FOCUS ON
PIEZOELECTRIC CRYSTALS
专注于压电晶体领域

国芯晶源
超稳频率器件领导者

www.jingyuan.com

国芯晶源
GUOXIN JYEG

COMPANY INTRODUCTION

公司简介

1990

公司始创于 1990 年
Founded in 1990

65

65% 以上出口到美国、德国、韩国、港台等国家和地区
65% exported to the United States, Germany, South Korea, Hong Kong and Taiwan and other countries and regions

100

拥有近百项专利和多项专有技术
Nearly 100 patents and multiple proprietary technology

唐山国芯晶源电子有限公司始创于1990年，专业从事石英晶体谐振器、石英晶体振荡器产品的研发、生产与销售，现隶属于紫光集团旗下上市公司紫光国微（002049.SZ）。

公司产品广泛应用于网络通信、车用电子、工业控制、人工智能、医疗器械、物联网等领域，65% 以上出口到美国、德国、韩国、港台等国家和地区，是国际知名企业直接配套供应商、国内通信设备厂商频率元器件国产化替代和“新基建”主力供应商之一。

公司是国家高新技术企业、国家级专精特新重点“小巨人”企业、省国际科技合作示范企业、省级制造业单项冠军企业、省数字经济创新发展示范企业…… 公司建有省级企业技术中心、省级工业设计中心、省级产业技术研究院、省级工程实验室及实验中心等诸多研发、设计平台，拥有近百项专利和多项专有技术，主持或参与制定了多项国家、行业及团体标准。

公司秉承“成为超稳频率器件领导者”的愿景，明确“为数字时代提供高端频控元器件，构建万物互联的智慧世界”的使命，坚持“超微型、超高频、超稳定”技术路线、“自动化、精益化、数智化”管理路线，紧跟国际先进技术趋势，努力为客户提供一站式服务和全场景应用解决方案。

企业文化 ENTERPRISE CULTURE

企业使命 CORPORATE MISSION

为数字时代提供高端频控元器件，构建万物互联的智慧世界

Provide high-end frequency control components for the digital age, and build a smart world of everything connected

企业愿景 CORPORATE VISION

成为超稳频率器件领导者
Become a leader of ultra-stable frequency device

超微型
ultra-miniature

超高频
ultra-high frequency

超稳定
ultra-stable

Tangshan Guoxin Jingyuan Electronics Co., Ltd. was founded in 1990, specializing in the research, development, production and sales of quartz crystal resonators and quartz crystal oscillators, and now belongs to Guoxin Micro (002049.SZ), a listed company of Tsinghua Unigroup.

The company's products are widely used in network communication, automotive electronics, industrial control, artificial intelligence, medical devices, Internet of Things and other fields, and more than 65% are exported to the United States, Germany, Korea, Hong Kong and Taiwan and other countries and regions. The company is one of the main suppliers of international famous enterprises, and one of the main suppliers of domestic communication equipment manufacturers for frequency components localization replacement and "new infrastructure".

The company is a national high-tech enterprise, national key "small giant" enterprise, provincial international science and technology cooperation demonstration enterprise, provincial manufacturing single champion enterprise, provincial digital economy innovation and development demonstration enterprise ..... The company has built a provincial enterprise technology center, provincial Industrial Design Center, Provincial Institute of Industrial Technology, provincial engineering laboratories and other R&D and design platforms. It has nearly 100 patents and many proprietary technologies, and has presided over or participated in the development of many national, industry and group standards.

The company adheres to the vision of "becoming the leader of ultra-stable frequency devices" and the mission of "providing highend frequency control components for the digital era and building a smart world of everything connected", and insists on the technical line of "ultra-miniature, ultra-high frequency, ultra-stable We insist on the technical line of "ultra-miniature, ultra-high frequency, ultra-stable" and the management line of "automation, lean, and digital intelligence", follow the international advanced technology trend, and strive to provide one-stop service and full-scene application solutions for customers.

国芯晶源
GUOXIN JYEG

ENTERPRISE HONOR

企业荣誉

知识产权

INTELLECTUAL PROPERTY

专利产权：共有专利技术百余项，其中发明专利约 1/3。

标准编写：参与标准编写 16 项，其中国标 10 项、行标 1 项、团标 5 项。

核心技术：共有核心技术 20 项，其中认定为国际先进 5 项，填补国内空白 8 项。

Patent Property: There are more than 100 patented technologies, of which about 1/3 are invention patents.

Standard writing: Participated in the preparation of 16 standards, including 10 Chinese standards, 1 industry standard, and 5 group standards.

Core Technology: A total of 20 core technologies, which are identified as 5 international advanced, and 8 domestic gaps are filled.

IATF16949：2016 汽车行业质量管理体系

ISO9001：2015 质量管理体系

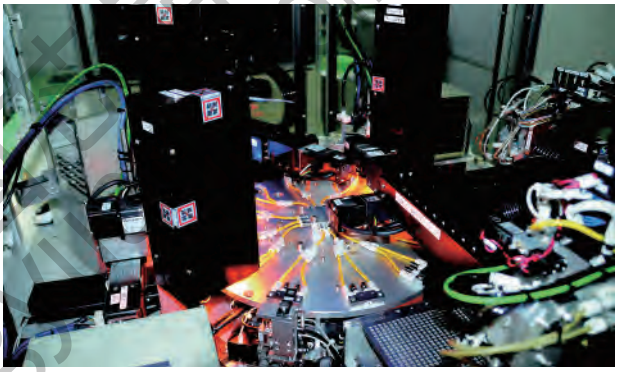
ISO14001：2015 环境管理体系

GB/T29490：2013 企业知识产权管理规范

EQUIPMENT EXHIBITION
设备展示

- 净化等级：1000
- 温度：21-25℃
- 湿度：30-60%RH

- Purification Class:1000
- Temperature:21-25°C
- Humidity:30-60%RH



国芯晶源
GUOXIN JYEG

CONTENT

CRYSTAL

SMD OSC

VCXO

TCXO

OCXO

BLANK

QUARTZ CRYSTALS

TECHNICAL TERMS FOR CRYSTAL UNITS

QUARTZ CRYSTALS

Synthetic quartz is composed of Silicon and Oxygen (Silicon Dioxide) and is cultured in autoclaves under high pressure and temperature. Quartz exhibits piezoelectric properties which generate an electrical potential when pressure is applied on the surfaces of the crystal. Conversely, when an electrical potential is applied to the surfaces of a crystal, mechanical deformation or vibration is generated. These vibrations occur at a frequency determined by the crystal design and oscillator circuit. Under proper conditions, quartz can be used to stabilize the frequency of an oscillator circuit.

CENTER FREQUENCY

The specified reference frequency of the crystal is typically specified in megahertz (MHz) or kilohertz (kHz).

FREQUENCY TOLERANCE OR CALIBRATION ACCURACY

The amount of frequency deviation from a specified center frequency at ambient temperature (referenced at 25℃ This parameter is specified with a maximum and minimum frequency deviation, expressed in percent (%) or parts per million (ppm). This deviation is associated with a set of operating conditions including: Load Capacitance and Drive Level.

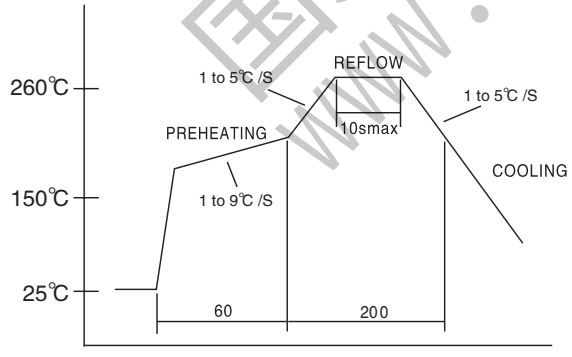
FREQUENCY STABILITY

The amount of frequency deviation from the ambient temperature frequency over the operating temperature range.This deviation is associated with a set of operating conditions including: Operating Temperature Range, LoadCapacitance, and Drive Level. This parameter is specified with a maximum and minimum frequency deviation, expressed in Percent (%) or parts per million (ppm). The frequency stability is determined by the following primary factors: Type of quartz cut, and angle of the quartz cut. Some of the secondary factors include: mode of operation, drive level, load capacitance, and mechanical design.

TYPE,ANGLE OF QUARTZ CUT

The type and angle of a quartz cut effects the crystal device operating parameters, the most significant being frequency stability. The frequency stability is dependant upon the plane or the angle of the crystal element in relation to the crystal line axes of the crystal. The plane or angle is referred to as the crystal cut.In Figure 2. the frequency stability versus operating temperature range is plotted as a function of "AT"cut angle (θ). Note the inflection point at approximately 25℃ and the location of the adjacent upper and lower turning points for each cut angle. The angle of cut utilized is detemined by the frequency stability and operating temperature range required by the customer.

REFLOW SOLDERING



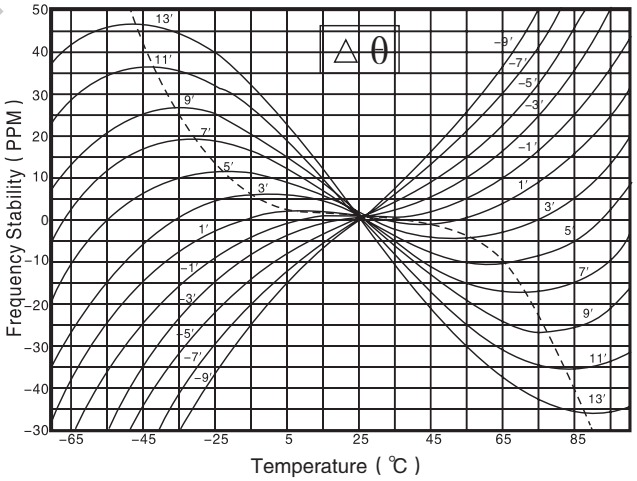


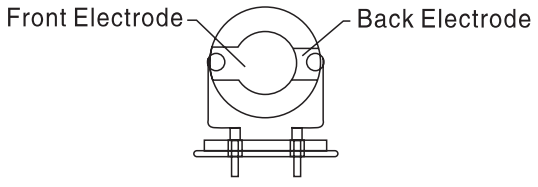
Figure2

OPERATING TEMPERATURE RANGE

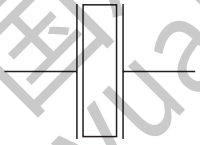
The maximum and minimum temperatures that the crystal device can be exposed to during oscillation. Over this temperature range, all of the specified device operating parameters are guaranteed.

CRYSTALEQUIVALENT CIRCUIT

A crystal device consists of a quartz resonator with metal plating. This plating as shown in Figure 3,is located on both sides of the crystal and is connected to insulated leads on the crystal package. The device exhibits a piezoelectric response between the two crystal electrodes as expressed in the equivalent circuit shown in Figure 4 below.

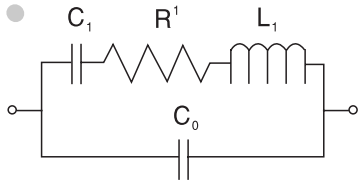


Front View



Schematic Symbol

Figure3



Equivalent Circuit

Figure4

MOTIONAL CAPACITANCE(C) AND MOTIONAL INDUCTANCE(L1)

The motional capacitance and inductance are designated by C1 and L1, respectively in the above equivalent circuit (Figure 4) For a "Series" resonant crystal, the value of C1, resonates with the value of L1, at a frequency (Fs) expressed in Equation 1.

$$F_s = \frac{1}{2\pi\sqrt{L_1 C_1}}$$

Equation 1

Typically, L1 is not mentioned when working with most crystal. Due to this absolute equation, it is only necessary to specify one motional component or the other: the industry standard is to specify a proper value of C1 only. The actual value of C1 has physical limitations when it is realized in a quartz design: these constraints include the mode of operation, the quartz cut, the mechanical design, and the nominal frequency of the crystal.

SHUNT CAPACITANCE(C0)

The static capacitance between the crystal terminals. Measured in picofarads (pF), shunt capacitance is present whether the device is oscillating or not (unrelated to the piezoelectric effect of the quartz). Shunt Capacitance is derived from the dielectric of the quartz, the area of the crystal electrodes, and the capacitance presented by the crystal holder.

EQUIVALENT SERIES RESISTANCE(ESR)

The resistive element, measured in ohms, of a crystal device. At the frequency found in Equation 1,the motional inductance (L1) and motional capacitance (C1) are of equal ohmic value but are exactly opposite in phase, The net result is that they cancel one another and only a resistance remains in the Series leg of the above equivalent circuit (Figure4). The ESR measurement is made of only at the series resonant frequency (Fs), not at some predetermined parallel resonant frequency (F1). Crystal resistance measured at some parallel load resonant frequency is often called the "effective" resistance.

SERIES VS.PARALLEL LOAD RESONANCE

A crystal can be used in an oscillator circuit to operate in either of two resonant modes: Series Resonance or Parallel Load Resonance (also known as antiresonance). The crystal used in these two types of modes are physically the same crystal, but calibrated to slightly different frequencies. The crystal reactance curve is shown in Figure 5 below.

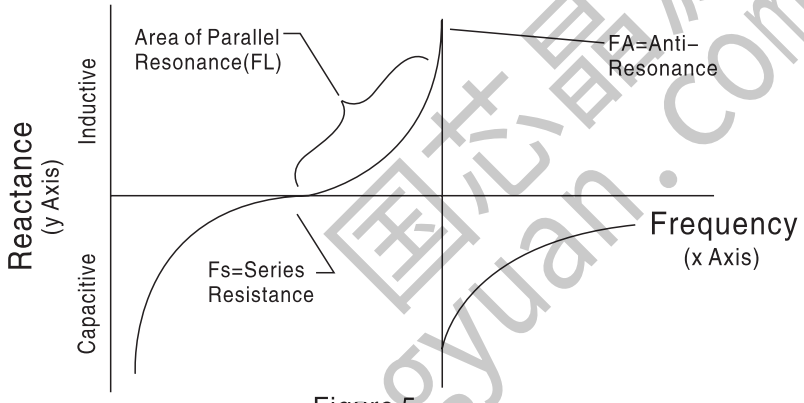


Figure 5

When a crystal is placed into an oscillator circuit, they oscillate together at a tuned frequency. This Frequency is dependent upon the crystal design and the amount of Load Capacitance, if any, the Oscillator circuit presents to the crystal. Specified in picofarads (pF), Load Capacitance is comprised of a combination of the circuits discrete load capacitance, stray board capacitance, and capacitance from semiconductor miller effects. When an oscillator circuit presents some amount of load capacitance to a crystal. The crystal is termed “Parallel Load Resonant”，and a value of Load Capacitance must be specified .If the circuit does not exhibit any capacitive loading, the crystal is termed “Series Resonant”and no value of Load Capacitance is specified. The “Parallel Load Resonant”operating frequency of a quartz crystal is based on Equation 2 below.

$$F_L = F_S\left\{\frac{C_1}{2(C_0+C_L)}+1\right\}$$

Equation 2

FS=Series Resonant Frequency (MHz)
FL=Parallel Load Resonant Frequency (MHz)
CL=Crystal Load Capacitance (pF)
C0=Crystal Shunt Capacitance (pF)
C1=Crystal Motional Capacitance (pF)

MODE OF OPERATION

The Mode of Operating of a quartz device is one of the factors that will determine the frequency of oscillation. For AT cut quartz crystals, overtone modes are at odd frequency harmonics. For Example，a crystal may operate at its fundamental frequency of 10 MHz, or at odd harmonics of approximately 30MHz(Third Overtone), 50MHz(Fifth Overtone), and 70 MHz (Seventh overtone). The equivalent circuit of an overtone mode is not shown in the above mode (Figure4), but each Overtone mode would simply be an additional parallel R1, L1, C1 branch (no additional C0 branches) equivalent to the fundamental circuit shown.

DRIVE LEVEL

A function of the driving or excitation current flowing through the crystal. The Drive Level is the amount of power dissipation in the crystal, expressed in microwatts or mill watts. Maximum power is the most power the device can dissipate while still maintaining operation with all electrical parameters guaranteed. Drive level should be maintained at the minimum levels necessary to initiate proper start up and assure steady state oscillation. Excessive drive level can cause poor aging characteristics and crystal damage.

AGING

The systematic change in frequency with time due to internal changes in the crystal and/or oscillator. Aging is often expressed as a maximum value in parts per million per year 「ppm/yr.」.The rate of aging is typically greatest during the first 30 to 60 days after which time the aging rate decreases. The following factors effect crystal aging: adsorption and desorption of contamination on the surfaces of the quartz, stress relief of the mounting and bonding structures, material outgassing, and seal integrality.

STORAGE TEMPERA TURE RANGE

The minimum and maximum temperatures that the device can be stored or exposed to when in a nonoscillation state.After exposing or storing the device at the minimum or maximum temperatures for a length of time, all of the operating specifications are guaranteed over the specified Operating Temperature Range.

PULLABILITY

Aspecification for the change in the parallel load resonant frequency as a function of change in crystal load capacitance. As expressed graphically in Figure 6 below, Equation 3 is used to calculate the frequency difference, expressed in ppm, between two parallel load resonant frequencies 「F_{CL1} and F_{CL2}」as a direct result of a given change in crystal load capacitance 「C_{L1} and C_{L2}」. Because there are several methods to express crystal pullability, please consult the factory for product specifications.

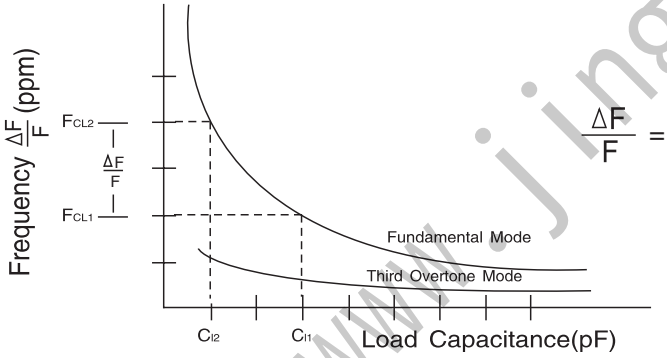


Figure 6

$$\frac{\Delta F}{F} = \frac{F_{CL1} - F_{CL2}}{F_{CL1}} = \frac{C_1}{2}\left\{\frac{1}{(C_0 + C_{L1})} - \frac{1}{(C_0 + C_{L2})}\right\}$$

Equation 3

CAPACITIVE PATIO

In applications (i.e.VCXO) where variations in the crystal parallel resonant frequency are desired, the capacitive ratio may be specified. Derived from Equation 1 and rearranged, the capacitive ratio is a component of Equation 4 below. This ratio is an indicator of the change in a parallel load resonant frequency as a direct result of a given change crystal load capacitance. Because the value of this ratio has physical limitations when it is realized in a quartz crystal design, please consult the factory for product specifications.

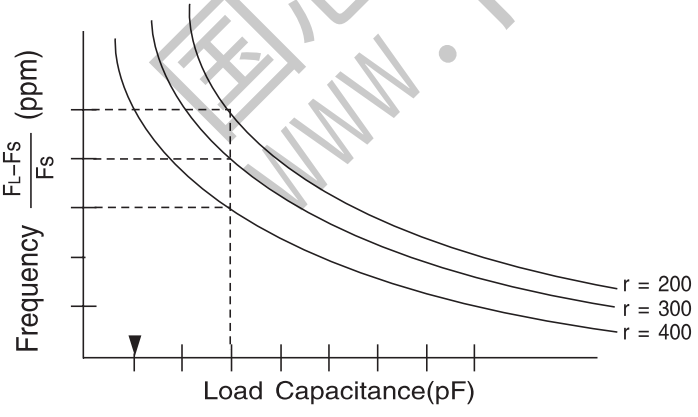


Figure 7

$$\frac{F_L - F_S}{F_S} = \frac{1}{2 \cdot r(1 + C_L/C_0)}$$

where: $r = \frac{C0}{C1}$

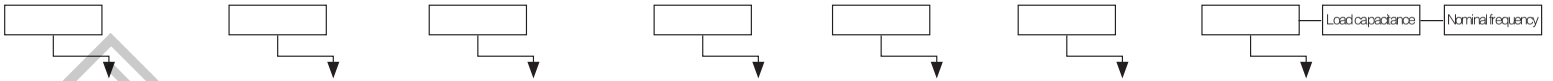
Equation 4

PRODUCT NUMBER FOR QUARTZ CRYSTALS

Load capacitance — Nominal frequency

Type	Code	Cut	Code	Mode of vibration	Code	Freq.tolerance at 25℃	Code	Low temp.	Code	High temp.	Code	Temp. stabilty	Code
SMD7050	D7	AT	A	Fundamental	1	± 5ppm	A	0℃	1	40℃	A	± 2.5ppm	1
SMD6035	D6			3rd overtone	3	± 7ppm	B	−10℃	2	50℃	B	± 3ppm	2
SMD5032	D5					± 10ppm	C	−20℃	3	60℃	C	± 5ppm	3
SMD3225	D3					± 15ppm	D	−25℃	4	70℃	D	± 10ppm	4
SMD2520	D2					± 20ppm	E	−30℃	5	75℃	E	± 15ppm	5
SMD2016	D1					± 25ppm	F	−35℃	6	80℃	F	± 20ppm	6
SMD1612	D8					± 30ppm	G	−40℃	7	85℃	G	± 25ppm	7
SMD1210	D9					± 50ppm	H	−55℃	8	105℃	H	± 30ppm	8
SMD 5032 Glass	GD5					Custom	Z	Custom	Z	125℃	I	± 50ppm	9
SMD 3225 Glass	GD3									Custom	Z	Custom	Z
HC−49U/SMD	JYSD1,JYSD1−3,JYSD2												
HC−49US	JYS1,JYS2,JYS1−3												
HC−49U/SMD−CLIP	JYUD												
HC−49U	JYU												
UM−1,UM−1/SMD− CLIP	JYM1,JYM1D												
UM−5,UM−5/SMD−CLIP	JYM5,JYM5D												
SC Cut HC−35U,HC−37U,HC−43U,HC−45U	JYC5,JYC8,JYCU,JYCU5												

PRODUCT NUMBER FOR QUARTZ CRYSTALS

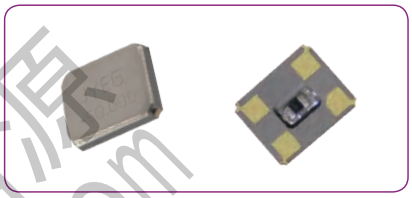


Type	Code	Cut	Code	Mode of vibration	Code	Freq.tolerance at 25℃	Code	Low temp.	Code	High temp.	Code	Temp. stabilty	Code
SMD2520TSX	T2	AT	A	Fundamental	1	± 5ppm	A	0℃	1	40℃	A	± 2.5ppm	1
SMD2016TSX	T1			3rd overtone	3	± 7ppm	B	−10℃	2	50℃	B	± 3ppm	2
SMD1612TSX	T8					± 10ppm	C	−20℃	3	60℃	C	± 5ppm	3
						± 15ppm	D	−25℃	4	70℃	D	± 10ppm	4
						± 20ppm	E	−30℃	5	75℃	E	± 15ppm	5
						± 25ppm	F	−35℃	6	80℃	F	± 20ppm	6
						± 30ppm	G	−40℃	7	85℃	G	± 25ppm	7
						± 50ppm	H	−55℃	8	105℃	H	± 30ppm	8
						Custom	Z	Custom	Z	125℃	I	± 50ppm	9
										Custom	Z	Custom	Z

国芯晶源
GUOXIN JYEG

PRODUCT TYPE: SMD 1612TSX

FEATURES

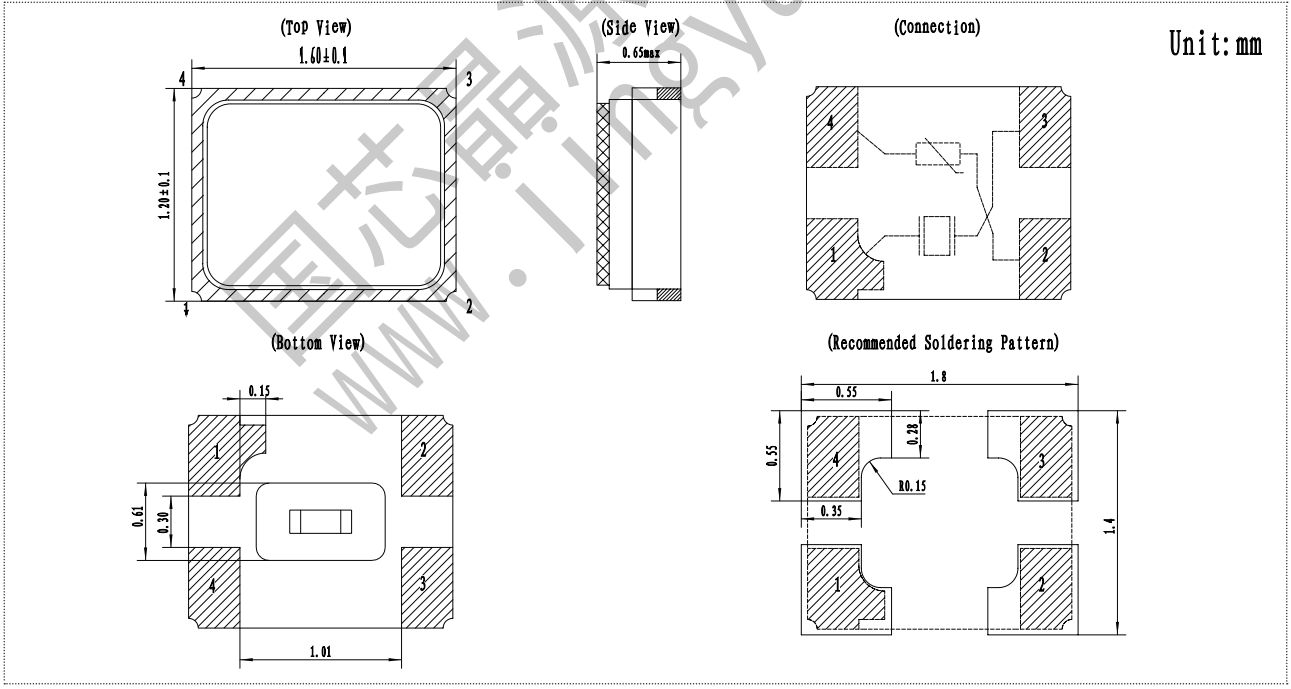


- •JYEG Part Number:JYT8
- •AT Cut
- •Tight tolerance/stability
- •AUSN seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

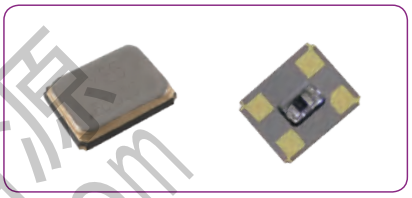
ITEM / TYPE	SMD 1612TSX
Frequency Range	24~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	1pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<200Ω@24~32MHz <100Ω@32~38MHz <80Ω@38~80MHz <60Ω@80~285MHz
Drive Level	200μW Max.
Aging	±1ppm~±3ppm/year
Insulation Resistance	500MΩ@DC100V
Thermistor B-constant(25~50°C)	4250
Storage Temperature Range	-55~125°C

DIMENSIONS



PRODUCT TYPE: SMD 2016TSX

FEATURES

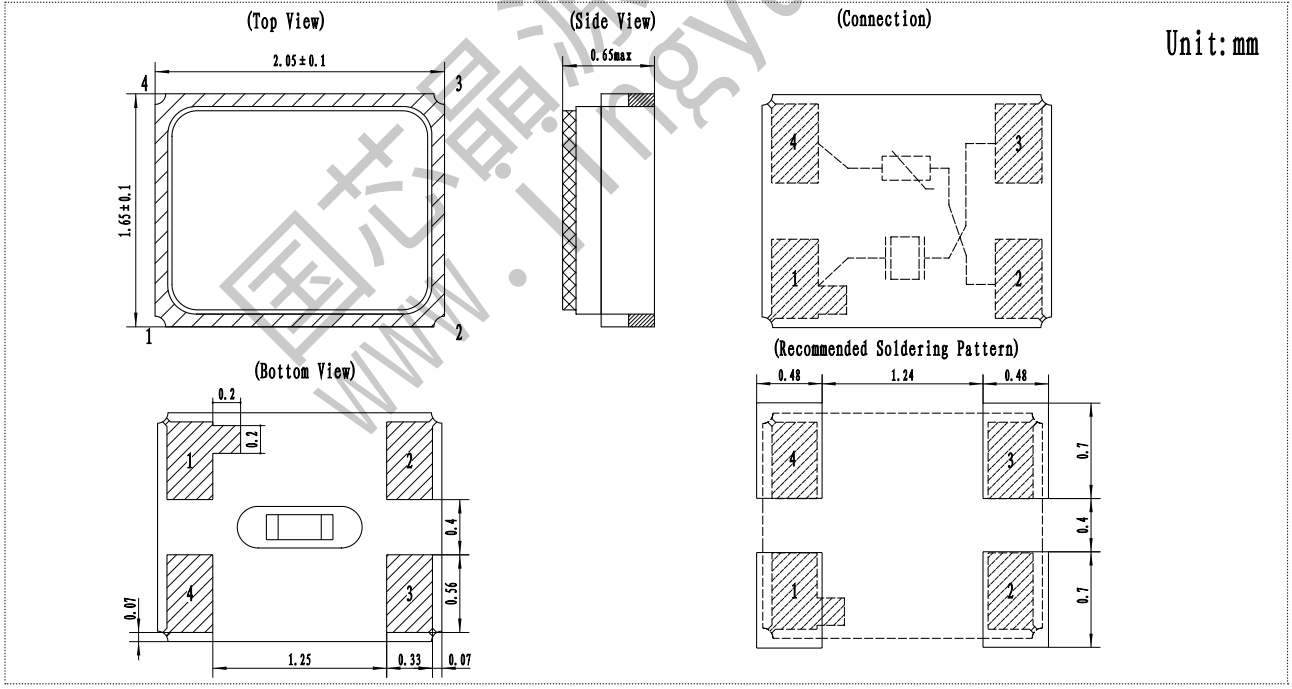


- •JYEG Part Number:JYT1
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 2016TSX
Frequency Range	24~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	1pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<200Ω@24~32MHz <100Ω@32~38MHz <80Ω@38~80MHz <60Ω@80~285MHz
Drive Level	200μW Max.
Aging	±1ppm~±3ppm/year
Insulation Resistance	500MΩ@DC100V
Thermistor B-constant(25~50°C)	4250
Storage Temperature Range	-55~125°C

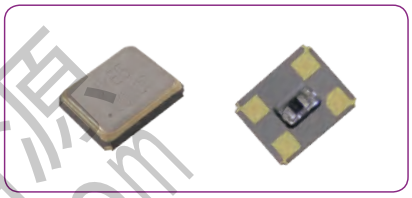
DIMENSIONS



国芯晶源
GUOXIN JYEG

PRODUCT TYPE: SMD 2520TSX

FEATURES

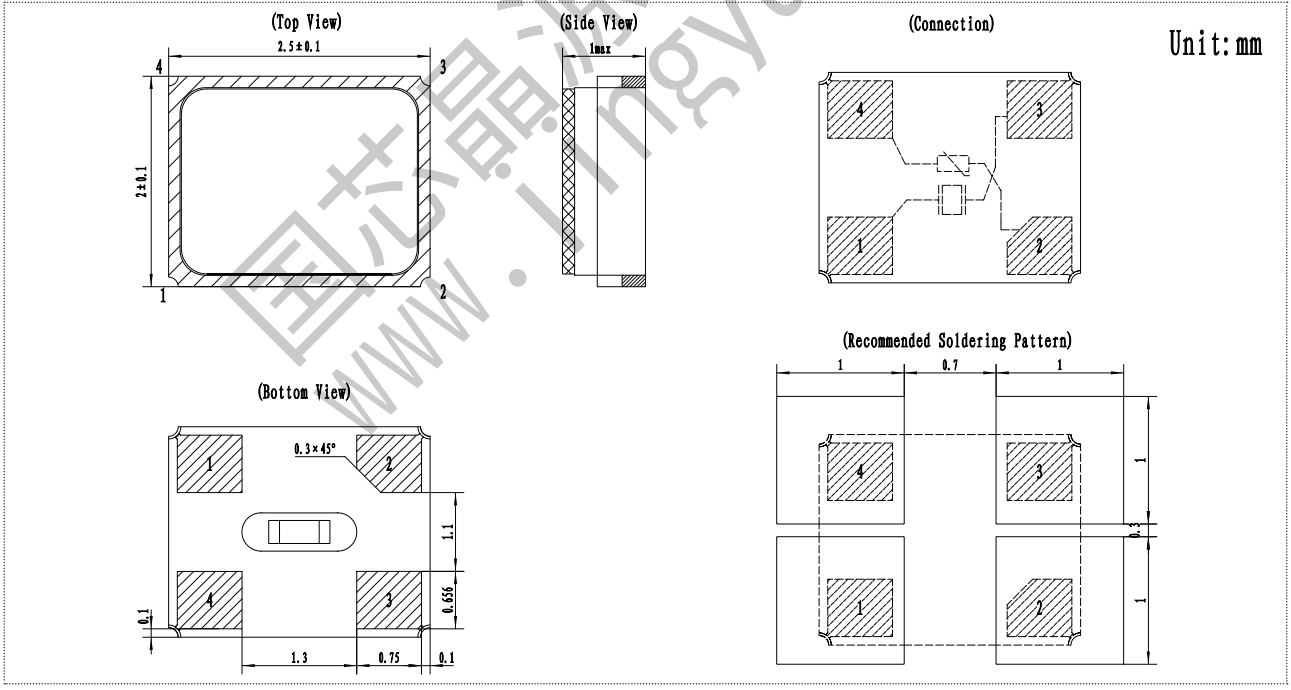


- •JYEG Part Number:JYT2
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 2520TSX
Frequency Range	16~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	2pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<60Ω@16~27MHz <40Ω@27~285MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Thermistor B-constant(25~50°C)	4250
Storage Temperature Range	-55~125°C

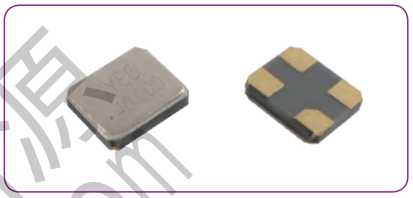
DIMENSIONS



PRODUCT TYPE: SMD 1210

FEATURES

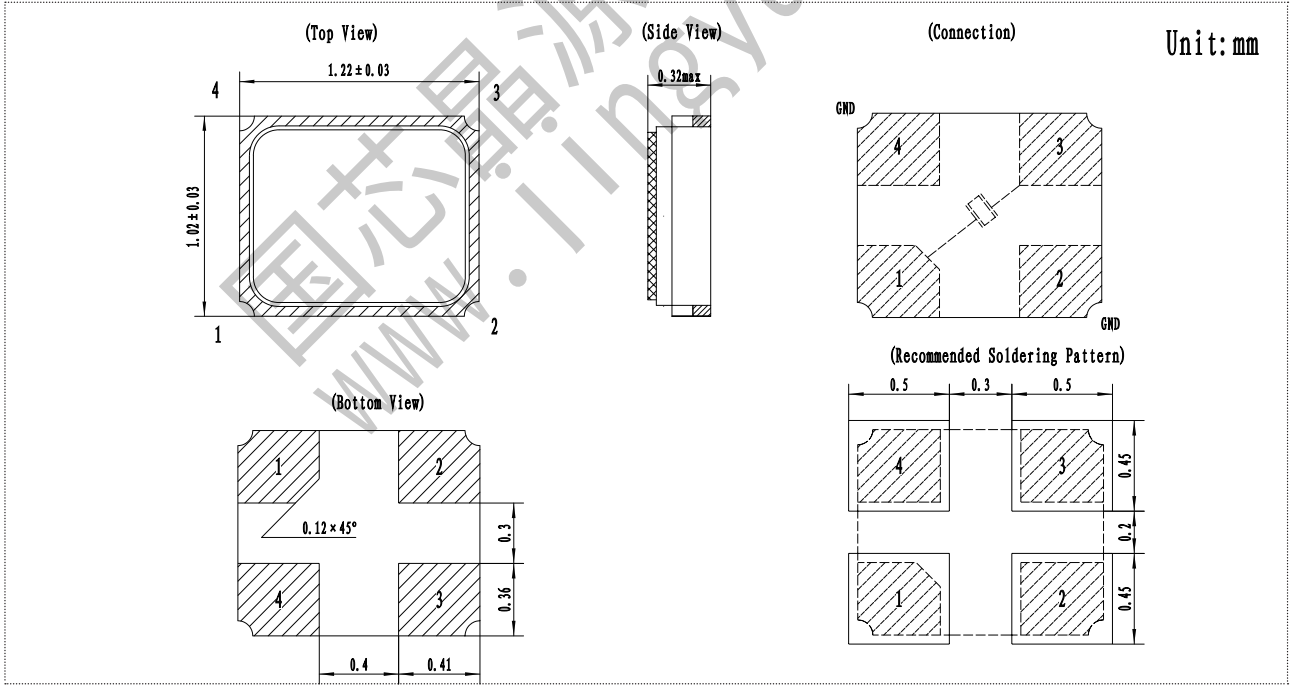
- JYEG Part Number:JYD9
- AT Cut
- Tight tolerance/stability
- AUSN seal
- Suit for mobile communication
- RoHs compliant/Pb Free



TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 1210
Frequency Range	24~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	1pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<200Ω@24~32MHz <100Ω@32~38MHz <80Ω@38~80MHz <60Ω@80~285MHz
Drive Level	200μW Max.
Aging	±1ppm~±3ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



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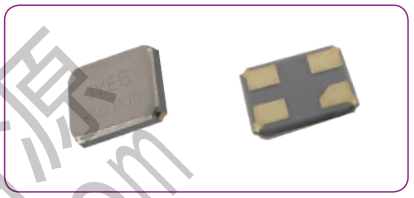
GUOXIN JYEG

PRODUCT TYPE: SMD 1612

FEATURES

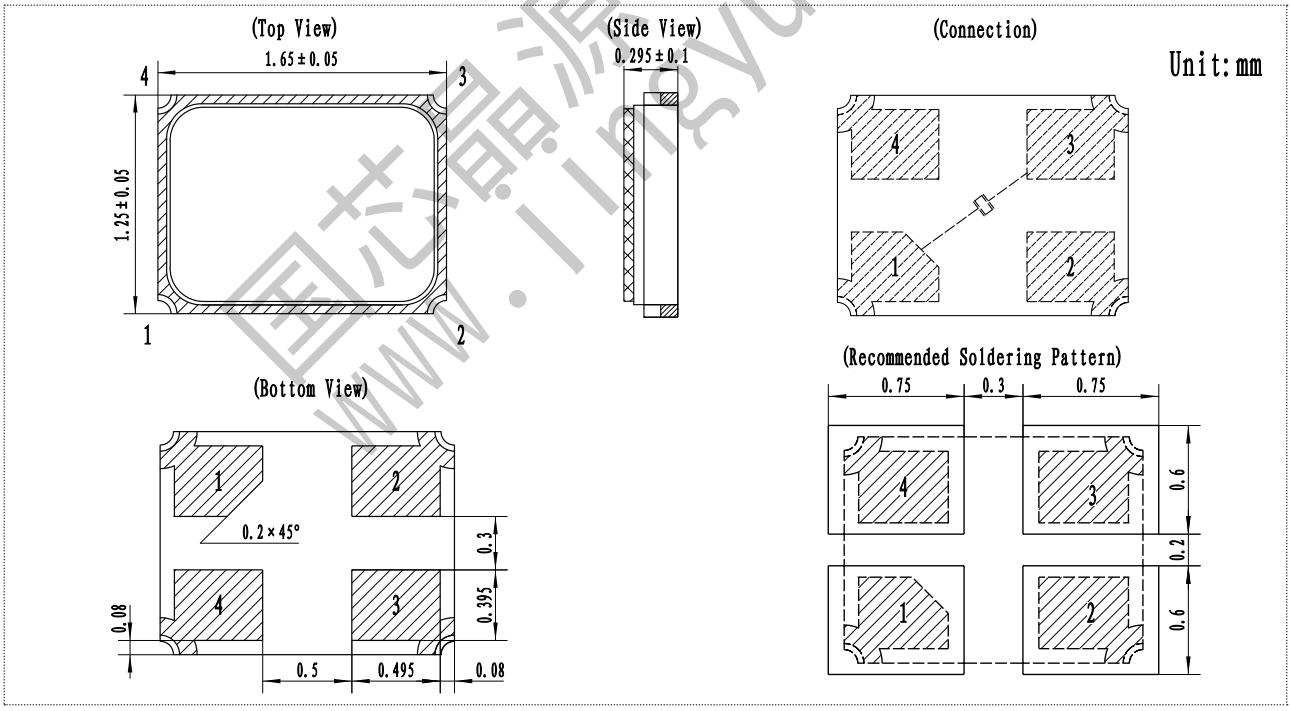


- •JYEG Part Number:JYD8
- •AT Cut
- •Tight tolerance/stability
- •AUSN seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 1612
Frequency Range	24~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	1pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<200Ω@24~32MHz <100Ω@32~38MHz <80Ω@38~80MHz <60Ω@80~285MHz
Drive Level	200μW Max.
Aging	±1ppm~±3ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

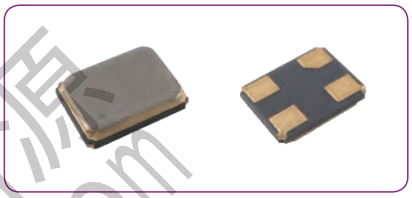
DIMENSIONS



PRODUCT TYPE: SMD 2016

FEATURES

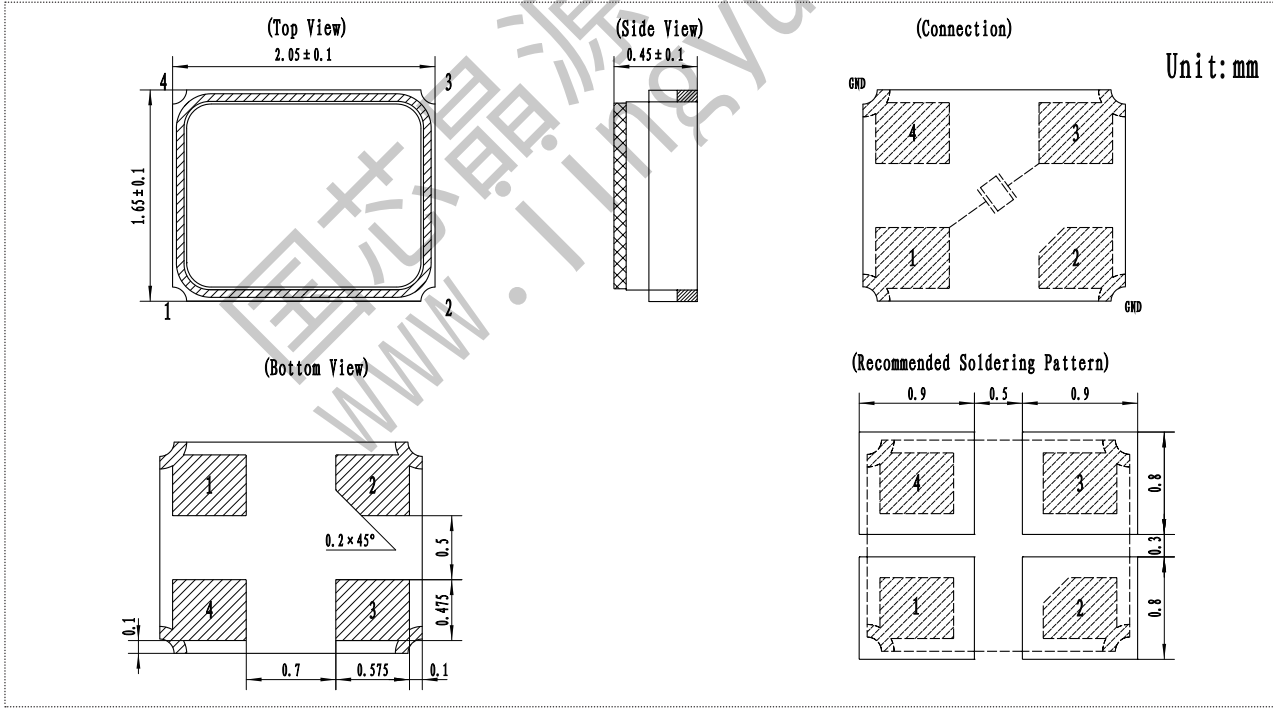
- JYEG Part Number:JYD1
- AT Cut
- Tight tolerance/stability
- Seam seal
- Suit for mobile communication
- RoHs compliant/Pb Free



TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 2016
Frequency Range	16~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	1.5pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<200Ω@16~20MHz <100Ω@20~24MHz <50Ω@24~285MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



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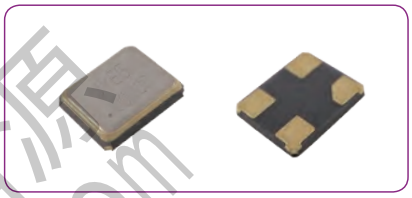
GUOXIN JYEG

PRODUCT TYPE: SMD 2520

FEATURES

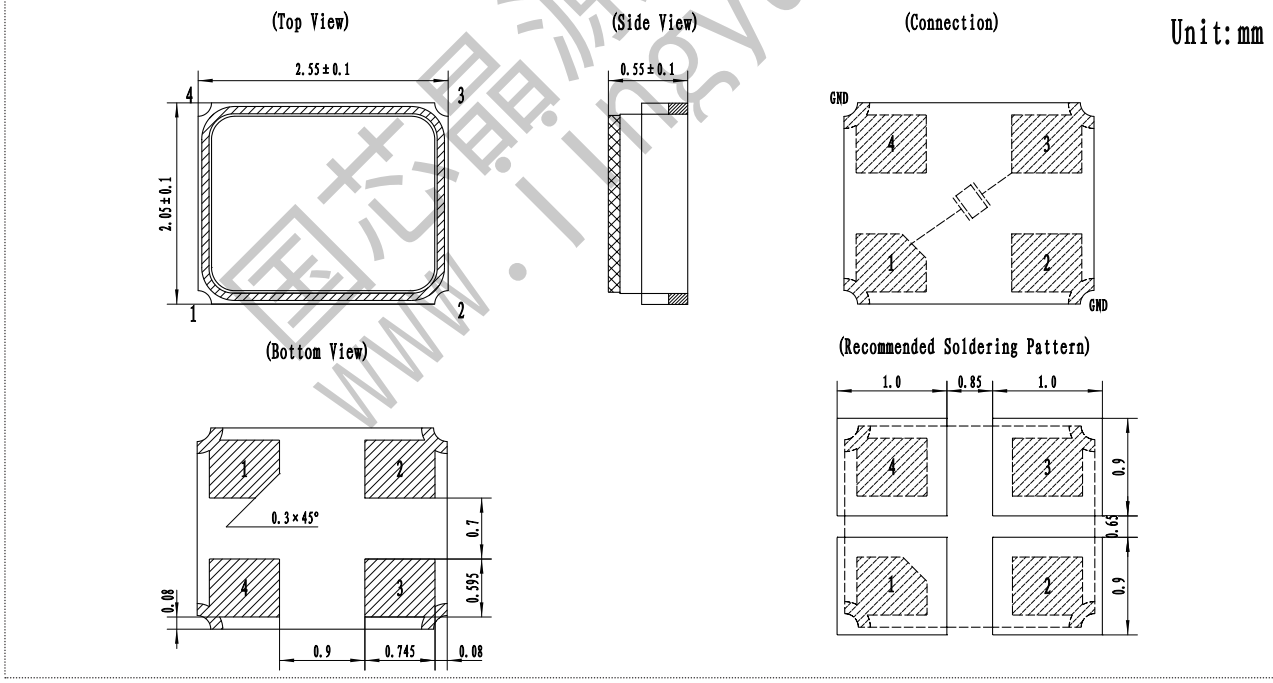


- •JYEG Part Number:JYD2
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

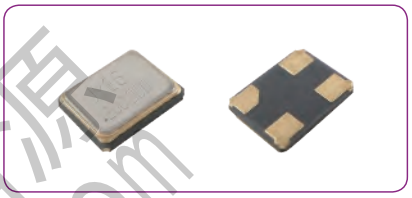
ITEM / TYPE	SMD 2520
Frequency Range	16~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	2pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<60Ω@16~27MHz <40Ω@27~285MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



PRODUCT TYPE: SMD 3225

FEATURES



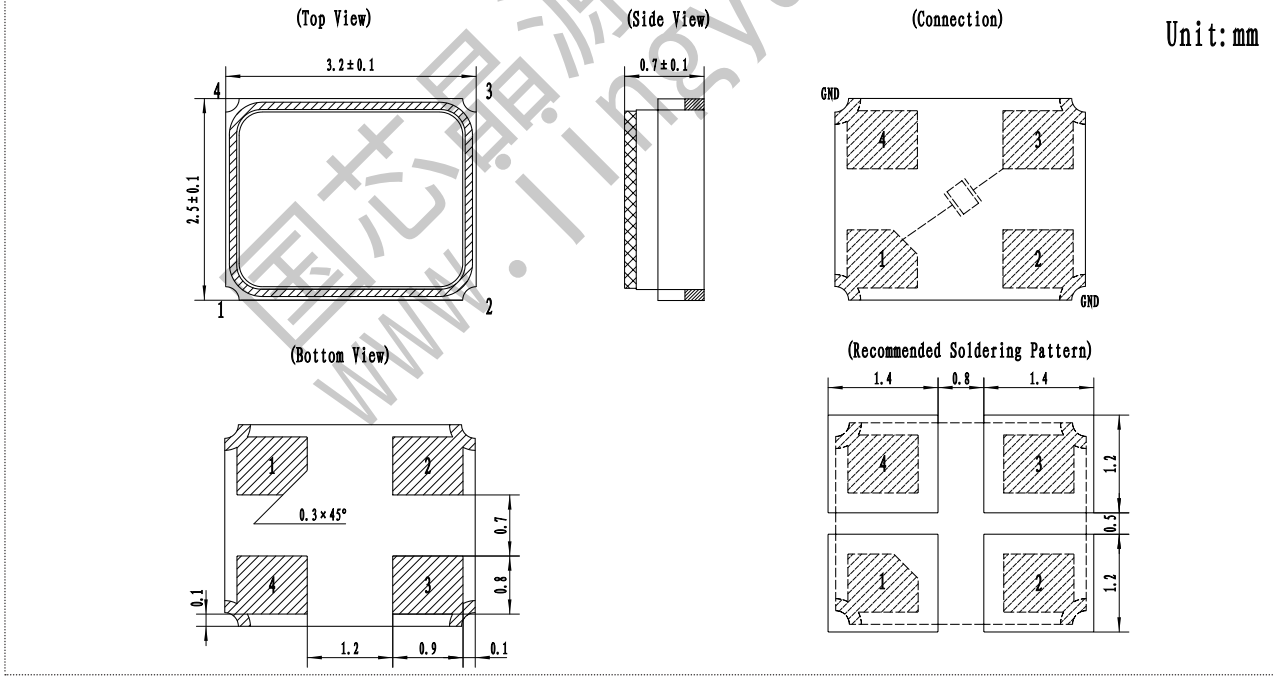
- •JYEG Part Number:JYD3
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 3225
Frequency Range	8~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	2pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<500Ω@<12MHz <70Ω@12~20MHz <40Ω@20~40MHz <25Ω@>40MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS

Unit: mm



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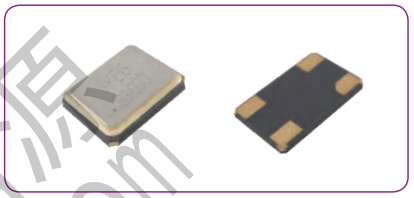
PRODUCT TYPE: SMD 5032

FEATURES

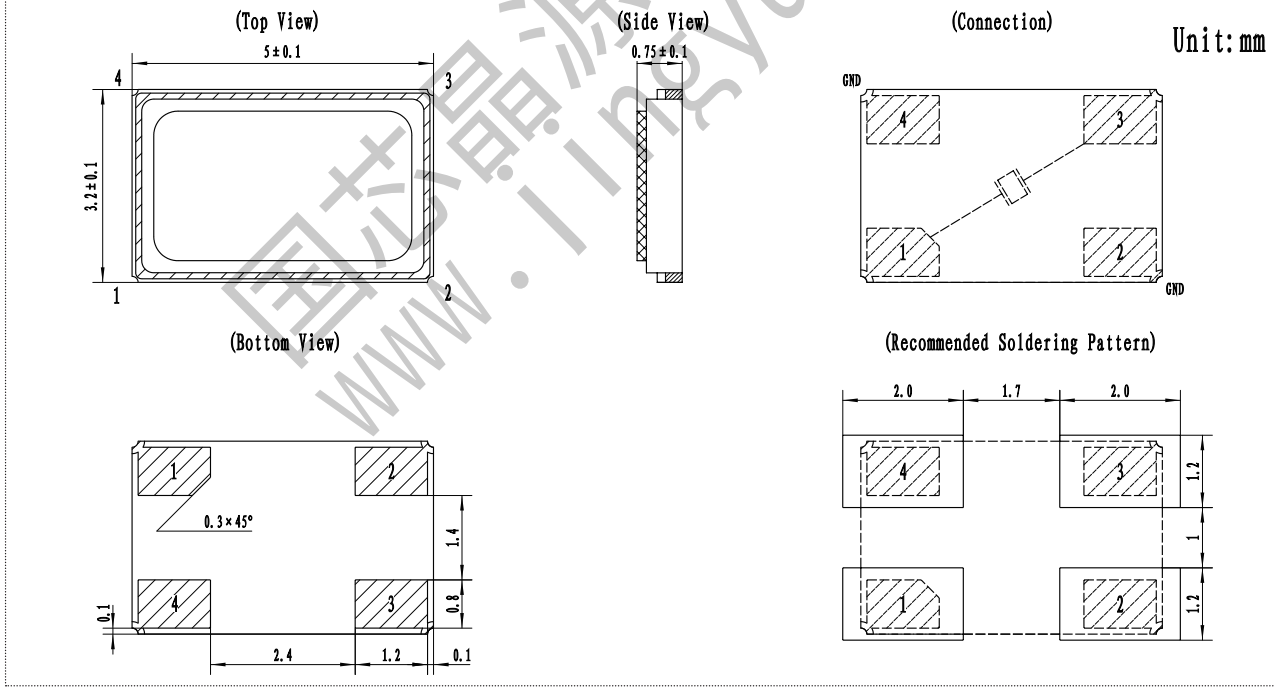


- •JYEG Part Number:JYD5
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

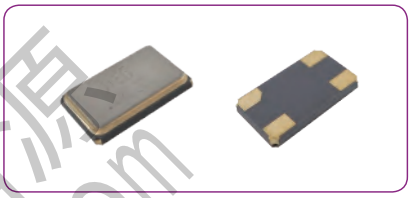
ITEM / TYPE	SMD 5032
Frequency Range	8~133MHz
Mode of Vibration	8≤F≤54 Fund,54<F≤133 3rd
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	3pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<80Ω@8≤F<16MHz <25Ω@16≤F≤54MHz <80Ω@F>54MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



PRODUCT TYPE: SMD 6035

FEATURES

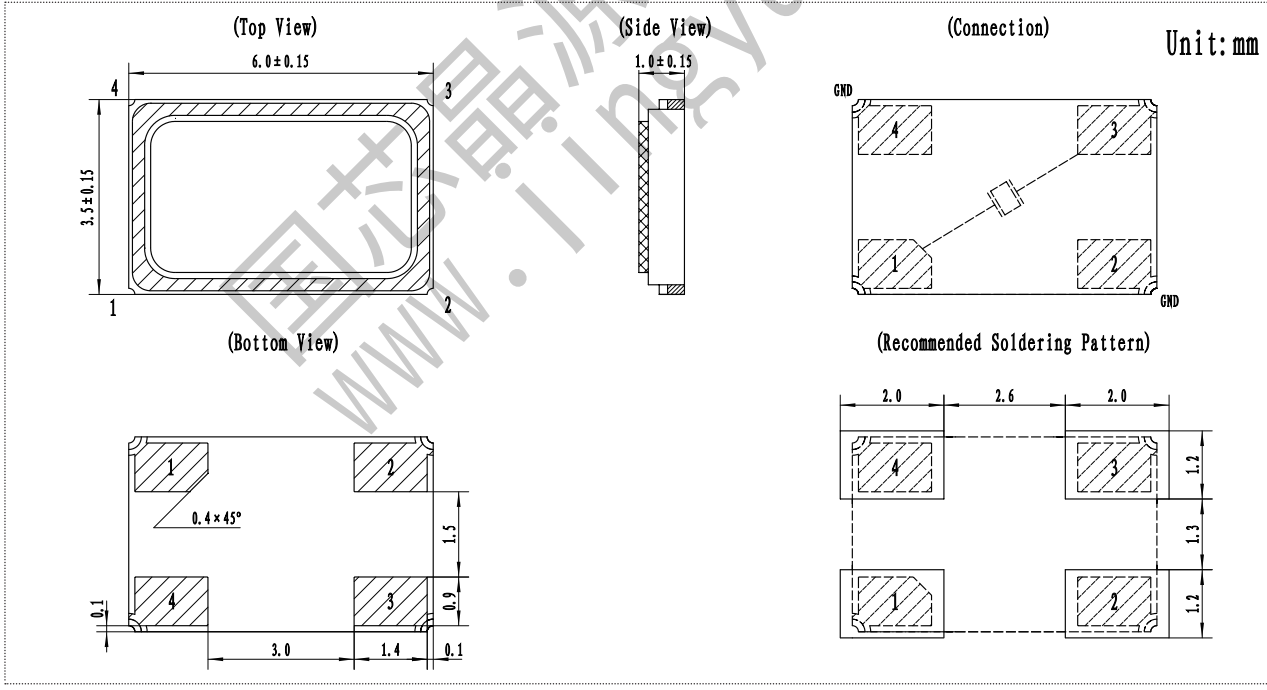


- •JYEG Part Number:JYD6
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 6035
Frequency Range	8~48MHz
Mode of Vibration	8≤F≤40 Fund,40<F≤48 3rd
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	4pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<80Ω@8≤F≤16MHz <40Ω@16<F<30MHz <30Ω@30≤F≤40MHz <80Ω@F>40MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



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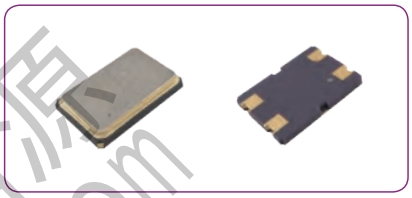
PRODUCT TYPE: SMD 7050

FEATURES

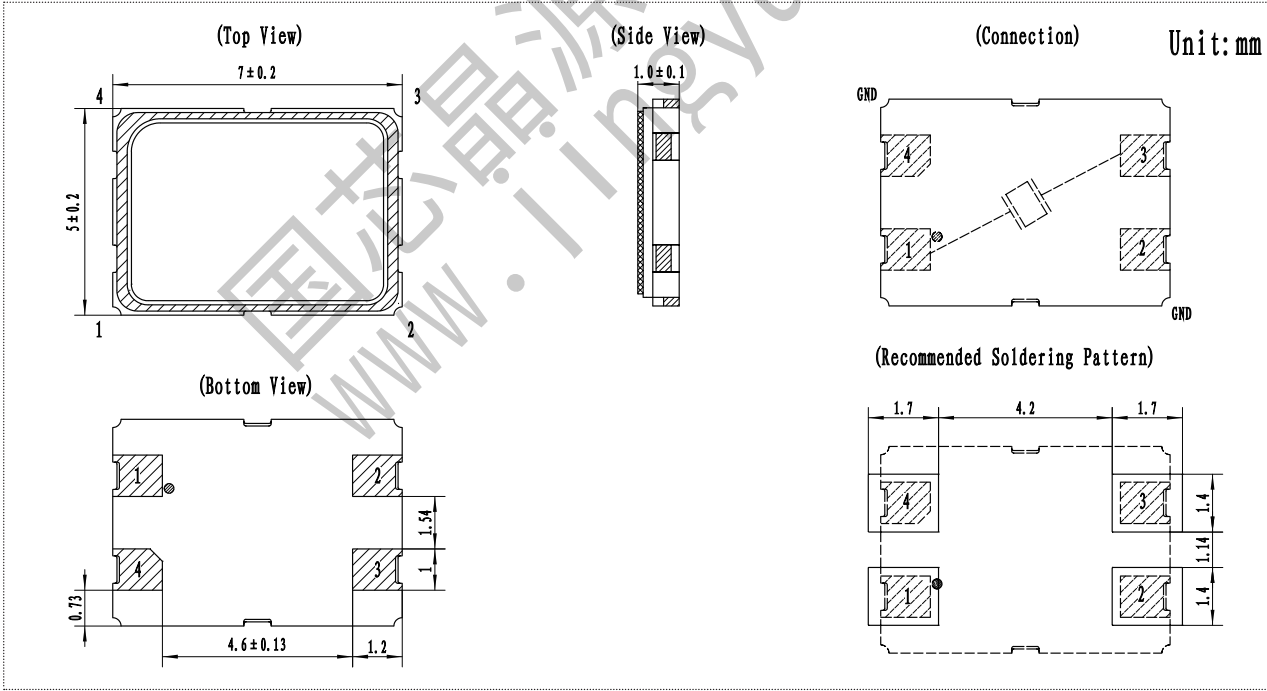


- •JYEG Part Number:JYD7
- •AT Cut
- •Tight tolerance/stability
- •Seam seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free

TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 7050
Frequency Range	6~160MHz
Mode of Vibration	6≤F≤50 Fund,50<F≤160 3rd
Frequency Tolerance (at 25°C)	±10ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	4pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<80Ω@6≤F≤16MHz <40Ω@16<F<30MHz <30Ω@30≤F≤50MHz <80Ω@F>50MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

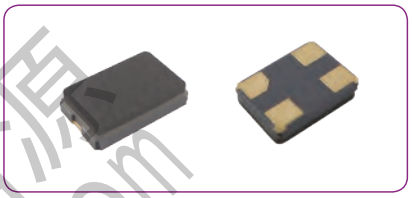
DIMENSIONS



PRODUCT TYPE: SMD 3225 Glass

FEATURES

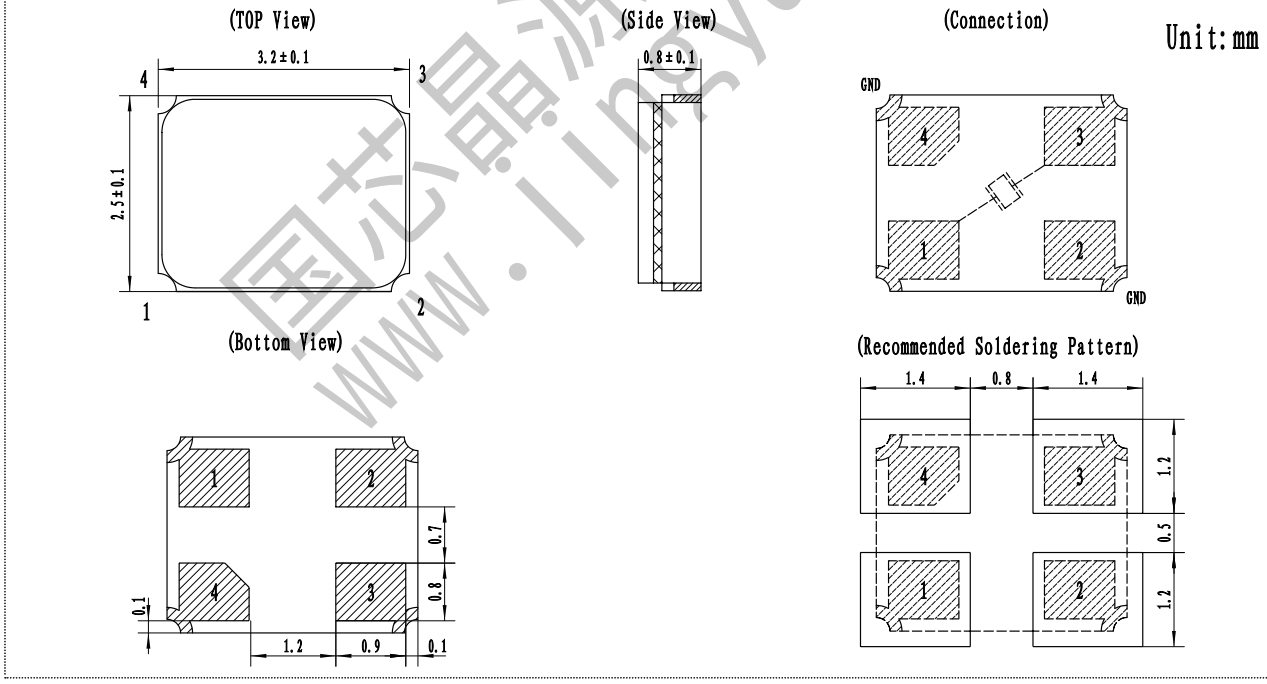
- •JYEG Part Number:JYGD3
- •AT Cut
- •Tight tolerance/stability
- •Glass seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free



TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 3225 Glass
Frequency Range	12~285MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±15ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	2pF Max.
Load Capacitance	6~50pF or Series
Resonance Resistance	<80Ω@12≤F≤20MHz <45Ω@20<F≤40MHz <30Ω@40<F≤200MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



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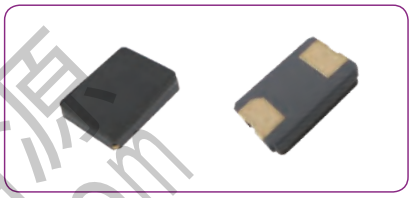
PRODUCT TYPE: SMD 5032 Glass

FEATURES

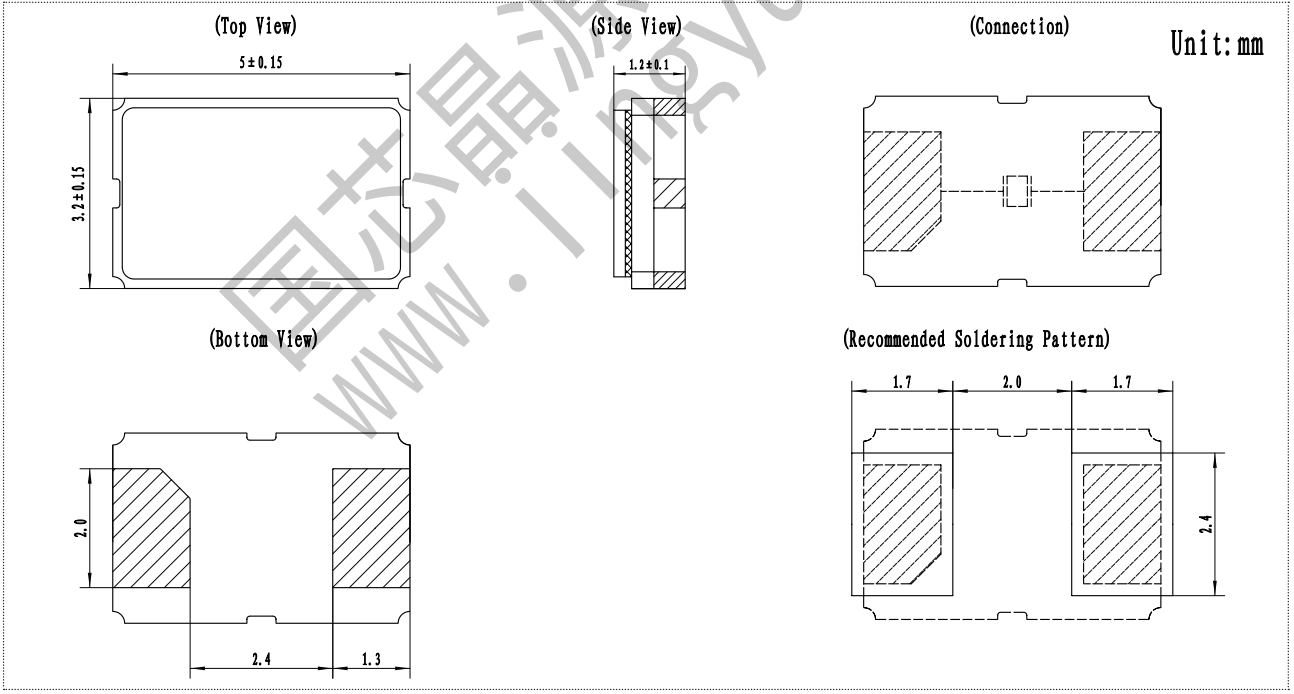
- •JYEG Part Number:JYGD5
- •AT Cut
- •Tight tolerance/stability
- •Glass seal
- •Suit for mobile communication
- •RoHs compliant/Pb Free



TYPICAL SPECIFICATIONS

ITEM / TYPE	SMD 5032 Glass
Frequency Range	8~54MHz
Mode of Vibration	Fundamental
Frequency Tolerance (at 25°C)	±15ppm,or specify
Frequency Stability Over Operating Temperature Range	±30ppm/-40~85°C,or specify
Shunt Capacitance	3pF Max.
Load Capacitance	6~50pF or series
Resonance Resistance	<100Ω@8≤F<16MHz <30Ω@16≤F≤54MHz
Drive Level	200μW Max.
Aging	±2ppm/year
Insulation Resistance	500MΩ@DC100V
Storage Temperature Range	-55~125°C

DIMENSIONS



PRODUCT TYPE: HC-49US/SMD

FEATURES

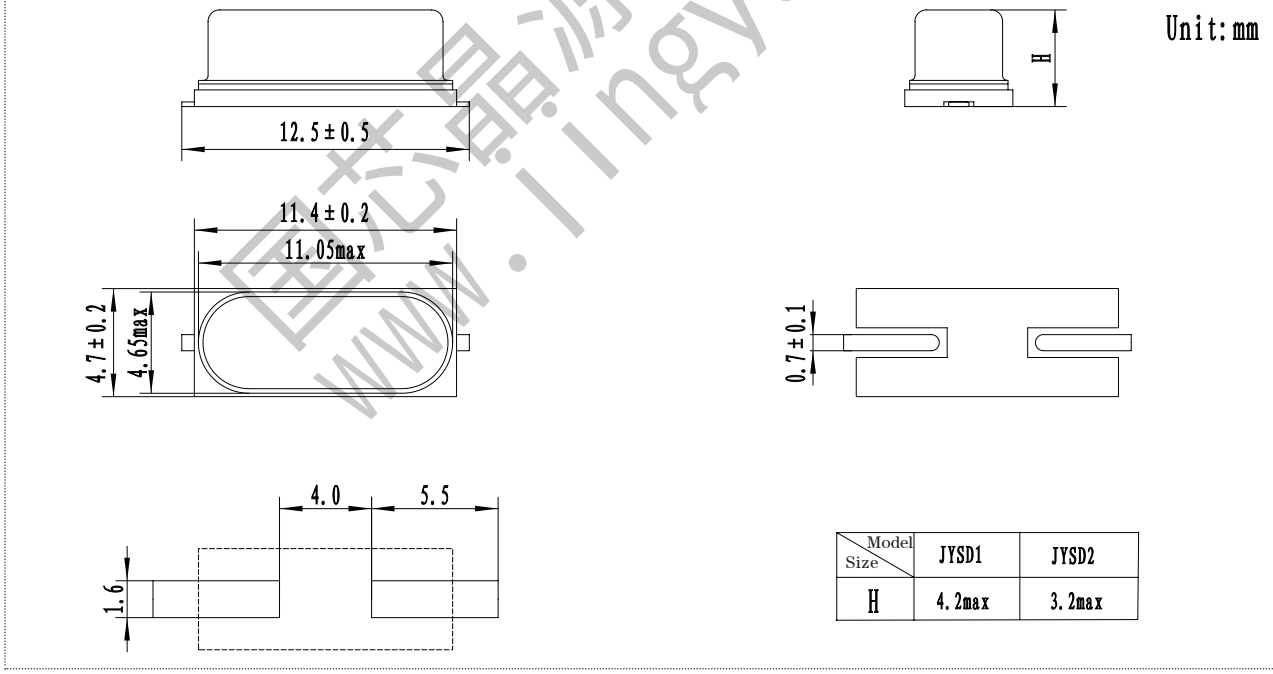
•JYEG Part Number:JYSD1,JYSD2

•AT,BT available •Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	HC-49US/SMD		
Frequency Range	3.4875~41MHz	24.576~75MHz	24~44MHz
Mode of Vibration	AT Fundamental	AT 3rd Overtone	BT Fundamental
Resonance Resistance	20~150Ω	60~120Ω	30~40Ω
Frequency Tolerance at 25°C	±5ppm~±50ppm		
Shunt Capacitance	7pF Max.		
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify		±50ppm/0°C~+50°C
			±100ppm/-10°C~+60°C
			±125ppm/-20°C~+70°C
Load Capacitance	3~50pF or Series		
Insulation Resistance	>500MΩ/DC100V±15V		
Drive Level	10nW~1mW		
Aging	±3ppm~±5ppm/year		
Storage Temperature Range	-55~125°C		

DIMENSIONS



Model / Size	JYSD1	JYSD2
H	4.2max	3.2max

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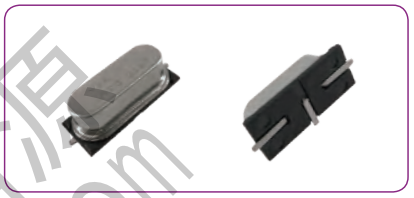
PRODUCT TYPE: HC-49US/SMD

FEATURES



•JYEG Part Number:JYSD1-3

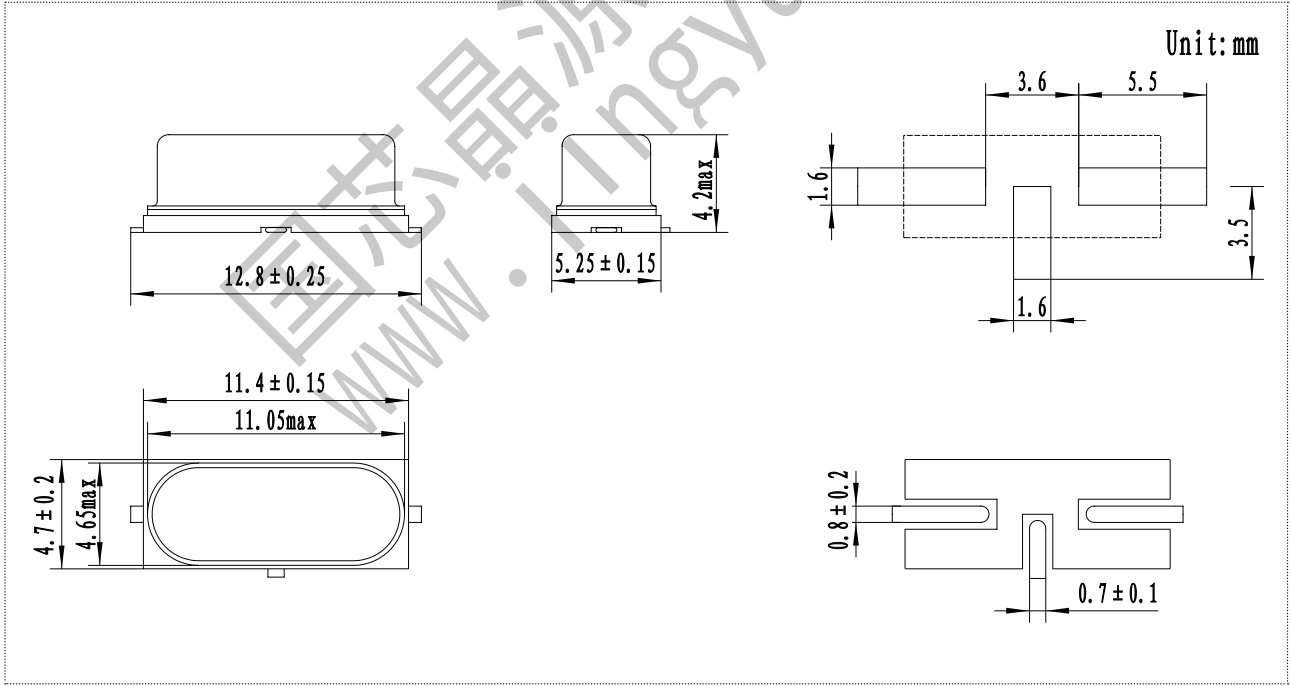
•AT,BT available

•Tight tolerance/stability

TYPICAL SPECIFICATIONS

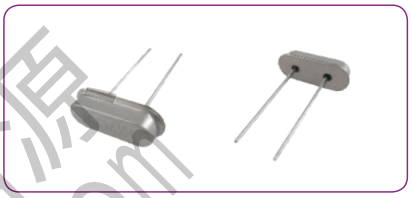
ITEM / TYPE	HC-49US/SMD		
Frequency Range	3.4875~41MHz	24.576~75MHz	24~44MHz
Mode of Vibration	AT Fundamental	AT 3rd Overtone	BT Fundamental
Resonance Resistance	20~150Ω	60~120Ω	30~40Ω
Frequency Tolerance at 25°C	±5ppm~±50ppm		
Shunt Capacitance	7pF Max.		
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify		±50ppm/0°C~+50°C
			±100ppm/-10°C~+60°C
			±125ppm/-20°C~+70°C
Load Capacitance	3~50pF or Series		
Insulation Resistance	>500MΩ/DC100V±15V		
Drive Level	10nW~1mW		
Aging	±3ppm~±5ppm/year		
Storage Temperature Range	-55~125°C		

DIMENSIONS



PRODUCT TYPE: HC-49US

FEATURES



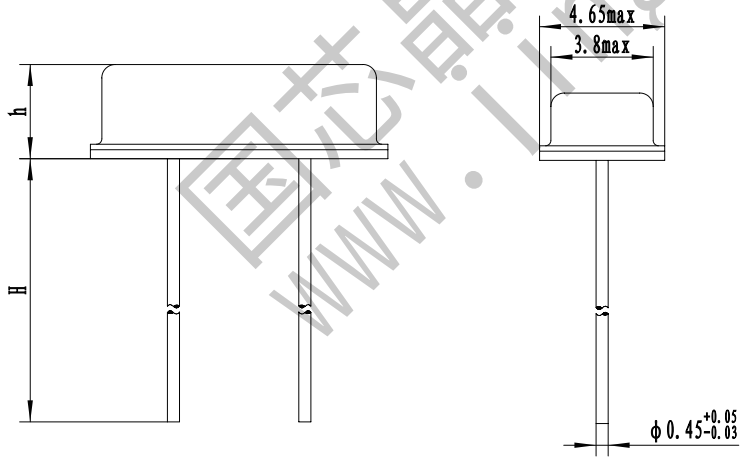
- JYEG Part Number:JYS1,JYS2
- AT,BT available
- Tight tolerance/stability
- Custom lead length options

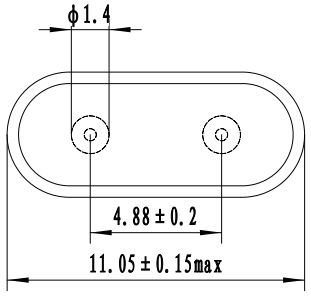
TYPICAL SPECIFICATIONS

ITEM / TYPE	HC-49US		
Frequency Range	3.4875~41MHz	24.576~75MHz	24~44MHz
Mode of Vibration	AT Fundamental	AT 3rd Overtone	BT Fundamental
Resonance Resistance	20~150Ω	60~120Ω	30~40Ω
Frequency Tolerance at 25°C	±5ppm~±50ppm		
Shunt Capacitance	7pF Max.		
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify		±50ppm/0°C~+50°C
			±100ppm/-10°C~+60°C
			±125ppm/-20°C~+70°C
Load Capacitance	3~50pF or Series		
Insulation Resistance	>500MΩ/DC100V±15V		
Drive Level	10nW~1mW		
Aging	±3ppm~±5ppm/year		
Storage Temperature Range	-55~125°C		

DIMENSIONS

Unit: mm





Model / Size	JYS1	JYS2
h	3.5max	2.5max
H	13.2±0.5	
	20.0±0.5	

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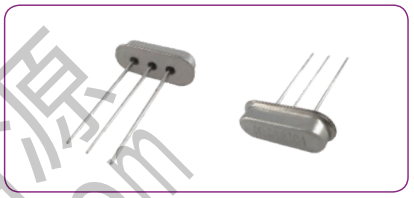
PRODUCT TYPE: HC-49US

FEATURES

- JYEG Part Number:JYS1-3
- AT,BT available
- Custom lead length options
- Tight tolerance/stability

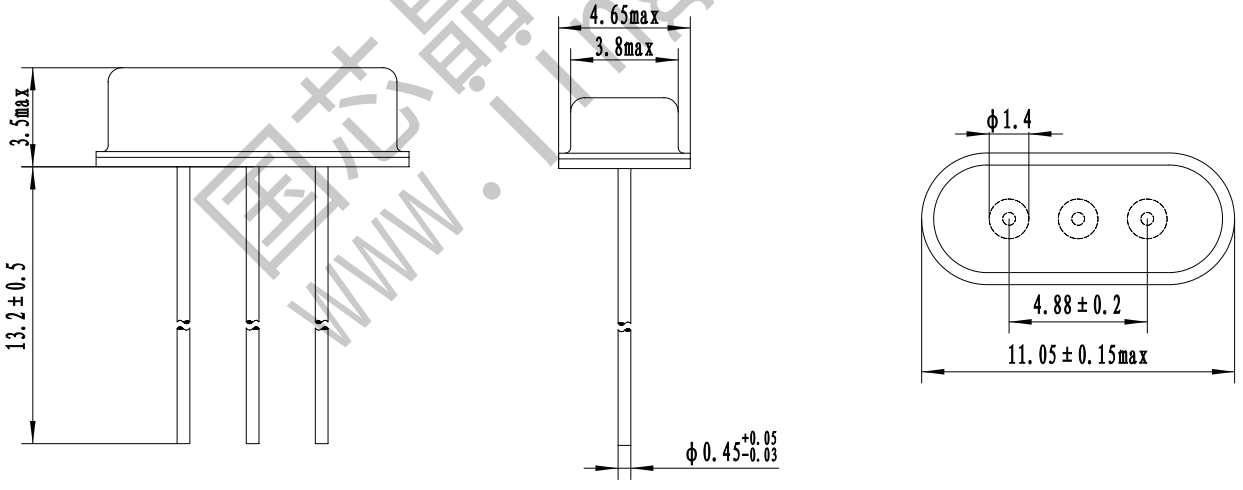


TYPICAL SPECIFICATIONS

ITEM / TYPE	HC-49US		
Frequency Range	3.4875~41MHz	24.576~75MHz	24~44MHz
Mode of Vibration	AT Fundamental	AT 3rd Overtone	BT Fundamental
Resonance Resistance	20~150Ω	60~120Ω	30~40Ω
Frequency Tolerance at 25°C	±5ppm~±50ppm		
Shunt Capacitance	7pF Max.		
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify		±50ppm/0°C~+50°C
			±100ppm/-10°C~+60°C
			±125ppm/-20°C~+70°C
Load Capacitance	3~50pF or Series		
Insulation Resistance	>500MΩ/DC100V±15V		
Drive Level	10nW~1mW		
Aging	±3ppm~±5ppm/year		
Storage Temperature Range	-55~125°C		

DIMENSIONS

Unit: mm

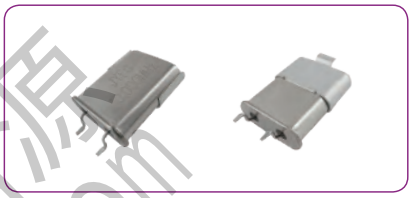


PRODUCT TYPE: HC-49U/SMD-CLIP

FEATURES

•JYEG Part Number:JYUD •AT,BT available

•Tight tolerance/stability

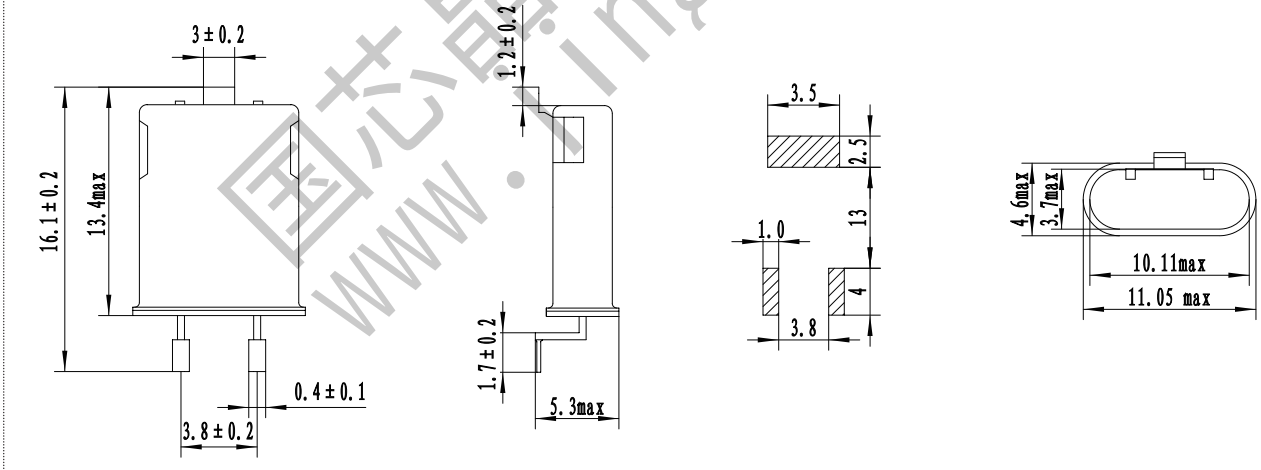


TYPICAL SPECIFICATIONS

ITEM / TYPE	HC-49U/SMD-CLIP			
Frequency Range	1.8432~40MHz	23~100MHz	100~150MHz	120~200MHz
Mode of Vibration	AT Fundamental	3rd Overtone	5th Overtone	7th Overtone
Resonance Resistance	20~600Ω	40~60Ω	80ΩMax.	100ΩMax.
Frequency Tolerance at 25°C	±5ppm~±50ppm			
Shunt Capacitance	9pF Max.			
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify			
Load Capacitance	6~50pF or Series			
Insulation Resistance	>500MΩ/DC100V±15V			
Drive Level	10nW~1mW			
Aging	±3ppm~±5ppm/year			

DIMENSIONS

Unit: mm



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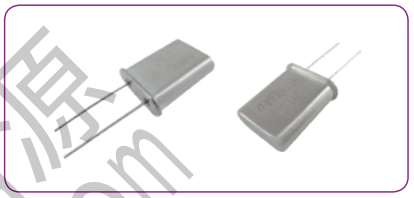
GUOXIN JYEG

PRODUCT TYPE: HC-49U

FEATURES



•JYEG Part Number:JYU

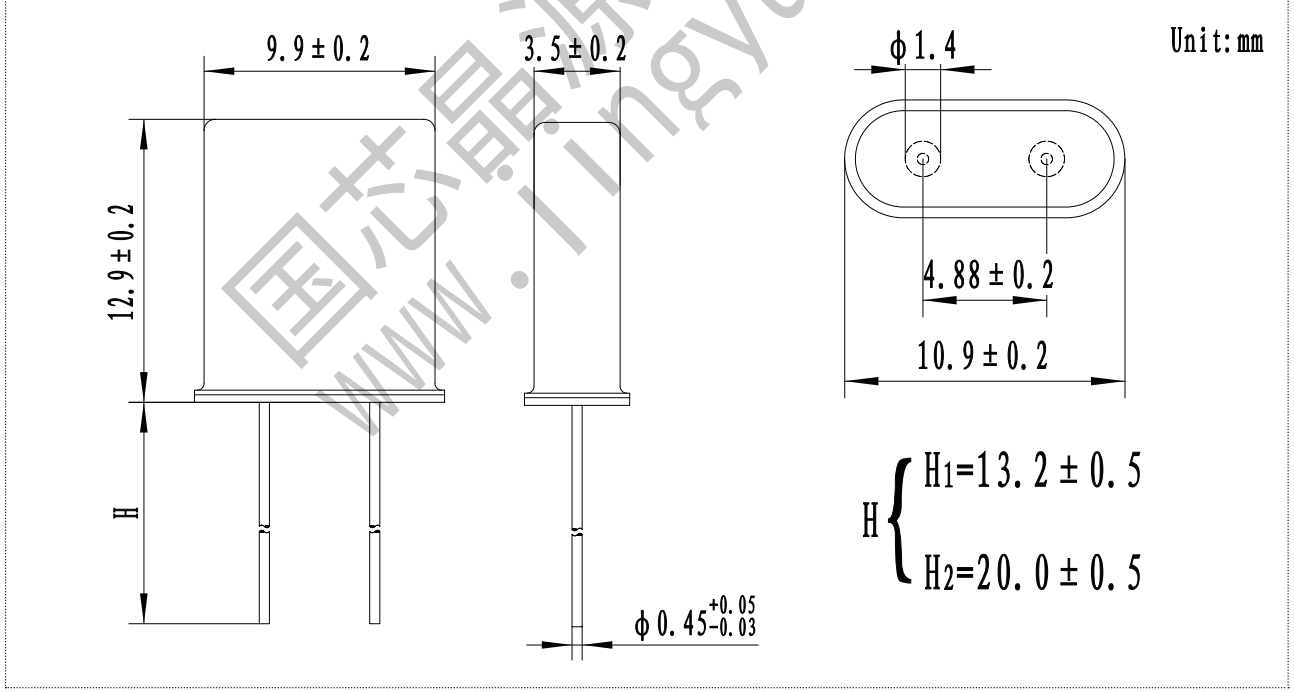
•AT,BT available

•Tight tolerance/stability

TYPICAL SPECIFICATIONS

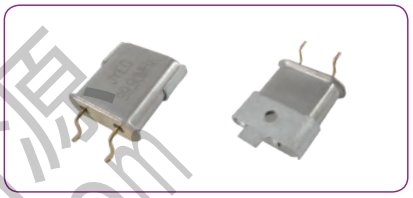
ITEM / TYPE	HC-49U			
Frequency Range	1.8432~40MHz	23~100MHz	100~150MHz	120~200MHz
Mode of Vibration	AT Fundamental	3rd Overtone	5th Overtone	7th Overtone
Resonance Resistance	20~600Ω	40~60Ω	80ΩMax.	100ΩMax.
Frequency Tolerance at 25°C	±5ppm~±50ppm			
Shunt Capacitance	9pF Max.			
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify			
Load Capacitance	6~50pF or Series			
Insulation Resistance	>500MΩ/DC100V±15V			
Drive Level	0.1nW~1mW			
Aging	±2ppm~±5ppm			

DIMENSIONS



PRODUCT TYPE: UM-1,UM-1/SMD- CLIP

FEATURES



•JYEG Part Number:JYM1,JYM1D

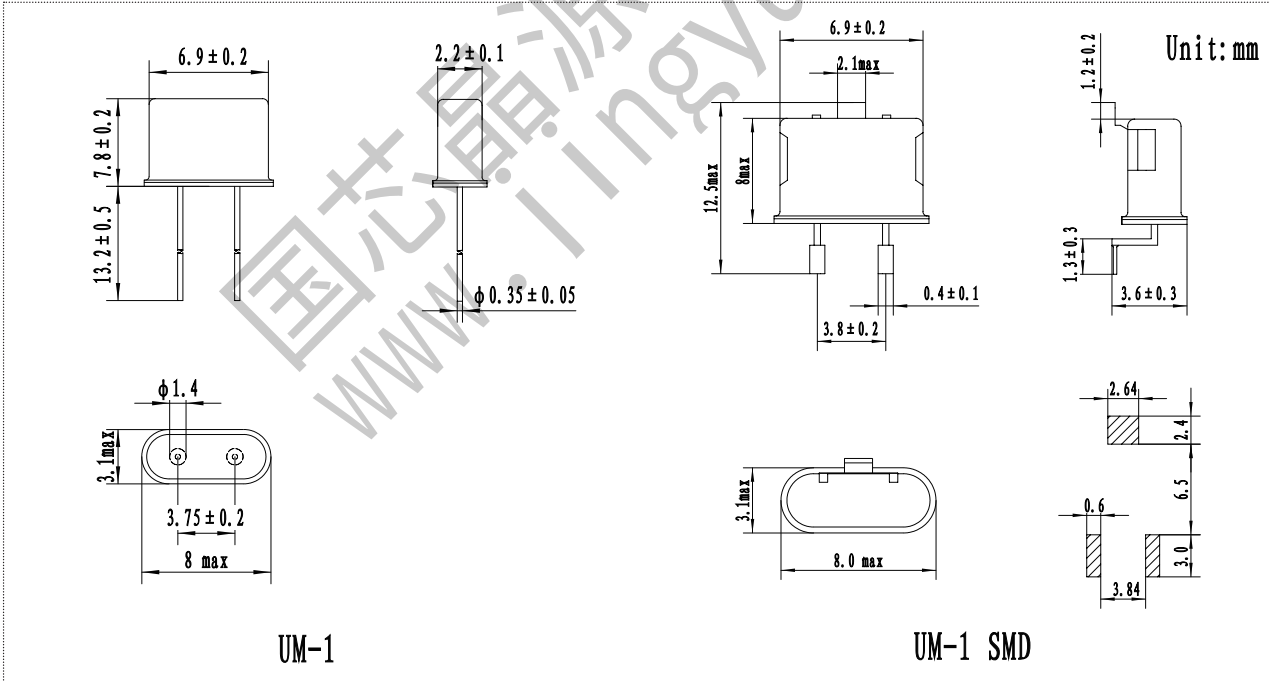
•Custom lead length options

•Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	UM-1,UM-1/SMD- CLIP			
Frequency Range	6~45MHz	20~125MHz	80~125MHz	120~200MHz
Mode of Vibration	AT Fundamental	3rd Overtone	5th Overtone	7th Overtone
Resonance Resistance	60ΩMax.	80ΩMax.	80ΩMax.	100ΩMax.
Frequency Tolerance at 25°C	±5ppm~±50ppm			
Shunt Capacitance	7pF Max.			
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify			
Load Capacitance	6~50pF or Series			
Insulation Resistance	>500MΩ/DC100V±15V			
Drive Level	0.1nW~1mW			
Aging	±3ppm/year Max.			

DIMENSIONS



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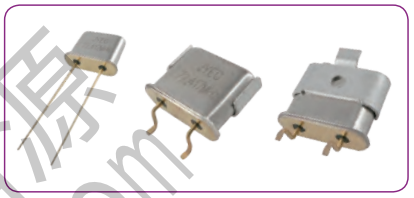
PRODUCT TYPE: UM-5,UM-5/SMD-CLIP

FEATURES



•JYEG Part Number:JYM5,JYM5D

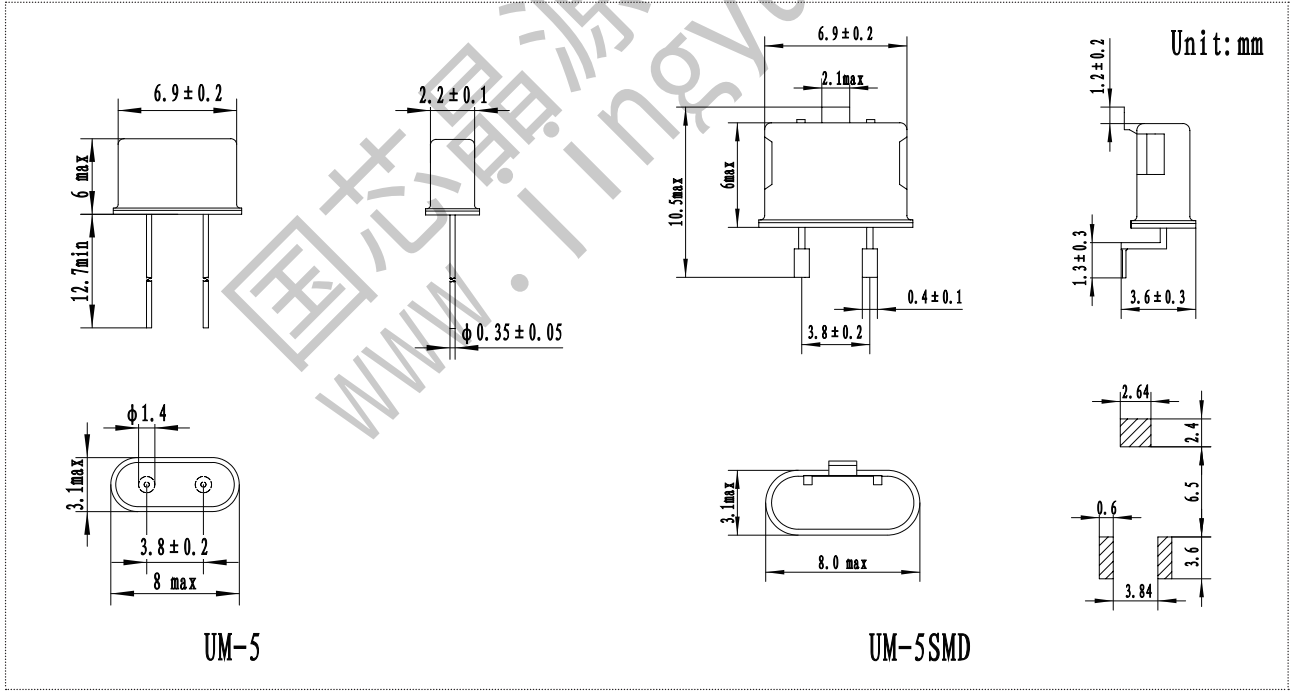
•Custom lead length options

•Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	UM-5,UM-5/SMD-CLIP			
Frequency Range	10~45MHz	30~100MHz	80~155MHz	120~200MHz
Mode of Vibration	AT Fundamental	3rd Overtone	5th Overtone	7th Overtone
Resonance Resistance	60ΩMax.	80ΩMax.	80ΩMax.	100ΩMax.
Frequency Tolerance at 25°C	±5ppm~±50ppm			
Shunt Capacitance	7pF Max.			
Frequency Stability Over Temperature Range	±5ppm~±50ppm,or specify			
Load Capacitance	6~50pF or Series			
Insulation Resistance	>500MΩ/DC100V±15V			
Drive Level	0.1nW~1mW			
Aging	±3ppm/year Max.			

DIMENSIONS

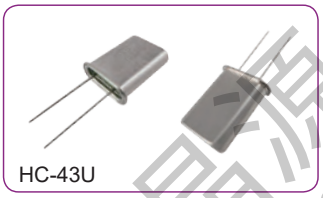


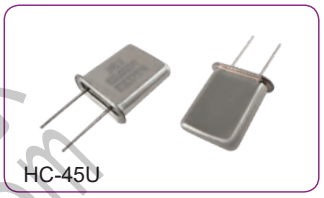
PRODUCT TYPE: SC Cut HC-43U/HC-45U

FEATURES

•JYEG Part Number:JYCU,JYCU5

•Low aging •Wide frequency range

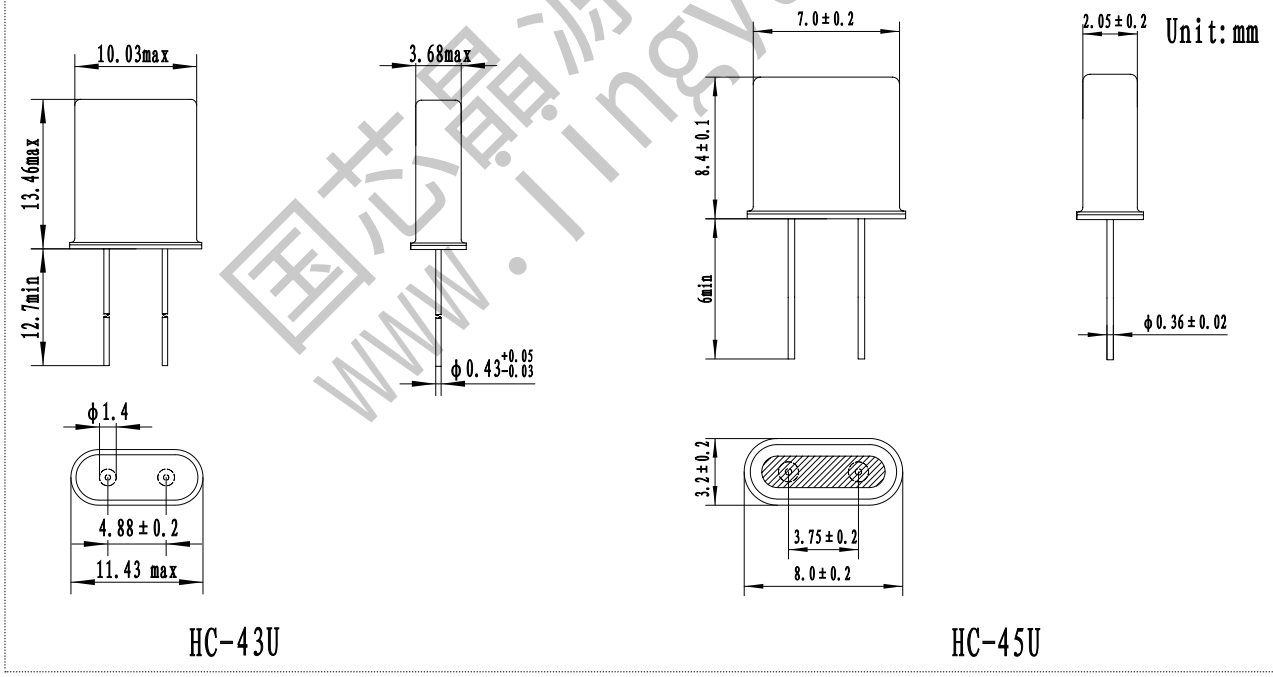

HC-43U


HC-45U

TYPICAL SPECIFICATIONS

ITEM / TYPE	HC-43U	HC-45U
Frequency Range	10~100MHz	10~120MHz
Cal. Tol (ppm) at Turn Over Temperature	Customer Specify	Customer Specify
Turn Over Temperature	80~90°C/92~105°C, or specify	80~90°C/92~105°C, or specify
Mode of Vibration	SC-Fundamental SC-3rd,SC-5th	SC-Fundamental SC-3rd,SC-5th
RR,C0,C1,Q	Customer Specify	Customer Specify
Aging	±1PPb/day ±100PPb/year	±1PPb/day ±100PPb/year

DIMENSIONS



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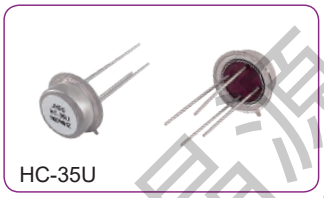
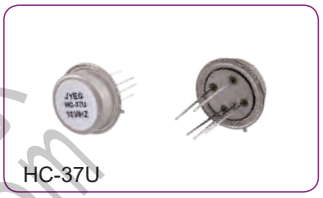
PRODUCT TYPE: SC Cut HC-35U/HC-37U

FEATURES

•JYEG Part Number:JYC5,JYC8

•Low aging •Wide frequency range


HC-35U

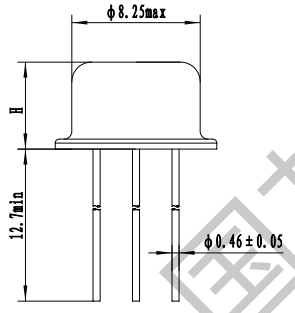

HC-37U

TYPICAL SPECIFICATIONS

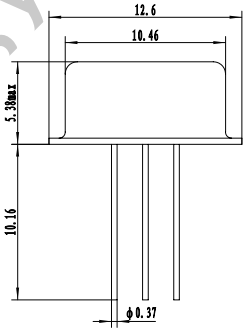
ITEM / TYPE	HC-35U	HC-37U
Frequency Range	20~128MHz	5~10MHz
Cal. Tol (ppm) at Turn Over Temperature	Customer Specify	Customer Specify
Turn Over Temperature	80~90°C/92~105°C, or specify	80~90°C/92~105°C, or specify
Mode of Vibration	SC-3rd SC-5th	SC-3rd
RR,C0,C1,Q	Customer Specify	Customer Specify
Aging	±1PPb~±3PPb/day ±100PPb~±300PPb/year	±0.5PPb/day ±50PPb/year

DIMENSIONS

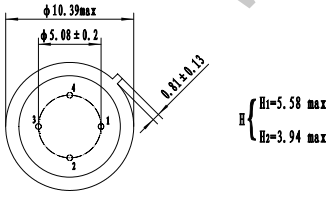
Unit: mm



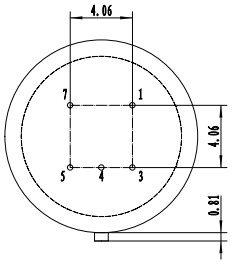
PIN	FUNCTION:
1	Crystal
2	NC
3	Crystal
4	GND



PIN	FUNCTION:
1	Crystal
3	NC
4	GND
5	Crystal
7	NC



HC-35U



HC-37U

CRYSTAL CLOCK OSCILLATORS

TECHNICAL TERMS FOR CLOCK OSCILLATORS

QUARTZ CRYSTAL OSCILLATOR

A timing device that consists of a crystal and an oscillator circuit, providing an output waveform at a specified reference frequency.

CENTER FREQUENCY

The specified reference frequency of the oscillator, typically specified in megahertz (MHz) or kilohertz (kHz).

FREQUENCY TOLERANCE/STABILITY

This inclusive specification is the amount of frequency deviation from the center frequency associated with a set of operating conditions. These conditions include: Operating Temperature Range. Supply Voltage, and Output Load. This parameter is specified with a maximum and minimum frequency deviation, expressed in parts per million (ppm).

LOGIC LEVELS

Defined as the Output Voltage Logic High or Logic" and the Output Voltage Logic Low or "Logic 0" (Figure 1).

DUTY CYCLE

The measure of output waveform uniformity. This term, also referred to as symmetry, is a measurement of the time that the output waveform is in a logic high state, expressed as a percentage(%). This parameter is measure at a specified voltage threshold or at a percentage of the output waveform amplitude (Figure 1).

RISE/FALL TIME

The Rise Time, measured in nanoseconds (nSec), is defined as the transition time from output logic low to output logic high. Conversely, the Fall Time, also measured in nanoseconds (nSec), is defined as the transition time from output logic high to output logic low. This transition time is measured at specified voltage thresholds or at specified percentages of the output waveform amplitude (Figures).

START-UP TIME

The specified time from oscillator power-up to the time the oscillator reaches steady state oscillation.

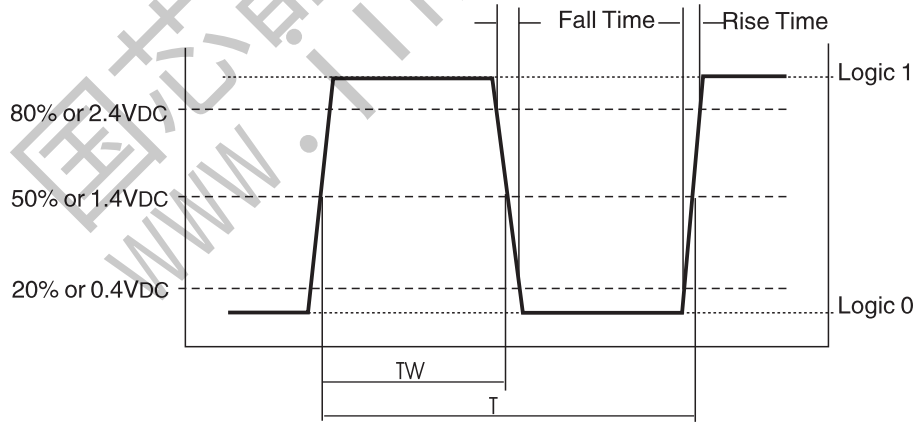


Figure 1

LOAD DRIVE CAPABILITY

The maximum load the oscillator can drive specified in terms of the number of the type of load circuit (Figures2, 3,and4).

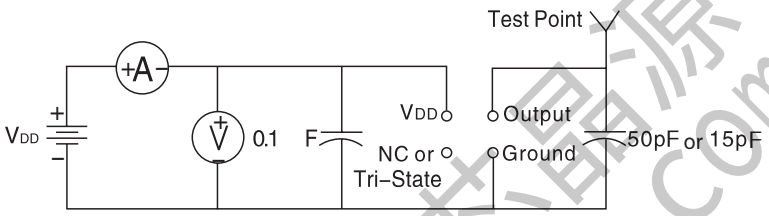


Figure2(HCMOS Test Circuit)

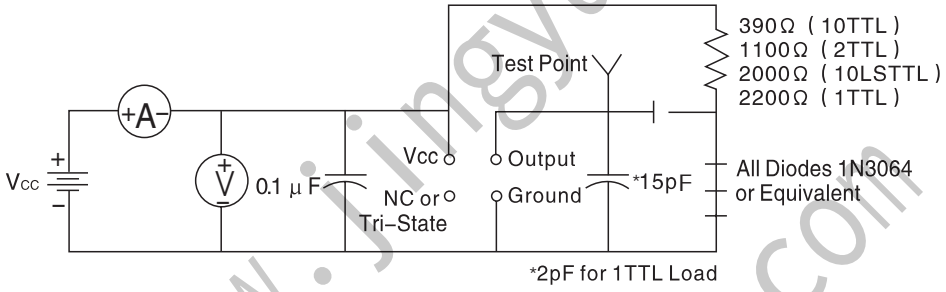


Figure3(TTL Test Circuit)

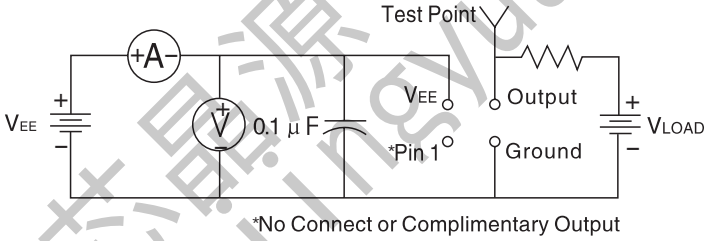


Figure4(ECL Test Circuit)

SUPPLY VOLTAGE

The DC input voltage necessary for oscillator operation, specified in volts.

INPUT CURRENT

The amount of current consumption by an oscillator from the power supply, typically specified in milliampere (mA) .

INPUT-STATE OUTPUT

An oscillator with this feature allows the output to be placed into a high impedance state; this feature is activated by the application of a logic control voltage to pin 1 of the oscillator.

PRODUCT NUMBER FOR CLOCK OSCILLATORS

Type	Code	Freq.tole.	Code	Low temp.	Code	High temp.	Code	Input voltage	Code	Output load	Code	Duty cycle	Code	Output control	Code	Nominal frequency
OSC SMD7050	OD7	± 20ppm	E	0℃	1	40℃	A	1.8V	1	CMOS	C	45%~55%	5	Tri-state Enable	Y	
OSC SMD7050P/L/H	OD7P/L/H	± 25ppm	F	-10℃	2	50℃	B	2.5V	2	LVPECL	P	40%~60%	6	Tri-state Disable	N	
OSC SMD5032	OD5	± 30ppm	G	-20℃	3	60℃	C	3.3V	3	LVDS	L					
OSC SMD5032P/L/H	OD5P/L/H	± 50ppm	H	-25℃	4	70℃	D	5V	5	HCSL	H					
OSC SMD3225	OD3	± 100ppm	I	-30℃	5	75℃	E	Custom	Z							
OSC SMD3225P/L/H	OD3P/L/H	Custom	Z	-35℃	6	80℃	F									
OSC SMD2520	OD2			-40℃	7	85℃	G									
OSC SMD2520P/L/H	OD2P/L/H			-55℃	8	105℃	H									
OSC SMD2016	OD1			Custom	Z	125℃	I									
						Custom	Z									

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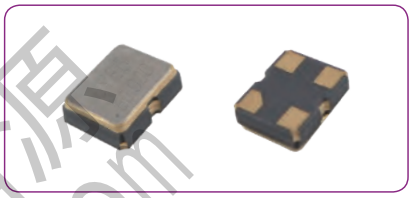
PRODUCT TYPE: OSC SMD2016

FEATURES

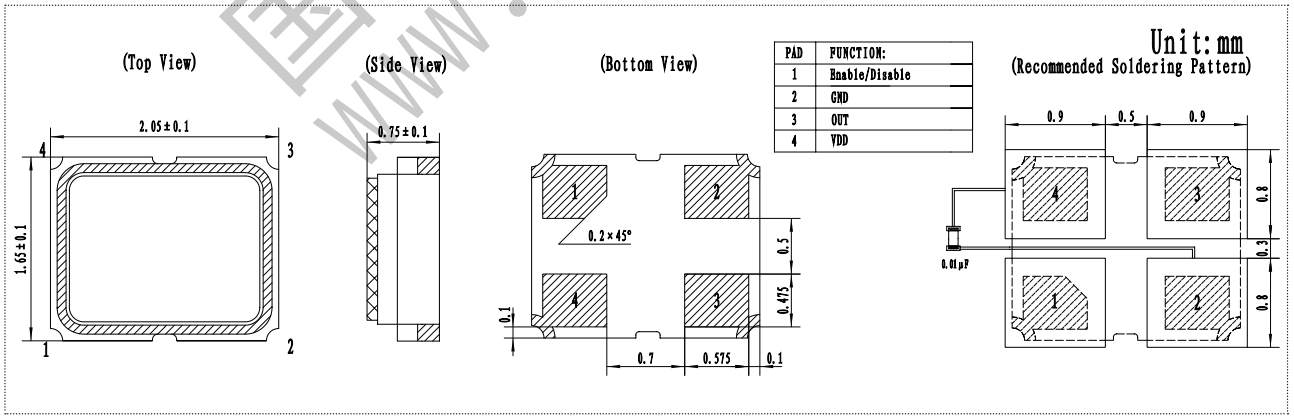


- JYEG Part Number:JYOD1
- AT Cut
- 3.3V,2.5V,1.8V Supply voltage
- CMOS/TTL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

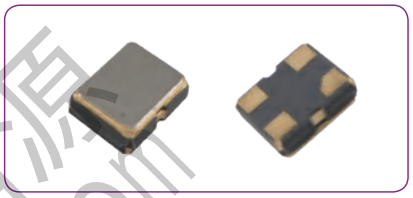
ITEM / TYPE	OSC SMD2016	
Frequency Range	32.768KHz,1~285MHz(AT1)	
Frequency Stability	±25ppm/±30ppm/±50ppm/±100ppm,or specify	
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C/-40~125°C	
Output Load	1~5TTL or CMOS 30pF Max.	
Input Current	32.768KHz	≤0.5mA
	≤35MHz	≤8mA
	35~50MHz	≤16mA
	>50MHz	≤25mA
Supply Voltage	3.3V ±10%/2.5V ±10%/1.8V ±10%	
Start-up Time	1ms Max.	
Duty Cycle	40%-60% Normal,45%-55% Tight	
Rise/Fall Time	5ns Max.	
Output "0" Level	TTL	CMOS
	0.4V Max.	10%VDD Max.
Output "1" Level	TTL	CMOS
	2.4V Min.	90%VDD Min.
Tri-state	Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable	
Jitter(12KHz- 20MHz)	1ps Max.	
Aging	±3ppm/year Max.	
Storage Temperature Range	-55~125°C	

DIMENSIONS



PRODUCT TYPE: OSC SMD2520

FEATURES

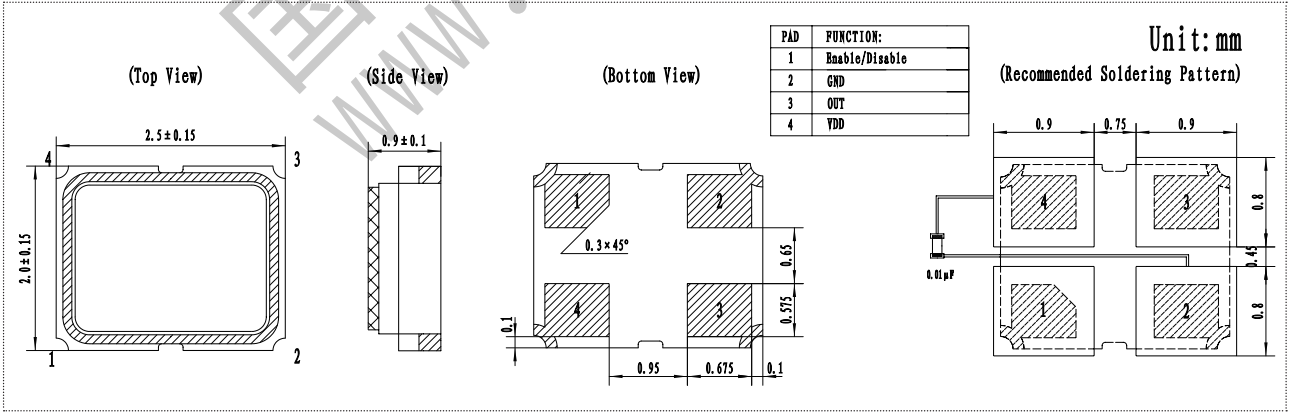


- •JYEG Part Number:JYOD2
- •AT Cut
- •3.3V,2.5V,1.8V Supply voltage
- •CMOS/TTL output
- •Tight tolerance/stability
- •Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	OSC SMD2520	
Frequency Range	32.768KHz,1~285MHz(AT1)	
Frequency Stability	±25ppm/±30ppm/±50ppm/±100ppm,or specify	
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C/-40~125°C	
Output Load	1~5TTL or CMOS 30pF Max.	
Input Current	32.768KHz	≤0.5mA
	≤35MHz	≤8mA
	35~50MHz	≤16mA
	>50MHz	≤25mA
Supply Voltage	3.3V ±10%/2.5V ±10%/1.8V ±10%	
Start-up Time	1ms Max.	
Duty Cycle	40%-60% Normal,45%-55% Tight	
Rise/Fall Time	5ns Max.	
Output "0" Level	TTL	CMOS
	0.4V Max.	10%VDD Max.
Output "1" Level	TTL	CMOS
	2.4V Min.	90%VDD Min.
Tri-state	Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable	
Jitter(12KHz- 20MHz)	1ps Max.	
Aging	±3ppm/year Max.	
Storage Temperature Range	-55~125°C	

DIMENSIONS



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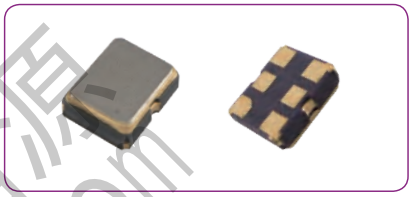
PRODUCT TYPE: OSC SMD2520P/L/H

FEATURES



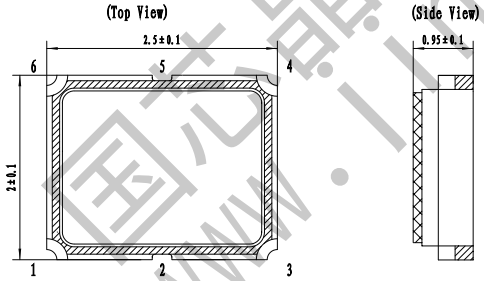
- JYEG Part Number:JYOD2P/L/H
- AT Cut
- 3.3V,2.5V Supply voltage
- LVPECL/LVDS/HCSL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

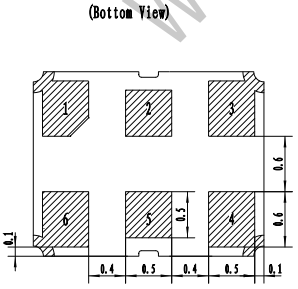
ITEM / TYPE	OSC SMD2520P		OSC SMD2520L		OSC SMD2520H	
Frequency Range	80~170MHz(AT1)					
Frequency Stability	±30ppm/±35ppm,or specify					
Operating Temperature Range	-20~70°C/-40~85°C					
Output Load	50±0.5Ω		100±1Ω		50±0.5Ω	
Input Current	≤80mA					
Supply Voltage	3.3V ±10%/2.5V ±10%					
Start-up Time	3ms Max.					
Duty Cycle	40%-60% Normal,45%-55% Tight					
Rise/Fall Time	2ns Max.					
Output "0" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.81V	VDD-1.62V	0.9V	-	-0.15V	0.15V
Output "1" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.025V	VDD-0.88V	-	1.6V	0.5V	0.9V
Tri-state	Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable					
Jitter(12KHz- 20MHz)	1ps Max.					
Aging	±3ppm/year Max.					
Storage Temperature Range	-55~125°C					

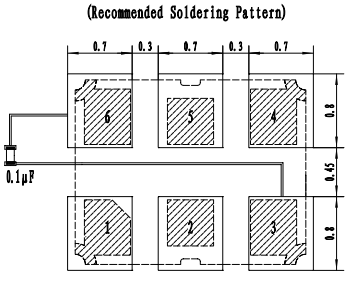
DIMENSIONS

Unit: mm



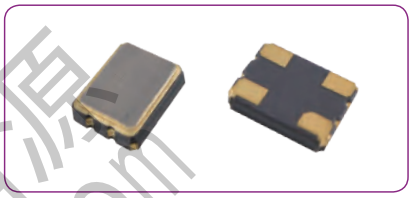
PAD	FUNCTION:
1	Enable/Disable
2	NC
3	GND
4	OUT
5	OUTN
6	VDD





PRODUCT TYPE: OSC SMD3225

FEATURES

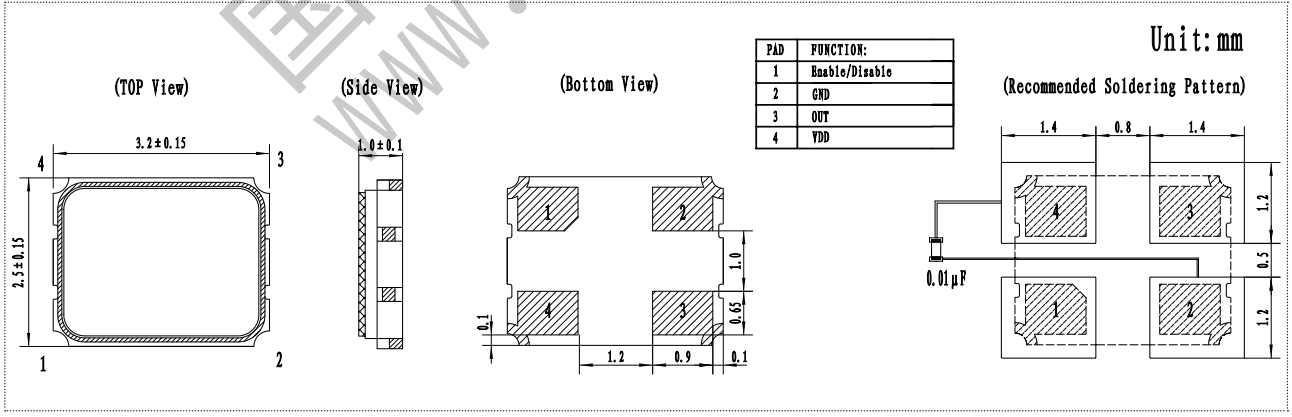


- JYEG Part Number:JYOD3
- AT Cut
- 5V,3.3V,2.5V,1.8V Supply voltage
- CMOS/TTL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE		OSC SMD3225	
Frequency Range		32.768KHz,1~285MHz(AT1)	
Frequency Stability		±25ppm/±30ppm/±50ppm/ ±100ppm,or specify	
Operating Temperature Range		-20~70°C/-40~85°C/-40~105°C/-40~125°C	
Output Load		1~5TTL or CMOS 30pF Max.	
Input Current		1.8-3.3V	5V
	32.768KHz	≤0.5mA	≤1mA
	≤35MHz	≤8mA	≤12mA
	35~50MHz	≤16mA	≤18mA
	>50MHz	≤25mA	≤30mA
Supply Voltage		5V ±10%/3.3V ±10%/2.5V ±10%/1.8V ±10%	
Start-up Time		1ms Max.(AT1), 3ms Max.(AT3)	
Duty Cycle		40%-60% Normal,45%-55% Tight	
Rise/Fall Time		5ns Max.	
Output "0" Level		TTL	CMOS
		0.4V Max.	10%VDD Max.
Output "1" Level		TTL	CMOS
		2.4V Min.	90%VDD Min.
Tri-state		Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable	
Jitter(12KHz- 20MHz)		1ps Max.	
Aging		±3ppm/year Max.	
Storage Temperature Range		-55~125°C	

DIMENSIONS



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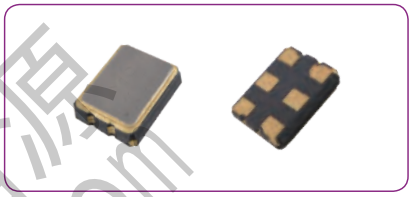
PRODUCT TYPE: OSC SMD3225P/L/H

FEATURES

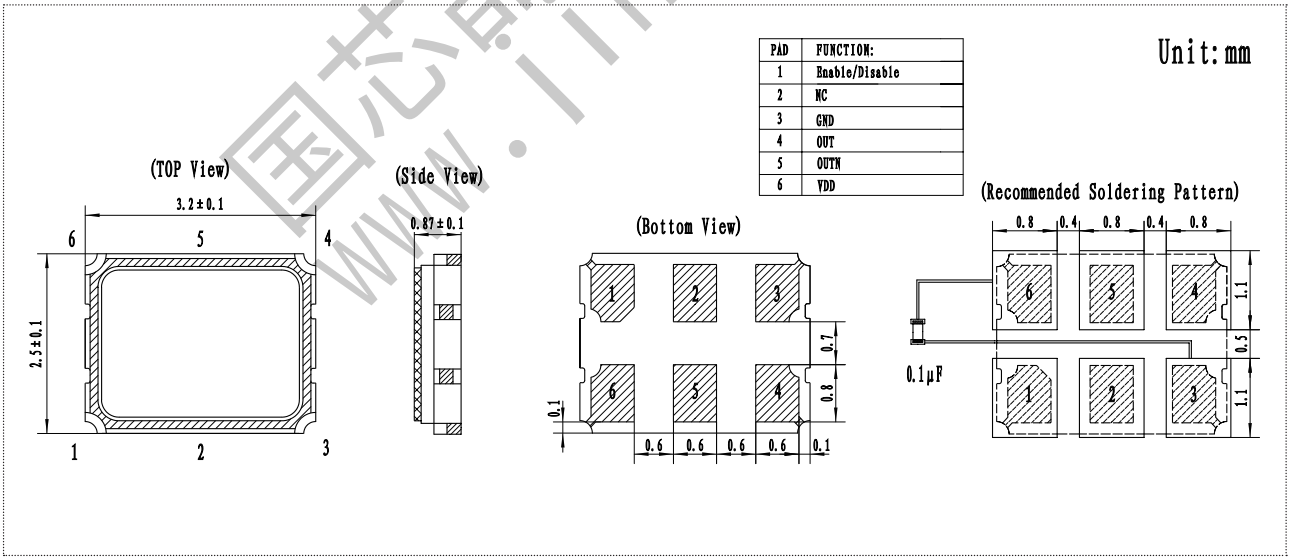


- •JYEG Part Number:JYOD3P/L/H
- •AT Cut
- •3.3V,2.5V Supply voltage
- •LVPECL/LVDS/HCSL output
- •Tight tolerance/stability
- •Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	OSC SMD3225P		OSC SMD3225L		OSC SMD3225H	
Frequency Range	80~285MHz(AT1)					
Frequency Stability	±30ppm/±35ppm,or specify					
Operating Temperature Range	-20~70°C/-40~85°C					
Output Load	50±0.5Ω		100±1Ω		50±0.5Ω	
Input Current	≤80mA					
Supply Voltage	3.3V ±10%/2.5V ±10%					
Start-up Time	3ms Max.					
Duty Cycle	40%-60% Normal,45%-55% Tight					
Rise/Fall Time	2ns Max.					
Output "0" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.81V	VDD-1.62V	0.9V	-	-0.15V	0.15V
Output "1" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.025V	VDD-0.88V	-	1.6V	0.5V	0.9V
Tri-state	Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable					
Jitter(12KHz- 20MHz)	1ps Max.					
Aging	±3ppm/year Max.					
Storage Temperature Range	-55~125°C					

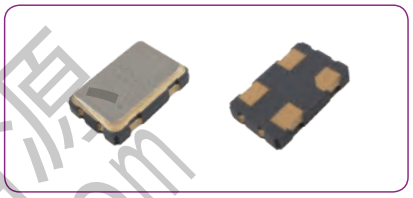
DIMENSIONS



PRODUCT TYPE: OSC SMD5032

FEATURES

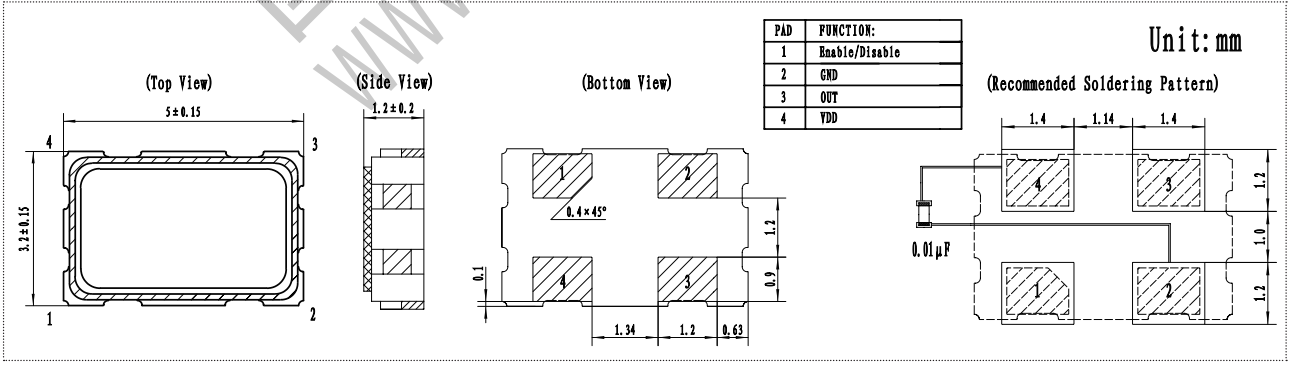
- •JYEG Part Number:JYOD5
- •AT Cut
- •5V,3.3V,2.5V,1.8V Supply voltage
- •CMOS/TTL output
- •Tight tolerance/stability
- •Tri-state function available



TYPICAL SPECIFICATIONS

ITEM / TYPE		OSC SMD5032	
Frequency Range		32.768KHz,1~54MHz(AT1),54~133MHz(AT3)	
Frequency Stability		±20ppm/±25ppm/±50ppm/±100ppm,or specify	
Operating Temperature Range		-20~70°C/-40~85°C/-40~105°C/-40~125°C	
Output Load		1~5TTL or CMOS 30pF Max.	
Input Current		1.8-3.3V	5V
	32.768KHz	≤0.5mA	≤1mA
	≤35MHz	≤8mA	≤12mA
	35~54MHz	≤16mA	≤16mA
	54~70MHz	≤25mA	≤50mA
	70~133MHz	≤45mA	≤60mA
Supply Voltage		5V ±10%/3.3V ±10%/2.5V ±10%/1.8V ±10%	
Start-up Time		1ms Max.(AT1),3ms Max.(AT3)	
Duty Cycle		40%-60% Normal,45%-55% Tight	
Rise/Fall Time		5ns Max.	
Output "0" Level		TTL	CMOS
		0.4V Max.	10%VDD Max.
Output "1" Level		TTL	CMOS
		2.4V Min.	90%VDD Min.
Tri-state		Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable	
Jitter(12KHz- 20MHz)		1ps Max.	
Aging		±3ppm/year Max.	
Storage Temperature Range		-55~125°C	

DIMENSIONS



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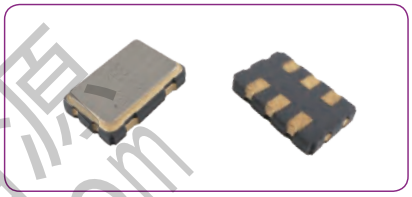
PRODUCT TYPE: OSC SMD5032P/L/H

FEATURES

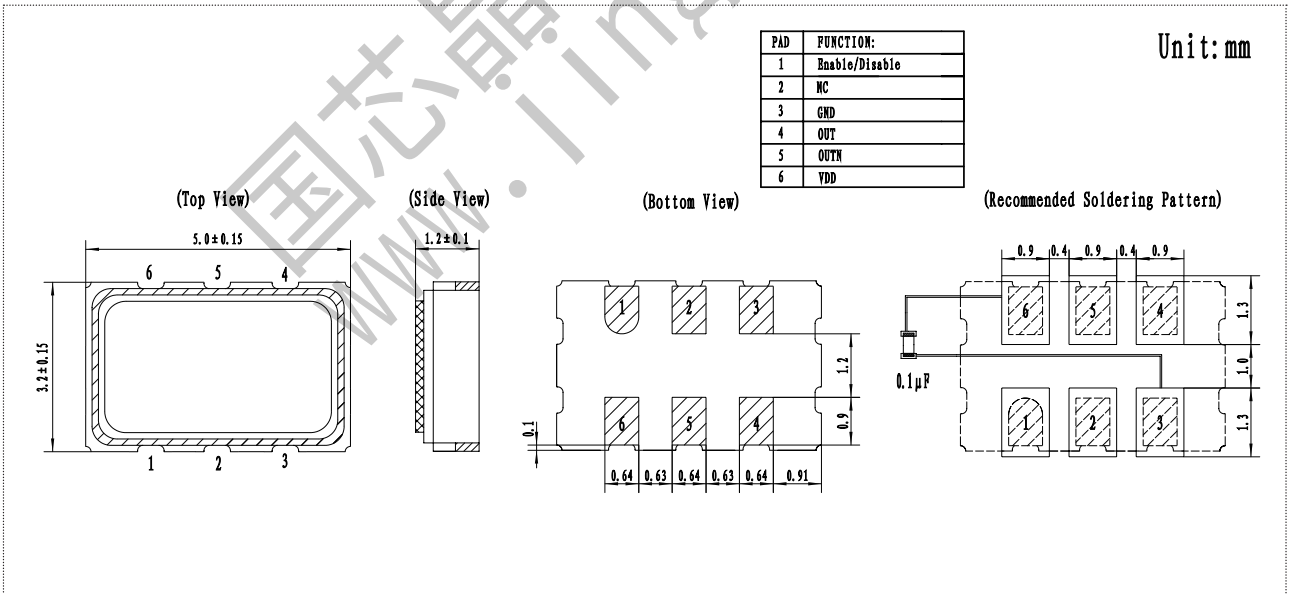


- JYEG Part Number:JYOD5P/L/H
- AT Cut
- 3.3V,2.5V Supply voltage
- LVPECL/LVDS/HCSL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	OSC SMD5032P		OSC SMD5032L		OSC SMD5032H	
Frequency Range	100~160MHz(AT3)					
Frequency Stability	±25ppm/±30ppm,or specify					
Operating Temperature Range	-20~70°C/-40~85°C					
Output Load	50±0.5Ω		100±1Ω		50±0.5Ω	
Input Current	≤80mA					
Supply Voltage	3.3V ±10%/2.5V ±10%					
Start-up Time	3ms Max.					
Duty Cycle	40%-60% Normal,45%-55% Tight					
Rise/Fall Time	2ns Max.					
Output "0" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.81V	VDD-1.62V	0.9V	-	-0.15V	0.15V
Output "1" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.025V	VDD-0.88V	-	1.6V	0.5V	0.9V
Tri-state	Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable					
Jitter(12KHz- 20MHz)	1ps Max.					
Aging	±3ppm/year Max.					
Storage Temperature Range	-55~125°C					

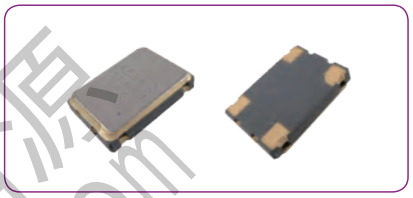
DIMENSIONS



PRODUCT TYPE: OSC SMD7050

FEATURES

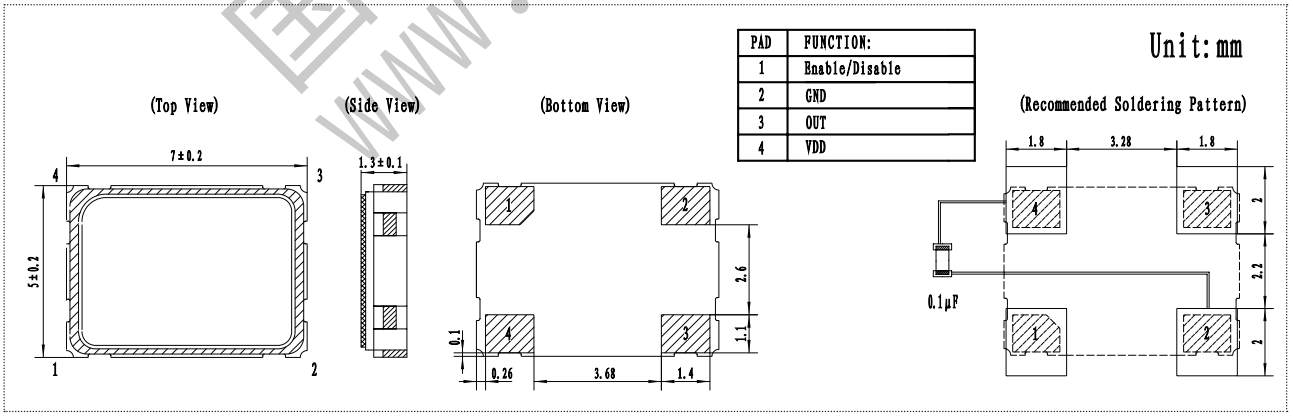
- •JYEG Part Number:JYOD7
- •AT Cut
- •5V,3.3V,2.5V,1.8V Supply voltage
- •CMOS/TTL output
- •Tight tolerance/stability
- •Tri-state function available



TYPICAL SPECIFICATIONS

ITEM / TYPE		OSC SMD7050	
Frequency Range		32.768KHz,1~50MHz(AT1),50~160MHz(AT3)	
Frequency Stability		±25ppm/±30ppm/±50ppm/±100ppm,or specify	
Operating Temperature Range		-20~70°C/-40~85°C/-40~105°C/-40~125°C	
Output Load		1~5TTL or CMOS 30pF Max.	
Input Current		1.8-3.3V	5V
	32.768KHz	≤0.5mA	≤1mA
	≤35MHz	≤8mA	≤12mA
	35~50MHz	≤16mA	≤16mA
	50~70MHz	≤25mA	≤50mA
	70~160MHz	≤45mA	≤60mA
Supply Voltage		5V ±10%/3.3V ±10%/2.5V ±10%/1.8V ±10%	
Start-up Time		1ms Max.(AT1), 3ms Max.(AT3)	
Duty Cycle		40%-60% Normal,45%-55% Tight	
Rise/Fall Time		5ns Max.	
Output "0" Level		TTL	CMOS
		0.4V Max.	10%VDD Max.
Output "1" Level		TTL	CMOS
		2.4V Min.	90%VDD Min.
Tri-state		Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable	
Jitter(12KHz- 20MHz)		1ps Max.	
Aging		±3ppm/year Max.	
Storage Temperature Range		-55~125°C	

DIMENSIONS



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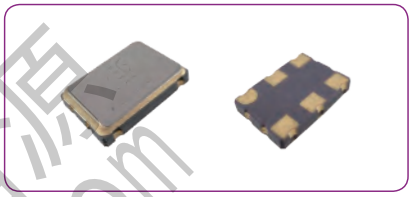
PRODUCT TYPE: OSC SMD7050P/L/H

FEATURES

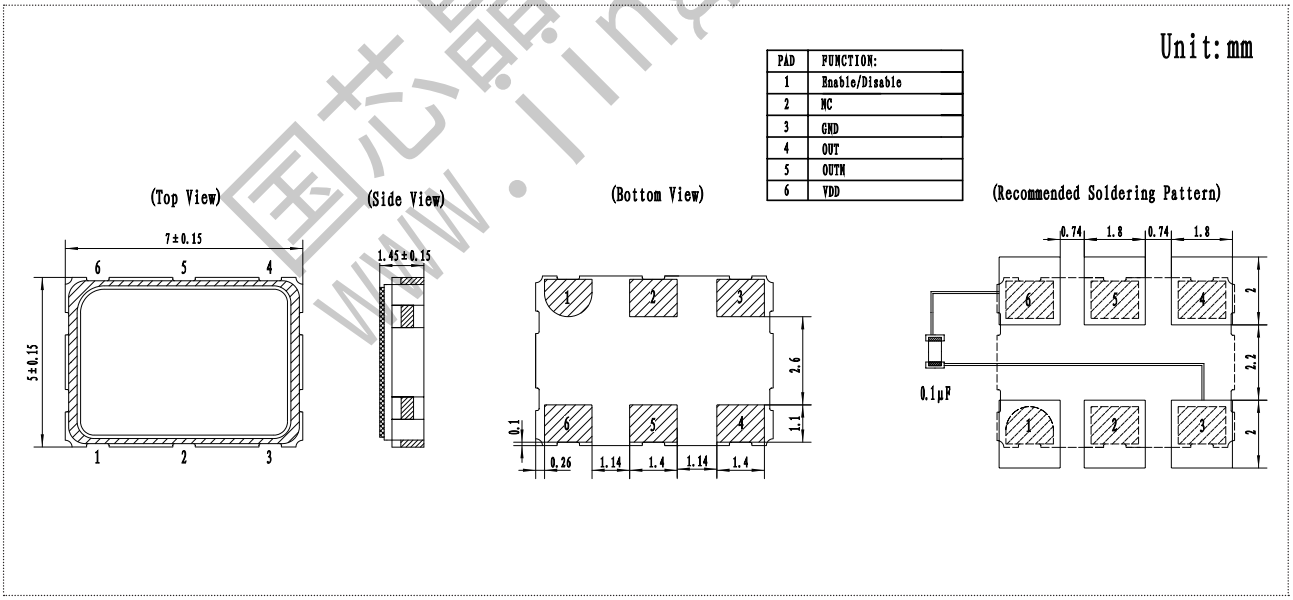


- •JYEG Part Number:JYOD7P/L/H
- •AT Cut
- •3.3V,2.5V Supply voltage
- •LVPECL/LVDS/HCSL output
- •Tight tolerance/stability
- •Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	OSC SMD7050P		OSC SMD7050L		OSC SMD7050H	
Frequency Range	100~160MHz(AT3)					
Frequency Stability	±25ppm/±30ppm,or specify					
Operating Temperature Range	-20~70°C/-40~85°C					
Output Load	50±0.5Ω		100±1Ω		50±0.5Ω	
Input Current	≤80mA					
Supply Voltage	3.3V ±10%/2.5V ±10%					
Start-up Time	3ms Max.					
Duty Cycle	40%-60% Normal,45%-55% Tight					
Rise/Fall Time	2ns Max.					
Output "0" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.81V	VDD-1.62V	0.9V	-	-0.15V	0.15V
Output "1" Level	Min.	Max.	Min.	Max.	Min.	Max.
	VDD-1.025V	VDD-0.88V	-	1.6V	0.5V	0.9V
Tri-state	Pin1:0.7 VDD Min.(High) or open,Output:Enable Pin1:0.3 VDD Max.(Low),Output:Disable					
Jitter(12KHz- 20MHz)	1ps Max.					
Aging	±3ppm/year Max.					
Storage Temperature Range	-55~125°C					

DIMENSIONS



CRYSTAL OSCILLATORS

TECHNICAL TERMS FOR CRYSTAL OSCILLATORS

NOMINAL FREQUENCY
Nominal output frequency of a crystal oscillator

FREQUENCY TOLERANCE
Deviation from the nominal frequency expressed in terms of ppm.

OPERATING TEMPERATURE RANGE
Temperature range within which output frequencies and other output signal characteristics meet the specifications .

OPERABLE TEMPERATURE RANGE
Temperature range within which crystal oscillators are still operable despite the failure to meet the specifications.

TEMPERATURE CHARACTERISTICS (FREQUENCYSTABILITY)
Rate of output frequency change at normal temperature(+25±2℃)given when only temperature is changed ,with the other conditions kept constant.

FREQUENCY VS POWER SOURCE VARIATION CHARACTERISTICS
Rate of output frequency change given when only power source voltage is changed, with the other conditions unchanged.

SHORT-TERM FREQUENCY STABILITY:
Average of irregular output frequency fluctuations. These are several measurement methods, which provide different points of view regarding irregularity. For crystal oscillators, either the definition in the frequency demain or the definition in the time demain shall be selected.

VOLTAGE CONTROLLED CRYSTAL OSCILLATORS

VCXO (voltage controlled crystal oscillator) is a crystal oscillator, which includes a varactor diode and associated circuitry allowing the frequency to be changed by application of a voltage across that diode. This can be accomplished in a simple clock or sine wave crystal oscillator, a TCXO (resulting in a TC/VCXO-temperature compensated voltage controlled crystal oscillator), or an oven controlled type (resulting in an OC/VCXO-oven controlled voltage crystal oscillator).

The control voltage can be a DC voltage, a sine wave or square wave. The varactor diode is typically a semiconductor device that is designed to act as a variable capacitor when a voltage is applied to it. When used in series with a crystal, changing the control voltage cause the diode capacitance to change, this change in capacitance causes the total crystal load capacitance to change and subsequently causes a change in crystal frequency. This change in frequency is known as deviation.

Voltage controlled Crystal Oscillators (VCXO' s) are widely used in telecommunications applications where stable but electronically tunable oscillator is required, Typical applications include frequency translation and data recovery or retiming. VCXO' s are commonly embedded into PLL's (Phase Locked Loops), Specifications such as pull range; temperature stability linearity are all key parameters.

TEMPERATURE COMPENSATED CRYSTAL OSCILLATORS

Temperature Compensated Crystal Oscillators (TCXO's) are essentially crystal oscillators, which are turned over temperature by a network in such a manner as to compensate for the natural temperature drift of the uncompensated oscillator, Temperature compensation techniques include both direct and indirect methods.

Temperature Compensated Crystal Oscillators (TCXO's) are essentially crystal oscillators, which are turned over temperature by a network in such a manner as to compensate for the natural temperature drift of the uncompensated oscillator, Temperature compensation techniques include both direct and indirect methods.

Temperature compensated crystal oscillators are designed to secure satisfactory temperature characterstic covering a wide rang by incorporating temperature Compensated circuits, the above said conditions being taken into consideration. There are two types of temperature compensated crystal oscillators. One is the type combined with resistances or capacitors, using thermistors as thermo-sensitive devices, and the other is the forming temperature compensated circuit using the elements contained in LSI circuits as thermo-sensitive devices.

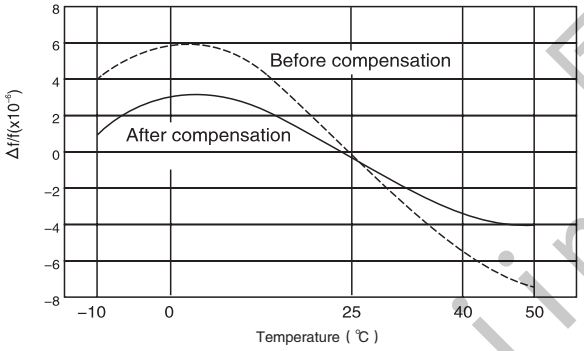


Figure 1:An example of relations between frequency and temperature

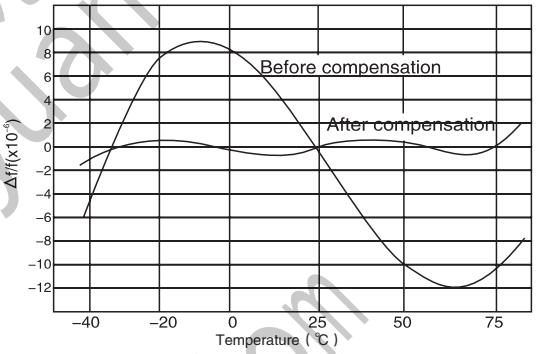


Figure 2:An example of relations between frequency and temperature

OVEN CONTROLLED CRYSTAL OSCILLATORS

Oven-controlled crystal oscillators maintain the ambient temperature of crystal units. Constant by constant temperature ovens provided with better temperature characteristic compared to other crystal oscillators. There oven-controlled crystal oscillators are optimum for various communication devices used in mobile bases and for various electronic measuring instruments including frequency counters, spectrum analyzers, etc.

DOUBLE ROTATED (SC AND IT CUT) CRYSTALS

While most high stability crystal oscillators use AT Cut Crystal,SC and IT Cut Crystal are often used in the highest stability models.
An SC Cut Crystal is one of a family of double rotated crystals (quartz crystals cut on an angle relative to two of the three crystallographic axes). Other in the family includes the IT Cut. The SC Cut represents the optimum double rotated design as its particular angle provides maximum stress compensation, but similar performance is achieved with the IT Cut.

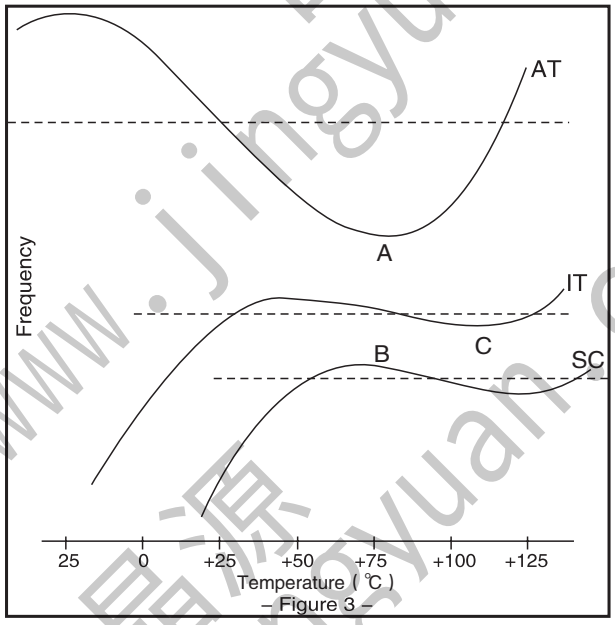
ADVANTAGE OF SC CRYSTALS:

1. Improved Aging. For a given frequency and overtone (e.g.10MHz, third overtone), the SC crystal provides 2:1 to 3:1 aging improvement relative to AT crystals.

2. Warm-up. In oven controlled oscillators with a given oven design and turn-on power, the SC crystal achieves its“ final frequency” in considerably less time than does the AT crystal.

3. Phase Noise. For a given oscillator design, crystal frequency and overtone, the SC crystal provides higher Q and associated improved phase noise characteristics. This improvement applies primarily close to the carrier as the noise floor is determined by circuit design rather than the crystal.

4. High Operating Ambient Temperature. Figure 3 shows the relative frequency-temperature characteristics of AT, IT and SC crystals. The upper temperature turnover point of the AT crystal("A" in Figure 3) and lower temperature turnover point of the SC crystal("B" in Figure 3) are optimally in the 70℃ to 90℃ temperature range. Based upon (a) the desired 10℃ difference between the highest operating ambient temperature and the crystal turnover temperature. and (b) the manufacturing tolerance of crystal turnover temperatures, these crystals are best suited for maximum operating ambient temperatures of 50℃ to 75℃. However, the upper temperature turnover point of the IT crystal（"'C" in Figure 3) is well suited to higher temperature operation and thus the IT crystal is a logical choice for high stability oven controlled oscillators having a maximum operating temperature in the 85℃ to 95℃ range. Note that while SC and IT crystal curves are relatively flat at elevated temperatures, their frequency falls off rapidly at low temperatures. Thus, while they serve well in high stability HIF oven controlled oscillators, they are generally not well suited for other types of stable crystal oscillators.



– Figure 3 –

5. Orientation Sensitivity (tipover). When the physical orientation of an oscillator is changed, there is a small frequency change (typically not more than several parts in 10-9 for any 90 degree rotation) due to the change in stress on the crystal blank resulting from the gravitational affect upon the crystal supports. Tip-over is expressed in 10-9/g where one g represents one half of a 180o orientation change The SC crystal is less frequency sensitive to orientation change than the AT. However. The tip-over difference between AT and SC crystal is not con-sequential for most applications and this characteristic is usually not a specification consideration.

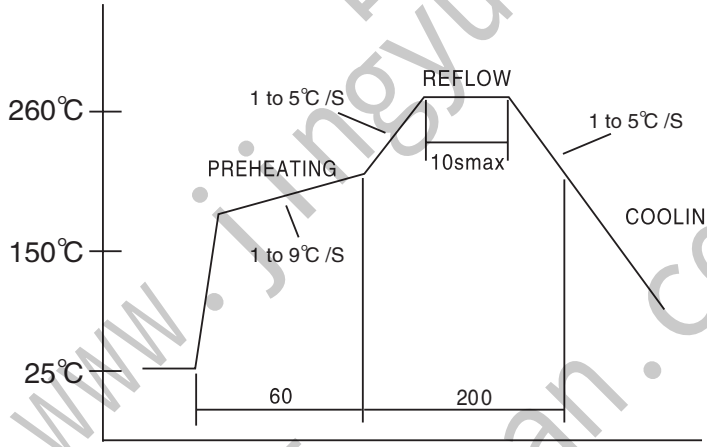
6. Spurious Under Vibration. When a crystal oscillator is subjected to vibration, spurious frequencies are generated. Offset from the frequency oscillation by the frequency of vibration, the amplitude of these spurious outputs is related to the amplitude of vibration, the mechanical design of the crystal support. And the mechanical design of the oscillator. The SC crystal produces lower amplitude spurious output under vibration than the AT; however. This characteristic is determined more by the mechanical designs of the crystal and oscillator than by crystal cut.

DISADVANTAGE OF SC CRYSTALS:

1. Cost. Because of difficulties associated with tightly-controlled angle rotations around two axes in the manufacture of SC crystal vs. one axis for the AT, the SC crystal is significantly higher in cost than of an AT of the same frequency and overtone.

2. Pullability. The motional capacitance of an SC crystal is several times less than that of an AT of the same frequency and overtone, thus reducing the ability to "pull" the crystal frequency. This restricts the SC crystal from being used in conventional TCXOs and VCXOs. Or even in oven controlled oscillators requiring the ability to deviate the frequency of oscillation by any significant degree. In summary, the suitability of double rotated crystals for use in crystal oscillators is essentially restricted to those oven controlled applications where the improved aging. Warm-up, and close-in phase noise characteristics justify a significant cost increase.

REFLOW SOLDERING



PRODUCT NUMBER FOR VOLTAGE CONTROLLED CRYSTAL OSCILLATORS

Type	Code	Freq.tole.	Code	Low temp.	Code	High temp.	Code	Input voltage	Code	Pull Range	Code	Output load	Code	Duty cycle	Code	Output control	Code
VCXO SMD7050	VCD7	±20ppm	E	0℃	1	40℃	A	3.3V	3	±50ppm	A	CMOS	C	45%~55%	5	Tri-state Enable	Y
VCXO SMD7050P/L	VCD7P/L	±25ppm	F	-10℃	2	50℃	B	5V	5	±100ppm	B	LVPECL	P	40%~60%	6	Tri-state Disable	N
VCXO SMD5032	VCD5	±30ppm	G	-20℃	3	60℃	C	Custom	Z	±150ppm	C	LVDS	L				
VCXO SMD5032P/L	VCD5P/L	±50ppm	H	-25℃	4	70℃	D			±200ppm	D						
VCXO SMD3225	VCD3	±100ppm	I	-30℃	5	75℃	E			±250ppm	E						
VCXO SMD3225P/L	VCD3P/L	Custom	Z	-35℃	6	80℃	F			Custom	Z						
VCXO SMD2520	VCD2			-40℃	7	85℃	G										
VCXO SMD2520P/L	VCD2P/L			-55℃	8	105℃	H										
VCXO-14	JYVC14			Custom	Z	125℃	I										
VCXO SMD1409	JYVC1409					Custom	Z										

Nominal frequency

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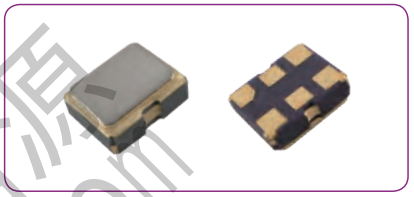
PRODUCT TYPE: VCXO SMD2520

FEATURES

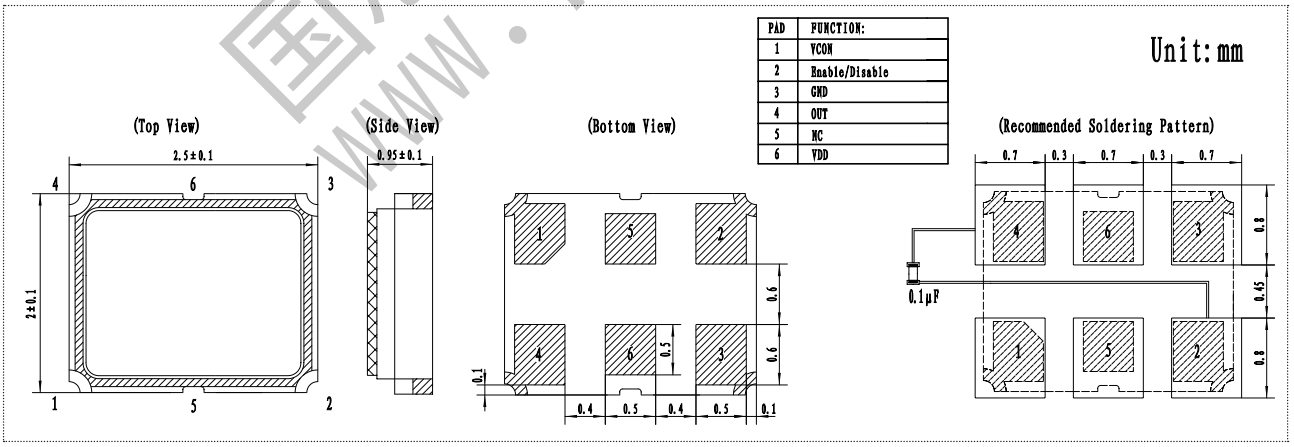


- JYEG Part Number:JYVCD2
- AT Cut
- 3.3V Supply voltage
- CMOS/TTL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

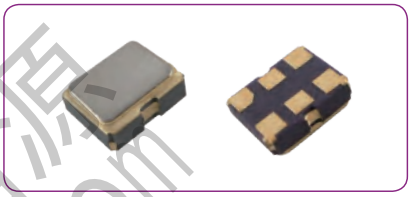
ITEM / TYPE	VCXO SMD2520	
Frequency Range	2.048~285MHz(AT1)	
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify	
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C	
Output Load	1~5TTL/CMOS 30pF Max.	
Input Current	≤16mA	
Supply Voltage Start-up Time	3.3V ±10% 1ms Max.	
Duty Cycle	40%-60% Normal,45%-55% Tight	
Rise/Fall Time	5ns Max.	
Pulling Range	±50ppm Min.	
Control Voltage Range	10%VDD~90%VDD	
Linearity	10% Max.	
Output "O" Level	TTL	CMOS
	0.4V Max.	10%VDD Max.
Output "1" Level	TTL	CMOS
	VDD-0.4V Min.	90%VDD Min.
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable	
RMS Jitter(12KHz~20MHz)	1.0ps Max.	
Aging	±3ppm/year Max.	
Storage Temperature Range	-55~125°C	

DIMENSIONS



PRODUCT TYPE: VCXO SMD2520P/L

FEATURES

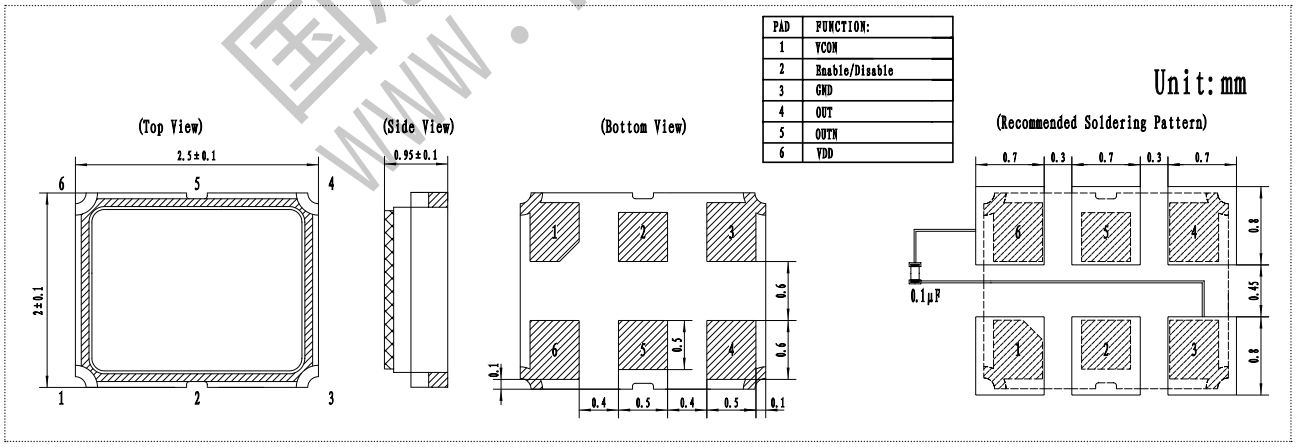


- JYEG Part Number:JYVCD2P/L
- AT Cut
- 3.3V Supply voltage
- LVPECL/LVDS output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	VCXO SMD2520P		VCXO SMD2520L	
Frequency Range	100~285MHz(AT1)			
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify			
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C			
Output Load	50±0.5Ω		100±1Ω	
Input Current	≤80mA			
Supply Voltage Start-up Time	3.3V ±10% 3ms Max.			
Duty Cycle	40%-60% Normal,45%-55% Tight			
Rise/Fall Time	2ns Max.			
Pulling Range	±50ppm Min.			
Control Voltage Range	10%VDD~90%VDD			
Linearity	10% Max.			
Output "O" Level	Min.	Max.	Min.	Max.
	1.49V	1.68V	0.9V	-
Output "1" Level	Min. 2.275V	Max. 2.42V	Min. -	Max. 1.6V
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable			
RMS Jitter(12KHz~20MHz)	1.0ps Max.			
Aging	±3ppm/year Max.			
Storage Temperature Range	-55~125°C			

DIMENSIONS



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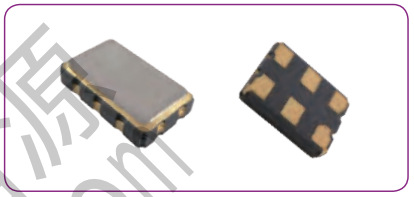
GUOXIN JYEG

PRODUCT TYPE: VCXO SMD3225

FEATURES

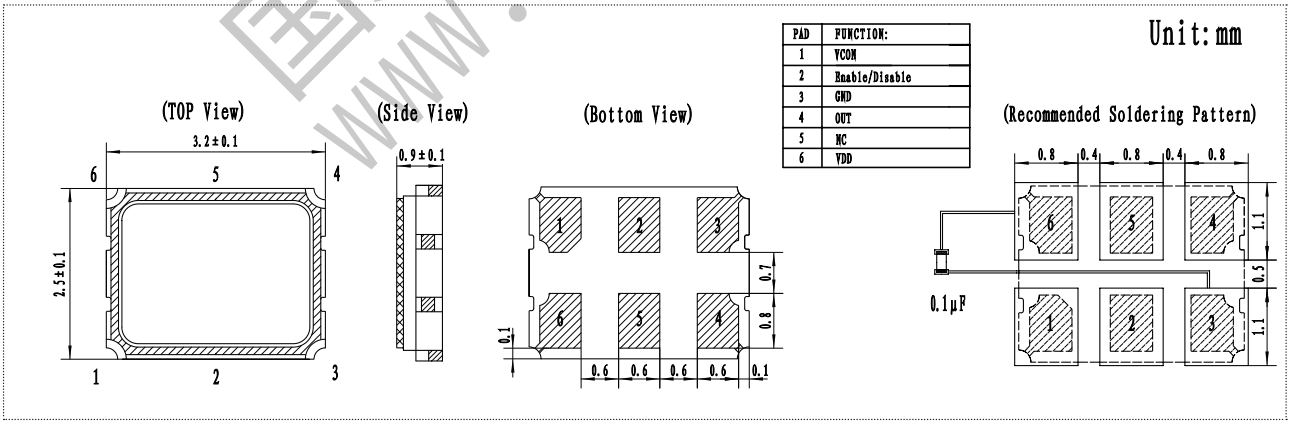


- JYEG Part Number:JYVCD3
- AT Cut
- 3.3V Supply voltage
- CMOS/TTL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

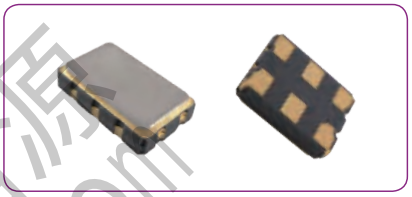
ITEM / TYPE	VCXO SMD3225	
Frequency Range	2.048~285MHz(AT1)	
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify	
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C	
Output Load	1~5TTL/CMOS 30pF Max.	
Input Current	≤16mA	
Supply Voltage Start-up Time	3.3V ±10% 1ms Max.	
Duty Cycle	40%-60% Normal,45%-55% Tight	
Rise/Fall Time	5ns Max.	
Pulling Range	±50ppm Min.	
Control Voltage Range	10%VDD~90%VDD	
Linearity	10% Max.	
Output “O" Level	TTL	CMOS
	0.4V Max.	10%VDD Max.
Output "1" Level	TTL	CMOS
	2.4V Min.	90%VDD Min.
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable	
RMS Jitter(12KHz~20MHz)	1.0ps Max.	
Aging	±3ppm/year Max.	
Storage Temperature Range	-55~125°C	

DIMENSIONS



PRODUCT TYPE: VCXO SMD3225P/L

FEATURES

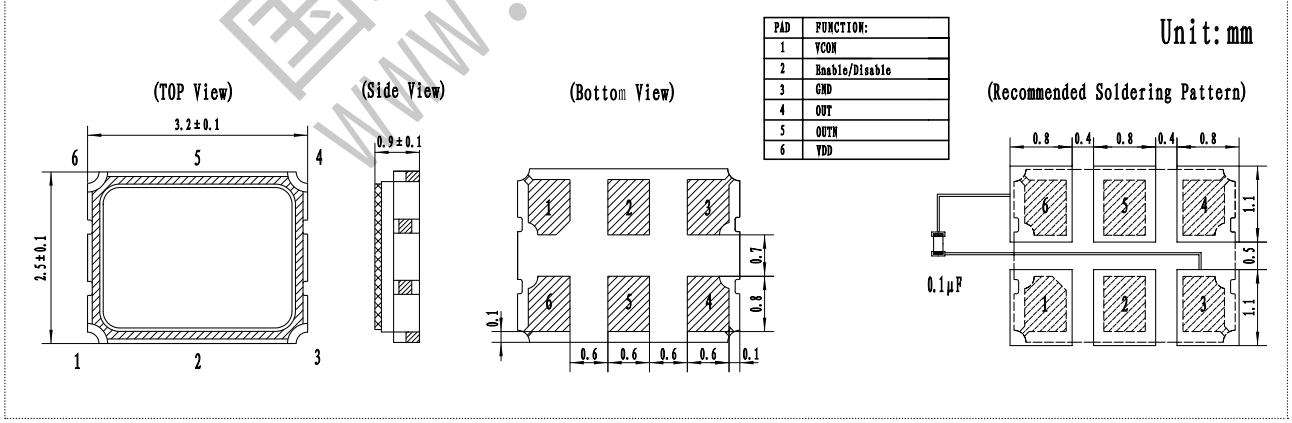


- •JYEG Part Number:JYVCD3P/L
- •AT Cut
- •3.3V Supply voltage
- •LVPECL/LVDS output
- •Tight tolerance/stability
- •Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	VCXO SMD3225P		VCXO SMD3225L	
Frequency Range	100~285MHz(AT1)			
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify			
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C			
Output Load	50±0.5Ω		100±1Ω	
Input Current	≤80mA			
Supply Voltage Start-up Time	3.3V ±10% 3ms Max.			
Duty Cycle	40%-60% Normal,45%-55% Tight			
Rise/Fall Time	2ns Max.			
Pulling Range	±50ppm Min.			
Control Voltage Range	10%VDD~90%VDD			
Linearity	10% Max.			
Output "O" Level	Min.	Max.	Min.	Max.
	1.49V	1.68V	0.9V	-
Output "1" Level	Min. 2.275V	Max. 2.42V	Min. -	Max. 1.6V
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable			
RMS Jitter(12KHz~20MHz)	1.0ps Max.			
Aging	±3ppm/year Max.			
Storage Temperature Range	-55~125°C			

DIMENSIONS



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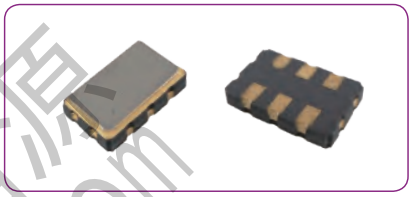
GUOXIN JYEG

PRODUCT TYPE: VCXO SMD5032

FEATURES

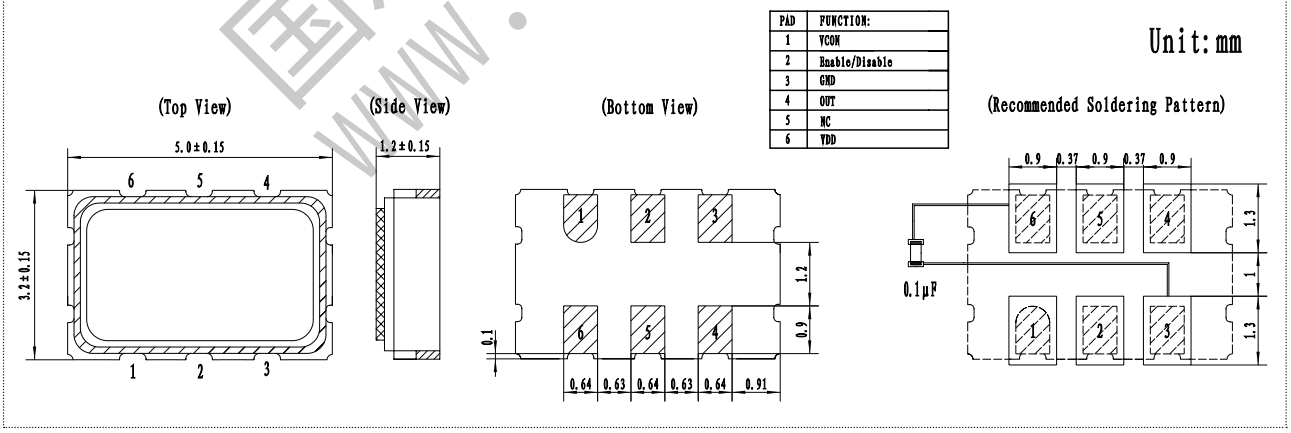


- JYEG Part Number:JYVCD5
- AT Cut
- 5V,3.3V Supply voltage
- CMOS/TTL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

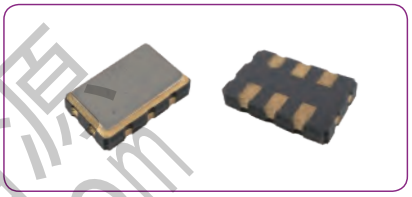
ITEM / TYPE	VCXO SMD5032	
Frequency Range	1.544~170MHz(AT1)	
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify	
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C	
Output Load	1~5TTL/CMOS 30pF Max.	
Input Current	≤25mA	
Supply Voltage Start-up Time	5V ±10%/3.3V ±10% 3ms Max.	
Duty Cycle	40%-60% Normal,45%-55% Tight	
Rise/Fall Time	5ns Max.	
Pulling Range	±60ppm Min.	
Control Voltage Range	10%VDD~90%VDD	
Linearity	10% Max.	
Output “O" Level	TTL	CMOS
	0.4V Max.	10%VDD Max.
Output "1" Level	TTL	CMOS
	VDD-0.4V Min.	90%VDD Min.
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable	
RMS Jitter(12KHz~20MHz)	1.0ps Max.	
Aging	±3ppm/year Max.	
Storage Temperature Range	-55~125°C	

DIMENSIONS



PRODUCT TYPE: VCXO SMD5032P/L

FEATURES

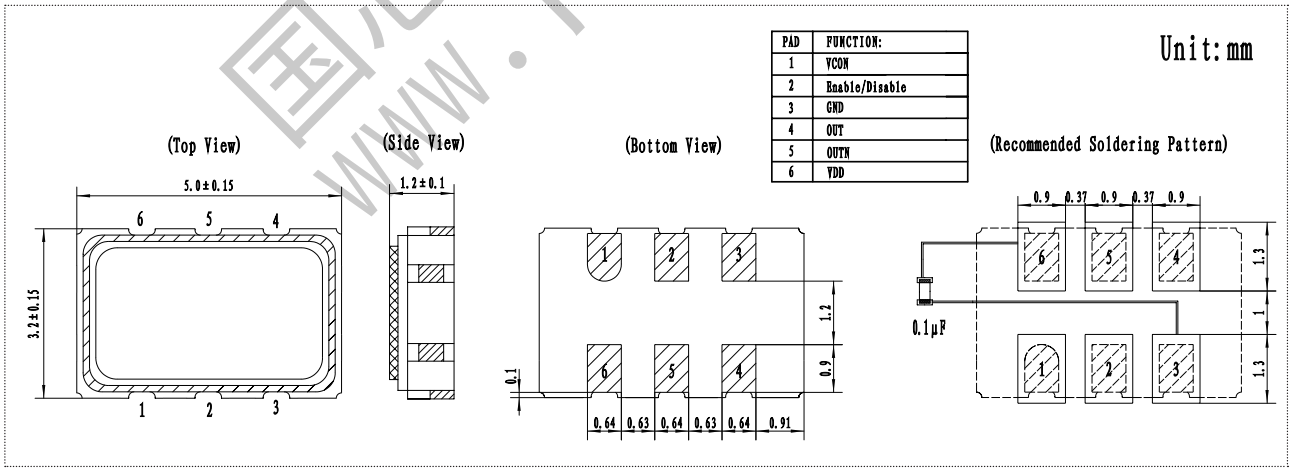


- •JYEG Part Number:JYVCD5P/L
- •AT Cut
- •3.3V Supply voltage
- •LVPECL/LVDS output
- •Tight tolerance/stability
- •Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	VCXO SMD5032P		VCXO SMD5032L	
Frequency Range	100~170MHz(AT1)			
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify			
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C			
Output Load	50±0.5Ω		100±1Ω	
Input Current	≤80mA			
Supply Voltage Start-up Time	3.3V ±10% 3ms Max.			
Duty Cycle	40%-60% Normal,45%-55% Tight			
Rise/Fall Time	2ns Max.			
Pulling Range	±50ppm Min.			
Control Voltage Range	10%VDD~90%VDD			
Linearity	10% Max.			
Output "O" Level	Min.	Max.	Min.	Max.
	1.49V	1.68V	0.9V	-
Output "1" Level	Min. 2.275V	Max. 2.42V	Min. -	Max. 1.6V
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable			
RMS Jitter(12KHz~20MHz)	1.0ps Max.			
Aging	±3ppm/year Max.			
Storage Temperature Range	-55~125°C			

DIMENSIONS



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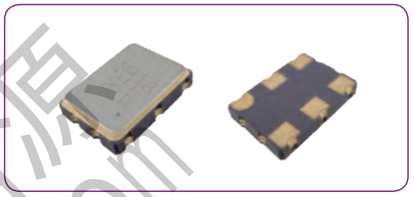
PRODUCT TYPE: VCXO SMD7050

FEATURES

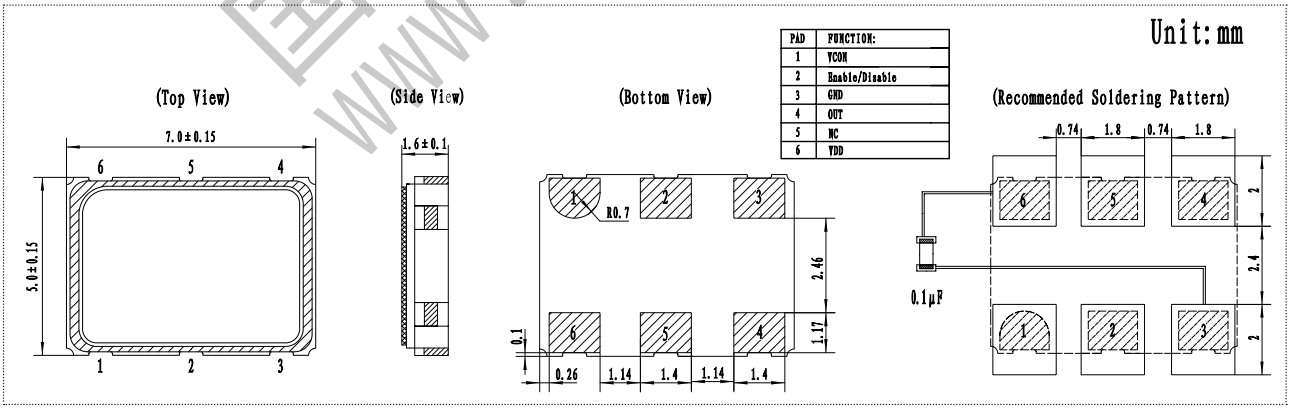


- JYEG Part Number:JYVCD7
- AT Cut
- 5V,3.3V Supply voltage
- CMOS/TTL output
- Tight tolerance/stability
- Tri-state function available

TYPICAL SPECIFICATIONS

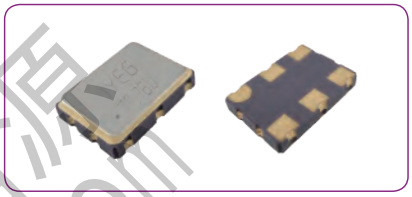
ITEM / TYPE	VCXO SMD7050	
Frequency Range	1.544~170MHz(AT1)	
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify	
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C	
Output Load	1~5TTL/CMOS 30pF Max.	
Input Current	≤20mA	
Supply Voltage	5V ±10%/3.3V ±10%	
Start-up Time	3ms Max.	
Duty Cycle	40%-60% Normal,45%-55% Tight	
Rise/Fall Time	5ns Max.	
Pulling Range	±60ppm Min.	
Control Voltage Range	10%VDD~90%VDD	
Linearity	10% Max.	
Output "O" Level	TTL	CMOS
	0.4V Max.	10%VDD Max.
Output "1" Level	TTL	CMOS
	2.4V Min.	90%VDD Min.
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable	
RMS Jitter(12KHz~20MHz)	1.0ps Max.	
Aging	±3ppm/year Max.	
Storage Temperature Range	-55~125°C	

DIMENSIONS



PRODUCT TYPE: VCXO SMD7050P/L

FEATURES

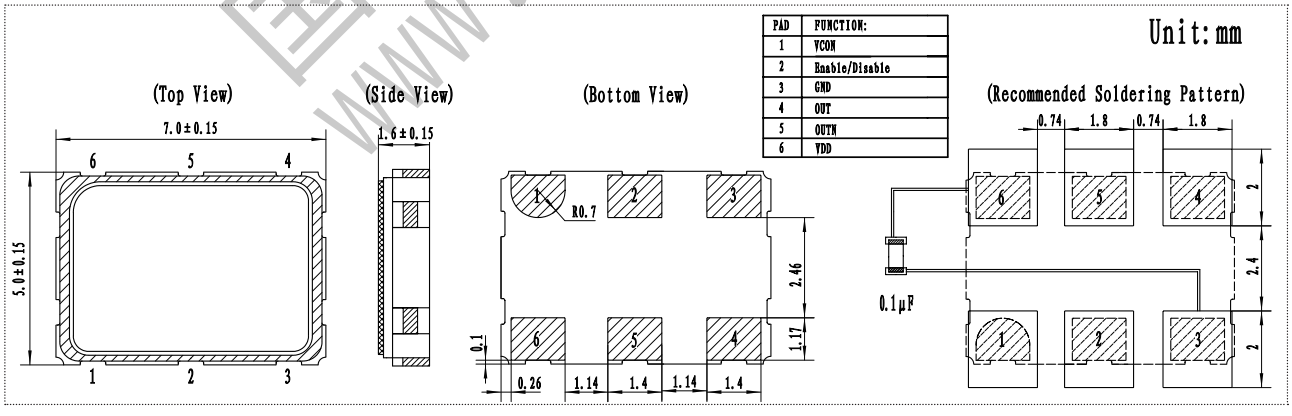


- •JYEG Part Number:JYVCD7P/L
- •AT Cut
- •3.3V Supply voltage
- •LVPECL/LVDS output
- •Tight tolerance/stability
- •Tri-state function available

TYPICAL SPECIFICATIONS

ITEM / TYPE	VCXO SMD7050P		VCXO SMD7050L	
Frequency Range	100~170MHz(AT1)			
Frequency Stability	±25ppm/±35ppm/±50ppm,or specify			
Operating Temperature Range	-20~70°C/-40~85°C/-40~105°C			
Output Load	50±0.5Ω		100±1Ω	
Input Current	≤80mA			
Supply Voltage	3.3V ±10%			
Start-up Time	3ms Max.			
Duty Cycle	40%-60% Normal,45%-55% Tight			
Rise/Fall Time	2ns Max.			
Pulling Range	±50ppm Min.			
Control Voltage Range	10%VDD~90%VDD			
Linearity	10% Max.			
Output “O" Level	Min.	Max.	Min.	Max.
	1.49V	1.68V	0.9V	-
Output “1" Level	Min. 2.275V	Max. 2.42V	Min. -	Max. 1.6V
Tri-state	Pin2:0.7 VDD Min.(High) or open,Output:Enable Pin2:0.3 VDD Max.(Low),Output:Disable			
RMS Jitter(12KHz~20MHz)	1.0ps Max.			
Aging	±3ppm/year Max.			
Storage Temperature Range	-55~125°C			

DIMENSIONS



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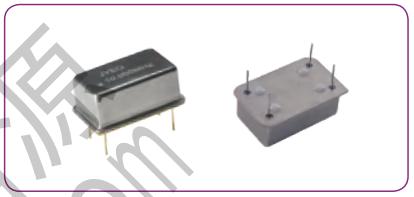
GUOXIN JYEG

PRODUCT TYPE: VCXO-14

FEATURES



•JYEG Part Number:JYVC14 •CMOS / Sine Wave output

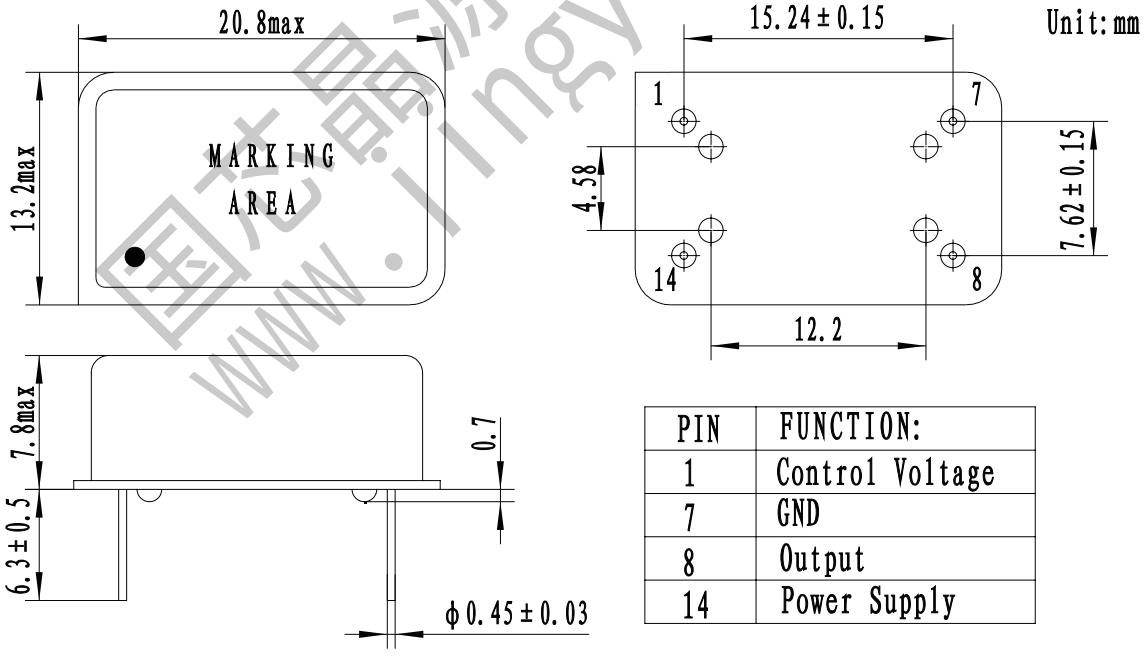
•Wide frequency range up to 125MHz

•Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	VCXO-14
Frequency Range	2.048~125MHz
Operating Temperature Range	-40~85°C
Absolute Pulling Range	±75ppm Min.
Output Load	CMOS 15pF typ, Sine Wave 50 Ω
Supply Voltage	3.3V ±5%/5.0V ±5%
Input Current	≤40MHz,25mA (Max.);>40MHz,40mA (Max.)
Control Voltage Range	0~VDD
Center Voltage	0.5VDD
Linearity	10% Max.
Input Impedance	≥50kΩ
Modulation Bandwidth	Customer Specify
Aging	±3ppm/year Max.
Storage Temperature Range	-40~125°C

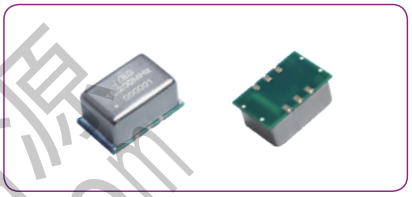
DIMENSIONS



PIN	FUNCTION:
1	Control Voltage
7	GND
8	Output
14	Power Supply

PRODUCT TYPE: VCXO-SMD1409

FEATURES



•JYEG Part Number:JYVCD1409 •CMOS output

•Wide frequency range up to 170MHz

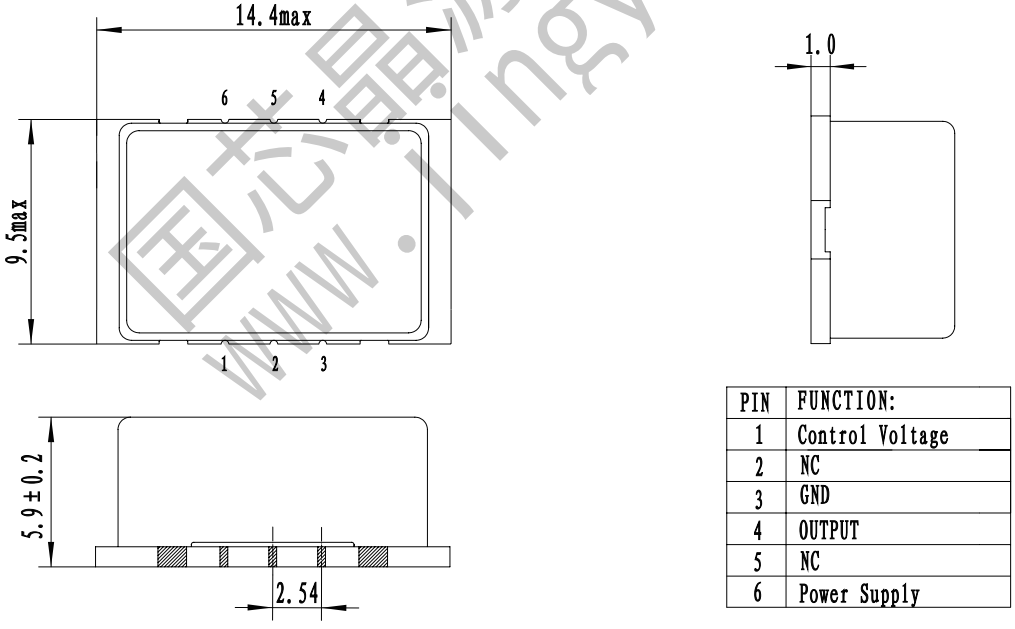
•Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	VCXO-SMD1409
Frequency Range	2.048~170MHz
Operating Temperature Range	-40~85°C
Absolute Pulling Range	>44.736MHz,±50ppm Min.
	≤44.736MHz,±75ppm Min.
Output Load	15pF typ.
Supply Voltage	3.3V ±5%/5.0V ±5%
Input Current	≤44.736MHz,25mA(Max.);>44.736MHz,40mA(Max.)
Control Voltage Range	0~VDD
Center Voltage	0.5VDD
Linearity	10% Max.
Duty Cycle	40%-60%
Input Impedance	≥50kΩ
Modulation Bandwidth	Customer Specify
Aging	±3ppm/year Max.
Storage Temperature Range	-40~125°C

DIMENSIONS

Unit: mm



PIN	FUNCTION:
1	Control Voltage
2	NC
3	GND
4	OUTPUT
5	NC
6	Power Supply

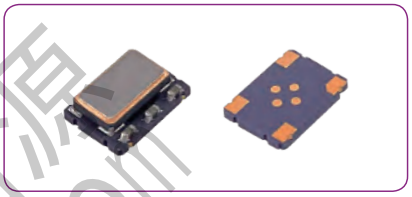
PRODUCT NUMBER FOR TEMPERATURE COMPENSATED CRYSTAL OSCILLATORS

Type	Code	Freq.tole.	Code	Low temp.	Code	High temp.	Code	Input voltage	Code	Adjustability Frequency Range	Code	Output load	Code
TCXO SMD7050	JYVTD7	± 0.3ppm	A	–10℃	1	40℃	A	3.3V	3	None	N	Sine Wave	S
HTCXO 7050	JYVTDH7	± 0.5ppm	B	–20℃	2	50℃	B	5V	5	± 5ppm	A	CMOS	C
TCXO – 14	JYTC14	± 1.0ppm	C	–25℃	3	60℃	C	Custom	Z	± 10ppm	B	Clipped Sine Wave	CS
TCXO – 18	JYTC18	± 1.5ppm	D	–30℃	4	70℃	D			± 15ppm	C		
		± 2.0ppm	E	–35℃	5	75℃	E			Custom	Z		
		± 2.5ppm	F	–40℃	6	80℃	F						
		± 3.0ppm	G	–55℃	7	85℃	G						
		± 5.0ppm	H	Custom	Z	105℃	H						
		Custom	Z			125℃	I						
						Custom	Z						

Nominal frequency

PRODUCT TYPE: TCXO SMD7050

FEATURES



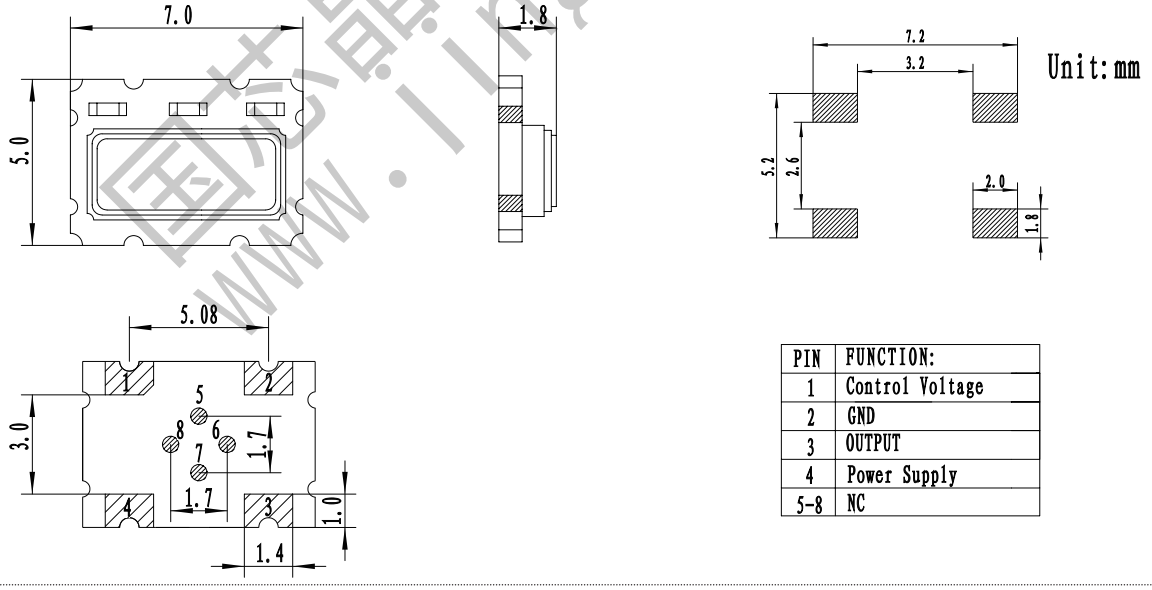
•JYEG Part Number:JYVTD7 •AT Cut

•Clipped Sine Wave output •Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	TCXO SMD7050
Frequency Range	10~27MHz
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±2.0ppm
Output Load	10kΩ//10pF
Input Current	2.0 mA Max.
Supply Voltage	3.3V ±5%/5.0V ±5%
Start-up Time	1mS Max.
Duty Cycle	40%-60%
Frequency Stability vs. Voltage	±0.3ppm(VDD ±5%)
Frequency Stability vs. Load	±0.3ppm(Z_L ±10%)
Phase Noise(10MHz)	-130dBc/Hz@1kHz
Aging	±1.0ppm/year Max.
Storage Temperature Range	-40~125°C

DIMENSIONS



PIN	FUNCTION:
1	Control Voltage
2	GND
3	OUTPUT
4	Power Supply
5-8	NC

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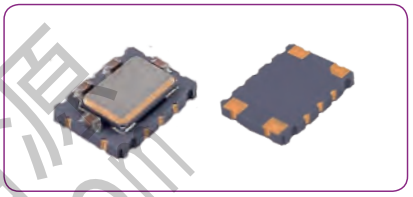
PRODUCT TYPE: HTCXO SMD7050

FEATURES

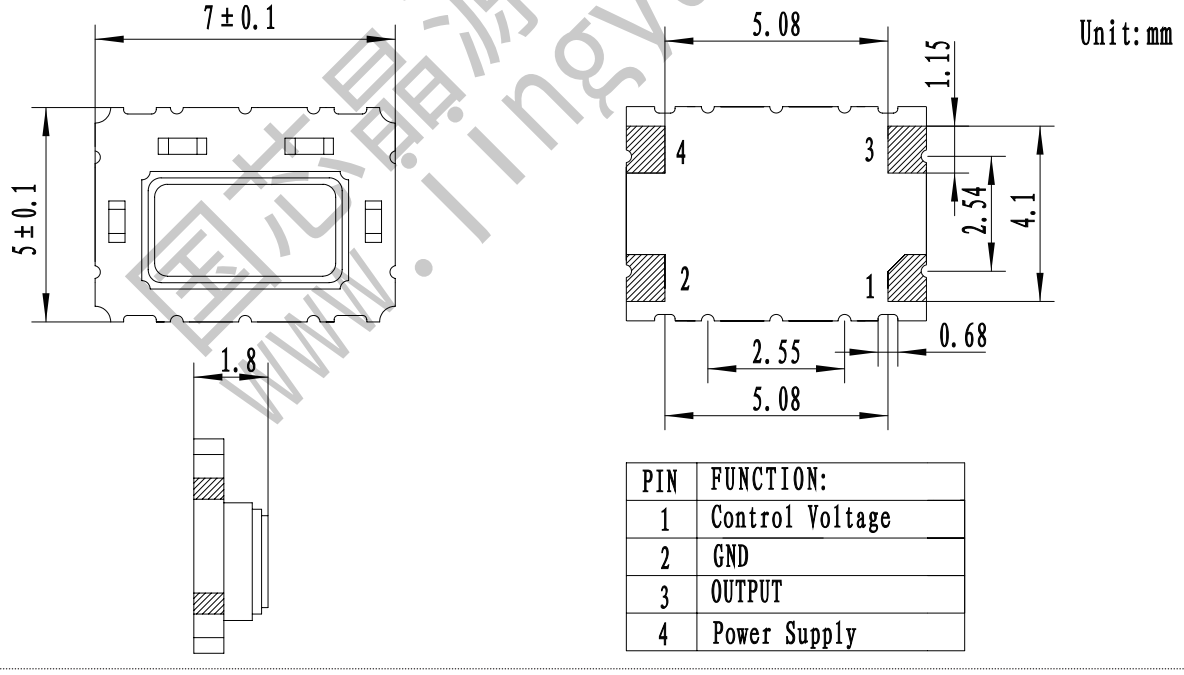


- JYEG Part Number:JYVTDH7
- CMOS output
- Clock Stratum 3
- Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	HTCXO SMD7050
Frequency Range	10~40MHz
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±0.28ppm
Output Load	15pF typ.
Input Current	6.0mA Max.
Supply Voltage	3.3V ±5%
Start-up Time	2mS Max.
Duty Cycle	40%-60%
Frequency Stability vs. Voltage	±0.1ppm(VDD ±5%)
Frequency Stability vs. Load	±0.1ppm(CL ±10%)
Phase Noise(10MHz)	-135dBc/Hz@1kHz
Aging	±4.0ppm/10years
Storage Temperature Range	-40~125°C

DIMENSIONS

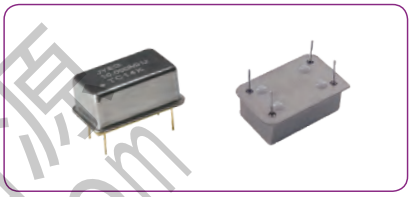


PIN	FUNCTION:
1	Control Voltage
2	GND
3	OUTPUT
4	Power Supply

PRODUCT TYPE: TCXO-14

FEATURES

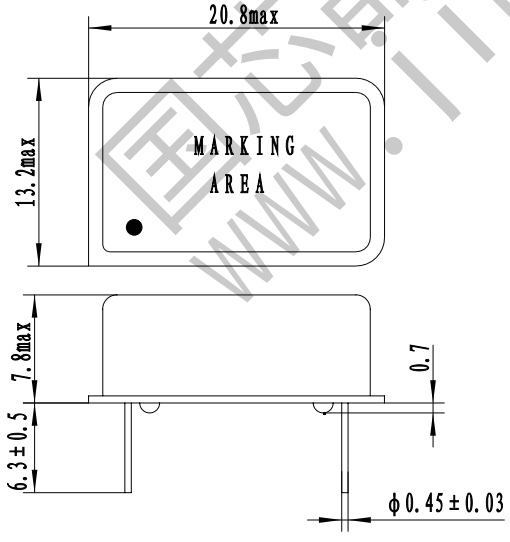
- JYEG Part Number:JYTC14
- CMOS / Sine Wave output
- Wide frequency range up to 125MHz
- Tight tolerance/stability

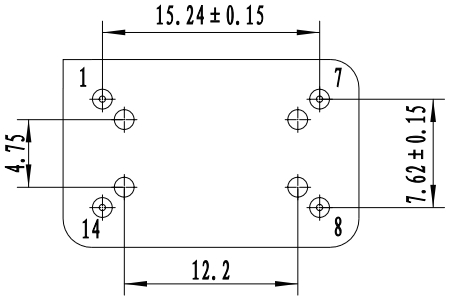


TYPICAL SPECIFICATIONS

ITEM / TYPE	TCXO-14
Frequency Range	2~125MHz
Frequency Accuracy	±1.0ppm Max.
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±3.0ppm Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Input Current	≤40MHz,25mA Max.
	>40MHz,40mA Max.
Supply Voltage	3.3V ±5%/5.0V ±5%
Frequency Stability vs. Voltage	±0.2ppm(VDD ±5%)
Frequency Stability vs. Load	±0.1ppm(CL ±10%)
Phase Noise(10MHz)	-140dBc/Hz@1kHz
Aging	±1.0ppm/year
Storage Temperature Range	-40~125°C

DIMENSIONS





Unit: mm

PIN	FUNCTION:
1	ControlVoltage/NC
7	GND
8	Output
14	Power Supply

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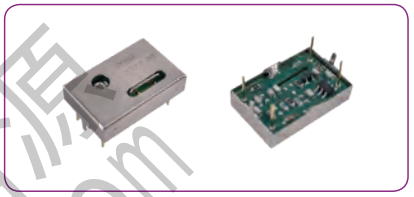
PRODUCT TYPE: TCXO-18

FEATURES

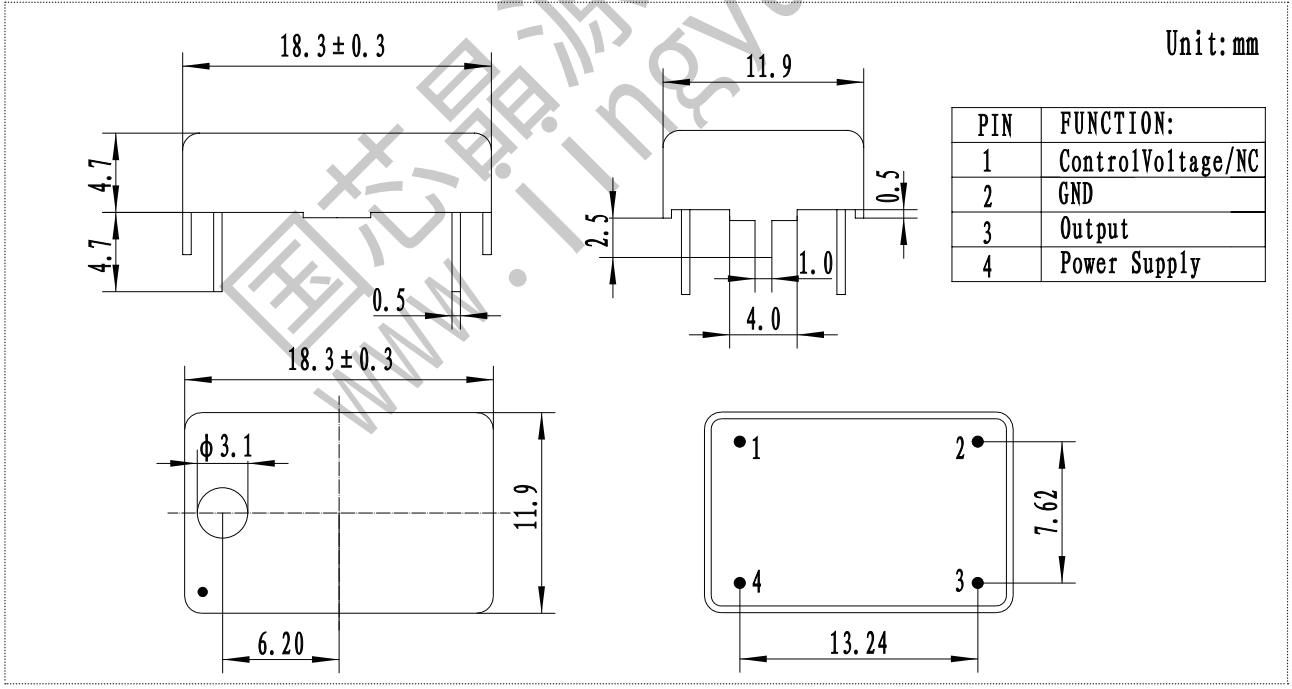


- JYEG Part Number:JYTC18
- Wide frequency range up to 40MHz
- CMOS / Sine Wave output
- Tight tolerance/stability

TYPICAL SPECIFICATIONS

ITEM / TYPE	TCXO-18
Frequency Range	2~40MHz
Frequency Accuracy	±1.0ppm Max.
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±3.0ppm Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Input Current	25mA Max.
Supply Voltage	3.3V ±5%/5.0V ±5%
Frequency Stability vs. Voltage	±0.2ppm(VDD ±5%)
Frequency Stability vs. Load	±0.1ppm(CL ±10%)
Phase Noise(10MHz)	-140dBc/Hz@1kHz
Aging	±1.0ppm/year
Storage Temperature Range	-40~125°C

DIMENSIONS



PRODUCT NUMBER FOR OVEN COMPENSATED CRYSTAL OSCILLATORS

Type	Code	Freq.tole.	Code	Low temp.	Code	High temp.	Code	Input voltage	Code	Output load	Code
OCXO-1409	JYOC1409	± 0.1ppb	A	0℃	1	40℃	A	3.3V	3	Sine Wave	S
OCXO-2014/ OCXO-2014S	JYOC14 JYOC14D	± 0.5ppb	B	-10℃	2	50℃	B	5V	5	CMOS	C
OCXO-2020	JYOC20	± 1.0ppb	C	-20℃	3	60℃	C	12V	9	Custom	Z
OCXO-SMD2522	JYOC22D	± 3.0ppb	D	-25℃	4	70℃	D	Custom	Z		
OCXO-2525	JYOC25	± 5.0ppb	E	-30℃	5	75℃	E				
OCXO-3627	JYOC36	± 10ppb	F	-35℃	6	80℃	F				
OCXO-5050	JYOCS50	± 20ppb	G	-40℃	7	85℃	G				
		± 30ppb	H	-55℃	8	105℃	H				
		± 50ppb	I	Custom	Z	125℃	I				
		± 100ppb	J			Custom	Z				
		± 200ppb	K								
		± 300ppb	L								
		Custom	Z								

Nominal frequency

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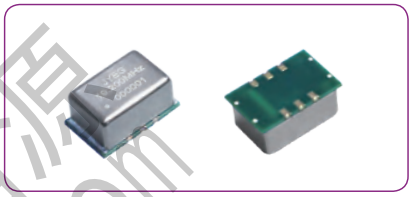
PRODUCT TYPE: OCXO-1409

FEATURES



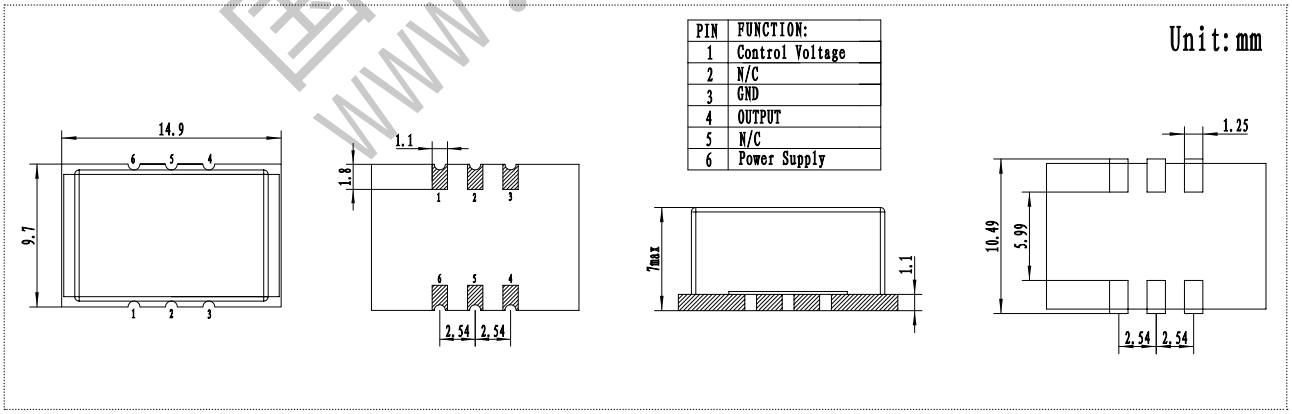
•JYEG Part Number:JYOC1409 •CMOS

•SC Cut •Low aging,compact package

TYPICAL SPECIFICATIONS

ITEM / TYPE	OCXO-1409
Frequency Range	2~100MHz
Frequency Accuracy	±0.2ppm (center control voltage)
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±10ppb Max.
Output Load	CMOS 15pF typ.
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	3.3V ±5%
Frequency Stability vs. Voltage	±3ppb(VDD ±5%)
Frequency Stability vs. Load	±3ppb(CL ±10%)
Supply Consumption	2.5W (Max.) When warm-up;1W (Max.) when static
Warm-up Time	±0.2ppm,<3min
Adjustable Frequency Range	±0.7ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±1ppb/day,first year ±100ppb,10years ±0.5ppm
Storage Temperature Range	-40~125°C

DIMENSIONS



PRODUCT TYPE: OCXO-2014/OCXO-2014S

FEATURES

•JYEG Part Number:JYOC14,JYOC14D

•CMOS / Sine Wave output

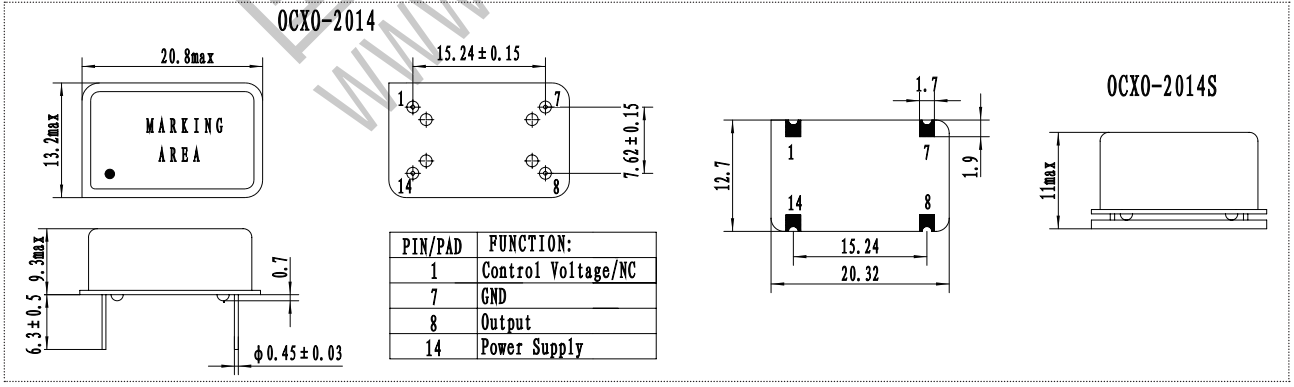
•SC Cut

•Low aging,compact package

TYPICAL SPECIFICATIONS

ITEM / TYPE	OCXO-2014/OCXO-2014S
Frequency Range	2~100MHz
Frequency Accuracy	±0.2ppm (center control voltage)
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±10ppb Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	3.3V ±5%/5.0V ±5%/12.0V ±5%
Frequency Stability vs. Voltage	±3ppb(VDD ±5%)
Frequency Stability vs. Load	±3ppb(CL ±10%)
Supply Consumption	2.5W (Max.) When warm-up;1W (Max.) when static
Warm-up Time	±0.2ppm,<3min
Adjustable Frequency Range	±0.7ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±1ppb/day,first year ±100ppb,10years ±0.5ppm
Storage Temperature Range	-40~125°C

DIMENSIONS



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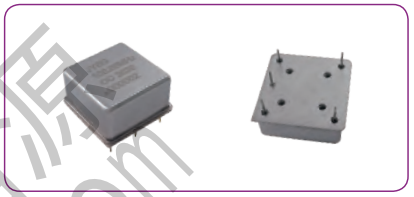
PRODUCT TYPE: OCXO-2020

FEATURES

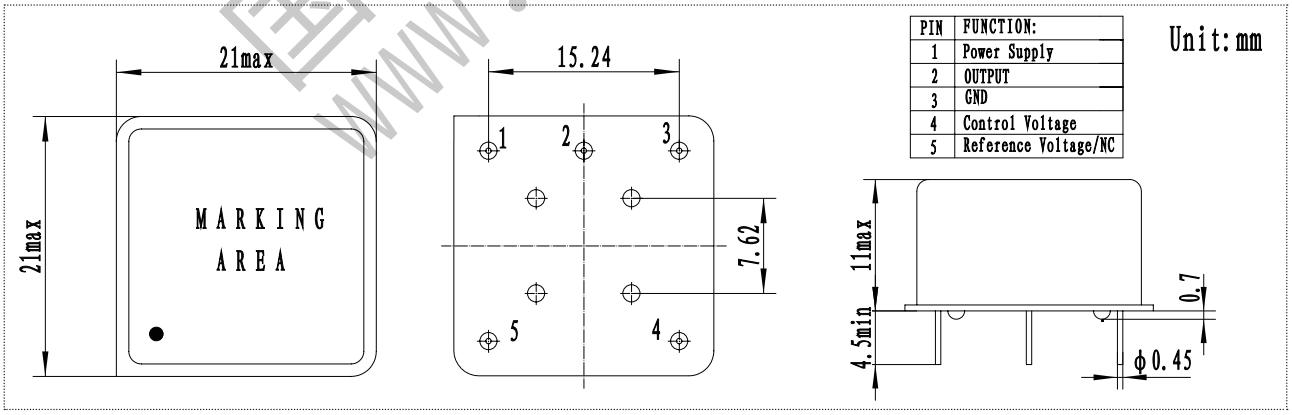
- JYEG Part Number:JYOC20
- SC Cut
- CMOS / Sine Wave output
- Low aging,compact package



TYPICAL SPECIFICATIONS

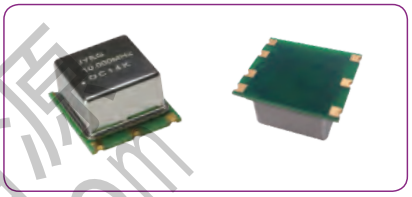
ITEM / TYPE	OCXO-2020
Frequency Range	2~100MHz
Frequency Accuracy	±0.2ppm (center control voltage)
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±10ppb Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	3.3V ±5%/5.0V ±5%/12.0V ±5%
Frequency Stability vs. Voltage	±3ppb(VDD ±5%)
Frequency Stability vs. Load	±3ppb(CL ±10%)
Supply Consumption	3.2W (Max.) When warm-up;1.2W (Max.) when static
Warm-up Time	±0.2ppm,<3min
Adjustable Frequency Range	±0.7ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±1ppb/day,first year ±100ppb,10years ±0.5ppm
Storage Temperature Range	-40~125°C

DIMENSIONS



PRODUCT TYPE: OCXO-SMD2522

FEATURES



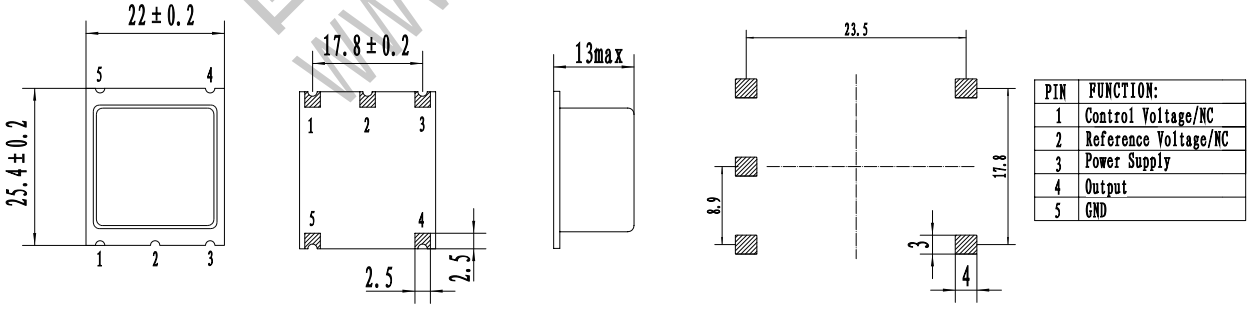
- JYEG Part Number:JYOC22D
- SC Cut
- CMOS / Sine Wave output
- Low aging,compact package

TYPICAL SPECIFICATIONS

ITEM / TYPE	OCXO-SMD2522
Frequency Range	2~100MHz
Frequency Accuracy	±0.2ppm (center control voltage)
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±10ppb Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	3.3V ±5%/5.0V ±5%
Frequency Stability vs. Voltage	±3ppb(VDD ±5%)
Frequency Stability vs. Load	±3ppb(CL ±10%)
Supply Consumption	3.6W (Max.) When warm-up;1.2W (Max.) when static
Warm-up Time	±0.2ppm,<3min
Adjustable Frequency Range	±0.7ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±1ppb/day,first year ±100ppb,10years ±0.5ppm
Storage Temperature Range	-40~125°C

DIMENSIONS

Unit: mm



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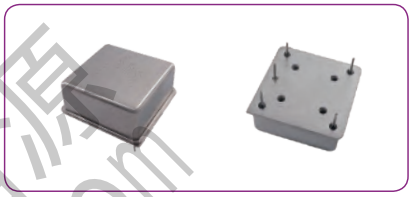
PRODUCT TYPE: OCXO-2525

FEATURES

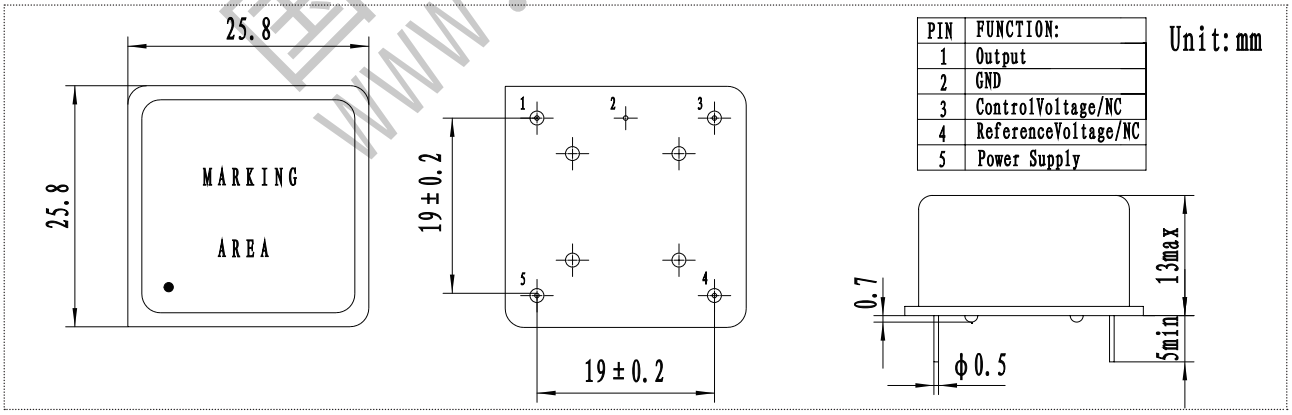


- JYEG Part Number:JYOC25
- CMOS / Sine Wave output
- SC Cut
- Low aging,compact package

TYPICAL SPECIFICATIONS

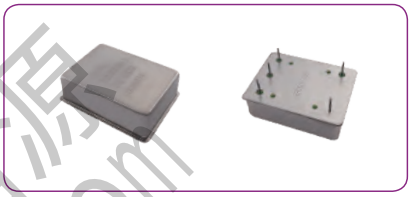
ITEM / TYPE	OCXO-2525
Frequency Range	2~100MHz
Frequency Accuracy	±0.2ppm (center control voltage)
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±10ppb Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	3.3V ±5%/5.0V ±5%/12.0V ±5%
Frequency Stability vs. Voltage	±3ppb(VDD ±5%)
Frequency Stability vs. Load	±3ppb(CL ±10%)
Supply Consumption	3.6W (Max.) When warm-up;1.2W (Max.) when static
Warm-up Time	±0.2ppm,<3min
Adjustable Frequency Range	±0.7ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±1ppb/day,first year ±100ppb,10years ±0.5ppm
Storage Temperature Range	-40~125°C

DIMENSIONS



PRODUCT TYPE: OCXO-3627

FEATURES

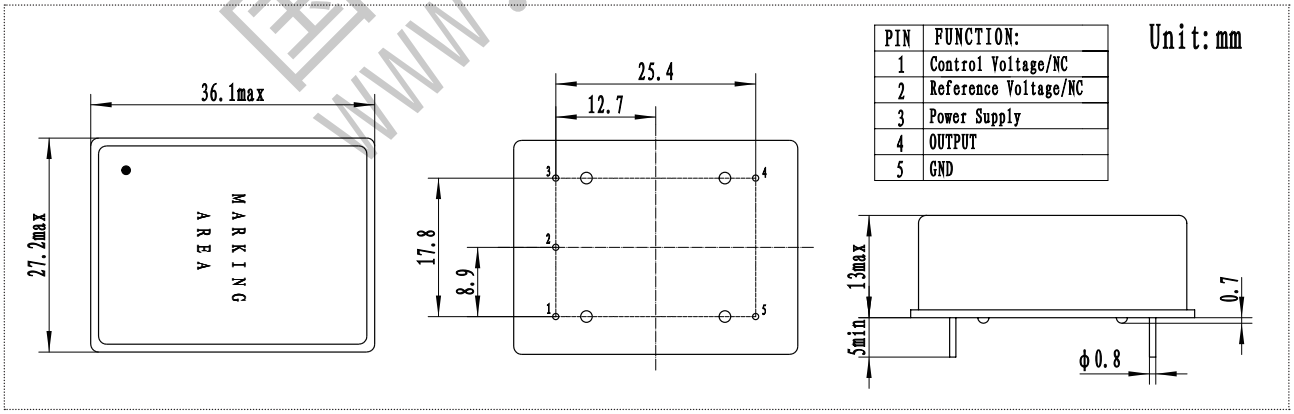


- JYEG Part Number:JYOC36
- SC Cut
- CMOS / Sine Wave output
- Low aging,compact package

TYPICAL SPECIFICATIONS

ITEM / TYPE	OCXO-3627
Frequency Range	2~100MHz
Frequency Accuracy	±0.2ppm (center control voltage)
Operating Temperature Range	-40~85°C
Frequency Stability vs. Temperature	±10ppb Max.
Output Load	CMOS 15pF typ.,Sine Wave 50Ω
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	3.3V ±5%/5.0V ±5%/12.0V ±5%
Frequency Stability vs. Voltage	±2ppb(VDD ±5%)
Frequency Stability vs. Load	±2ppb(CL ±10%)
Supply Consumption	4.0W (Max.) When warm-up;1.4W (Max.) when static
Warm-up Time	±0.2ppm,<3min
Adjustable Frequency Range	±0.7ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±1ppb/day,first year ±100ppb,10years ±0.5ppm
Storage Temperature Range	-40~125°C

DIMENSIONS



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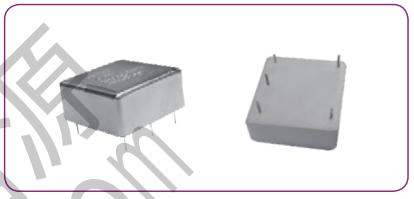
PRODUCT TYPE: OCXO-5050

FEATURES

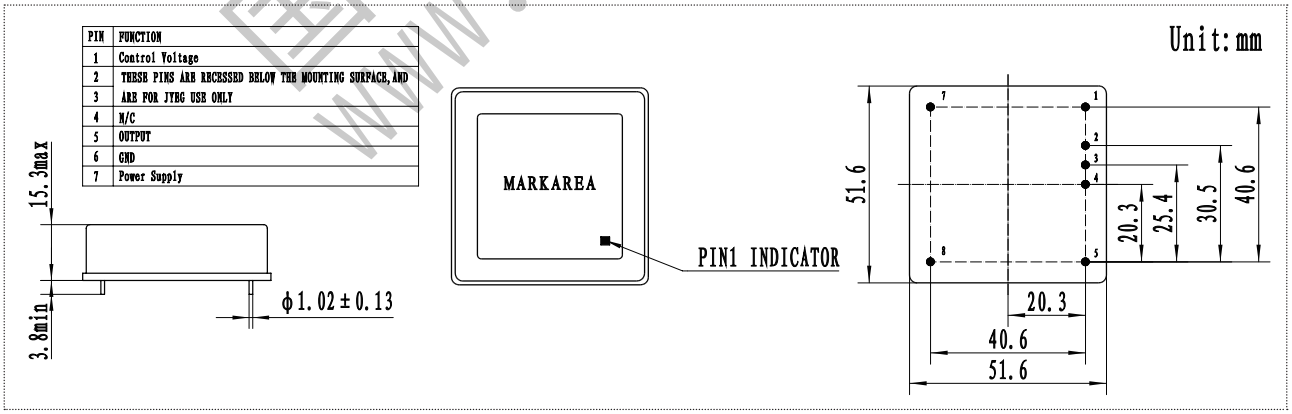
- JYEG Part Number:JYOCS50
- SC Cut
- Sine Wave output
- Low aging,compact



TYPICAL SPECIFICATIONS

ITEM / TYPE	OCXO-5050
Standard Frequencies	5MHz,10MHz
Frequency Accuracy	±100ppb (TA=25°C)
Operating Temperature Range	-20~70°C
Frequency Stability vs. Temperature	±0.5ppb pk-pk Max.
Output Load	50Ω
Short Term Stability	1.0×10-11/s(10MHz)
Supply Voltage	12.0V ±5%
Frequency Stability vs. Voltage	±0.1ppb(VDD ±5%)
Frequency Stability vs. Load	±0.1ppb(CL ±10%)
Supply Consumption	6.0W (Max.) When warm-up;3.0W (Max.) when static
Warm-up Time	±0.2ppm,<10min
Adjustable Frequency Range	±0.25ppm
Control Voltage Range	0~VDD
Slope	Positive
Linearity	10% Max.
Phase Noise(10MHz)	-120dBc/Hz@10Hz -140dBc/Hz@100Hz -145dBc/Hz@1kHz -150dBc/Hz@10kHz
Aging	±0.1ppb/day,first year ±30ppb,20years ±300ppb
Storage Temperature Range	-40~125°C

DIMENSIONS



PRODUCT TYPE: Double Rotated Quartz Blank

FEATURES

•SC,IT,EY,FC Cut

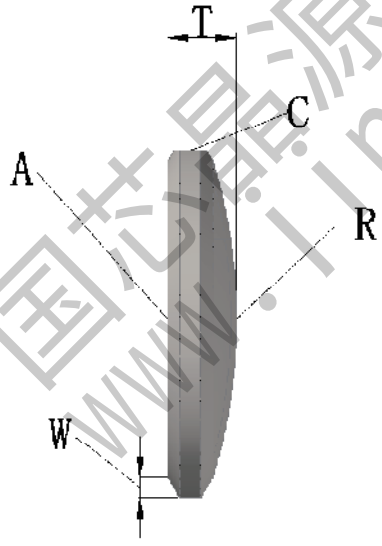
•All kinds of standard frequency

•Angle/Frequency/Curvature controlled

TYPICAL SPECIFICATIONS

ITEM / SIZE(mm)	Φ13.95	Φ10.78	Φ8.62	Φ6.24	Φ5.57
Mode of Vibration	3rd	3rd	3rd/5th	3rd/5th	Fund/3rd/5th
Frequency Range	3~5MHz	5~10MHz	10~80MHz	90~120MHz	12~120MHz
Angle	Φ:±5′ Θ:±15″				
Material Quality	Q value>2.4 Million,Etching tunnel density≤30pcs/cm², Enclosure Leve 1				
Other	Double Rotated Quartz Blank can be produced as customer required				

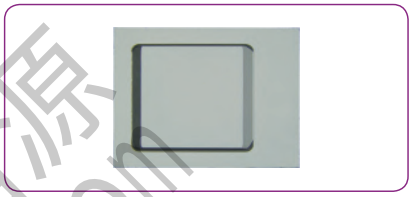
DIMENSIONS



SYMBOL	DESCRIPTION
R	Diopter
A	Ground edge
C	Ground edge
r	Diopter
W	Width
T	Thickness

PRODUCT TYPE: MESA Blank

FEATURES



•AT high frequency MESA blank

•Dimensions standard fully coveraged

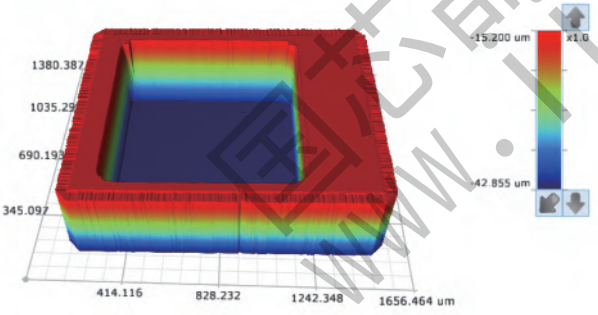
•All kinds of standard frequency

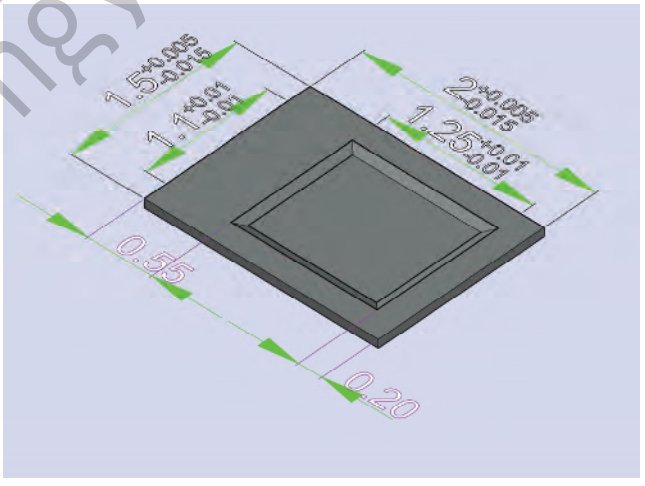
TYPICAL SPECIFICATIONS

ITEM / TYPE	7050	3225	2520	2016
Mode of Vibration	Fundamental	Fundamental	Fundamental	Fundamental
Frequency Range	60~320MHz	80~320MHz	90~320MHz	100~320MHz
Size	5.00*2.50mm	2.00*1.50mm	1.60*1.20mm	1.30*0.95mm
Angle	±30″/±60″			
Material Quality	Q value>2.4 Million,Etching tunnel density≤30pcs/cm², Enclosure Leve 1			
Other	High fundamental MESA blank can produce as customer required			

DIMENSIONS

Unit:mm





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超稳频率器件领导者
Leader of Ultra-stable Frequency Device

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