\pm 25\text{ppm} \sim \pm 50\text{ppm} @ -40 \sim 85^{\circ}\text{C}$ -Tight stability and highly reliable oscillators -Low phase jitter typical: 0.8 ps RMS from 12KHz to 20MHz -Wide frequency control range -RoHS Compliant / Pb Free	Fundamental Low Jitter Multiplier
	VC32H6 VC32P6 (3.2×2.5) VC32D6	1.25 ~ 1500MHz		
	VC53H6 VC53P6 (5.0×3.2) VC53D6 VC53C6	1.25 ~ 1500MHz		
	VC75H6 VC75P6 (7.0×5.0) VC75D6 VC75C6	1.25 ~ 1500MHz		
	VS14D6 (14.0×9.0)	1.25~200MHz		
	VD14H4(20.4×13.1) VD08H4(12.9×12.9)	1.25~ 250MHz		

Temperature Compensated Crystal Oscillators(TCXO/VCTCXO)

TCXO/VCTCXO	Product Series	Frequency Range	Feature	Oscillation
	TC21S4 UC21S4 (2.0×1.6)	10 ~ 50MHz	-Stability 0.05 to 2.5ppm available. Operating temperature ranges(TYP) -10~+60°C; -20~+70°C -30~+85°C; -40~+85°C -Frequency tolerance 1 or 2ppm -Supply voltages 1.8V,2.5V,3.0V,3.3V -VCTCXO frequency pull ranging 0.5 to 5ppm(TYP) -CMOS and Clipped Sine wave output optional -RoHS Compliant / Pb Free	Fundamental
	TC22S4 UC22S4 (2.5×2.0)	10 ~ 50MHz		
	TC32S4 UC32S4 (3.2×2.5)	10 ~ 50MHz		
	TC53S4 UC53S4 (5.0×3.2)	10 ~ 50MHz		
	TC75S4 UC75S4 (7.0×5.0)	5 ~ 50MHz		
	TC75S4 UC75S4 (7.0×5.0)	STRATUM 3 5~30MHz		
	TC75S4 UC75S4 (7.0×5.0)	STRATUM 3 5~30MHz		

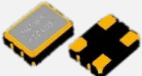
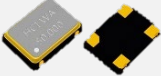
Oven Controlled Crystal Oscillators(OCXO)

OCXO	Product Series	Frequency Range	Feature	Oscillation
	OD36H5(36x27) OD36S5(36x27)	5~500MHz	$\pm 0.5\text{ppb @ -40}\sim 85^{\circ}\text{C}$; 30ppb/year; -160dbc/Hz@1kHz(100MHz)	Fundamental
	OD25H5(25x25) OD25S5(25x25)	5~500MHz	$\pm 1\text{ppb @ -40}\sim 85^{\circ}\text{C}$; 10ppb/year; -160dbc/Hz@1kHz(100MHz)	
	OD20H5(20x20) OD20S5(20x20)	5~500MHz	$\pm 2\text{ppb @ -40}\sim 85^{\circ}\text{C}$; 10ppb/year; -165dbc/Hz@1kHz(100MHz)	
	OD14H4(20x13) OD14S4(20x13)	10~100MHz	$\pm 100\text{ppb @ -40}\sim 85^{\circ}\text{C}$; 500ppb/year; -160dbc/Hz@1kHz(100MHz)	
	O525H7(25x22) O525S7(25x22)	5~125MHz	*2ppb @ -40~85C; 10ppb/year;150dbc/Hz@1kHz(10MHz)	
	OS15H6(14x9) OS15S6(14x9)	10~50MHz	*+5ppb @ -40~85C; 60ppb/year;- 145dbc/Hz@1kHz(10MHz)	
	OS97H4(9.7x7.5) OS97S4(9.7x7.5)	10~40MHz	*+20ppb @ -40-85C; 600ppb/year;- 145dbc/Hz@1kHz(10MHz)	

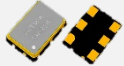
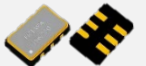
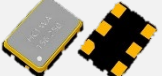
Military Quartz Crystal (Standard: GJB 2138-2015)

Seam Seal Crystal (MHz)	Product Series	Frequency Range	Feature	Oscillation
	XC21M4(2.0×1.6)	16 ~ 100MHz	-Seam with vacuum Sealed for small size	Fundamental 3rd Overtone
	XC32M4(3.2×2.5)	8 ~ 100MHz	-Frequency stability : ±50ppm@ -55~+85°C ±50ppm@ -55+125°C ±100ppm@ -55+125°C	
	XC53M4(5.0×3.2)	8 ~ 100MHz	-High precision and high frequency stability -Excellent heat resistance and environmental characteristics	
	XC75M4(7.0×5.0)	6 ~ 100MHz	-Designed for automatic mounting and reflow soldering -RoHS Compliant / Pb Free	

Military Crystal (Crytal Oscillator Standard: GJB 1648A-2011)

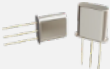
OSC	Product Series	Frequency Range	Feature	Oscillation
   	CO22H4(2.5×2.0)	1 ~ 200MHz	-Frequency stability : ±50ppm@ -55~+85°C ±50ppm@ -55+125°C ±100ppm@ -55+125°C	Fundamental 3rd Overtone
	CO32H4(3.2×2.5)	1 ~ 200MHz	-Wide voltage range:1.8V~3.3V	
	CO53H4(5.0×3.2)	1 ~ 200MHz	-Tight stability and highly reliable oscillators	
	CO75H4(7.0×5.0)	1 ~ 200MHz	-Low Noise Typical: 0.3ps at 12kHz to 20MHz Frequency Offsets -RoHS Compliant / Pb Free	

Military Crystal (Differential Crystal Oscillator LVDS/LVPECL/HCSL Standard: GJB 1648A-2011)

Differential OSC	Product Series	Frequency Range	Feature	Oscillation
	CO22P6 CO22D6 (2.5×2.0) CO22C6	1~ 2000MHz	-Differential output : LVPECL, LVDS,HCSL	Fundamental 3rd Overtone
	CO32P6 CO32D6 (3.2×2.5) CO32C6	1 ~ 2000MHz	-Frequency stability : ±50ppm@ -55~+85℃ ±50ppm@ -55+125℃ ±100ppm@ -55+125℃	
	CO53P6 CO53D6 (5.0×3.2) CO53C6	1 ~ 2000MHz	-Tight stability and highly reliable oscillators -Very low phase jitter : < 1ps (0.6ps, typ.) RMS	
	CO75P6 CO75D6 (7.0×5.0) CO75C6	1 ~ 2000MHz	-RoHS compliant/Pb-free	

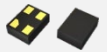
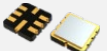


Crystal Filter

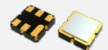
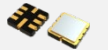
	Product Series	Size	PAD	Frequency Range	Feature	Environmental Compliance
	CFUMT3	7.9x3.3x8.0 7.9x3.3x5.8	3/4	10-45MHz	Low Insertion loss High selectivity Shock Resistant , High reliability	RoHS compliant Lead-Free Halogen-Free REACH compliance verified, continuously monitored
	CF49T3	11x4.7x13.5 11x4.7x11.0	3	7.8-60MHz		
	CFMH4	11 x 8.5 to 18 x 12	3	7.8-60MHz		
	CF75M6	7.0x5.0x1.3	6	21.4/21.7/45MHz		



SAW Filter

Photo	Product Series	Size	PAD	Frequency Range	Feature	Environmental Compliance
	SF10S5	1.1 x 0.9 x 0.5	5	800-2605MHz	CSP process with chip scale package	RoHS compliant Lead-Free Halogen-Free REACH compliance verified, continuously monitored
	SF11S5	1.4 x 1.1 x 0.6	5	800-2605MHz	Standardization of small size Good stability and high reliability	
	SF21S5	2.0 x 1.5 x 0.6	4	800-2605MHz	Mainly used in GPS navigation TDD/FDD communication and artificial intelligence chips	
	SF33M6	3.0 x 3.0 x 1.25	6	300-2605MHz	Low-loss SAW component Low amplitude ripple Sharp rejections at both out-bands	
	SF44M6	3.8 x 3.8 x 1.5	6	100-1000MHz		
	SF55M8	5.0 x 5.0 x 1.5	8	100-1000MHz		
	SFD11	8.4 x 3.5 x 2.9	3	100-1000MHz	IF filter for DSB receivers Constant group delay	
	SFF11	11.0 x 4.5 x 3.2	4	100-1000MHz	Improved ESD capability by integrated shunt resistors	
	SFTO39	Φ9.15 X 3.15	3	100-1000MHz	Optimized group delay time Stable performance	

SAW Resonator

Photo	Product Series	Size	PAD	Frequency Range	Feature	Environmental Compliance
	SR10S5	2.0 x 1.6 x 1.0	4	154-1000MHz	High transmit and receive sensitivity High temperature resistance and impact resistance Good power and reliability	RoHS compliant Lead-Free Haloggen-Free REACH compliance verified, contin eously monitored
	SR11S5	3.2 x 2.5 x 1.0	4	154-1000MHz		
	SR21S5	3.0 x 3.0 x 1.25	6	154-1000MHz		
	SR33M6	3.8 x 3.8 x 1.5	6	154-1000MHz		
	SR44M6	5.0 x 5.0 x 1.5	8	154-1000MHz		
	SR55M8	5.0 x 3.5 x 1.4	4	154-1000MHz		
	SRD11	8.4 x 3.5 x 2.9	3	154-1000MHz	Stable performance Environmental resistance, including high temperature resistance and impact resistance	
	SRF11	11.0 x 4.5 x 3.2	4	154-1000MHz		
	SRTO39	Φ9.15 X 3.15	3	154-1000MHz		

Ceramic Resonator& Filter & Discriminator

Photo	Product Series	Size	PAD	Frequency Range	Feature	Environmental Compliance
	HCTA	2.2x1.8 to 7.4x3.4	2	2MHz-60MHz	High stability and adjustment-free Small size and low cost	RoHS compliant by exemption
	HCTT	2.2x1.8 to 7.4x3.4	3	2MHz-60MHz	High stability and adjustment-free Small size With Built-in Capacitor	
	HCTB1	5.2x6.8 to 13.5x14.7	2	150KHz-1.5MHz	High stability Adjustment-free, Small size	
	HCTB2	6.0 x 5.0 x 2.3 8.5 x 7.5 x 3.3	2	430KHz-1.25MHz	High stability, Adjustment-free SMD package	
	HCCF1	6.5 x 6.0 x 4.0 8.0 x 8.0 x 7.0 9.5 x 6.3 x 6.5 11.0 x 8.0 x 7.0	3	455KHz	Highly selective for narrowband communication Compact structure and small size Electrical performance is not affected by external electromagnetic interference	
	HCCF2	6.5 x 6.0 x 4.0 6.5 x 11.9 x 3.0	4	450KHz-455KHz	Suitable for matching with different lcs	
	HCCD1	DIP 6.0 x 6.3 x 3.0 SMD 6.0 x 6.2 x 3.1	3	455KHz	Responsive and reliable performance Standardized products, suitable for different dedicated circuits	
	HCCD2	SMD 3.7 x 3.1 x 1.4	2	10.7MHz	Small size and light weight Adjustment-free test circuit High selectivity ,Good stability	

R&D Direction

1. Super small size design :

Optimize the 1210 size package resonator products, the quality has reached the domestic leading level, and the international advanced.

2. Product Stability:

Multi-layer, multi-metal sputter coating technology :

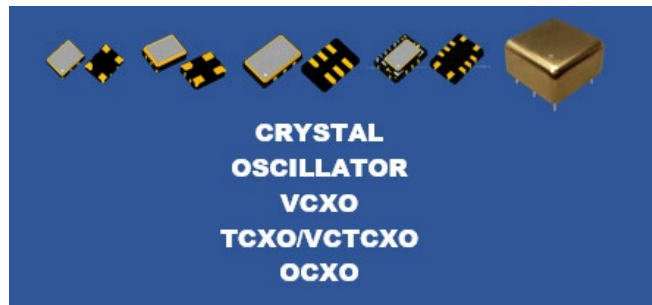
It is one of the key technologies that must be overcome in the research and development and production of high-precision and high-stability quartz crystal components. Our company is domestically leading and internationally advanced.

3. Crystal Oscillator :

In order to meet the high-speed network transmission, we have developed a variety of output modes, such as, LVDS, LVPECL, HSCL, which are widely used in Ethernet, optical communication, gigabit network, PCI card, server and other fields.

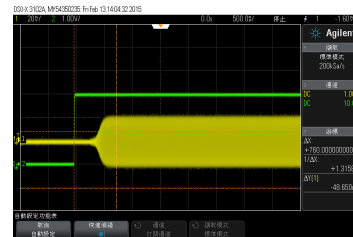
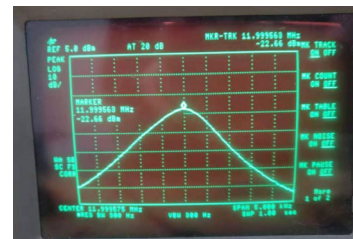
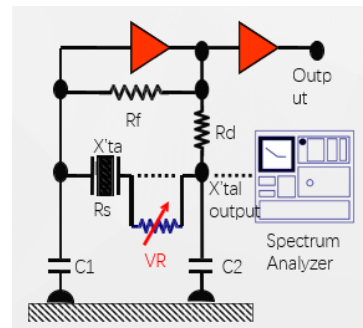
4. Crystal Oscillator TCXO、OCXO:

Volume production of high-precision temperature-compensated oscillators and constant temperature oscillators, which are widely used in GPS & Beidou navigation, communication base stations, and measuring instruments.



Technology Support

- ❑ Professional engineering personnel with over 20 years experience in the field.
- ❑ Advanced board testing capability for customer's application.
These include:
 - Frequency matching test to ensure crystal works at desired frequency, including suggestion for changes if these are needed.
 - Determination of circuit's negative resistance and circuit margin including suggestion for changes if seen necessary.
 - Determination of drive level that oscillator provides for the crystal.
- ❑ Training at customer's site for general introduction of frequency control components and training for above mentioned board tests.
- ❑ On site troubleshooting to help solving production problems.
- ❑ Support during prototype runs at customer's site.





Production Equipment (I)



Clean room Level <10,000



Base Plating Workshop



SMD Automatic Line



Leakage Testing Workshop



Final Testing Workshop



SMD Taping Workshop



Production Equipment (II)



Base Plating



Glue Painting



Seam Sealing



Frequency Adjusting



Auto-Dispensing



Leakage Testing



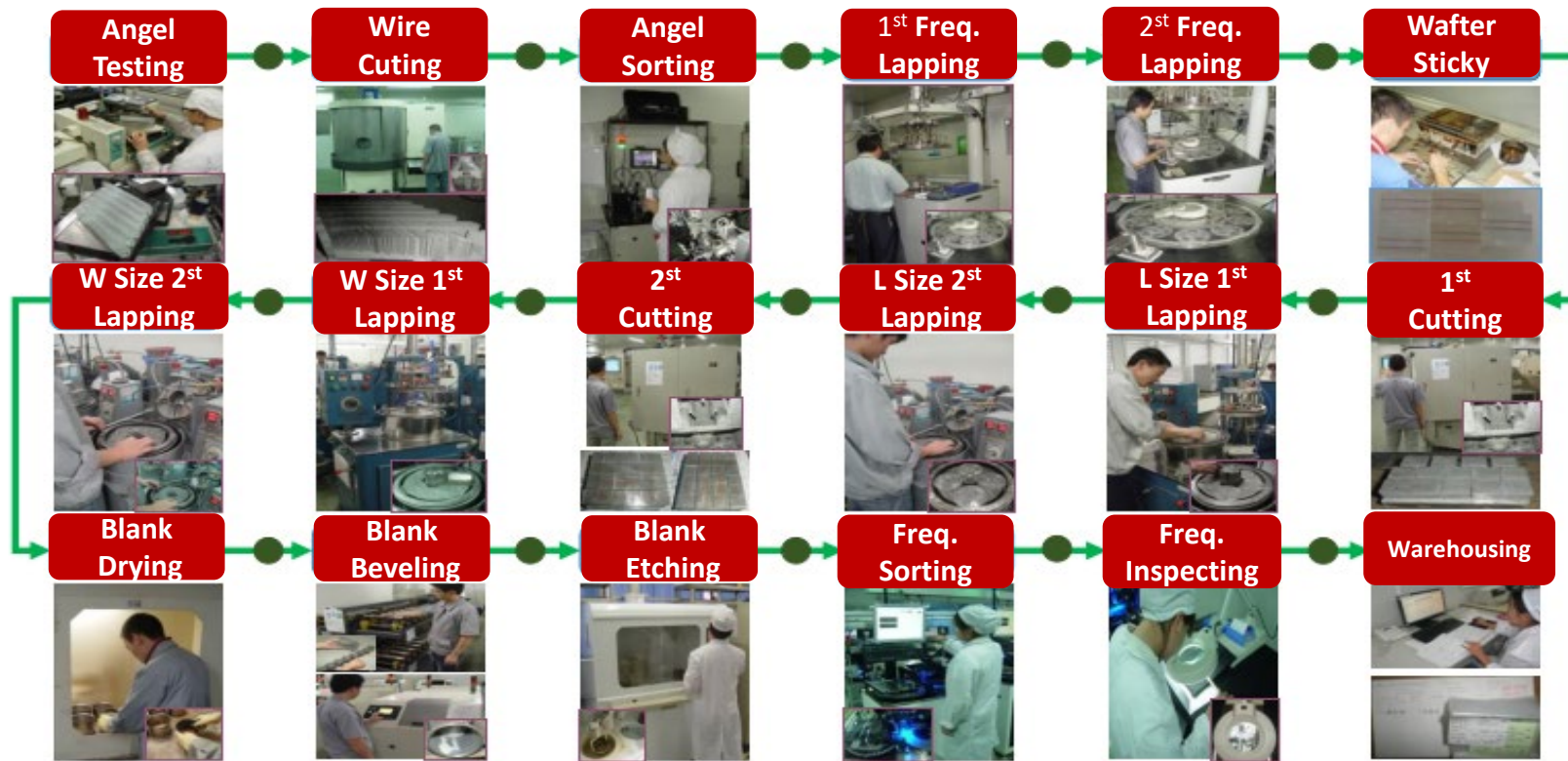
Final Testing



SMD Taping

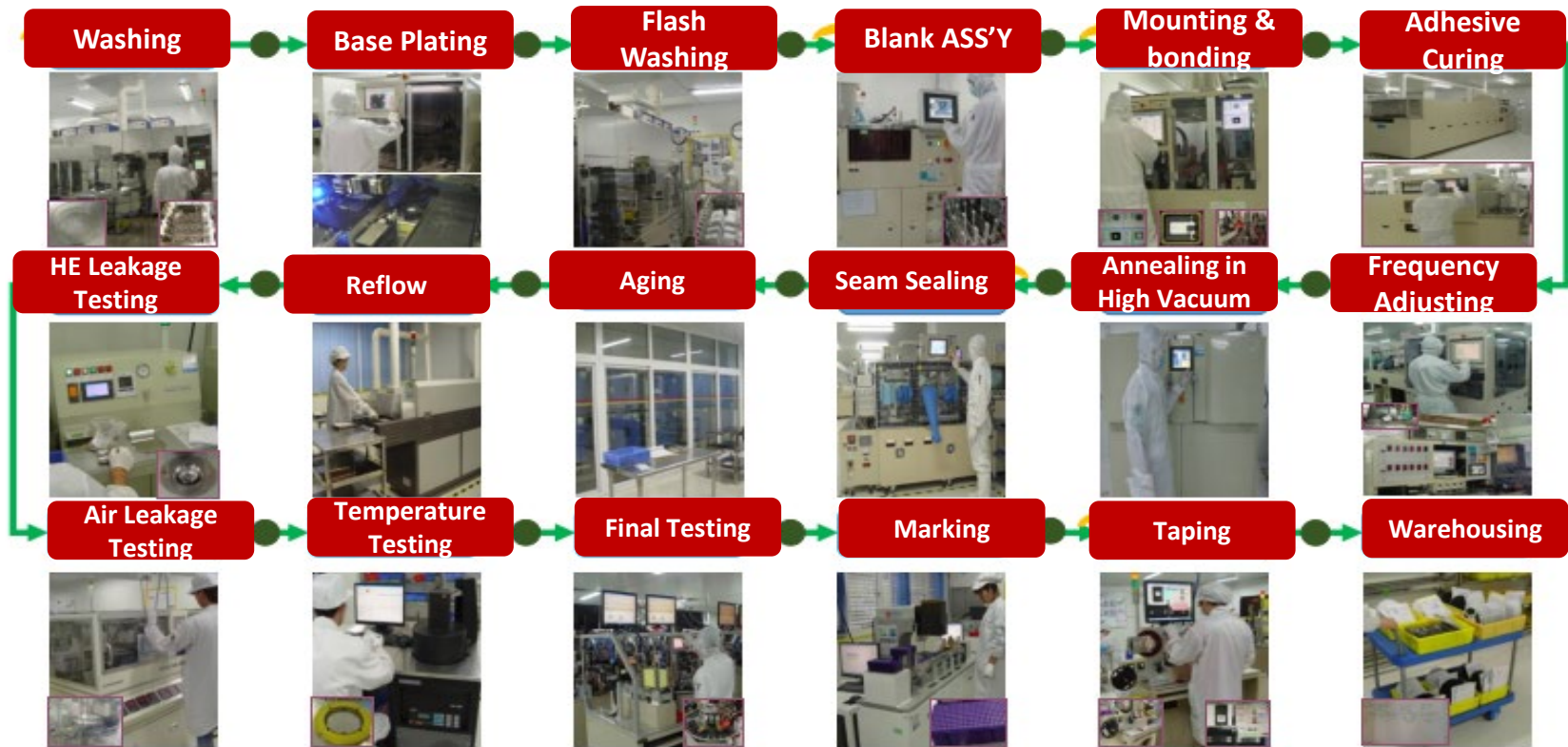


Wafer Production Process





Crystal Production Process





Certificate of Quality Management System Certification



ISO9001:2015



ISO9001:2015 (E)



GJB9001C:2017





RoHS / Reach SVHC Compliant

SGS

Test Report

No.: SHAE23002576804 Date: Mar 17, 2023 Page 1 of 9

Client Name: SUZHOU HANGJING ELETECH CO., LTD
Client Address: NO.1, FIRST QUNXING ROAD, SUZHOU INDUSTRIAL PARK, JIANGSU, CHINA

Sample Name: QUARTZ CRYSTAL UNITS IN CERAMIC SMD SEAM SEAL PACKAGES IN ALL SIZES INCLUDING 2 AND 4 PAD VERSIONS
The above sample(s) and information were provided by the client.

SGS Job No.: SP23-006171
Sample Receiving Date: Mar 13, 2023
Testing Period: Mar 13, 2023 ~ Mar 17, 2023
Test Requested: Select test(s) as requested by the client.
Test Method(s): Please refer to next page(s).
Test Result(s): Please refer to next page(s).

Test Requirement	Conclusion
Halogen	See Results
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU: Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DCHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Sue Sheng

Sue Sheng
Approved Signatory



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SGS

Test Report

No.: SHAE23002576804 Date: Mar 17, 2023 Page 2 of 9

Test Result(s):

Test Item Description	SN ID	Sample No.	SGS Sample ID	Description
Remarks:	SN1	AS	SHA23-0025768-0001.C005	Silvery/black/copper body

Remarks:
(1) 1 mg/kg = 1 ppm = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

Halogen

Test Method: With reference to EN 14582:2016, analysis was performed by IC.

Test Item(s)	Unit(s)	MDL	AS
Fluorine(F)	mg/kg	50	ND
Chlorine(Cl)	mg/kg	50	ND
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU: Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DCHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-8:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	AS
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether (PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND



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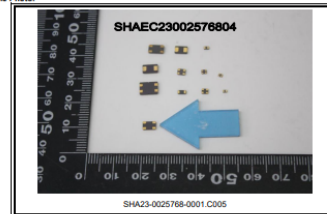
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SGS

Test Report

No.: SHAE23002576804 Date: Mar 17, 2023 Page 9 of 9

Sample Photo



SGS authenticates the photo on original report only
*** End of Report ***



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STATE GRID

mindray 迈瑞

andon 九安

flex.

JABIL

342



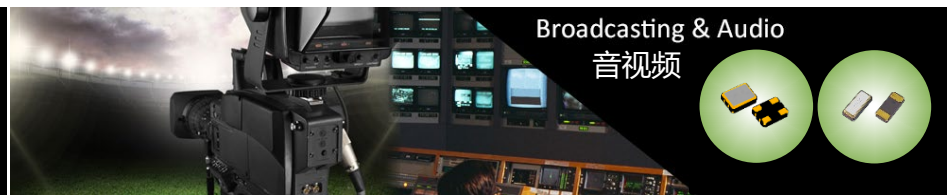
WAVE



Suzhou HangJing Elec&Tech Co., Ltd



Product applicant fields





**Localization, independent and controllable,
replacing similar brands. Provide the
original part number or specifications, we
will provide you an alternative!**





HCI Product Replacement List

TUNING FORK

kHz CRYSTAL UNITS

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI P/N	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
1.6x1.0	2	32.768kHz	Tolerance(@25°C)±10/±20/±30ppm Operating temperature -40~+85°C -40~+125°C Load capacitances 6、7、9、12.5pF	FC11M2	FC1610AN	9HT12	NONE	NONE	GWX-1610	ABS05	FK16
2.0x1.2	2	32.768kHz		FC21M2	FC-12M	9HT11	XD2012	ETDG	GWX-2012	ABS06	FK125
3.2x1.5	2	32.768kHz		FC31M2	FC-135/FC-13A/FC3215AN	9HT10	XD3215	ETST	GSX-317	ABS07	FK135
7.0x1.5	4	32.768kHz	Tolerance(@25°C)±20/±30ppm Operating temperature -20~70°C -40~+85°C Load capacitances 6、7、9、12.5pF	FR07S4	MC-146	NONE	NONE	ETDE	NONE	NONE	FKFSXEIHM0.032768-T3
8.0x3.8	4	32.768kHz		FR08S4	MC-306	NONE	NONE	NONE	CC1A-T1A	ABS25	FKT38
ø2x6	2	32.768kHz		FL26T2	EOL	NONE	XB2060	NONE	GWX-26/GDX-1C/GCX-26	EOL	EOL
ø3x8	2	32.768kHz		FL38T2	EOL	NONE	XA3080	NONE	GCX-39	EOL	EOL





CRYSTAL

MHz CRYSTAL UNITS

PACKAGE LxW(mm)	PINS	FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
1.2x1.0	4	26~52MHz	Tolerance(@25°C)±10 to ±50ppm Stability over operating temperature ±10 to ±150ppm Operating temperature range(TYP) -10~+60°C -20~+70°C -40~+85°C -40~+105°C (Seam seal SMD type) -40~+125°C (Seam seal SMD type) Load capacitances 6~32pF or series Automotive Grade crystals per AEC-Q200 standard be available (Seam seal SMD type)	XC10M4	FA1210AN	8J	NONE	EUAB	GSX-113	NONE	NONE
1.6x1.2	4	24~60MHz		XC11M4	FA-118T	9Q/8J	X3	ET5B	GRX-210/ GSX-213	ABM12W	NONE
2.0x1.6	4	20~60MHz		XC21M4	FA-128	8Y	XZ	E15B	GRX-220/ GSX-228	ABM11W	FC1BS
2.5x2.0	4	12~60MHz		XC22M4	FA-20H	8Z	XY	E25B	GRX-320/ GSX-323	ABM10W	FC2BS
3.2x2.5	4	8~60MHz		XC32M4	FA-238V/FA-238/TSX-3225	DX/7M	XX	E35B	GRX-330	A5EMP	FC3BA
5.0x3.2	4	8~55MHz		XC53M4	EOL	TB/EOL	XV	E55B/EOL	GRX-530/ CC2A-T1A	ASFLMP	FC5AQ
6.0x3.5	4	7.5~55MHz		XC63M4	EOL	EOL	XR	EOL	GSX-6	ILCX08	FC6BS
7.0x5.0	4	6~55MHz		XC75M4	EOL	EOL	EOL	EOL	GSX-2	ASVK	FC7BS
5.0x3.2	2	8~55MHz		XC53G2	EOL	EOL	EOL	EOL	CC2A-T1A CC2A-T3A	ABM3	FC5AQ
6.0x3.5	2	7.5~55MHz		XC63G2	EOL	EOL	EOL	EOL	EOL	ABM7	FC6AS
11.0x4.6x13.5	2	18~150MHz		X49UT2	EOL	EOL	EOL	EOL	EOL	EOL	EOL
11.0x4.6x3.5	2	3.2~64MHz		X49ST2	EOL	EOL	XI	EOL	EOL	EOL	EOL
11.0x4.6x3.5	3	3.2~64MHz		X49ST3	EOL	EOL	EOL	EOL	HC49-3H/HC49-4H	NONE	NONE
11.4x4.6x4.2	2	3.2~64MHz		X49SS2	EOL	EOL	XJ	EOL	GSX49-3/GSX-4	ABLS Series	NONE
11.4x4.6x4.2	3	3.2~64MHz		X49SS3	EOL	EOL	EOL	EOL	EOL	EOL	EOL
13.0x4.7x4.0	4	3.2~64MHz		X49SS4	EOL	EOL	EOL	EOL	EOL	EOL	EOL





HCI Product Replacement List

OSCILLATORS

HCMOS output OSCILLATORS in SMD ceramic seam seal packages

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
1.6x1.2	4	32.768kHz 1~55MHz	Tight stability and highly reliable oscillators. Suitable for smallest applications. Over all stability from 25 to 100ppm available. Operating temperature ranges (TYP) -20~+70°C -40~+85°C -40~+125°C Supply voltages 1.8~5.0V	CO11H4	NONE	8R	NONE	NONE	NONE	NONE	FO8HS
2.0x1.6	4	32.768kHz 1~60MHz		CO21H4	SG2016	8N	NONE	D1SX	GXO-22001	ASADV	FC1BS
2.5x2.0	4	32.768kHz 1~200MHz		CO22H4	SG-210STF/SG2520/ SG211	8W	OY-B	D2SX	GXO-3201/GXO-3232	ASDDV	FC2BS
3.2x2.5	4	32.768kHz 1~200MHz		CO32H4	SG3225/SG-310	7X	OX-B/OA-U	D3SX	GFO-3301/GXO-3301	ASEMP	FC3BA
5.0x3.2	4	32.768kHz 1~200MHz		CO53H4	SG5032	7C/EOL	OW-U	D5SX/EOL	GXO-5300	AX5/ASFLMP	FC5AQ
7.0x5.0	4	32.768kHz 1~200MHz		CO75H4	SG7050/SG8002CA	7W/EOL	OT-U	D7SX/EOL	GXO7500/GXO-U109/GXO-108	AX7	FC7BS
	6	150~250MHz		CO75H6		EOL	NONE	EOL			

HCMOS output OSCILLATORS in DIP type packages (THRU-HOLE)

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
DIP14(20x13)	4	32.768kHz 1~160MHz	Over all stability 25 to 100ppm available. Operating temperature ranges (TYP) -20~+70°C; -40~+85°C Supply voltages 1.8~5.0V	CD14H4	NONE	EOL	EOL	EOL	GXO-U101F/ GXO-100F/GXO-102F	ACO	NONE
DIP8(13x13)	4	32.768kHz 1~160MHz		CD08H4	NONE	EOL	EOL	EOL	GXO-U101H/ GXO-100H/GXO-1002H	ACHL	NONE





LVPECL output OSCILLATORS in SMD ceramic seam seal packages

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
2.5x2.0	6	10~250MHz	Over all stability 25 to 100ppm available. Operating temperature ranges (TYP) -20~+70°C -40~+85°C Supply voltages 2.5V and 3.3V.	CO22P6	SG2520E	EA	NONE	NONE	GXO-E21	ASG2-P	NONE
3.2x2.5	6	10~1500MHz		CO32P6	SG3225E	DA/DB/DC	OA-M LVPEVL	D3SP	GXO-E31	AX3PAF/ AX3PBF	FO3PS
5.0x3.2	6	10~1500MHz		CO53P6	SG5032E	CC/CA/CB	OW-M LVPECL	D5SP-EOL	GXO-E51	AX5PAF/ AX5PBF	FO5P
7.0x5.0	6	10~1500MHz		CO75P6	SG7050E	BA/BB/BC-EOL	OT-M/OD-M LVPECL	D7SP-EOL	GXO-E76/ GXO-E71	AX7PAF/ AX7PBF	FO7PS

LVDS output OSCILLATORS in SMD ceramic seam seal packages

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
2.5x2.0	6	10~250MHz	Over all stability 25 to 100ppm available. Operating temperature ranges (TYP) -20~+70°C -40~+85°C Supply voltages 1.8V, 2.5V and 3.3V.	CO22D6	SG2520V	EB	NONE	NONE	GXO-L21	ASD2-D	NONE
3.2x2.5	6	10~1500MHz		CO32D6	SG3225V	DE/DF	OA-M LVDS	D3ST	GXO-L31	AX3DAF/ AX3DBF	FO3LS
5.0x3.2	6	10~1500MHz		CO53D6	SG5032V	CE/CF/CG-EOL	OW-M/OJ-M LVDS	D5ST	GXO-L51	AX5DAF/ AX5DBF	FO5L
7.0x5.0	6	10~1500MHz		CO75D6	SG7050V	BE/BF/BG-EOL	OT-M/OD-M LVDS	D7ST	GXO-L76/ GXO-L71	AX7DCF	FO7LS

HCSL output OSCILLATORS in SMD ceramic seam seal packages

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
2.5x2.0	6	10~250MHz	Over all stability 25 to 100ppm available. Operating temperature ranges (TYP) -20~+70°C -40~+85°C Supply voltages 1.8V, 2.5V and 3.3V.	CO22C6	NONE	EC	NONE	NONE	NONE	ASDMP	NONE
3.2x2.5	6	10~1500MHz		CO32C6	SG3225HBN	DH	NONE	D3SL	NONE	AX3HAF/ AX3HBF	NONE
5.0x3.2	6	10~1500MHz		CO53C6	NONE	CX-EOL	OJ-M HCSL	D5SL-EOL	NONE	AX5HBF/ AX5HCF	NONE
7.0x5.0	6	10~1500MHz		CO75C6	NONE	BX-EOL	OD-M/OD-P HCSL	D7SL-EOL	NONE	AX7HBF/ AX7HCF	NONE





VCXO

HCMOS/LVPECL/LVDS/HCSL output VCXO

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	EPSON	TXC	Taitien	HOSONIC	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
2.5x2.0	6	1.25~250MHz	Over all stability 25 to 100ppm available. Operating temperature ranges (TYP) -20~+70°C -40~+85°C Supply voltages 1.8V, 2.5V, 3.3V and 5V Frequency pull ranging ±50ppm, ±100ppm.	VC22H6 VC22P6 VC22D6	NONE	NONE	NONE	NONE	NONE	ASG2-P ASG2-D	NONE
3.2x2.5	6	1.25~1500MHz		VC32H6 VC32P6 VC32D6	VG322SC VG322SE VG322SV	DN/DJ/DR	VA-M	D3SV	GVXO-338 GVXO-E33 GVXO-L33	FY3H	NONE
5.0x3.2	6	1.25~1500MHz		VC53H6 VC53P6 VC53D6 VC53D8	VG5032C VG5032E VG5032V	CP/CK/CN/CJ/CR-EOL	VW-M/VJ-M	D5SV/EOL	GVXO-523 GVXO-533	FY5C	NONE
7.0x5.0	6	1.25~1500MHz		VCT7SH6 VCT7SP6 VCT7SD6 VCT7SD8	VG7050C VG7050E VG7050V	EU/BR/BJ/BK/BN/BP-EOL	VD-M/VT-M	D7SV/EOL	GVXO-753 GVXO-E76 GVXO-L76 GVXO-52 GVXO-55	ASG-C ASG-P ASG-D	NONE
14x9	6	40~150MHz		VC14H6 VC14P6 VC14D6	NONE	NONE	VLCU/VLEU	NONE	GVXO-27 GVXO-32 GVXO-34	ABLNO ABLGO	NONE
DIP14(20x13)	4	1.25~250MHz		VD14H4	NONE	NONE	NONE	NONE	GVXO-25 GVXO-41F	NONE	NONE
DIP8(13x13)	4	1.25~250MHz		VD08H4	NONE	NONE	NONE	NONE	GVXO-41H	NONE	NONE

TCXO/VCTCXO

Clipped sine wave output TCXO/VCTCXO in SMD packages

PACKAGE		FREQUENCY RANGE	PRODUCT FEATURES	HCI PN	TXC	Taitien	HOSONIC	EPSON	GOLLEDGE	ABRACON	FOX
LxW(mm)	PINS										
2.0x1.6	4	10~55MHz	Stability 0.5 to 2.5ppm available. Operating temperature ranges(TYP) -10~+60°C; -20~+70°C -30~+85°C; -40~+85°C Frequency tolerance 1 or 2ppm.	TC21S4 UC21S4	TZ	TZ	NONE	TG2016SMN/TG2016S LN	GTXX-208	ATX-13 ASTX-13	FT1CN FT1GN
2.5x2.0	4	10~55MHz		TC22S4 UC22S4	7L	TY/TY-J	NONE	TG2520SMN/TG5006C G	GTXX-253	ASTX-H12 ASTX-12 ATX-12 ASTXR-12	FT2CN FOX251
3.2x2.5	4	10~50MHz	Supply voltages 1.8V, 2.5V, 3.0V, 3.3V.	TC32S4 UC32S4	7Q	TX/TX-J/TX-P	NONE	TG5006CE	GTXX-91 GTXX-93	ASTX-H11 ASTX-11 ATX-11	FT3HN FT3CN FOX923
5.0x3.2	4	10~50MHz	Low power consumption < 2mA available (Seam seal type).	TC53S4 UC53S4	7P/EOL	TL/TW	NONE	TG5032SGN/TG5032S PN/TG5032SMN/TG5032CMN/TG5032CFN	GTXX-83	AST3TQ63 I533	FT53N FT5HN FOX9248
	4	10~52MHz	VCTCXO frequency pull ranging 0.5 to 5ppm(TYP). HCMOS output can be provided.(Please contact us).	TR53S4 UR53S4	NONE	TV	NONE				
7.0x5.0	4	10~50MHz		TCT7S4 UCT7S4	7N/EOL	TA	NONE	TG7050SKN/TG7050S MN/TG7050CMN/TG7050CKN/TG5510CA/TG5511CA	GTXX-73 GTXX-74	AST3TQ	FT73N FOX331
	4	10~52MHz		TR7S4 UR7S4	NONE	TT/TS	NONE				



Our Advantages

- ◆ 1. Full range of frequency components, Quartz Crystal, Tuning Fork Crystal, Oscillator, Differential Oscillator and Top TCXO、VCXO、VC-TCXO、OCXO. Differential crystal oscillators have a high market among the high-end crystal oscillators.
- ◆ 2. Abundant production capacity, monthly production can reach 82kk pcs per month , selling the stock for the regular frequency products, fast lead time.
- ◆ 3.Completed quality system including:
 - a) IQC, IPQC, FQC, OQC, QA, control of critical processes, low market failure<50ppm, the actual failure in 2022<3ppm
 - b) ERP system control, and marking (Date Code), products can be traceability completely.
 - c)ISO 9001:2015, military standards quality system GJB 90001C:2017.
 - d)RoHS & Reach(meet the export standards of EU) , and HF standard.
- ◆ 4.Professional Team Services:
 - a) 365 days online services.
 - b) We have been working on frequency component application technology for 20 years, and provide the frequency component application solutions.
 - c) professional FAE service in Suzhou/Beijing/Shenzhen/Xi'an, provide matching test for customers.



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THANKS



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