

TECH TIME COPRATION LTD.

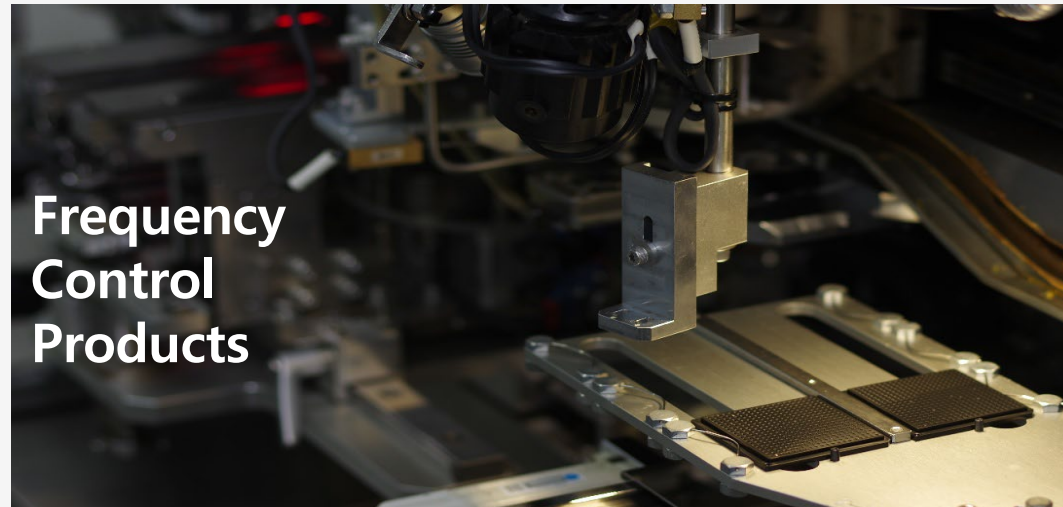
Company presentation

Tech time Corp. is a manufacturer of timing components specializing in Frequency Control Products. We focus on providing high quality products and excellent customer service to our customers to be a global leading company.

1. Introducing Tech time Business

Tech time is Israeli company that manufacture in Korea Facility that specializes in developing and manufacturing crystal units & oscillators.

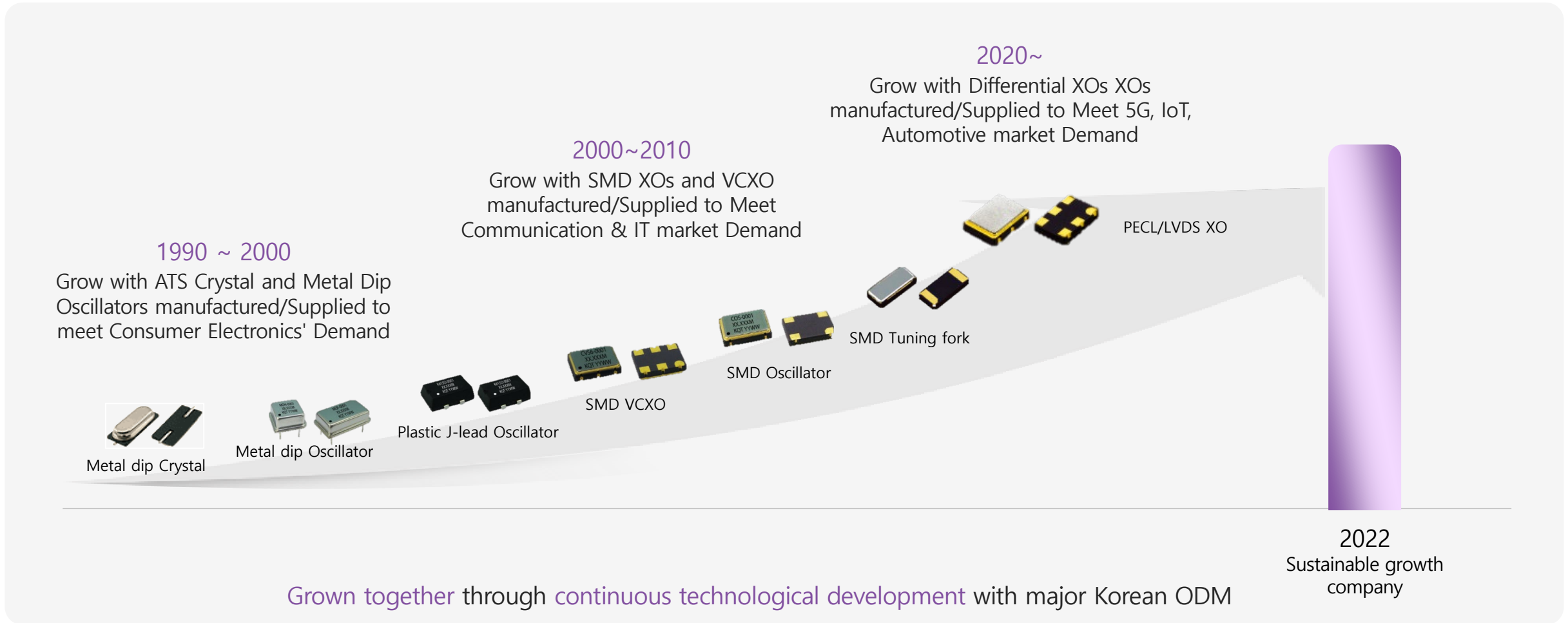
Crystal Unit, Oscillator



Crystal units and oscillators are electronic components made with using quartz. It is an integral part of all electronics and acts as the heart of the system so that the logic circuit can synchronize with a constant clock signal.

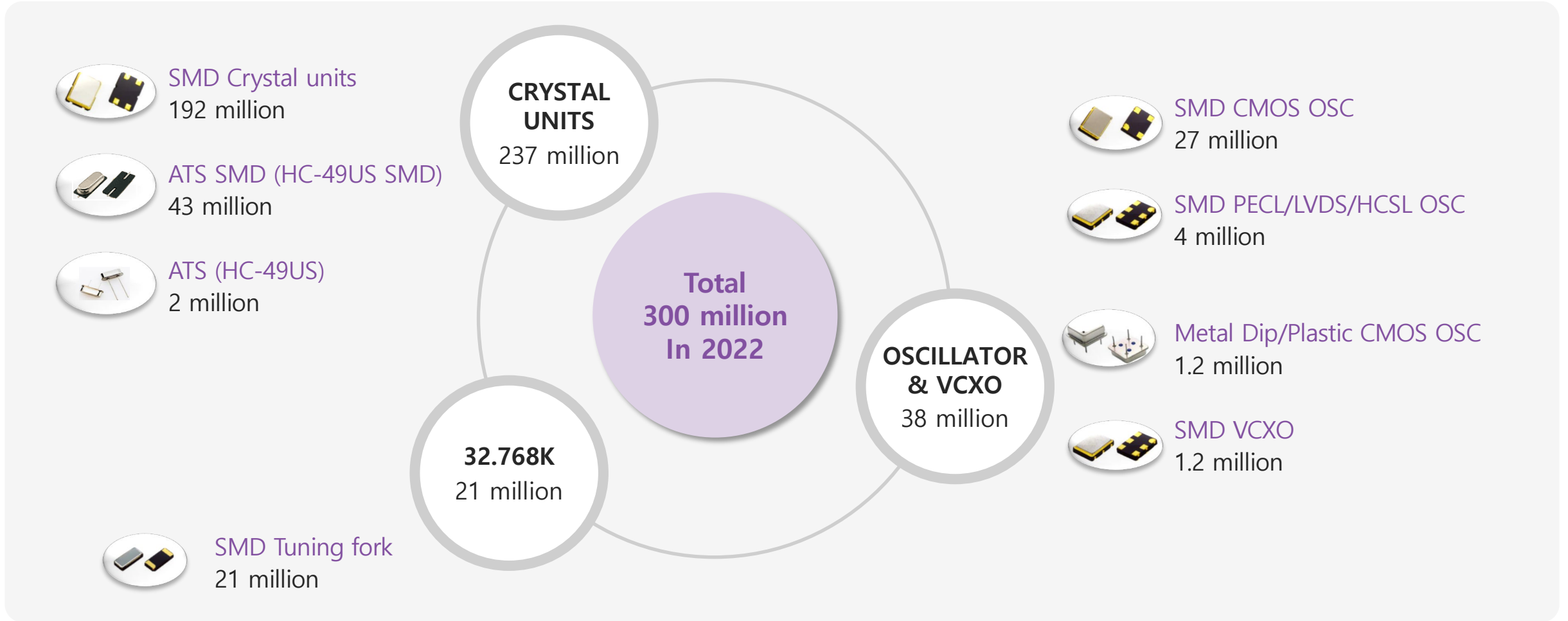
3. Introducing Electronics Division

Our capabilities to develop and manufacture crystal units and oscillators, in high volume in Korea facility



5. Sales number in 2022

Electronics Division sales number was total 300 million in 2022.



7. Market Application

Crystal units and oscillator products are widely used for industrial, communications, automotive, ETC.



Communication

Optical communication, wireless communication, communication equipment, data center, ETC
Product optimized for the telecommunications market that has changed with 5G optical network

The graphic shows a cityscape at dusk with a network overlay of nodes and lines, and various communication icons like Wi-Fi, Bluetooth, and cellular signals.



Automotive

Infotainment, ADAS, Ethernet, ETC
Reliable products in the fast-moving vehicle market

The graphic depicts a futuristic car on a road with a city skyline in the background, overlaid with a network grid and data points.



Consumer

Smart home, game console, wearable, audio, ETC
Products that meet the changing demand through the connection of IoT/wireless communication

The graphic shows a smart home interior with a hand interacting with a futuristic digital control panel displaying various smart home functions like Security, Network, Camera, Light, and temperature control.



Industrial

Factory automation, industrial robots, audio, inspection and measuring instruments, ETC
Wide range of temperature laws and high-reliability products tailored to the latest industrial needs

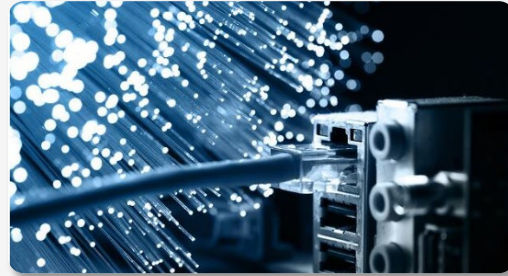
The graphic features a factory setting with robotic arms and a person holding a tablet displaying industrial data and charts.

8-1. Market-specific applicable products - Communication

We are developing and supplying high-performance products that meet the demand of the 5G market



WIRELESS NETWORK



OPTICAL COMMUNICATION



REPEATER



DATA CENTER

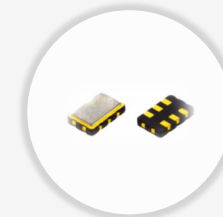


S3, S32 S216 small size 2x1.6, 2.5x2 series

Crystal unit



V71 KPV series VCXO



C67, C95 C63 series 2.5X2~7X5

Differential output oscillator

8-3. Market-specific applicable products – Consumer

Develop and supply optimized products to meet changing demands through the connection between IoT and wireless communication.



SMART HOME



GAME CONSOLE



VIDEO / AUDIO



WEARABLE



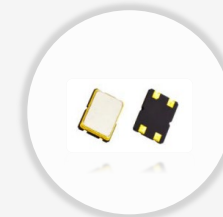
S32,S3,S36 series

Crystal unit 2X1.6~5X7 size



FS series

32.768kHz Crystal
2X1.6 mm size



C67,C95,C63,C25 series

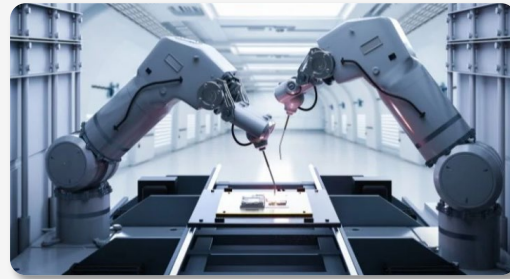
Crystal oscillator
2.5X2~5X7 size

8-4. Market-specific applicable products – Industrial

Develop and supply products that meet the wide temperature range and high reliability required by the latest industrial markets.



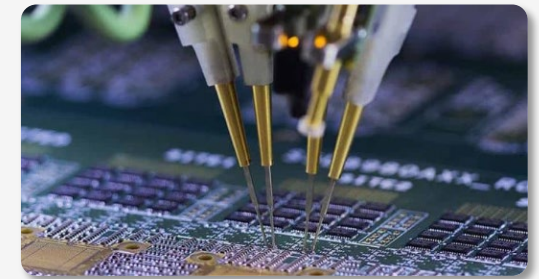
FACTORY AUTOMATION



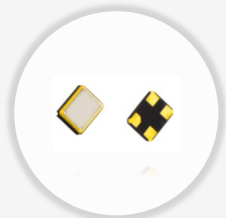
INDUSTRIAL ROBOT



SMART CITY



TEST AND MEASUREMENT



S32, S36, S3.S216 series

Crystal unit

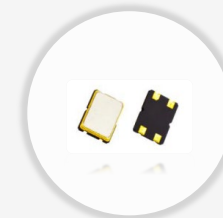
2X1.6~5X7 mm size



FS series

32.768kHz Crystal

2X1.6 MM SIZE



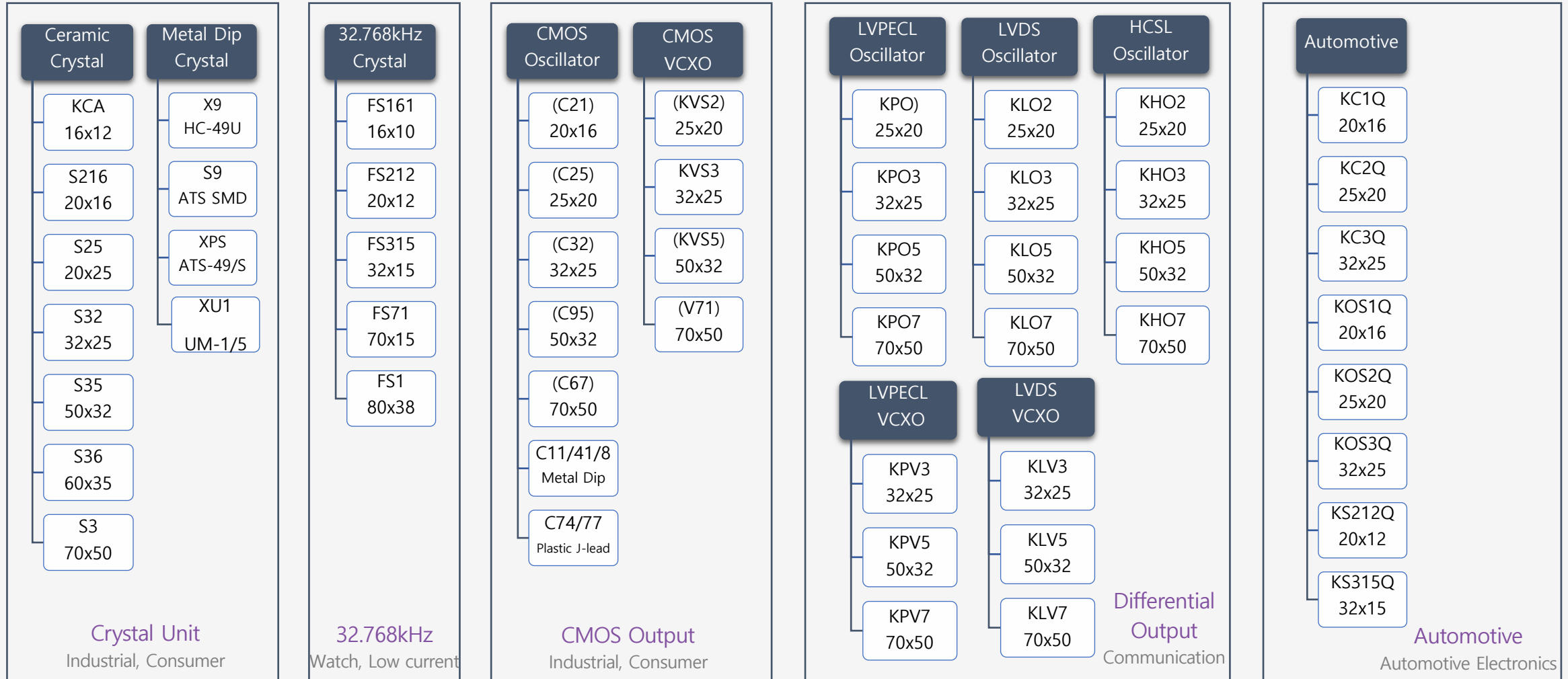
C67, C95, C25, C36 series

Crystal oscillator







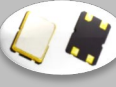





2.5X2~5X7 mm size

9. Product Portfolio

We provide a solution with our various products to meet the latest market demands.



10. Product Roadmap - Ceramic Crystal & 32.768kHz

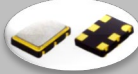
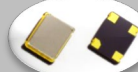



32.768kHz		32.768kHz								
Tuning fork X-tal	<p><u>Mass Production</u></p> <p>4Pin J-lead Plastic SMD CL 6pF, 7pF, 9pF, 12.5pF 50Kohm Low ESR available</p>  <p>32.768kHz</p>	<p><u>Mass Production</u></p> <p>2PAD Ceramic SMD 3215 is the cheapest size package CL 6pF, 7pF, 9pF, 12.5pF (Contact us for 4pF, 5pF) 50Kohm Low ESR available</p>  <p>32.768kHz</p>	<p><u>Mass Production</u></p> <p>2PAD Ceramic SMD 3215 is the cheapest size package CL 6pF, 7pF, 9pF, 12.5pF (Contact us for 4pF, 5pF) 50Kohm Low ESR available</p>  <p>32.768kHz</p>		<p><u>Mass Production</u></p> <p>2PAD Ceramic SMD 3215 is the cheapest size package CL 6pF, 7pF, 9pF, 12.5pF (Contact us for 4pF, 5pF) 50Kohm Low ESR available</p>  <p>32.768kHz</p>		<p><u>Mass Production</u></p> <p>2PAD Ceramic SMD 3215 is the cheapest size package CL 6pF, 7pF, 9pF, 12.5pF (Contact us for 4pF, 5pF) 50Kohm Low ESR available</p>  <p>32.768kHz</p>		<p><u>Mass Production</u></p> <p>2PAD Ceramic SMD 3215 is the cheapest size package CL 6pF, 7pF, 9pF, 12.5pF (Contact us for 4pF, 5pF) 50Kohm Low ESR available</p>  <p>32.768kHz</p>	
		80x38	70x15	32x15	20x12	16x10	12x10			
6 – 160MHz		6 – 160MHz								
Fundamental X-tal	<p><u>Mass Production</u></p> <p>4PAD SMD (Contact us for 2PAD) Low frequency available Low ESR available (contact H&S) Wide temp range -40 to 125C</p>  <p>6 to 160M</p>	<p><u>Mass Production</u></p> <p>4PAD SMD (Contact us for 2PAD) Low frequency available Low ESR available (contact H&S) Wide temp range -40 to 125C</p>  <p>7.3728 to 160M</p>	<p><u>Mass Production</u></p> <p>4PAD SMD (Contact us for 2PAD) Low frequency available Low ESR available (contact H&S) Wide temp range -40 to 125C</p>  <p>8 to 160M</p>		<p><u>Mass Production</u></p> <p>4PAD SMD (Contact us for 2PAD) Low frequency available Low ESR available (contact H&S) Wide temp range -40 to 125C</p>  <p>12 to 80M</p>		<p><u>Mass Production</u></p> <p>4PAD SMD (Contact us for 2PAD) Low frequency available Low ESR available (contact H&S) Wide temp range -40 to 125C</p>  <p>16 to 80M</p>		<p><u>Mass Production</u></p> <p>4PAD SMD (Contact us for 2PAD) Low frequency available Low ESR available (contact H&S) Wide temp range -40 to 125C</p>  <p>24 to 80M</p>	
3 rd overtone X-tal										
	70x50	50x32	32x25	25x20	20x16	16x12				

Mass Production

Development

New Plan

10. Product Roadmap - CMOS Output

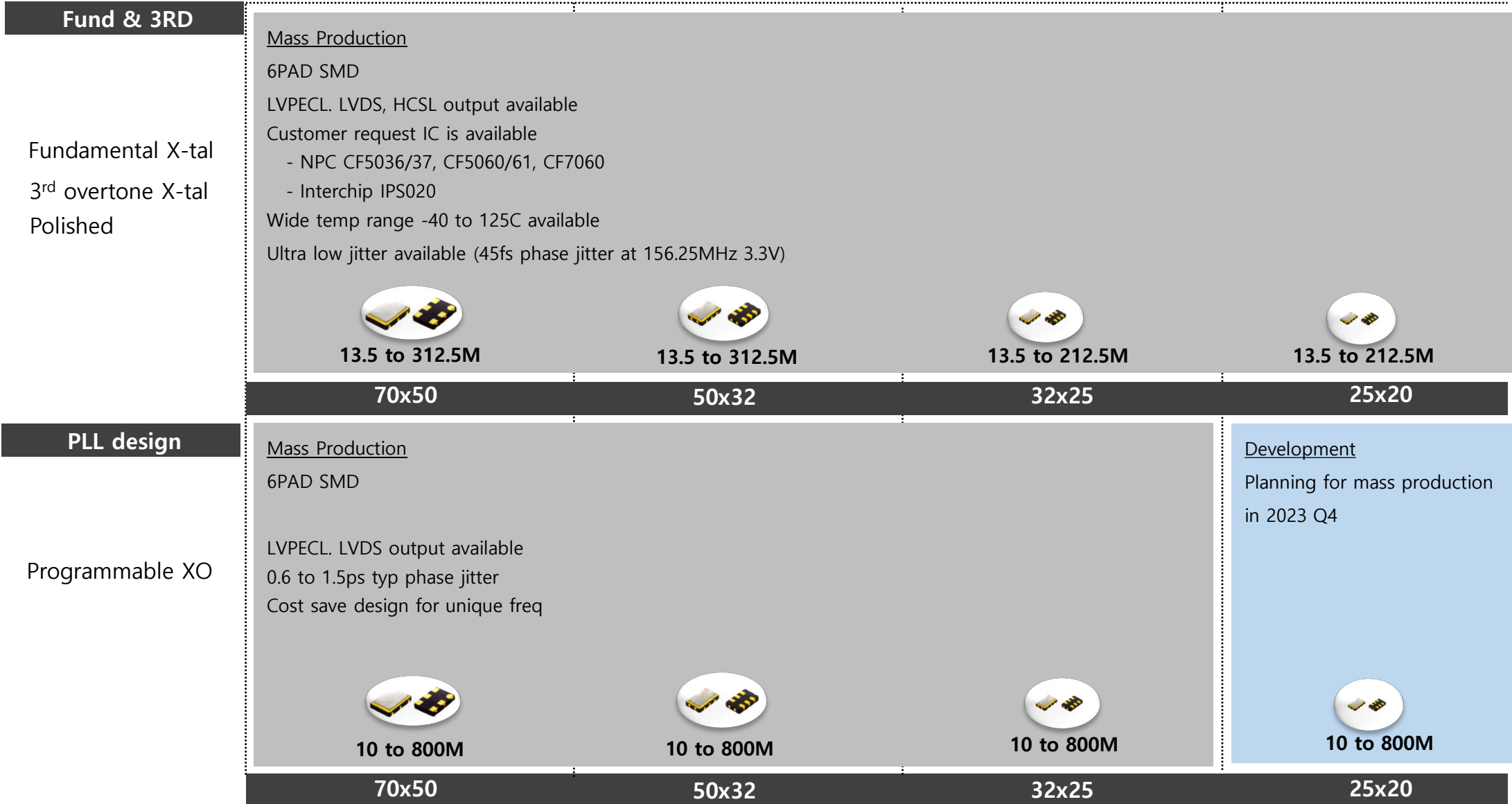
Oscillator		70x50			50x32		32x25		25x20		20x16		Metal / K615	
PLL design	<p><u>Mass Production</u></p> <p>6PAD SMD</p>  <p>10 to 250M</p>	<p>0.6 to 1.5ps jitter</p> <p>Quick delivery</p> <p>10 to 250M</p>		<p><u>Development</u></p> <p>Planning for mass production in 2023 Q4</p> <p>10 to 250M</p>										
	<p><u>Mass Production</u></p> <p>4PAD SMD</p>  <p>0.25 to 312.5M</p>	<p>Customer request IC is available (NPC, Raystar, Interchip)</p> <p>3225 is the cheapest size package</p> <p>Semi-TCXO 10ppm over -40/85C available (20 to 50M)</p> <p>0.25 to 312.5M</p>		<p><u>Development</u></p> <p>Sample available</p> <p>4PAD SMD</p> <p>0.25 to 125M</p>		<p><u>Mass Production</u></p> <p>Metal & Plastic type</p>  <p>0.25 to 312.5M</p>								
Fundamental X-tal 3 rd overtone X-tal														
VCXO		70x50			50x32		32x25		25x20		ETC			
PLL design	<p><u>Mass Production</u></p> <p>6PAD SMD</p>  <p>10 to 250M</p>	<p>0.6 to 1.5ps jitter</p> <p>Cost save design for unique freq</p> <p>10 to 250M</p>		<p><u>Development</u></p> <p>Planning for mass production in 2023 Q4</p> <p>10 to 250M</p>						<p><u>New Plan</u></p> <p>SOP type Programmable XO</p> <p>Automotive application & quick delivery</p> <p>Planning for mass production in 2024</p>				
	<p><u>Mass Production</u></p> <p>6PAD SMD</p>  <p>1 to 170M</p>	<p>Mesa HFF for 80 to 170M</p> <p>Good phase noise / jitter</p> <p>1 to 170M</p>		<p><u>Development</u></p> <p>Sample available</p> <p>6PAD SMD</p> <p>1 to 80M</p>										
Fundamental X-tal Mesa HFF blank														

Mass Production

Development

New Plan

10. Product Roadmap - Differential Output



Mass Production

Development






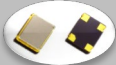



New Plan

10. Product Roadmap - Automotive

Mass Production

Development

New Plan

<p>32.768kHz</p> <p>Automotive AEC-Q200 compliant</p>	<p><u>Mass Production</u></p> <p>2PAD Ceramic SMD CL 6pF, 7pF, 9pF, 12.5pF Wide temp range -55/125C</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  32.768kHz </div> <div style="text-align: center;">  32.768kHz </div> </div>			
	32x15	20x12		
<p>Crystal Unit</p> <p>Automotive AEC-Q200 compliant</p>	<p><u>Mass Production</u></p> <p>4PAD Ceramic SMD High reliability & Excellent environmental characteristics Wide temp range -40 to 125 available</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  8 to 54M </div> <div style="text-align: center;">  12 to 54M </div> <div style="text-align: center;">  16 to 50M </div> </div>			
	32x25	25x20	20x16	
<p>Oscillator</p> <p>Automotive AEC-Q100 compliant</p>	<p><u>Mass Production</u></p> <p>4PAD Ceramic SMD HCMOS output High reliability & Excellent environmental characteristics Wide temp range -40 to 125 available</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  0.25 to 125M </div> <div style="text-align: center;">  0.25 to 125M </div> <div style="text-align: center;">  0.25 to 125M </div> </div>			<p><u>SiTime MEMS</u></p> <p>4PAD Ceramic SMD LVCMOS output SiT8924B for Mobility</p> <div style="text-align: center;">  1 to 110M </div>
	32x25	25x20	20x16	MEMS