

# 承 认 书

## SPECIFICATION FOR APPROVAL

客户名称: Customer \_\_\_\_\_

货 名: Description SMD 3225 TCXO 石英晶体振荡器

客户料号: Part No \_\_\_\_\_

物料编号: Code No W3216367100A33Fb

频 率: Frequency 16.367667MHz

日 期: Date 2021 年 02 月 05 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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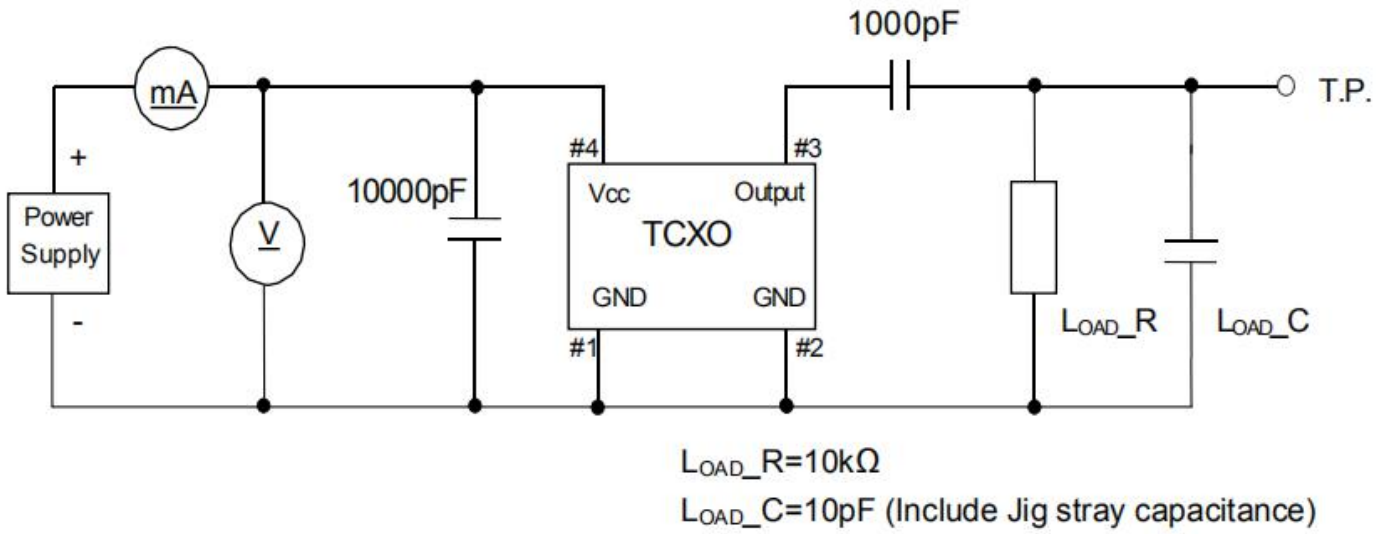
## ■ ELECTRICAL SPECIFICATIONS

Item	Parameters		Condition	Electrical Specifications				Note
				MIN	TYP	MAX	UNITS	
1	Nominal Frequency			16.367667			MHz	
2	Operating Temperature Range			-30		85	°C	
3	Supply Voltage			3.135	3.3	3.465	V	
4	Nominal Frequency Tolerance		Frequency at 25°C,			±0.5	ppm	1
			2 hour after reflow			±1.0	ppm	2.3
5	Output Load		Resistance		10		kΩ	
6			Capacitance	9	10	11	pF	
7	Frequency Stability	vs. Temperature	Temp: -40 ~ +85°C			±0.5	ppm	2
8		vs. Load	Load: 10 kΩ // 10 pF ±10%			±0.1	ppm	
9		vs. Supply Voltage	Vcc: 3.3V ±0.1 V			±0.1	ppm	
10	Storage Temperature			-40		85	°C	
11	Current Consumption					1.5	mA	
12	Output voltage level			0.8			Vp-p	4
13	Symmetry			40/60		60/40	%	
14	Star Up time		@90% Of Final Vout Level			2	ms	
15	Aging					±1.0	ppm/year	
16	SSB Phase Noise		Relative to f0 level offset 1 Hz			-57	dBc/Hz	
17			Relative to f0 level offset 10 Hz			-85	dBc/Hz	
18			Relative to f0 level offset 100 Hz			-110	dBc/Hz	
19			Relative to f0 level offset 1 kHz			-130	dBc/Hz	
20			Relative to f0 level offset 10 kHz			-140	dBc/Hz	

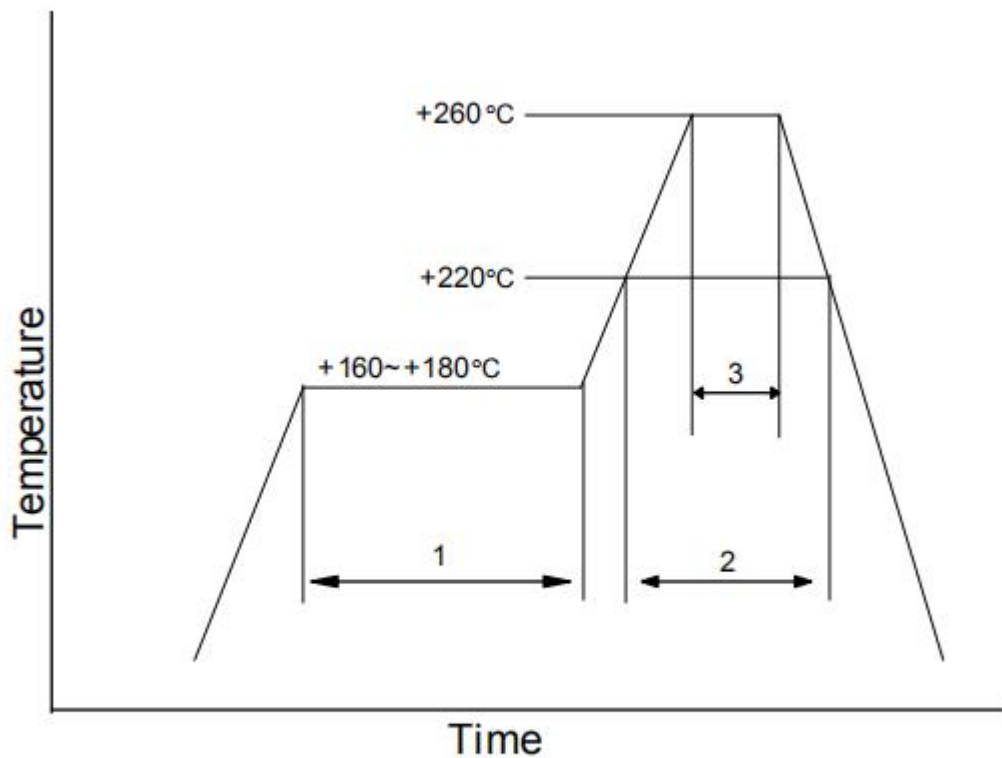
### Notes

1. Clipped sine wave (DC-coupled)
2. Ref. to Nominal Frequency
3. Please leave after reflow in 2h or more at room ambient.
4. Ref. to Frequency (T<sub>A</sub> = +25 °C)

■ TESTING CIRCUIT



■ SUGGESTED REFLOW PROFILE

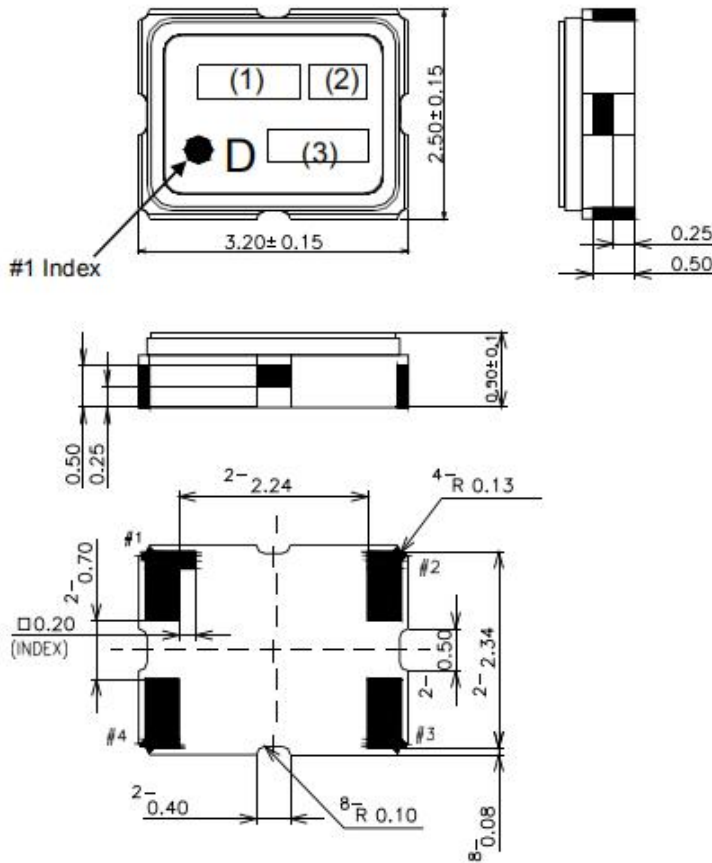


1	Preheat	+160~+180°C	120s
2	Primary Heat	+220°C	60s
3	Peak	+260°C	10s max.

## ■ PRODUCT DIMENSIONS

### ▶ DIMENSIONS

(Unit:mm)



### Pin Connections

Pin No.	Connection
#1	GND
#2	GND
#3	Output
#4	V <sub>cc</sub>

### Marking

(1) Frequency	16.36 (MHz, 4digits)
(2) Model code	BN
(3) Date code	Year (1digit) +Week (2digits) e.g.2015/1/1 → 501

unit: mm

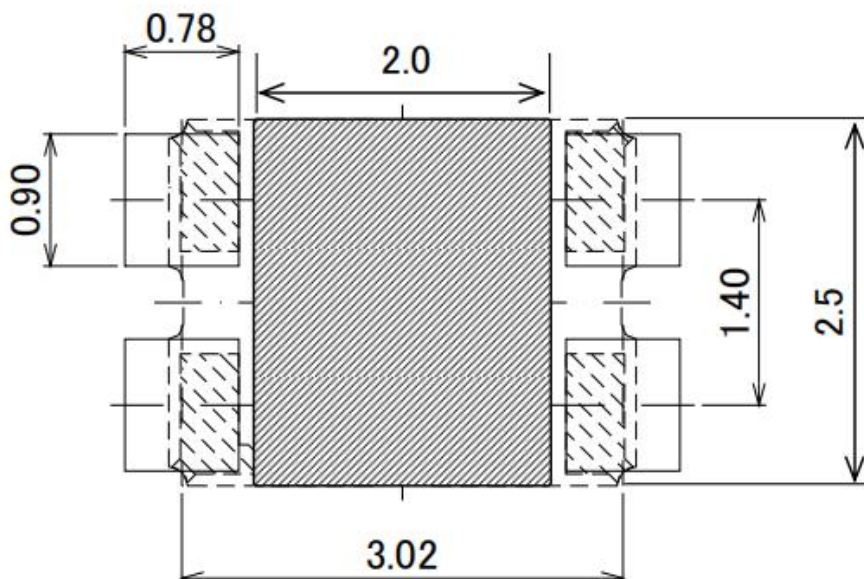
Dimensional Tolerance:  $\pm 0.15$

(Unless otherwise noted)

## ■ LAND PATTERN LAYOUT /METAL MASK HOLE

Please do not place any conductor pattern in the area of the TCXO bottom as shown in FIG.

When placing conductor patterns in the substrate inner layer, please keep away it from the bottom of the TCXO at least 0.5mm or more.

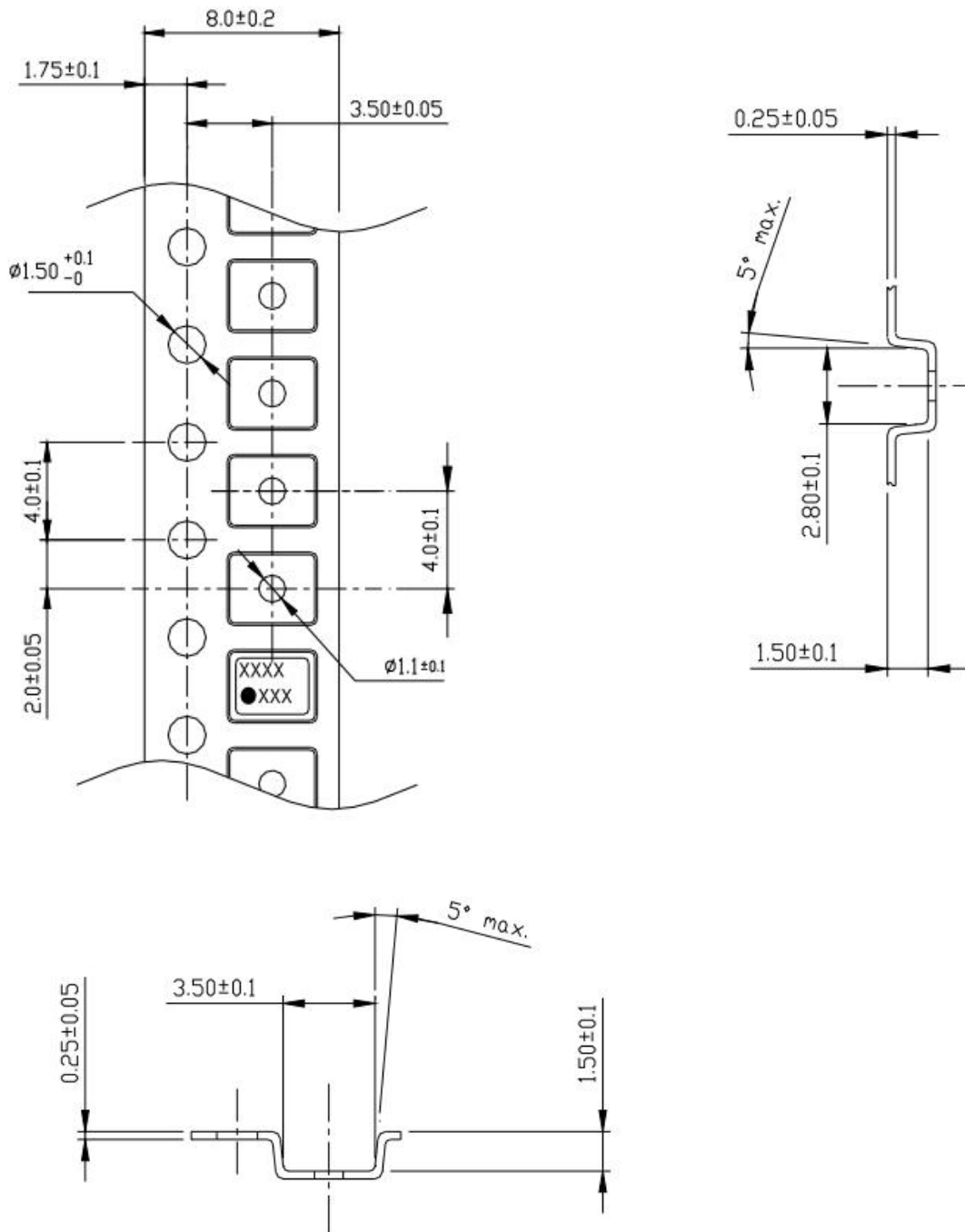


unit: mm

Dimensional Tolerance:  $\pm 0.15$ mm

## PACKAGE INFORMATION

➤ Emboss tape format and dimensions(unit:mm)



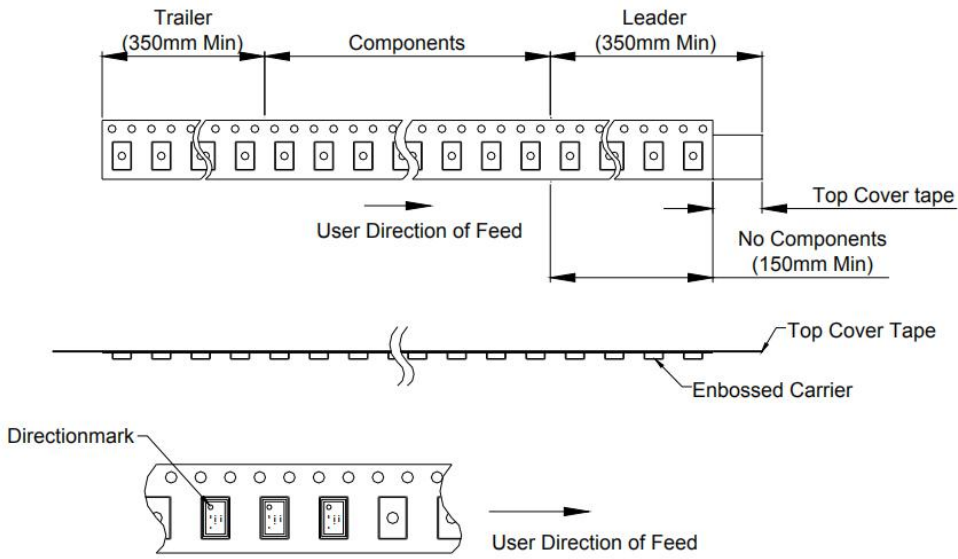
1. Clearance of an embossing tape, and a product unit: mm

Direction	Pocket size	TCXO size	Clearance
L	3.5±0.1	3.2±0.15	0.3±0.25
W	2.8±0.1	2.5±0.15	0.3±0.25
H	1.5±0.1	1.0 max.	0.5 min.

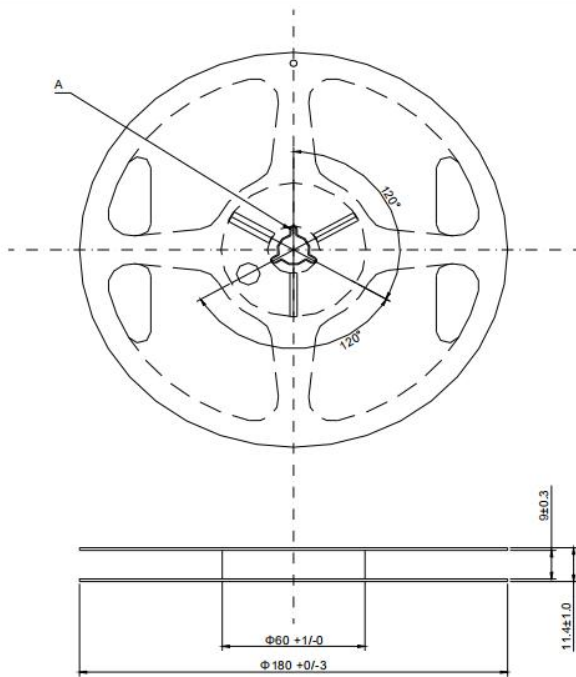
2. Quality : Polystyrene(Conductivity)

3. Tensile strength of an embossing tape : more than 14N

► Taping Specification

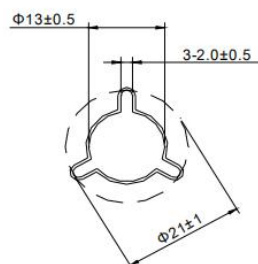


► Reel Specification(unit:mm)



Material:Polystyrene (Conductivity)  
unit:mm

Section A



## ■ RELIABILITY SPECIFICATIONS

### ▶ Mechanical Characteristics

All test is performed after 3times reflow (Clause.13) except 10.10 (Resistance to soldering heat)

Item	Description	Requirements
1	Drop Natural drop (On concrete) Mounting on the set or test fixture.(Total weight 100g) Height : 150cm Direction : X,Y,Z, 6directions Test cycle : 3cycles Reference specification : EIAJ-ED-4702A Method5	df/f=<±1.0ppm
2	Vibration Sweep range : 10~500Hz Sweep speed : 11min/cycle Amplitude : 1.5mm (10~55Hz) Acceleration : 200m/s <sup>2</sup> (55~500Hz) Direction : X,Y,Z, 3directions Test cycle : 10cycles Reference specification : IEC 60068-2-6	df/f=<±0.5ppm
3	Shock Acceleration : 1000m/s <sup>2</sup> Direction : X,Y,Z, 6directions Duration : 6ms Test cycle : 3cycles/each directions Reference specification : IEC 60068-2-27	df/f=<±0.5ppm
4	PCB bend strength PWB : t=1.6mm Pressure speed : 1.0mm/s Bend width : ← →3mm Duration : 10±1s Reference specification : IEC 60068-2-21 Ue1	df/f=<±0.5ppm No visible damage. No leak damage.
5	Adherence nature PWB : t=1.6mm Direction : X,Y, 2directions Pressure : 10N Duration : 10±1s Reference specification : IEC 60068-2-21 Ue3	df/f=<±0.5ppm No visible damage. No leak damage.
6	Package strength Pressure : 10N Duration : 10±1s Reference specification : IEC 60068-2-77	df/f=<±0.5ppm No mechanical damage. No leak damage.
7	Gross leak It is immersed for 3min into +125±5°C Chlorofluorocarbon (CFCs) liquid. Reference specification : IEC 60068-2-17	No continuous air bubbles.
8	Fine leak It shall be measured by the helium leak detector after pressurization for 60min by the pressure of (3.92±0.49) x10 <sup>5</sup> Pa in a helium gas atmosphere. Reference specification : IEC 60068-2-17	Less than 1.0x10 <sup>-9</sup> Pa m <sup>3</sup> /s.
9	Solderability Solder bath temperature : +245±5°C Duration : 3±0.3s Reference specification : IEC 60068-2-58	A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.
10	Resistance to soldering heat 1) Solder iron method Bit size : B(φ3) Bit temperature : +350±10°C Duration : 3+1/-0s /each terminal It shall be measured after 2h at roomtemperature, humidity. Reference specification : IEC 60068-2-20	df/f=<±0.5ppm dV <sub>OUT</sub> =<±0.2V <sub>P-P</sub> No visible damage.
	2) Reflow In refer to temperature profile shown in clause13. Test cycle : 3cycles It shall be measured after 2h at roomtemperature, humidity. Reference specification : IEC 60068-2-58	df/f=<±1.0ppm dV <sub>OUT</sub> =<±0.2V <sub>P-P</sub> No visible damage.



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