

## 产 品 规 格 书

### SPECIFICATIONS FOR PRODUCT

产品类型 TYPE : Crystal Oscillator

产品规格 SPEC : 24.576MHz/5032/3.3V

产品型号 P/N : CJO04-245763320B30

日期 DATE : 2019/07/05

<b>核准及签名</b>			<b>部门</b>
R&D APPR. SIGNATURED			DEPT.
<b>拟制</b>	<b>审核</b>	<b>批准</b>	频率器件事业部
ISSUE	CHECK	APPROVAL	
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**SMD5.0 \* 3.2 Crystal Oscillator****CJO04-245763320B30**

1. Scope:
  - 1.1 This specification applies to the RoHS crystal oscillator with a frequency of 24.576MHz which will be used in electronic equipment.
2. Construction:
  - 2.1 Oscillators series: SMD 5.0×3.2 XO
  - 2.2 Package: SMD 5.0×3.2
3. Electrical Characteristics
  - 3.1 Nominal Frequency: 24.576MHz
  - 3.2 Frequency Stability: ±20 ppm  
(incl. 25°C tolerance)
  - 3.3 Aging: ±3ppm/year
  - 3.4 Operating Temperature Range: -40°C to +85°C
  - 3.5 Storage Temperature Range: -55°C to +125°C
  - 3.6 Input Voltage ( $V_{DD}$ ): +3.3Vdc±10%
  - 3.7 Input Current ( $I_{DD}$ ): 10mA max
  - 3.8 Output Waveform: CMOS
  - 3.9 Output Symmetry: 50±10%
  - 3.10 Rise/Fall Time: 8ns max
  - 3.11 Output Voltage  $V_{OL}$ : 10%VDD  
 $V_{OH}$ : 90%VDD
  - 3.12 Output Load: 15pF
  - 3.13 Output State Control: Enable/disable
  - 3.14 Start-up Time: 5ms max
  - 3.15 Standby current: 10µA max
  - 3.16 Phase Jitter (rms): 1ps rms max 12kHz to 20MHz max
  - 3.17 Oscillation mode: Fundamental
  - 3.18 Others: Not recommended for safety applications

## 4. Reliability Specifications

This is the quality control and quality assurance and reliability tests performance data for the RoHS 24.576MHz SMD 5.0×3.2 XO related to the specification and approval sheet provided by JSCJ .

Standard test condition (TEMP.: 20±15°C. Relative humidity: 65±20%)

For any discrepancy in GO/NG, test will be done at TEMP.25±2°C. R.H. 65±5%.

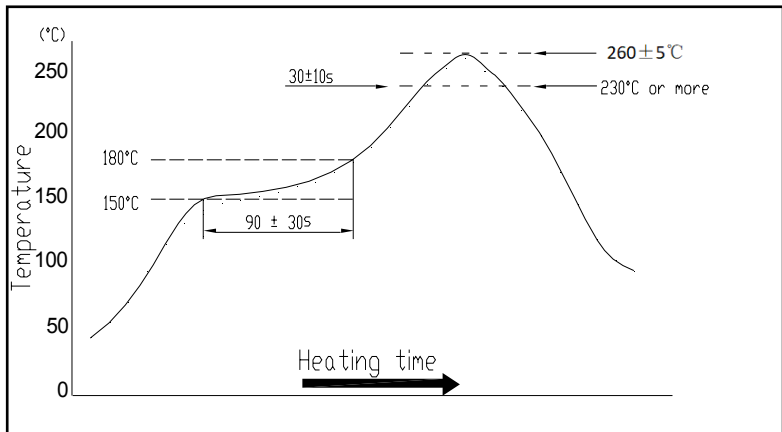
NO.	ITEM	SPECIFICATION	TEST METHOD
4.1	Temperature Cycle (GB/T 2423.22-2002, Method Nb)	Frequency change after test≤±5ppm.	10 cycles from -55°C to 125°C. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.2	Low Temperature Storage (GB/T 2423.1-2001, Method Aa)	Frequency change after test≤±5ppm.	Spending 72 hrs at -55°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.3	High Temperature Storage (GB/T 2423.2-2001, Method Ba)	Frequency change after test≤±5ppm.	Spending 72 hrs at 125°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.4	Humidity (GB/T 2423.3-2006, Method Cab)	Frequency change after test≤±5ppm.	Spending 96 hrs at 40 °C ± 3 °C, with 90± 3% R.H. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.5	Vibration (GB/T 2423.10-1995, Method Fc)	Frequency change after test≤±5ppm.	Apply 0.75mm vibration at sweep frequency 10~500 Hz, for 2h. 10 cycles in each direction of 3 axis. Measurement taken after 1 hour.
4.6	Shock (GB/T 2423.5-1995, Method Ea)	Frequency change after test≤±5ppm. No visible damages.	Peak 1000m/s <sup>2</sup> , normal width 6ms half sine wave form, 3.7m/s, 3 perpendicular axis of samples, 3 cycles / direction, total 18 cycles. Measurement taken after 1 hour.
4.7	Drop (GB/T 2423.8-1995, Method Ed)	Frequency change after test≤±5ppm. No visible damages.	Free drop to the wooden plate from 1.0 m heights for 3 times.
4.8	Solderability (GB/T 2423.28-2005, Method Tc)	Terminals shall be covered more then 95% with solder.	In 255 ± 5°C solder bath for 2 ± 0.5 seconds. There is no need to do functioned test. 8-12X magnifier.
4.9	Terminal Strength (JIS-C-6429 Method 1 & 2 )	No visible damage	Mount on a glass-epoxy board (100x50x1.6mm), then bend to 2mm displacement (velocity 1mm/sec) and keep for 5 seconds. or pulling force 0.5 kg for at least 60 seconds.
4.10	Resistance to Soldering Heat (GB/T 2423.28-2005, Test Tb Method 1B)	Frequency change after test≤±5ppm.	Passed through the re-flow oven under the following condition. Preheat to 150°C±5°C for 60 to 120sec, and peak 265°C±5°C for 10s±3sec. Measurement taken after DUT being left at room temperature for at 24±2 hours.
4.11	OTHERS		

### 5. Recommended Reflow soldering condition (SMD)

■ Solder profile

Peak:  $260 \pm 5^\circ\text{C}$  Soldering zone:  $230^\circ\text{C}$  or more,  $30 \pm 10\text{s}$ .

Pre-heating zone 1:  $150 \sim 180^\circ\text{C}$ ,  $90 \pm 30\text{s}$



Temperature profile for reflow soldering

### 6. Soldering iron method

Bit temperature:  $350 \pm 10^\circ\text{C}$  Application time of soldering iron:  $3+1\text{ s}$

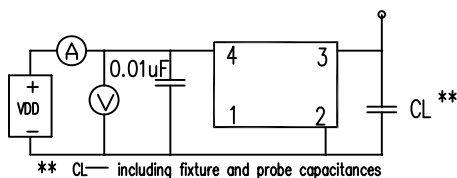
For other procedures, refer to IEC 60068-2-20.

#### PIN CONNECTION

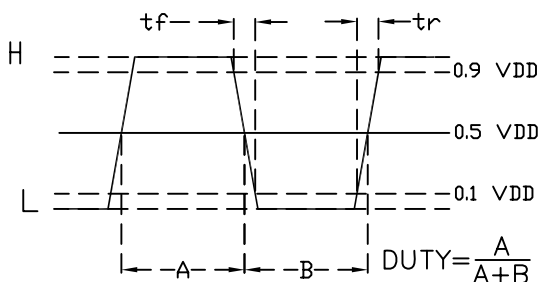
P/N	CJO04
1	Enable/Disable *
2	GND
3	Output
4	VDD

\* Enable/Disable functional description  
 When pin1 goes high ( $\geq 0.7V_{DD}$ ) or open, the Oscillator in normal operation and has output in frequency. When pin1 goes low ( $\leq 0.3V_{DD}$ ), the oscillator stops and the oscillator output (Pin3) becomes high impedance.

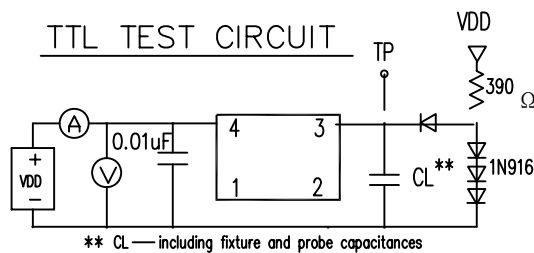
#### CMOS TEST CIRCUIT



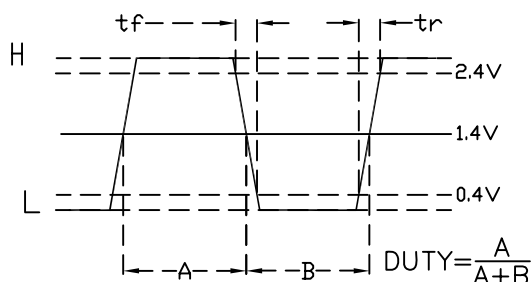
#### TYPICAL CMOS WAVE FORM



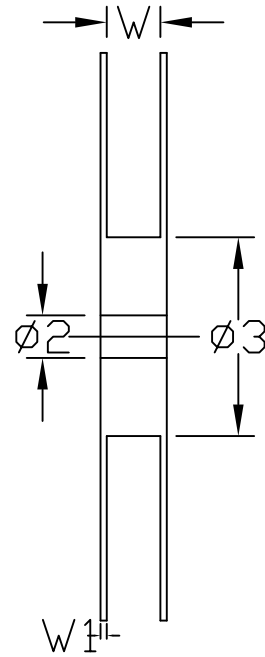
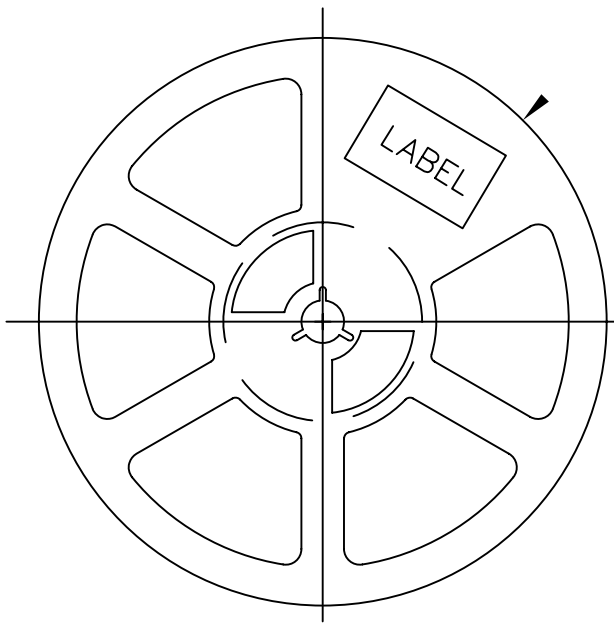
#### TTL TEST CIRCUIT



#### TYPICAL TTL WAVE FORM



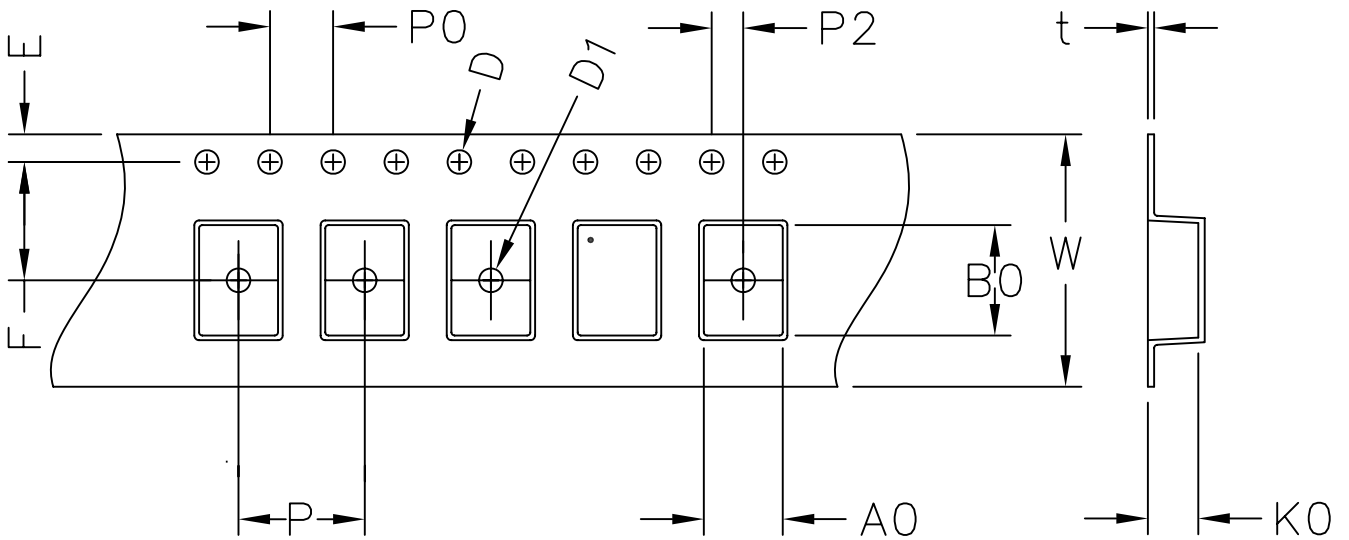




REEL DIMENSIONS

ITEM	$\phi 1 \pm 0.5$	$\phi 2 \pm 0.25$	$\phi 3 \pm 0.3$	$W \pm 0.2$	$W1 \pm 0.25$
16mm	178	13.2	62.5	16.4	2

LABEL: JSCJ P/N: xxx...xxx  
 Freq: ff.fff  
 Qty: 1000Pcs



EMBOSSED TYPE DIMENSIONS

ITEM	$W + 0.3/0.1$	$A0 \pm 0.1$	$B0 \pm 0.1$	$K0 \pm 0.1$	$P \pm 0.1$	$F \pm 0.1$	$t \pm 0.05$	Qty
149	16.0	3.2	5.0	2.0	8.0	7.5	0.3	1000

$E = 1.75 \pm 0.1$ ,  $D = 1.5 \pm 0.1$ ,  $D1 = 1.5 + 0.25 / -0.0$ ,  $P0 = 4.0 \pm 0.1$ ,  $P2 = 2.0 \pm 0.1$