



承 认 书

SPECIFICATION FOR APPROVAL

客户名称: Customer _____

货 名: Description SMD 2520 TCXO 石英晶体振荡器

客户料号: Part No _____

物料编号: Code No TCO22384001805

频 率: Frequency 38.400MHz

日 期: Date 2020 年 05 月 25 日

备 注: RoHS compliance with Directive (EU) 2015/863

制作(Prepare by)	检查(Check by)	批准 (Approve by)
江丹娜	甘瑛	张刚

客户批准 Approve by customer	
批准日期 Approval date	

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■ ELECTRICAL SPECIFICATIONS

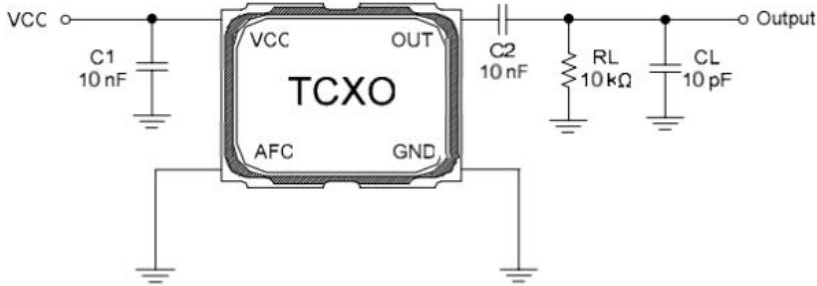
Item	Parameters		Condition	Electrical Specifications				Note
				MIN	TYP	MAX	UNITS	
1	Nominal Frequency			38.400			MHz	
2	Operating Temperature Range			-30		85	°C	
3	Supply Voltage				1.8		V	
4	Nominal Frequency Tolerance		After 2 times reflow			±2.0	ppm	1
5	Output Load		Resistance		10		kΩ	
6			Capacitance	9	10	11	pF	
7	Frequency Stability	vs. Temperature	Temp: -30 ~ +85°C			±2.0	ppm	2
8		vs. Load	Load: 10 kΩ // 10 pF ±10%			±0.5	ppm	
9		vs. Supply Voltage	Vcc: 1.8V ±0.1 V			±0.5	ppm	
10	Storage Temperature			-40		85	°C	
11	Current Drain				1.5		mA	
12	Output voltage level			0.8			Vp-p	3
13	Output Type			Clipped Sinewave				
14	Duty Cycle			40	50	60	%	
15	Start time					2	ms	
16	Aging					±1.0	ppm/year	
17	Phase Noise		1 Hz offset			-50	dBc/Hz	
18			5 Hz offset			-73	dBc/Hz	
19			10 Hz offset			-80	dBc/Hz	
20			100 Hz offset			-105	dBc/Hz	
21			1 KHz offset			-130	dBc/Hz	
22			10 KHz offset			-148	dBc/Hz	
23			100 KHz offset			-150	dBc/Hz	

Note 1 Refer to nominal frequency;

Note 2 Refer to frequency at 25±2°C ;

Note 3 Decoupling capacitor (1000 pF) is required in external circuit;

■ TESTING CIRCUIT

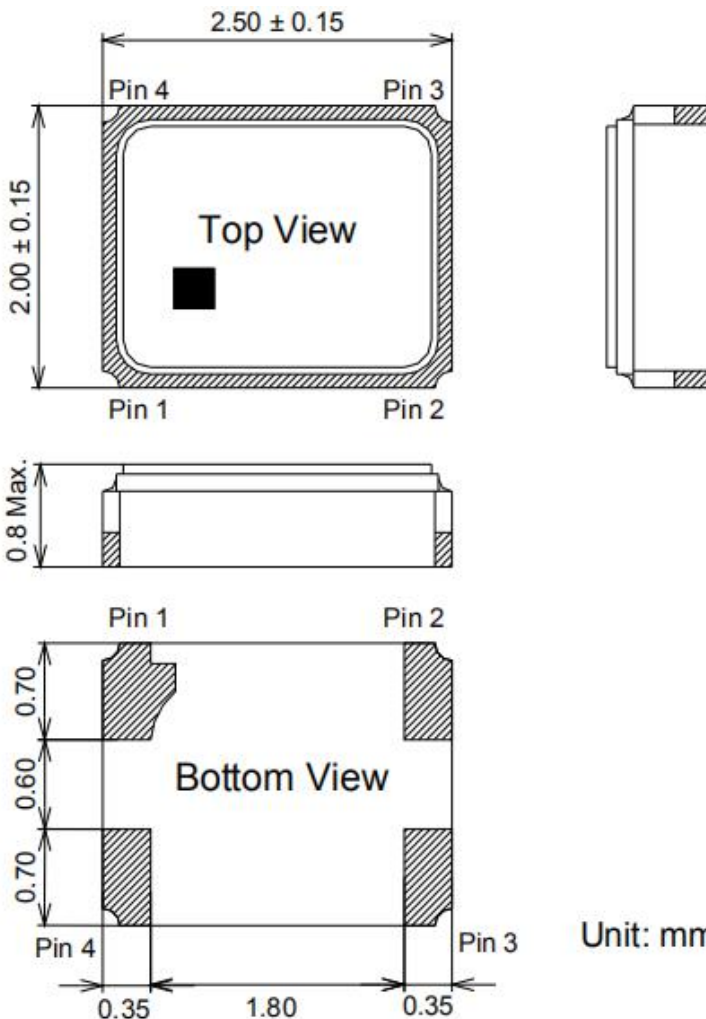


External Components

Name	Function
C1	AC Noise Bypass for VCC
C2	DC Block for Output
RL	Load Resistance
CL	Load Capacitance

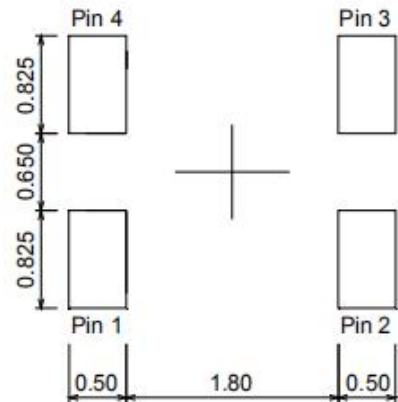
Note: Bypass capacitor (C1) and DC blocking capacitor (C2) should be placed.

■ DIMENSIONS



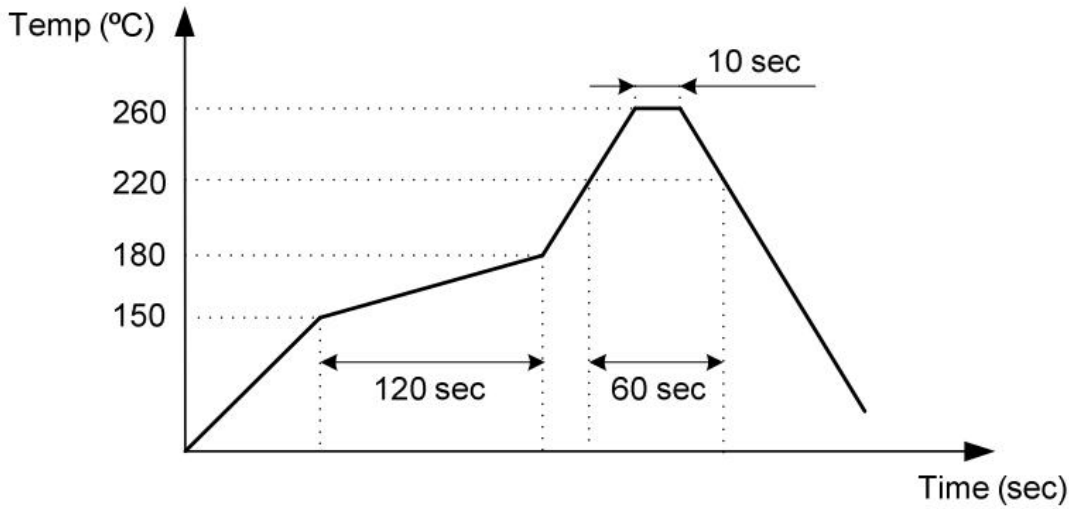
Name	Function
Pin 1	AFC
Pin 2	GND
Pin 3	OUTPUT
Pin 4	VCC

Recommended Land Pattern



Unit: mm

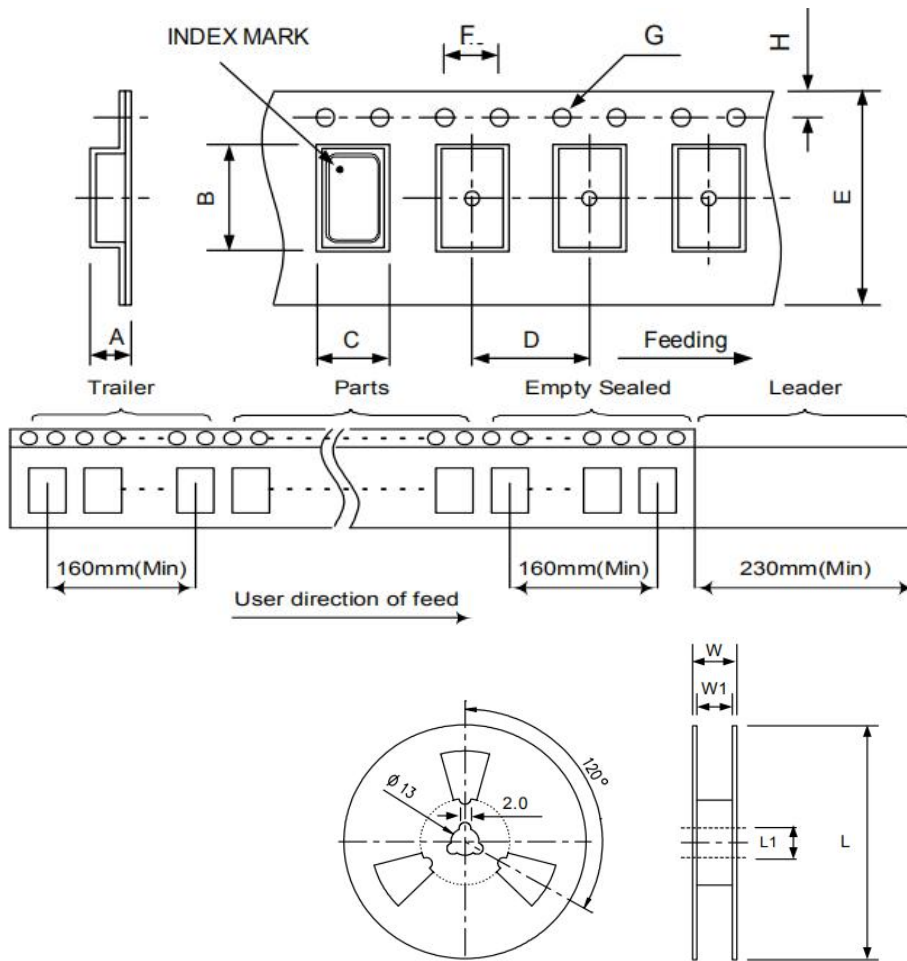
■ SUGGESTED REFLOW PROFILE



Note 1: Period while temperature exceeds the solder melting point : 220°C should be less than 200 sec;

Note 2: Period while temperature stays at the top melting point : 260°C should be less than 30 sec

■ PACKING :

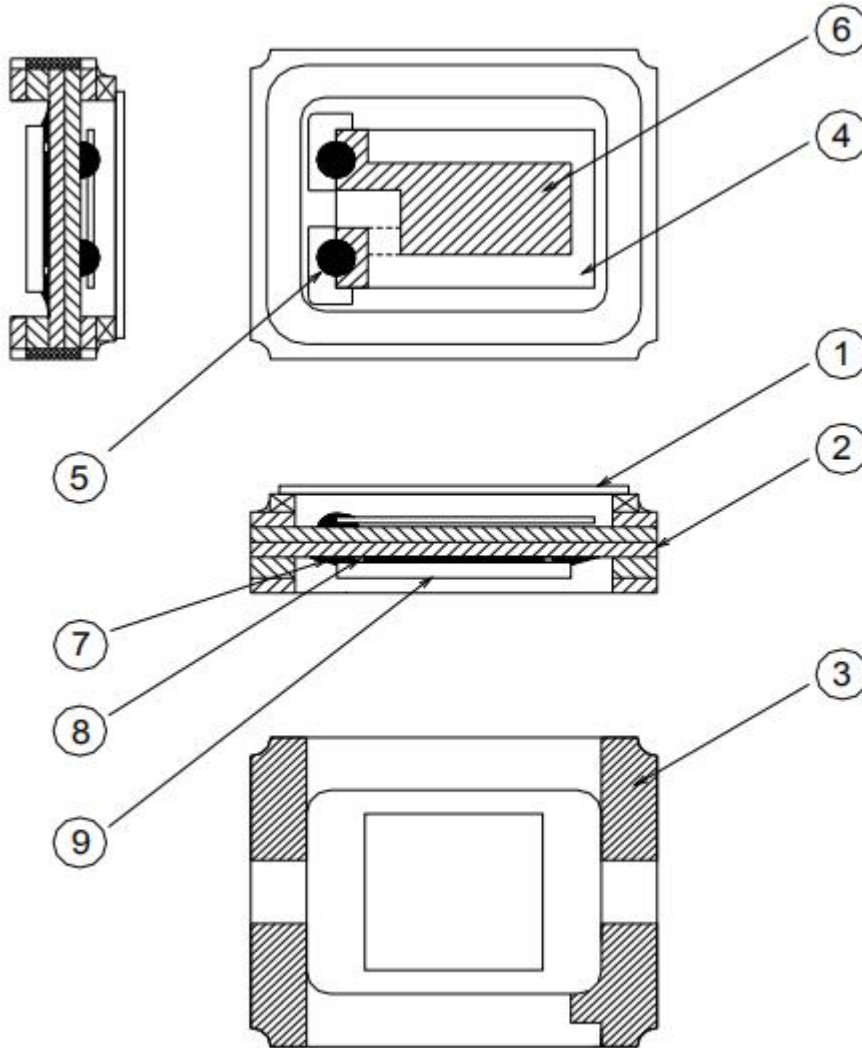


Unit: mm

DIMENSIONS (mm)	A	B	C	D	E	F	G	H	L	L1	W	W1	Standard Reel Quantity is 3,000 pcs per reel
	1.15	2.70	2.25	4.00	8.00	4.00	1.55	1.75	178	13.0	11.6	8.4	

STRUCTURE ILLUSTRATION

Crystal Enclosure Seal: Seam Welding



No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Cap	Metal(Fe + Co + Ni)	-
2	Base	Ceramic	Color Black
3	Pad	Au	Molybdenum Metalize + Ni Plating + Au Plating
4	Crystal Blank	SiO ₂	-
5	Conductive Adhesive	Ag	Silicone Resin
6	Electrode	Noble Metal	-
7	Underfill	Organic	Color Black
8	Bump	Au	
9	IC	Si	

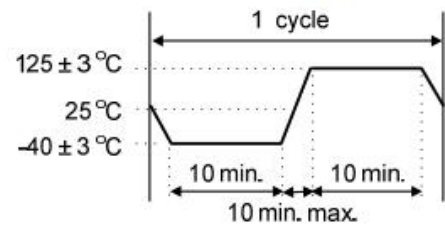
RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods	Criteria
1.1	Drop Test	Hegiht : 100 cm height Direction : X,Y,Z 6 directions Test cycles : 3 cycles Fall freely on to concrete floor Mounting on test fixture (total weight=100 g)	+/- 2.0 ppm
1.2	Mechanical Shock	Acceleration : 1000 g Duration : 0.5 ms Test cycles : 3 times for all 3 directions	+/- 2.0 ppm
1.3	Vibration	Frequency range : 10 ~ 2000 Hz Amplitude : 1.52 mm (10 ~ 80 Hz) Acceleration : 20 g (80 ~ 2000 Hz) Sweep speed : 20 minutes/cycle Direction : X,Y,Z 3 directions Duration : 4 hours/each direction	+/- 2.0 ppm
1.4	Gross Leak	Standard sample for automatic gross leak detector. Test Pressure : 2 kg/cm ²	< 1.5 × 10 ⁻⁵ Pa m ³ / sec
1.5	Fine Leak	Helium bomging 4.5 kgf/cm ² for 2 hours	< 1.0 × 10 ⁻⁹ Pa m ³ / sec
1.6	Solderability	Preheate temperature : 125°C ± 5°C Preheate time : 120 sec Solding temperature : 245°C ± 5 °C Duration : 5 ± 1 sec Method : Solder bath method	90% Coated

[Note] Criteria mean the maximum frequency change after reliability test, frequency measured at 25°C.

2. Environmental Endurance

No.	Test Item	Test Methods	Criteria
2.1	High Temp. Storage	Temperature : +125°C ± 3°C Duration : 168 hours	+/- 2.0 ppm
2.2	Low Temp. Storage	Temperature : -40°C ± 3°C Duration : 500 hours	+/- 2.0 ppm
2.3	Thermal Shock (Air to Air)	Total 100 cycles of the following temperature cycle : 	+/- 2.0 ppm
2.4	High Temp & Humidity	Temperature : 85°C ± 3°C Humidity: RH 85% Duration : 168 hours	+/- 2.0 ppm
2.5	Aging	Temperature : 85°C ± 3°C Duration : 500 hours Voltage input by specification	+/- 2.0 ppm

[Note] Criteria mean the maximum frequency change after reliability test, frequency measured at 25°C.

单击下面可查看定价，库存，交付和生命周期等信息

[>>JGHC\(晶光华\)](#)