

# 深圳市晶科鑫实业有限公司

## 样品承认书

客户代码:	
物料名称:	贴片钟振
规格型号:	SMD2520 OSC 32.768KHZ 1.8~3.3V LVCMOS -40~85°C
P N/ SJK:	2N000032G33YC
环保属性:	<input checked="" type="checkbox"/> RoHS <input checked="" type="checkbox"/> REACH <input checked="" type="checkbox"/> HF <input type="checkbox"/> PAHS <input type="checkbox"/> 其它
版 次:	A1 2017-5-10 初版
湿敏等级:	一级

承 认 签 章					
供 应 商 承 认			( ) 公 司 承 认		
制 定	审 核	核 准	工 程 师	审 核	批 准
贺丹斌		黄灏东			
SJK 支持	18682088994 (Mr.黄)		盖章签署		
FAE_EMAIL	<a href="mailto:sjk-fae@q-crystal.com">sjk-fae@q-crystal.com</a>		日 期		
日 期					
备注:					



# CRYSTAL OSCILLATOR

SERIES 2N, SEAM SEALED CERAMIC 2.5X2.0MM SURFACE MOUNT PACKAGE

## 1. ELECTRICAL SPECIFICATIONS

### Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature : 25±5°C

Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

Ambient temperature : 25±3°C

Relative humidity : 40%~70%

### Measure equipment

Electrical characteristics measured by MD 37WX-05M or equivalent.

### Crystal cutting type

The crystal is using AT CUT (thickness shear mode).

	Parameters		SYM	Electrical Spec.				Notes
				MIN	TYPE	MAX	UNITS	
1	Nominal Frequency			0.032768			MHZ	即: 32.768KHZ
2	Frequency Stability	AT 25°C		±10			PPM	
		Over Operating Temperature range		±20			PPM	
3	Operating Temperature		Topr	-40	25	85	°C	
4	Storage Temperature		Tstg	-55	~	125	°C	
5	Supply Voltage		VDD	1.8~3.3 / ±10%			V	1.62~3.63 available
6	Input Current		Icc			5	uA	
7	Enable Control			Yes				Pad1
8	Output Load : CMOS		CL	15			pF	
9	Output Voltage High		VoH	90% Vdd			V	
10	Output Voltage Low		VoL			10% Vdd	V	
11	Rise Time		Tr			5	ns	10%→ 90%VDD Level
12	Fall Time		Tf			5	ns	90%→ 10%VDD Level
13	Symmetry (Duty ratio)		TH/T	45	~	55	%	
14	Start-up Time		Tosc			10	ms	
15	Enable Voltage High		Vhi	70% Vdd			V	
16	Disable Voltage Low		Vlo			30% Vdd	V	
17	Aging			±3			ppm/yr.	1st. Year at 25°C
18	Output Disable Delay Time		T off			150	us	
19	Output Enable Delay Time		T on			150	us	

电话: 0755-88352810-837(Mr.huang) 传真: 0755-88353718 <http://www.q-crystal.com>

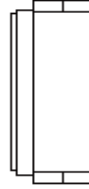
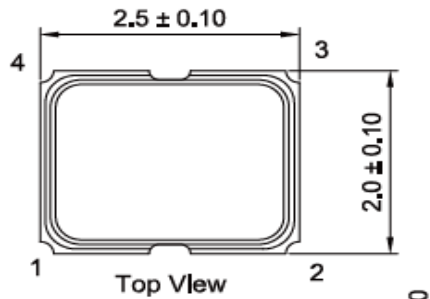
公司地址: 深圳市龙岗区天安云谷产业园一期 3 栋 C 座 12 楼 1204~1206 室

# CRYSTAL OSCILLATOR

SERIES 2N, SEAM SEALED CERAMIC 2.5X2.0MM SURFACE MOUNT PACKAGE

20	Phase Jitter (12KHZ~20MHZ)		0.5	1.0	ps	
----	----------------------------	--	-----	-----	----	--

## 2. DIMENSIONS (Units :mm)



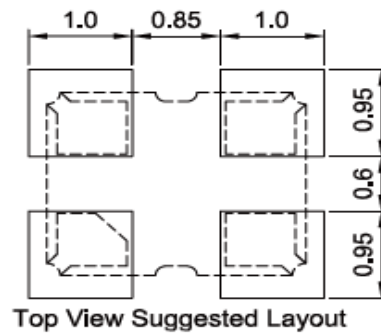
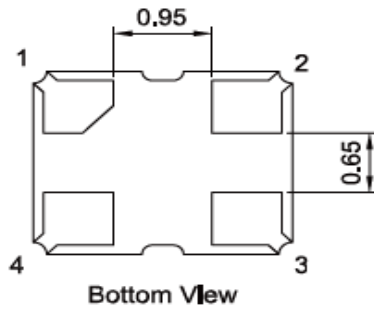
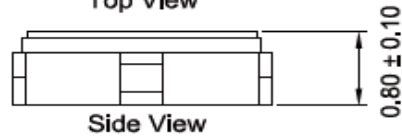
PAD FUNCTION:

1: ENABLE CONTROL

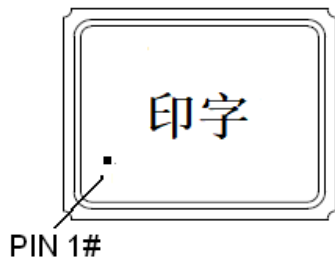
2: GND

3: OUT

4: VDD



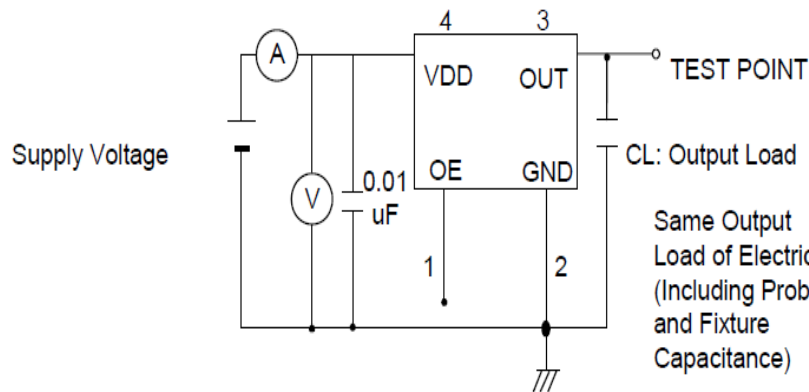
## 3. MARKING



## 4. TEST CIRCUIT

# CRYSTAL OSCILLATOR

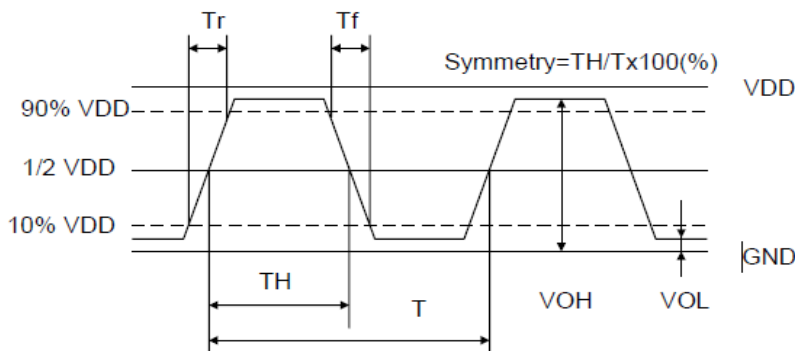
SERIES 2N, SEAM SEALED CERAMIC 2.5X2.0MM SURFACE MOUNT PACKAGE



Control input (output enable/disable)  
 Logic 1 or open on pad 1:  
 Oscillator output  
 Logic 0 on pad 1 : Disable  
 output to high impedance

Same Output Load of Electrical Specifications (Including Probe and Fixture Capacitance)

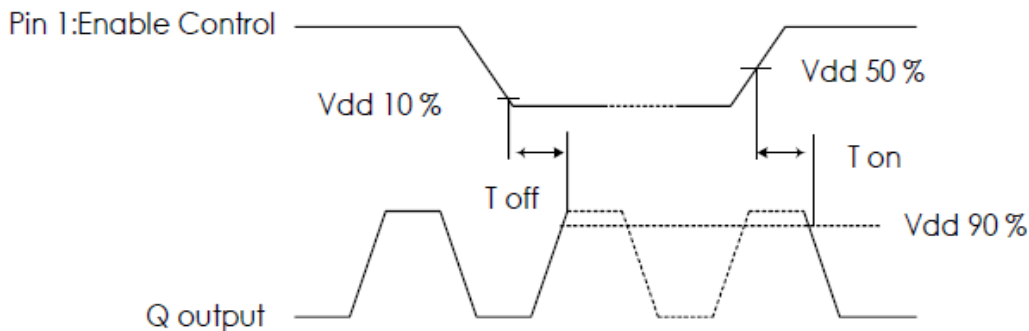
## 5. WAVEFORM CONDITIONS



Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.

## 6. OUTPUT ENABLE / DISABLE DELAY

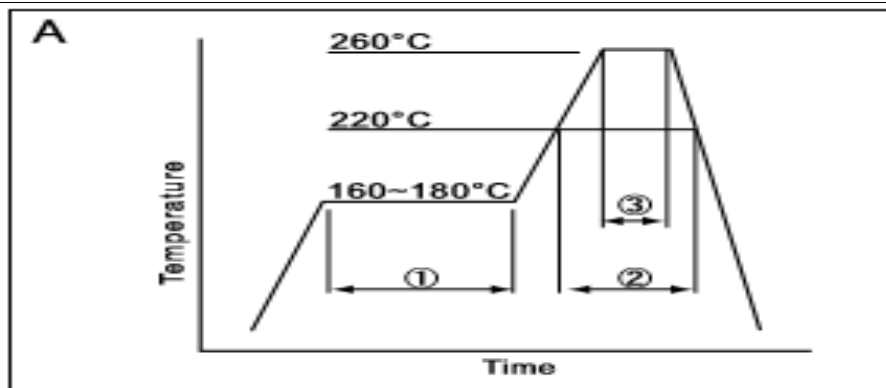
The following figure shows the oscillator timing during normal operation . Note that when the device is in standby, the oscillator stops. When standby is released, the oscillator starts and stable oscillator output occurs after a short delay



## 7. SUGGESTED REFLOW PROFILE

# CRYSTAL OSCILLATOR

SERIES 2N, SEAM SEALED CERAMIC 2.5X2.0MM SURFACE MOUNT PACKAGE



①	Preheat	160~180°C	120sec.
②	Primary heat	220°C	60sec.
③	Peak	260°C	10sec. max

Total time : 200 sec. Max / Solder melting point :220 °C

## 8. RELIABILITY TEST SPECIFICATION

### 1.Mechanical Endurance

No.	Test Item	Test Methods	REF. DOC
1	Drop Test	75 cm height,3 times on concrete floor .	JIS C6701
2	Mechanical Shock	Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times. 0.5m sec. duration time	MIL-STD-202F
3	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm/20G Sweep time 20 minutes Perpendicular axes each test time 4 Hrs (Total test time 12 Hrs)	MIL-STD-883E
4	Gross Leak	Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2kg / cm <sup>2</sup>	MIL-STD-883E
5	Fine Leak	Helium Bomging 4.5 kgf / cm <sup>2</sup> for 2 Hrs	
6	Solderability	Temperature 245 °C ± 5°C Immersing depth 0.5 mm minimum Immersion time 5 ± 1 seconds Flux Rosin resin methyl alcohol solvent ( 1 : 4 )	MIL-STD-883E

### 2.Environmental Endurance

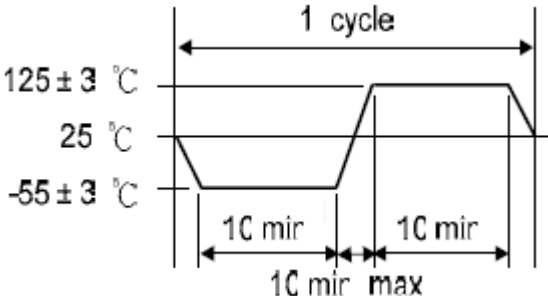
No.	Test Item	Test Methods	REF. DOC
1	Resistance To Soldering Heat	Pre-heat temperature 125 °C Pre-heat time 60 ~ 120 sec. Test temperature 260 ± 5 °C Test time 10 ± 1 sec.	MIL-STD-202F
2	High Temp. Storage	+ 125 °C ± 3 °C for 1000 ± 12 Hrs	MIL-STD-883E
3	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 Hrs	

电话: 0755-88352810-837(Mr.huang) 传真: 0755-88353718 <http://www.q-crystal.com>  
公司地址: 深圳市龙岗区天安云谷产业园一期3栋C座12楼1204~1206室



# CRYSTAL OSCILLATOR

SERIES 2N, SEAM SEALED CERAMIC 2.5X2.0MM SURFACE MOUNT PACKAGE

4	Thermal Shock	Total 100 cycles of the following temperature cycle  <p>125 ± 3 °C 25 °C -55 ± 3 °C</p> <p>1 cycle</p> <p>10 min 10 min 10 min max</p>	MIL-STD-883E
5	Pressure Cooker Storage	121 ± 3 °C , RH100% , 2 bar , 240 Hrs	JIS C6701
6	High Temp & Humidity	85 °C ± 3 °C , RH 85% , 1000 Hrs	JIS C5023
备注			