

# Global Crystal and Oscillators Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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## Abstracts

According to our (Global Info Research) latest study, the global Crystal and Oscillators market size was valued at US\$ 3980 million in 2025 and is forecast to a readjusted size of US\$ 7015 million by 2032 with a CAGR of 8.3% during review period.

Crystal and Oscillators is a basic electronic component that uses the piezoelectric effect, high stability, high quality factor, and low loss of quartz itself to provide standard frequency sources and clock pulse signals. It is the basic support industry for the electronic information industry. Applied to information equipment, mobile terminals, communication and network equipment, automotive electronics, smart home, wearable, smart home products, etc. Crystals and oscillators are core components in electronic systems used to generate stable frequency signals. Their core principle is based on the piezoelectric effect (inverse piezoelectric effect) of quartz crystals. When an electric field is applied to a quartz crystal, the crystal produces mechanical vibrations; conversely, mechanical vibrations also generate an electric field. This characteristic enables quartz crystals to serve as high-precision frequency references.

Global sales of crystals and oscillators reached 35,697 million units in 2024, with an average selling price of \$108.37 per thousand units.

Technological innovation directions:

Material breakthroughs: Gallium nitride (GaN) crystal oscillators achieve a 450-fold increase in power density at high frequencies (above 60 GHz). The GaN IMPATT oscillator developed by Stanford University is already being used in millimeter-wave communications.

**Integrated design:** Epson's next-generation OCXO (OG7050CAN) achieves miniaturization through SC-cut crystal units, reducing volume by 85% and power consumption to 0.2W, while supporting a wide frequency output range of 1MHz to 170MHz.

**Intelligent control:** AI algorithms dynamically adjust oscillation parameters. For example, Saisi Technology's OCXO uses machine learning to reduce phase noise to -123.5 dBc@1 Hz, reaching the world's leading level.

By 2030, the crystal and oscillator market will exhibit the following characteristics:

**Technological differentiation:** High-end OCXOs ( $>\pm 0.01$ ppm) are dominated by Europe and the United States, while mid-range TCXOs ( $\pm 0.1$ ppm to  $\pm 1$ ppm) have a domestic production rate exceeding 80%, and MEMS oscillators account for 45% of the consumer market.

**Application structure:** Communications (35%), automotive (28%), and AI computing power (18%) will be the three major growth drivers, while traditional consumer electronics will drop to 20%.

**Geopolitical Competition:** China, the US, and Europe have formed a “technology-capacity-standards” triangle. China dominates the mid-to-low-end market with its production capacity advantage, while Europe and the US control high-end applications through patent barriers (e.g., SiTime holds over 2,000 patents for MEMS oscillators).

This report is a detailed and comprehensive analysis for global Crystal and Oscillators market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

### **Key Features:**

Global Crystal and Oscillators market size and forecasts, in consumption value (\$ Million), sales quantity (Million Units), and average selling prices (US\$/Unit), 2021-2032

Global Crystal and Oscillators market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Million Units), and average selling prices (US\$/Unit), 2021-2032

Global Crystal and Oscillators market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Million Units), and average selling prices (US\$/Unit), 2021-2032

Global Crystal and Oscillators market shares of main players, shipments in revenue (\$ Million), sales quantity (Million Units), and ASP (US\$/Unit), 2021-2026

### **The Primary Objectives in This Report Are:**

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Crystal and Oscillators

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Crystal and Oscillators market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include TXC Corporation, NDK, Seiko Epson Corp, KCD, KDS, SiTime, Microchip, TKD Science, Hosonic Electronic, Harmony, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

### **Market Segmentation**

Crystal and Oscillators market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Crystal Units

Crystal Oscillators

## Market segment by Function

SPXO

TCXO

VCXO

OCXO

XTAL

## Market segment by Structural

Crystal Resonator

Oscillator Module

## Market segment by Application

Mobile Terminal

Automotive Electronics

Wearable Device

Smart Home

Internet of Things

Others

## Major players covered

TXC Corporation

NDK

Seiko Epson Corp

KCD

KDS

SiTime

Microchip

TKD Science

Hosonic Electronic

Harmony

Murata Manufacturing

Failong Crystal Technologies

Micro Crystal

Siward Crystal Technology

Rakon

Taitien

River Eletec Corporation

Guoxin Micro

ZheJiang East Crystal

Market segment by region, regional analysis covers  
North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)  
Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)  
South America (Brazil, Argentina, Colombia, and Rest of South America)  
Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

**The content of the study subjects, includes a total of 15 chapters:**

Chapter 1, to describe Crystal and Oscillators product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Crystal and Oscillators, with price, sales quantity, revenue, and global market share of Crystal and Oscillators from 2021 to 2026.

Chapter 3, the Crystal and Oscillators competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Crystal and Oscillators breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Crystal and Oscillators market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Crystal and Oscillators.

Chapter 14 and 15, to describe Crystal and Oscillators sales channel, distributors, customers, research findings and conclusion.

## Contents

### 1 MARKET OVERVIEW

1.1 Product Overview and Scope

1.2 Market Estimation Caveats and Base Year

1.3 Market Analysis by Type

1.3.1 Overview: Global Crystal and Oscillators Consumption Value by Type: 2021 Versus 2025 Versus 2032

1.3.2 Crystal Units

1.3.3 Crystal Oscillators

1.4 Market Analysis by Function

1.4.1 Overview: Global Crystal and Oscillators Consumption Value by Function: 2021 Versus 2025 Versus 2032

1.4.2 SPXO

1.4.3 TCXO

1.4.4 VCXO

1.4.5 OCXO

1.4.6 XTAL

1.5 Market Analysis by Structural

1.5.1 Overview: Global Crystal and Oscillators Consumption Value by Structural: 2021 Versus 2025 Versus 2032

1.5.2 Crystal Resonator

1.5.3 Oscillator Module

1.6 Market Analysis by Application

1.6.1 Overview: Global Crystal and Oscillators Consumption Value by Application: 2021 Versus 2025 Versus 2032

1.6.2 Mobile Terminal

1.6.3 Automotive Electronics

1.6.4 Wearable Device

1.6.5 Smart Home

1.6.6 Internet of Things

1.6.7 Others

1.7 Global Crystal and Oscillators Market Size & Forecast

1.7.1 Global Crystal and Oscillators Consumption Value (2021 & 2025 & 2032)

1.7.2 Global Crystal and Oscillators Sales Quantity (2021-2032)

1.7.3 Global Crystal and Oscillators Average Price (2021-2032)

### 2 MANUFACTURERS PROFILES

## 2.1 TXC Corporation

2.1.1 TXC Corporation Details

2.1.2 TXC Corporation Major Business

2.1.3 TXC Corporation Crystal and Oscillators Product and Services

2.1.4 TXC Corporation Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.1.5 TXC Corporation Recent Developments/Updates

## 2.2 NDK

2.2.1 NDK Details

2.2.2 NDK Major Business

2.2.3 NDK Crystal and Oscillators Product and Services

2.2.4 NDK Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.2.5 NDK Recent Developments/Updates

## 2.3 Seiko Epson Corp

2.3.1 Seiko Epson Corp Details

2.3.2 Seiko Epson Corp Major Business

2.3.3 Seiko Epson Corp Crystal and Oscillators Product and Services

2.3.4 Seiko Epson Corp Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.3.5 Seiko Epson Corp Recent Developments/Updates

## 2.4 KCD

2.4.1 KCD Details

2.4.2 KCD Major Business

2.4.3 KCD Crystal and Oscillators Product and Services

2.4.4 KCD Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.4.5 KCD Recent Developments/Updates

## 2.5 KDS

2.5.1 KDS Details

2.5.2 KDS Major Business

2.5.3 KDS Crystal and Oscillators Product and Services

2.5.4 KDS Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.5.5 KDS Recent Developments/Updates

## 2.6 SiTime

2.6.1 SiTime Details

2.6.2 SiTime Major Business

- 2.6.3 SiTime Crystal and Oscillators Product and Services
- 2.6.4 SiTime Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)
- 2.6.5 SiTime Recent Developments/Updates
- 2.7 Microchip
  - 2.7.1 Microchip Details
  - 2.7.2 Microchip Major Business
  - 2.7.3 Microchip Crystal and Oscillators Product and Services
  - 2.7.4 Microchip Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)
  - 2.7.5 Microchip Recent Developments/Updates
- 2.8 TKD Science
  - 2.8.1 TKD Science Details
  - 2.8.2 TKD Science Major Business
  - 2.8.3 TKD Science Crystal and Oscillators Product and Services
  - 2.8.4 TKD Science Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)
  - 2.8.5 TKD Science Recent Developments/Updates
- 2.9 Hosonic Electronic
  - 2.9.1 Hosonic Electronic Details
  - 2.9.2 Hosonic Electronic Major Business
  - 2.9.3 Hosonic Electronic Crystal and Oscillators Product and Services
  - 2.9.4 Hosonic Electronic Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)
  - 2.9.5 Hosonic Electronic Recent Developments/Updates
- 2.10 Harmony
  - 2.10.1 Harmony Details
  - 2.10.2 Harmony Major Business
  - 2.10.3 Harmony Crystal and Oscillators Product and Services
  - 2.10.4 Harmony Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)
  - 2.10.5 Harmony Recent Developments/Updates
- 2.11 Murata Manufacturing
  - 2.11.1 Murata Manufacturing Details
  - 2.11.2 Murata Manufacturing Major Business
  - 2.11.3 Murata Manufacturing Crystal and Oscillators Product and Services
  - 2.11.4 Murata Manufacturing Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)
  - 2.11.5 Murata Manufacturing Recent Developments/Updates

## 2.12 Failong Crystal Technologies

### 2.12.1 Failong Crystal Technologies Details

### 2.12.2 Failong Crystal Technologies Major Business

### 2.12.3 Failong Crystal Technologies Crystal and Oscillators Product and Services

### 2.12.4 Failong Crystal Technologies Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

### 2.12.5 Failong Crystal Technologies Recent Developments/Updates

## 2.13 Micro Crystal

### 2.13.1 Micro Crystal Details

### 2.13.2 Micro Crystal Major Business

### 2.13.3 Micro Crystal Crystal and Oscillators Product and Services

### 2.13.4 Micro Crystal Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

### 2.13.5 Micro Crystal Recent Developments/Updates

## 2.14 Siward Crystal Technology

### 2.14.1 Siward Crystal Technology Details

### 2.14.2 Siward Crystal Technology Major Business

### 2.14.3 Siward Crystal Technology Crystal and Oscillators Product and Services

### 2.14.4 Siward Crystal Technology Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

### 2.14.5 Siward Crystal Technology Recent Developments/Updates

## 2.15 Rakon

### 2.15.1 Rakon Details

### 2.15.2 Rakon Major Business

### 2.15.3 Rakon Crystal and Oscillators Product and Services

### 2.15.4 Rakon Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

### 2.15.5 Rakon Recent Developments/Updates

## 2.16 Taitien

### 2.16.1 Taitien Details

### 2.16.2 Taitien Major Business

### 2.16.3 Taitien Crystal and Oscillators Product and Services

### 2.16.4 Taitien Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

### 2.16.5 Taitien Recent Developments/Updates

## 2.17 River Eletec Corporation

### 2.17.1 River Eletec Corporation Details

### 2.17.2 River Eletec Corporation Major Business

### 2.17.3 River Eletec Corporation Crystal and Oscillators Product and Services

2.17.4 River Eletec Corporation Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.17.5 River Eletec Corporation Recent Developments/Updates

2.18 Guoxin Micro

2.18.1 Guoxin Micro Details

2.18.2 Guoxin Micro Major Business

2.18.3 Guoxin Micro Crystal and Oscillators Product and Services

2.18.4 Guoxin Micro Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.18.5 Guoxin Micro Recent Developments/Updates

2.19 ZheJiang East Crystal

2.19.1 ZheJiang East Crystal Details

2.19.2 ZheJiang East Crystal Major Business

2.19.3 ZheJiang East Crystal Crystal and Oscillators Product and Services

2.19.4 ZheJiang East Crystal Crystal and Oscillators Sales Quantity, Average Price, Revenue, Gross Margin and Market Share (2021-2026)

2.19.5 ZheJiang East Crystal Recent Developments/Updates

### **3 COMPETITIVE ENVIRONMENT: CRYSTAL AND OSCILLATORS BY MANUFACTURER**

3.1 Global Crystal and Oscillators Sales Quantity by Manufacturer (2021-2026)

3.2 Global Crystal and Oscillators Revenue by Manufacturer (2021-2026)

3.3 Global Crystal and Oscillators Average Price by Manufacturer (2021-2026)

3.4 Market Share Analysis (2025)

3.4.1 Producer Shipments of Crystal and Oscillators by Manufacturer Revenue (\$MM) and Market Share (%): 2025

3.4.2 Top 3 Crystal and Oscillators Manufacturer Market Share in 2025

3.4.3 Top 6 Crystal and Oscillators Manufacturer Market Share in 2025

3.5 Crystal and Oscillators Market: Overall Company Footprint Analysis

3.5.1 Crystal and Oscillators Market: Region Footprint

3.5.2 Crystal and Oscillators Market: Company Product Type Footprint

3.5.3 Crystal and Oscillators Market: Company Product Application Footprint

3.6 New Market Entrants and Barriers to Market Entry

3.7 Mergers, Acquisition, Agreements, and Collaborations

### **4 CONSUMPTION ANALYSIS BY REGION**

4.1 Global Crystal and Oscillators Market Size by Region

- 4.1.1 Global Crystal and Oscillators Sales Quantity by Region (2021-2032)
- 4.1.2 Global Crystal and Oscillators Consumption Value by Region (2021-2032)
- 4.1.3 Global Crystal and Oscillators Average Price by Region (2021-2032)
- 4.2 North America Crystal and Oscillators Consumption Value (2021-2032)
- 4.3 Europe Crystal and Oscillators Consumption Value (2021-2032)
- 4.4 Asia-Pacific Crystal and Oscillators Consumption Value (2021-2032)
- 4.5 South America Crystal and Oscillators Consumption Value (2021-2032)
- 4.6 Middle East & Africa Crystal and Oscillators Consumption Value (2021-2032)

## **5 MARKET SEGMENT BY TYPE**

- 5.1 Global Crystal and Oscillators Sales Quantity by Type (2021-2032)
- 5.2 Global Crystal and Oscillators Consumption Value by Type (2021-2032)
- 5.3 Global Crystal and Oscillators Average Price by Type (2021-2032)

## **6 MARKET SEGMENT BY APPLICATION**

- 6.1 Global Crystal and Oscillators Sales Quantity by Application (2021-2032)
- 6.2 Global Crystal and Oscillators Consumption Value by Application (2021-2032)
- 6.3 Global Crystal and Oscillators Average Price by Application (2021-2032)

## **7 NORTH AMERICA**

- 7.1 North America Crystal and Oscillators Sales Quantity by Type (2021-2032)
- 7.2 North America Crystal and Oscillators Sales Quantity by Application (2021-2032)
- 7.3 North America Crystal and Oscillators Market Size by Country
  - 7.3.1 North America Crystal and Oscillators Sales Quantity by Country (2021-2032)
  - 7.3.2 North America Crystal and Oscillators Consumption Value by Country (2021-2032)
  - 7.3.3 United States Market Size and Forecast (2021-2032)
  - 7.3.4 Canada Market Size and Forecast (2021-2032)
  - 7.3.5 Mexico Market Size and Forecast (2021-2032)

## **8 EUROPE**

- 8.1 Europe Crystal and Oscillators Sales Quantity by Type (2021-2032)
- 8.2 Europe Crystal and Oscillators Sales Quantity by Application (2021-2032)
- 8.3 Europe Crystal and Oscillators Market Size by Country
  - 8.3.1 Europe Crystal and Oscillators Sales Quantity by Country (2021-2032)

8.3.2 Europe Crystal and Oscillators Consumption Value by Country (2021-2032)

8.3.3 Germany Market Size and Forecast (2021-2032)

8.3.4 France Market Size and Forecast (2021-2032)

8.3.5 United Kingdom Market Size and Forecast (2021-2032)

8.3.6 Russia Market Size and Forecast (2021-2032)

8.3.7 Italy Market Size and Forecast (2021-2032)

## **9 ASIA-PACIFIC**

9.1 Asia-Pacific Crystal and Oscillators Sales Quantity by Type (2021-2032)

9.2 Asia-Pacific Crystal and Oscillators Sales Quantity by Application (2021-2032)

9.3 Asia-Pacific Crystal and Oscillators Market Size by Region

9.3.1 Asia-Pacific Crystal and Oscillators Sales Quantity by Region (2021-2032)

9.3.2 Asia-Pacific Crystal and Oscillators Consumption Value by Region (2021-2032)

9.3.3 China Market Size and Forecast (2021-2032)

9.3.4 Japan Market Size and Forecast (2021-2032)

9.3.5 South Korea Market Size and Forecast (2021-2032)

9.3.6 India Market Size and Forecast (2021-2032)

9.3.7 Southeast Asia Market Size and Forecast (2021-2032)

9.3.8 Australia Market Size and Forecast (2021-2032)

## **10 SOUTH AMERICA**

10.1 South America Crystal and Oscillators Sales Quantity by Type (2021-2032)

10.2 South America Crystal and Oscillators Sales Quantity by Application (2021-2032)

10.3 South America Crystal and Oscillators Market Size by Country

10.3.1 South America Crystal and Oscillators Sales Quantity by Country (2021-2032)

10.3.2 South America Crystal and Oscillators Consumption Value by Country  
(2021-2032)

10.3.3 Brazil Market Size and Forecast (2021-2032)

10.3.4 Argentina Market Size and Forecast (2021-2032)

## **11 MIDDLE EAST & AFRICA**

11.1 Middle East & Africa Crystal and Oscillators Sales Quantity by Type (2021-2032)

11.2 Middle East & Africa Crystal and Oscillators Sales Quantity by Application  
(2021-2032)

11.3 Middle East & Africa Crystal and Oscillators Market Size by Country

11.3.1 Middle East & Africa Crystal and Oscillators Sales Quantity by Country

(2021-2032)

11.3.2 Middle East & Africa Crystal and Oscillators Consumption Value by Country

(2021-2032)

11.3.3 Turkey Market Size and Forecast (2021-2032)

11.3.4 Egypt Market Size and Forecast (2021-2032)

11.3.5 Saudi Arabia Market Size and Forecast (2021-2032)

11.3.6 South Africa Market Size and Forecast (2021-2032)

## **12 MARKET DYNAMICS**

12.1 Crystal and Oscillators Market Drivers

12.2 Crystal and Oscillators Market Restraints

12.3 Crystal and Oscillators Trends Analysis

12.4 Porters Five Forces Analysis

12.4.1 Threat of New Entrants

12.4.2 Bargaining Power of Suppliers

12.4.3 Bargaining Power of Buyers

12.4.4 Threat of Substitutes

12.4.5 Competitive Rivalry

## **13 RAW MATERIAL AND INDUSTRY CHAIN**

13.1 Raw Material of Crystal and Oscillators and Key Manufacturers

13.2 Manufacturing Costs Percentage of Crystal and Oscillators

13.3 Crystal and Oscillators Production Process

13.4 Industry Value Chain Analysis

## **14 SHIPMENTS BY DISTRIBUTION CHANNEL**

14.1 Sales Channel

14.1.1 Direct to End-User

14.1.2 Distributors

14.2 Crystal and Oscillators Typical Distributors

14.3 Crystal and Oscillators Typical Customers

## **15 RESEARCH FINDINGS AND CONCLUSION**

## **16 APPENDIX**

16.1 Methodology

16.2 Research Process and Data Source

16.3 Disclaimer

## List Of Tables

### LIST OF TABLES

Table 1. Global Crystal and Oscillators Consumption Value by Type, (USD Million), 2021 & 2025 & 2032

Table 2. Global Crystal and Oscillators Consumption Value by Function, (USD Million), 2021 & 2025 & 2032

Table 3. Global Crystal and Oscillators Consumption Value by Structural, (USD Million), 2021 & 2025 & 2032

Table 4. Global Crystal and Oscillators Consumption Value by Application, (USD Million), 2021 & 2025 & 2032

Table 5. TXC Corporation Basic Information, Manufacturing Base and Competitors

Table 6. TXC Corporation Major Business

Table 7. TXC Corporation Crystal and Oscillators Product and Services

Table 8. TXC Corporation Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 9. TXC Corporation Recent Developments/Updates

Table 10. NDK Basic Information, Manufacturing Base and Competitors

Table 11. NDK Major Business

Table 12. NDK Crystal and Oscillators Product and Services

Table 13. NDK Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 14. NDK Recent Developments/Updates

Table 15. Seiko Epson Corp Basic Information, Manufacturing Base and Competitors

Table 16. Seiko Epson Corp Major Business

Table 17. Seiko Epson Corp Crystal and Oscillators Product and Services

Table 18. Seiko Epson Corp Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 19. Seiko Epson Corp Recent Developments/Updates

Table 20. KCD Basic Information, Manufacturing Base and Competitors

Table 21. KCD Major Business

Table 22. KCD Crystal and Oscillators Product and Services

Table 23. KCD Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 24. KCD Recent Developments/Updates

Table 25. KDS Basic Information, Manufacturing Base and Competitors

Table 26. KDS Major Business

Table 27. KDS Crystal and Oscillators Product and Services

Table 28. KDS Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 29. KDS Recent Developments/Updates

Table 30. SiTime Basic Information, Manufacturing Base and Competitors

Table 31. SiTime Major Business

Table 32. SiTime Crystal and Oscillators Product and Services

Table 33. SiTime Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 34. SiTime Recent Developments/Updates

Table 35. Microchip Basic Information, Manufacturing Base and Competitors

Table 36. Microchip Major Business

Table 37. Microchip Crystal and Oscillators Product and Services

Table 38. Microchip Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 39. Microchip Recent Developments/Updates

Table 40. TKD Science Basic Information, Manufacturing Base and Competitors

Table 41. TKD Science Major Business

Table 42. TKD Science Crystal and Oscillators Product and Services

Table 43. TKD Science Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 44. TKD Science Recent Developments/Updates

Table 45. Hosonic Electronic Basic Information, Manufacturing Base and Competitors

Table 46. Hosonic Electronic Major Business

Table 47. Hosonic Electronic Crystal and Oscillators Product and Services

Table 48. Hosonic Electronic Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 49. Hosonic Electronic Recent Developments/Updates

Table 50. Harmony Basic Information, Manufacturing Base and Competitors

Table 51. Harmony Major Business

Table 52. Harmony Crystal and Oscillators Product and Services

Table 53. Harmony Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 54. Harmony Recent Developments/Updates

Table 55. Murata Manufacturing Basic Information, Manufacturing Base and Competitors

Table 56. Murata Manufacturing Major Business

Table 57. Murata Manufacturing Crystal and Oscillators Product and Services

Table 58. Murata Manufacturing Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 59. Murata Manufacturing Recent Developments/Updates

Table 60. Failong Crystal Technologies Basic Information, Manufacturing Base and Competitors

Table 61. Failong Crystal Technologies Major Business

Table 62. Failong Crystal Technologies Crystal and Oscillators Product and Services

Table 63. Failong Crystal Technologies Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 64. Failong Crystal Technologies Recent Developments/Updates

Table 65. Micro Crystal Basic Information, Manufacturing Base and Competitors

Table 66. Micro Crystal Major Business

Table 67. Micro Crystal Crystal and Oscillators Product and Services

Table 68. Micro Crystal Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 69. Micro Crystal Recent Developments/Updates

Table 70. Siward Crystal Technology Basic Information, Manufacturing Base and Competitors

Table 71. Siward Crystal Technology Major Business

Table 72. Siward Crystal Technology Crystal and Oscillators Product and Services

Table 73. Siward Crystal Technology Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 74. Siward Crystal Technology Recent Developments/Updates

Table 75. Rakon Basic Information, Manufacturing Base and Competitors

Table 76. Rakon Major Business

Table 77. Rakon Crystal and Oscillators Product and Services

Table 78. Rakon Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 79. Rakon Recent Developments/Updates

Table 80. Taitien Basic Information, Manufacturing Base and Competitors

Table 81. Taitien Major Business

Table 82. Taitien Crystal and Oscillators Product and Services

Table 83. Taitien Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 84. Taitien Recent Developments/Updates

- Table 85. River Eletec Corporation Basic Information, Manufacturing Base and Competitors
- Table 86. River Eletec Corporation Major Business
- Table 87. River Eletec Corporation Crystal and Oscillators Product and Services
- Table 88. River Eletec Corporation Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)
- Table 89. River Eletec Corporation Recent Developments/Updates
- Table 90. Guoxin Micro Basic Information, Manufacturing Base and Competitors
- Table 91. Guoxin Micro Major Business
- Table 92. Guoxin Micro Crystal and Oscillators Product and Services
- Table 93. Guoxin Micro Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)
- Table 94. Guoxin Micro Recent Developments/Updates
- Table 95. ZheJiang East Crystal Basic Information, Manufacturing Base and Competitors
- Table 96. ZheJiang East Crystal Major Business
- Table 97. ZheJiang East Crystal Crystal and Oscillators Product and Services
- Table 98. ZheJiang East Crystal Crystal and Oscillators Sales Quantity (Million Units), Average Price (US\$/Unit), Revenue (USD Million), Gross Margin and Market Share (2021-2026)
- Table 99. ZheJiang East Crystal Recent Developments/Updates
- Table 100. Global Crystal and Oscillators Sales Quantity by Manufacturer (2021-2026) & (Million Units)
- Table 101. Global Crystal and Oscillators Revenue by Manufacturer (2021-2026) & (USD Million)
- Table 102. Global Crystal and Oscillators Average Price by Manufacturer (2021-2026) & (US\$/Unit)
- Table 103. Market Position of Manufacturers in Crystal and Oscillators, (Tier 1, Tier 2, and Tier 3), Based on Revenue in 2025
- Table 104. Head Office and Crystal and Oscillators Production Site of Key Manufacturer
- Table 105. Crystal and Oscillators Market: Company Product Type Footprint
- Table 106. Crystal and Oscillators Market: Company Product Application Footprint
- Table 107. Crystal and Oscillators New Market Entrants and Barriers to Market Entry
- Table 108. Crystal and Oscillators Mergers, Acquisition, Agreements, and Collaborations
- Table 109. Global Crystal and Oscillators Consumption Value by Region (2021-2025-2032) & (USD Million) & CAGR
- Table 110. Global Crystal and Oscillators Sales Quantity by Region (2021-2026) &

(Million Units)

Table 111. Global Crystal and Oscillators Sales Quantity by Region (2027-2032) &

(Million Units)

Table 112. Global Crystal and Oscillators Consumption Value by Region (2021-2026) &

(USD Million)

Table 113. Global Crystal and Oscillators Consumption Value by Region (2027-2032) &

(USD Million)

Table 114. Global Crystal and Oscillators Average Price by Region (2021-2026) &

(US\$/Unit)

Table 115. Global Crystal and Oscillators Average Price by Region (2027-2032) &

(US\$/Unit)

Table 116. Global Crystal and Oscillators Sales Quantity by Type (2021-2026) & (Million Units)

Table 117. Global Crystal and Oscillators Sales Quantity by Type (2027-2032) & (Million Units)

Table 118. Global Crystal and Oscillators Consumption Value by Type (2021-2026) & (USD Million)

Table 119. Global Crystal and Oscillators Consumption Value by Type (2027-2032) & (USD Million)

Table 120. Global Crystal and Oscillators Average Price by Type (2021-2026) & (US\$/Unit)

Table 121. Global Crystal and Oscillators Average Price by Type (2027-2032) & (US\$/Unit)

Table 122. Global Crystal and Oscillators Sales Quantity by Application (2021-2026) & (Million Units)

Table 123. Global Crystal and Oscillators Sales Quantity by Application (2027-2032) & (Million Units)

Table 124. Global Crystal and Oscillators Consumption Value by Application (2021-2026) & (USD Million)

Table 125. Global Crystal and Oscillators Consumption Value by Application (2027-2032) & (USD Million)

Table 126. Global Crystal and Oscillators Average Price by Application (2021-2026) & (US\$/Unit)

Table 127. Global Crystal and Oscillators Average Price by Application (2027-2032) & (US\$/Unit)

Table 128. North America Crystal and Oscillators Sales Quantity by Type (2021-2026) & (Million Units)

Table 129. North America Crystal and Oscillators Sales Quantity by Type (2027-2032) & (Million Units)

Table 130. North America Crystal and Oscillators Sales Quantity by Application (2021-2026) & (Million Units)

Table 131. North America Crystal and Oscillators Sales Quantity by Application (2027-2032) & (Million Units)

Table 132. North America Crystal and Oscillators Sales Quantity by Country (2021-2026) & (Million Units)

Table 133. North America Crystal and Oscillators Sales Quantity by Country (2027-2032) & (Million Units)

Table 134. North America Crystal and Oscillators Consumption Value by Country (2021-2026) & (USD Million)

Table 135. North America Crystal and Oscillators Consumption Value by Country (2027-2032) & (USD Million)

Table 136. Europe Crystal and Oscillators Sales Quantity by Type (2021-2026) & (Million Units)

Table 137. Europe Crystal and Oscillators Sales Quantity by Type (2027-2032) & (Million Units)

Table 138. Europe Crystal and Oscillators Sales Quantity by Application (2021-2026) & (Million Units)

Table 139. Europe Crystal and Oscillators Sales Quantity by Application (2027-2032) & (Million Units)

Table 140. Europe Crystal and Oscillators Sales Quantity by Country (2021-2026) & (Million Units)

Table 141. Europe Crystal and Oscillators Sales Quantity by Country (2027-2032) & (Million Units)

Table 142. Europe Crystal and Oscillators Consumption Value by Country (2021-2026) & (USD Million)

Table 143. Europe Crystal and Oscillators Consumption Value by Country (2027-2032) & (USD Million)

Table 144. Asia-Pacific Crystal and Oscillators Sales Quantity by Type (2021-2026) & (Million Units)

Table 145. Asia-Pacific Crystal and Oscillators Sales Quantity by Type (2027-2032) & (Million Units)

Table 146. Asia-Pacific Crystal and Oscillators Sales Quantity by Application (2021-2026) & (Million Units)

Table 147. Asia-Pacific Crystal and Oscillators Sales Quantity by Application (2027-2032) & (Million Units)

Table 148. Asia-Pacific Crystal and Oscillators Sales Quantity by Region (2021-2026) & (Million Units)

Table 149. Asia-Pacific Crystal and Oscillators Sales Quantity by Region (2027-2032) &

(Million Units)

Table 150. Asia-Pacific Crystal and Oscillators Consumption Value by Region (2021-2026) & (USD Million)

Table 151. Asia-Pacific Crystal and Oscillators Consumption Value by Region (2027-2032) & (USD Million)

Table 152. South America Crystal and Oscillators Sales Quantity by Type (2021-2026) & (Million Units)

Table 153. South America Crystal and Oscillators Sales Quantity by Type (2027-2032) & (Million Units)

Table 154. South America Crystal and Oscillators Sales Quantity by Application (2021-2026) & (Million Units)

Table 155. South America Crystal and Oscillators Sales Quantity by Application (2027-2032) & (Million Units)

Table 156. South America Crystal and Oscillators Sales Quantity by Country (2021-2026) & (Million Units)

Table 157. South America Crystal and Oscillators Sales Quantity by Country (2027-2032) & (Million Units)

Table 158. South America Crystal and Oscillators Consumption Value by Country (2021-2026) & (USD Million)

Table 159. South America Crystal and Oscillators Consumption Value by Country (2027-2032) & (USD Million)

Table 160. Middle East & Africa Crystal and Oscillators Sales Quantity by Type (2021-2026) & (Million Units)

Table 161. Middle East & Africa Crystal and Oscillators Sales Quantity by Type (2027-2032) & (Million Units)

Table 162. Middle East & Africa Crystal and Oscillators Sales Quantity by Application (2021-2026) & (Million Units)

Table 163. Middle East & Africa Crystal and Oscillators Sales Quantity by Application (2027-2032) & (Million Units)

Table 164. Middle East & Africa Crystal and Oscillators Sales Quantity by Country (2021-2026) & (Million Units)

Table 165. Middle East & Africa Crystal and Oscillators Sales Quantity by Country (2027-2032) & (Million Units)

Table 166. Middle East & Africa Crystal and Oscillators Consumption Value by Country (2021-2026) & (USD Million)

Table 167. Middle East & Africa Crystal and Oscillators Consumption Value by Country (2027-2032) & (USD Million)

Table 168. Crystal and Oscillators Raw Material

Table 169. Key Manufacturers of Crystal and Oscillators Raw Materials

Table 170. Crystal and Oscillators Typical Distributors

Table 171. Crystal and Oscillators Typical Customers

## List Of Figures

### LIST OF FIGURES

Figure 1. Crystal and Oscillators Picture

Figure 2. Global Crystal and Oscillators Revenue by Type, (USD Million), 2021 & 2025 & 2032

Figure 3. Global Crystal and Oscillators Revenue Market Share by Type in 2025

Figure 4. Crystal Units Examples

Figure 5. Crystal Oscillators Examples

Figure 6. Global Crystal and Oscillators Revenue by Function, (USD Million), 2021 & 2025 & 2032

Figure 7. Global Crystal and Oscillators Revenue Market Share by Function in 2025

Figure 8. SPXO Examples

Figure 9. TCXO Examples

Figure 10. VCXO Examples

Figure 11. OCXO Examples

Figure 12. XTAL Examples

Figure 13. Global Crystal and Oscillators Revenue by Structural, (USD Million), 2021 & 2025 & 2032

Figure 14. Global Crystal and Oscillators Revenue Market Share by Structural in 2025

Figure 15. Crystal Resonator Examples

Figure 16. Oscillator Module Examples

Figure 17. Global Crystal and Oscillators Consumption Value by Application, (USD Million), 2021 & 2025 & 2032

Figure 18. Global Crystal and Oscillators Revenue Market Share by Application in 2025

Figure 19. Mobile Terminal Examples

Figure 20. Automotive Electronics Examples

Figure 21. Wearable Device Examples

Figure 22. Smart Home Examples

Figure 23. Internet of Things Examples

Figure 24. Others Examples

Figure 25. Global Crystal and Oscillators Consumption Value, (USD Million): 2021 & 2025 & 2032

Figure 26. Global Crystal and Oscillators Consumption Value and Forecast (2021-2032) & (USD Million)

Figure 27. Global Crystal and Oscillators Sales Quantity (2021-2032) & (Million Units)

Figure 28. Global Crystal and Oscillators Price (2021-2032) & (US\$/Unit)

Figure 29. Global Crystal and Oscillators Sales Quantity Market Share by Manufacturer

in 2025

Figure 30. Global Crystal and Oscillators Revenue Market Share by Manufacturer in 2025

Figure 31. Producer Shipments of Crystal and Oscillators by Manufacturer Sales (\$MM) and Market Share (%): 2025

Figure 32. Top 3 Crystal and Oscillators Manufacturer (Revenue) Market Share in 2025

Figure 33. Top 6 Crystal and Oscillators Manufacturer (Revenue) Market Share in 2025

Figure 34. Global Crystal and Oscillators Sales Quantity Market Share by Region (2021-2032)

Figure 35. Global Crystal and Oscillators Consumption Value Market Share by Region (2021-2032)

Figure 36. North America Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 37. Europe Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 38. Asia-Pacific Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 39. South America Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 40. Middle East & Africa Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 41. Global Crystal and Oscillators Sales Quantity Market Share by Type (2021-2032)

Figure 42. Global Crystal and Oscillators Consumption Value Market Share by Type (2021-2032)

Figure 43. Global Crystal and Oscillators Average Price by Type (2021-2032) & (US\$/Unit)

Figure 44. Global Crystal and Oscillators Sales Quantity Market Share by Application (2021-2032)

Figure 45. Global Crystal and Oscillators Revenue Market Share by Application (2021-2032)

Figure 46. Global Crystal and Oscillators Average Price by Application (2021-2032) & (US\$/Unit)

Figure 47. North America Crystal and Oscillators Sales Quantity Market Share by Type (2021-2032)

Figure 48. North America Crystal and Oscillators Sales Quantity Market Share by Application (2021-2032)

Figure 49. North America Crystal and Oscillators Sales Quantity Market Share by Country (2021-2032)

Figure 50. North America Crystal and Oscillators Consumption Value Market Share by Country (2021-2032)

Figure 51. United States Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 52. Canada Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 53. Mexico Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 54. Europe Crystal and Oscillators Sales Quantity Market Share by Type (2021-2032)

Figure 55. Europe Crystal and Oscillators Sales Quantity Market Share by Application (2021-2032)

Figure 56. Europe Crystal and Oscillators Sales Quantity Market Share by Country (2021-2032)

Figure 57. Europe Crystal and Oscillators Consumption Value Market Share by Country (2021-2032)

Figure 58. Germany Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 59. France Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 60. United Kingdom Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 61. Russia Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 62. Italy Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 63. Asia-Pacific Crystal and Oscillators Sales Quantity Market Share by Type (2021-2032)

Figure 64. Asia-Pacific Crystal and Oscillators Sales Quantity Market Share by Application (2021-2032)

Figure 65. Asia-Pacific Crystal and Oscillators Sales Quantity Market Share by Region (2021-2032)

Figure 66. Asia-Pacific Crystal and Oscillators Consumption Value Market Share by Region (2021-2032)

Figure 67. China Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 68. Japan Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 69. South Korea Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 70. India Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 71. Southeast Asia Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 72. Australia Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 73. South America Crystal and Oscillators Sales Quantity Market Share by Type (2021-2032)

Figure 74. South America Crystal and Oscillators Sales Quantity Market Share by Application (2021-2032)

Figure 75. South America Crystal and Oscillators Sales Quantity Market Share by Country (2021-2032)

Figure 76. South America Crystal and Oscillators Consumption Value Market Share by Country (2021-2032)

Figure 77. Brazil Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 78. Argentina Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 79. Middle East & Africa Crystal and Oscillators Sales Quantity Market Share by Type (2021-2032)

Figure 80. Middle East & Africa Crystal and Oscillators Sales Quantity Market Share by Application (2021-2032)

Figure 81. Middle East & Africa Crystal and Oscillators Sales Quantity Market Share by Country (2021-2032)

Figure 82. Middle East & Africa Crystal and Oscillators Consumption Value Market Share by Country (2021-2032)

Figure 83. Turkey Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 84. Egypt Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 85. Saudi Arabia Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 86. South Africa Crystal and Oscillators Consumption Value (2021-2032) & (USD Million)

Figure 87. Crystal and Oscillators Market Drivers

Figure 88. Crystal and Oscillators Market Restraints

Figure 89. Crystal and Oscillators Market Trends

Figure 90. Porters Five Forces Analysis

Figure 91. Manufacturing Cost Structure Analysis of Crystal and Oscillators in 2025

Figure 92. Manufacturing Process Analysis of Crystal and Oscillators

Figure 93. Crystal and Oscillators Industrial Chain

Figure 94. Sales Channel: Direct to End-User vs Distributors

Figure 95. Direct Channel Pros & Cons

Figure 96. Indirect Channel Pros & Cons

Figure 97. Methodology

Figure 98. Research Process and Data Source

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