



銓茂電子科技股份有限公司

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SPECIFICATION FOR APPROVAL

CUSTOMER

IBS TECH.INT'L HK LTD

P/N

SPEC

CRYSTAL 49US/SMD 12.288MHZ 20PF $\pm$ 30PPM

Supplier P/N

XS12.288M20P4030D

Date

2018-01-22

Other

NTK

APPROVAL SIGNATURE

APPROVED BY :

SALES NAME :

Jackie

Ben

[illegible]



Electronical Specification

Series No. : CM080043

Date :20130101

	Paramenters	SYM.	Electrical Spec.				Notes
			Min.	Typical	Max.	Unit	
1	CHENMOUN Part No.		-				XS12.288M20P4030D
2	Nominal Frequency	FL	12.288000			MHz	
3	Holder Type		-				HC-49US/SMD
4	Crystal Cut		-				AT-Cut
5	Mode of Oscillation		-				Fundamental Mode
6	Frequency Tolerance		-30	~	30	ppm	at 25°C ± 3°C
7	Frequency Stability		-30	~	30		Over Operating Temperature
8	Spurious Attenuation	SpdB	-			dB	4500 ppm
9	Equivalent Series Resistance	Rr			40	Ω	
10	Shunt Capacitance	Co	-		5.0	pF	
11	Motional Capacitance	C1	8.0			fF	
12	Load Capacitance	CL	-	20	-	pF	CL +/- For FL
13	Drive Level	DL		100		uW	
14	MaxR-MinR	DLD2			-	Ω	
15	MaxFR-MinFR	FDLD			-	ppm	
16	Operating Temperature		-20	~	70	°C	
17	Storage Temperature		-40	~	85	°C	
18	Aging		-3		3	ppm	1 year
19	Lead Free Approved Report	SGS Taiwan Ltd. Report No. : CE/2008/21603					
		NAME			DATA		Notes
DRAWN		CINDY			2018-1-22		
CHECKED		CINDY			2018-1-22		
APPROVED		ALEX			2018-1-22		

2 環境試験

基準條件：溫度範圍	Temperature range	25±5℃
濕度範圍	Relative Humidity range	5~95%RH
工作溫度	Operating Temperature range	-20℃~+70℃
貯藏溫度	Storage Temperature range	-40℃~+100℃

2-1 耐振動

方法:在振動頻率為 10~2000Hz 振幅為 1.5mm 沿 X.Y.Z 方向各振動 3 小時後測試

標準: Critical Frequency Change: $\pm 5\text{ppm}$

Critical Esr :+/-15%

The device should satisfy the electrical characteristics specified after applied to the vibration of 10 to 2000Hz with amplitude of 1.5mm for 3 hours each in X, Y and Z directions.

Standard: Critical Frequency Change: $\pm 5\text{ppm}$

Method : Critical Esr	:+/-15%
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2-2 耐跌落性

方法在 80cm 高度處按 X，Y，Z 三個面分別自由跌落在木制地板上共 3 次後測試

標準: Critical Frequency Change: ± 5 ppm

Critical Esr :+/-15%

The device should satisfy the electrical characteristics specified after dropping onto the hard wooden board from the height of 80cm for 3 times each facet of the 3 dimensions of the device.

Standard: Critical Frequency Change: $\pm 5\text{ppm}$

Method : Critical Esr	:+/-15%
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2-3 耐焊接

方法:能承受經 120~150℃的溫度預熱 120 秒後,在 260℃+/-10℃的焊錫浸 5±0.5 秒。

標準: Critical Frequency Change: $\pm 5\text{ppm}$

Critical Esr :+/-15%

The device should be satisfied after preheating at 120°C~150°C for 120 seconds and dipping in soldering Stannum at 260°C+/-5°C for 5±0.5 seconds.

Standard: Critical Frequency Change: ± 5 ppm

Method : Critical Esr	:+/-15%
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2-4 結合力

方法:在產品電極端子上或表面上應能承受 1kg 垂直拉力 10±1 秒。

標準: Critical Frequency Change: $\pm 5\text{ppm}$

Critical Esr :+/-15%

The device should not be broken after tensile force of 1.0kg is slowly applied to pull a lead pin of the fixed device in the lead axis direction for 10 ± 1 seconds.

Standard: Critical Frequency Change: ± 5 ppm

Method : Critical ESR : $\pm 15\%$

2-5 耐濕熱

方法:在溫度為 $70\pm 2^{\circ}\text{C}$ ，相對溫度 5~95%的恒溫濕箱中放置 500 小時，在常溫中恢復 1~2 小時後測試。

標準: Critical Frequency Change: $\pm 5\text{ppm}$

Critical Esr :+/-15%

The device should satisfy the electrical characteristics specified after exposed to the temperature $70\pm 2^{\circ}\text{C}$ and the relative humidity 5~95% RH for 500 hours and 1~2 hours recovery time under normal condition.

Standard: Frequency Change: +/-5ppm

Method : Esr :+/-15%

2-6 高溫特性 High Temperature Endurance

方法:在溫度為 $100\pm 5^{\circ}\text{C}$ 的恒溫箱中放置 500 ± 2 小時，在常溫中恢復 1~2 小時後測試。

標準: Critical Frequency Change: +/-5ppm

Critical Esr :+/-15%

The device should satisfy the electrical characteristics specified after exposed to temperature $100\pm 5^{\circ}\text{C}$ for 500 ± 2 hours and 1~2 hours recovery time under normal temperature.

Standard: Critical Frequency Change: +/-5ppm

Method Critical: Esr :+/-15%

2-7 低溫特性 Low Temperature Endurance

方法:在溫度為 $-40^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 低溫箱中放置 500 ± 2 小時後恢復 1~2 小時測試。

標準: Critical Frequency Change: +/-5ppm

Critical Esr :+/-15%

The device should also satisfy the electrical characteristics specified after exposed to the temperature $-40^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for 500 ± 2 hours and to 2 hours recovery time under normal temperature.

Standard: Frequency Change: +/-5ppm

Method : Esr :+/-15%

2-8 溫度迴圈 Temperature Cycle Test

方法:在 -40°C 溫度中保持 30 分鐘，再在 $+100^{\circ}\text{C}$ 溫度中保持 30 分鐘，共迴圈 5 次後在常溫中恢復 1~2 小時後測試。

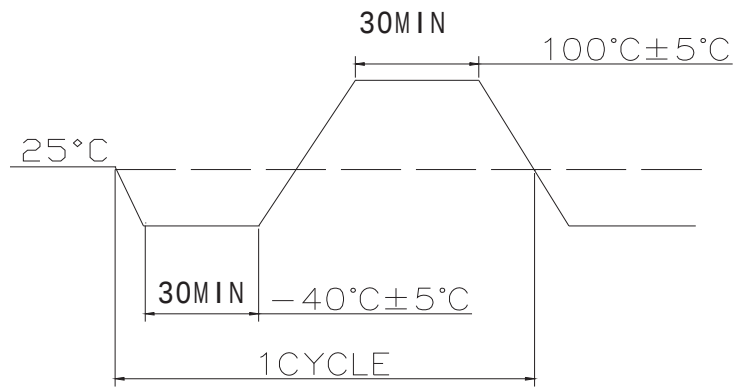
標準: Critical Frequency Change: +/-5ppm

Critical Esr :+/-15%

The device should also satisfy the electrical characteristics specified after exposed to the low temperature -40°C and high temperature $+100^{\circ}\text{C}$ for 30 ± 2 min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

Standard: Critical Frequency Change: +/-5ppm

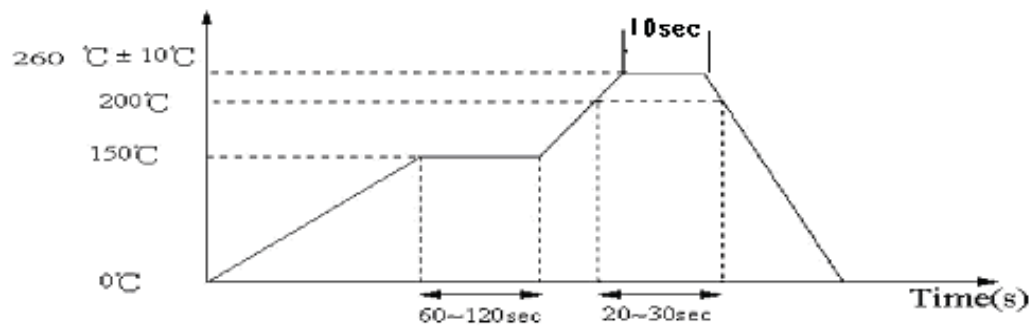
Method : Critical Esr :+/-15%



AFTER TEMPERATURE CYCLING

Increase & decrease time @ °C 120 Sec

2-9 高低溫衝擊 high low shock



1. 150°C 60~120Sec Max
2. 200°C 20~30 Sec Max
3. 260°C 10 Sec Max

Standard: Frequency Change: +/-5ppm
Method : ESR : +/-15%

2-10 可焊性 high low shock

SOLDERABILITY :AT 260 °C FOR 5 SEC. MUST MORE THAN 95% BE COVERED WITH

SOLDERStandard: Critical Frequency Change:±/-5ppm

Method : Critical ESR :±/-15%

2-11 老化 AGING

Temper :85°C ±2°C

Duration:720HR (30Day) then 2hr room temperature

Standard: Critical Frequency Change ±/-5ppm/year

2-12 SPURIOUS MODES

From fundamental to 3rd overtone

Method : Critical ESR ESR(suprious)/ESR(fund) > 2.5

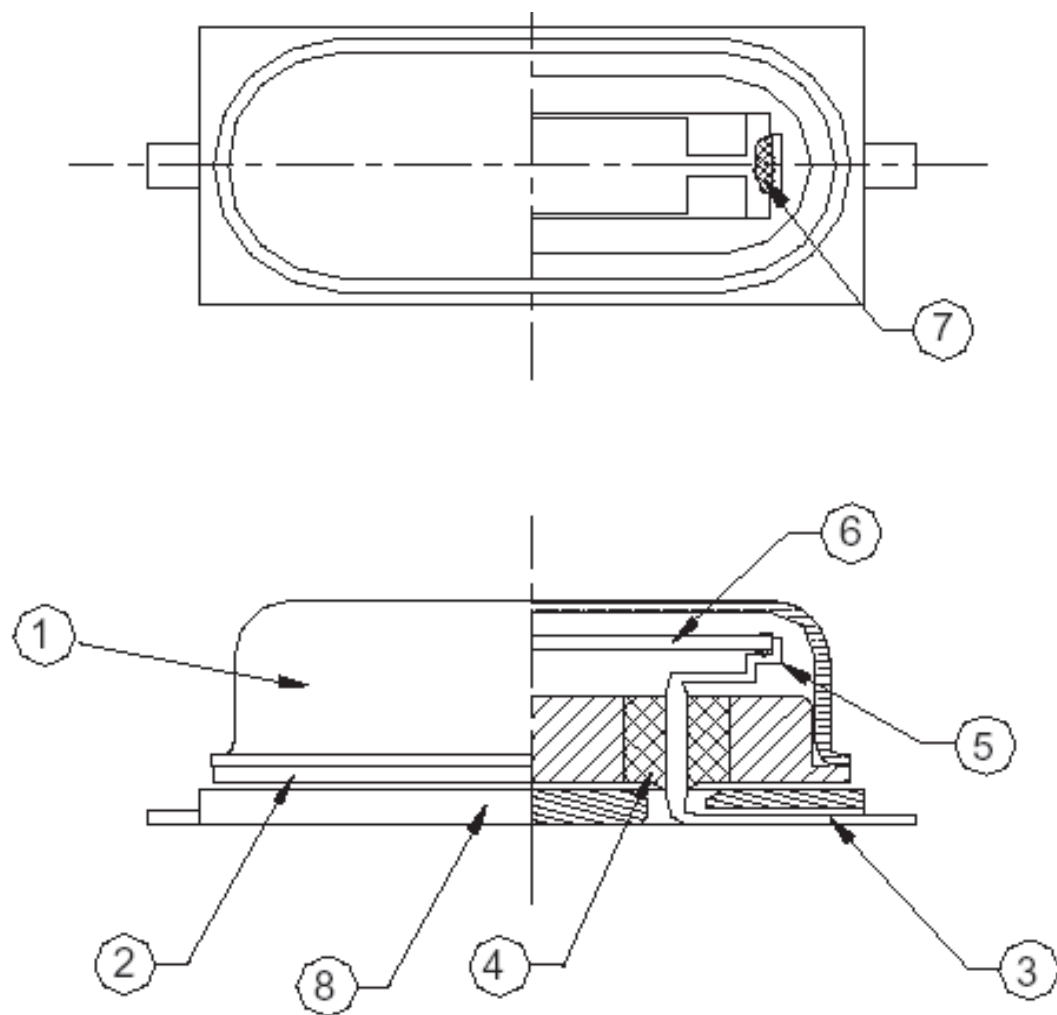
2-13 HERMETIC SEAL

Fine Leak

Leak Rate measured by Helium leak Detector.

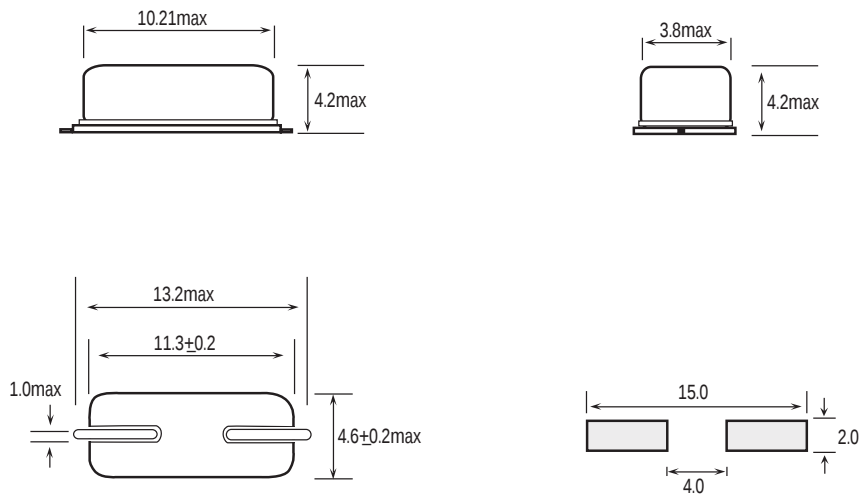
Fine Leak: 1×10^{-8} atm CC/sec max.

INSIDE STRUCTURE

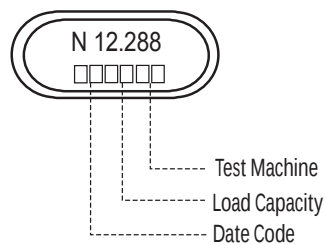


No.	NAME
①	CAN
②	BASE
③	LEAD
④	GLASS
⑤	SUPPORT
⑥	BALNK
⑦	RESIN
⑧	SPACER

DIMENSIONS[mm]



Suggested Pads



DATE CODE

Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2	3	4	5	6	7	8	9	A	B	C

Week

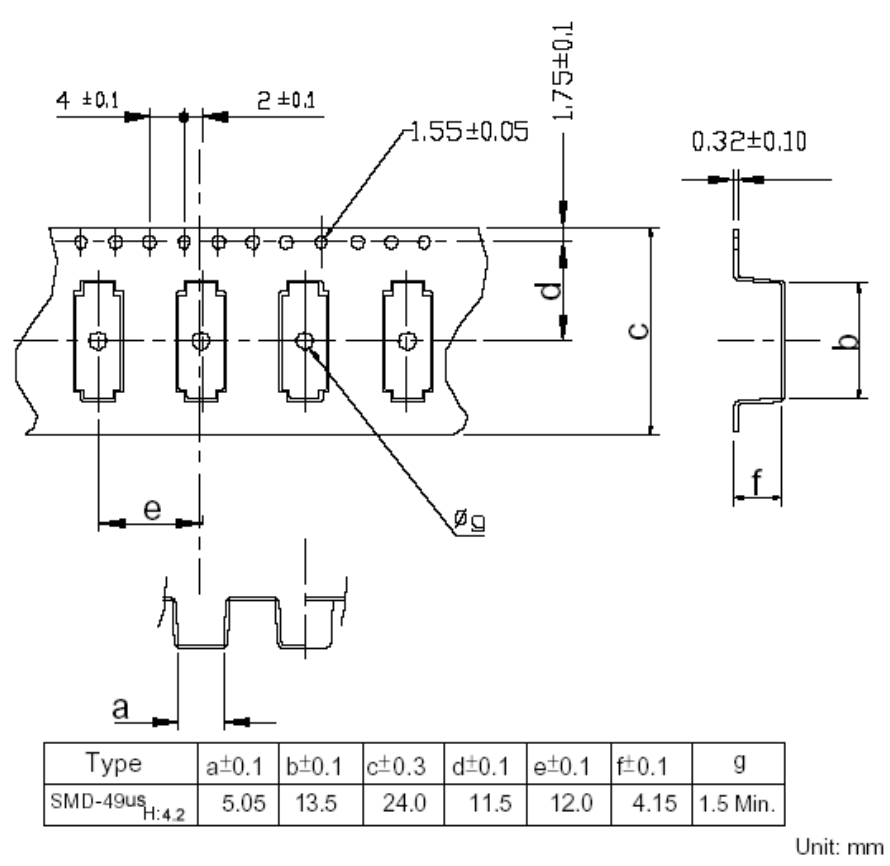
1st	2nd	3rd	4th
A	B	C	D

Test Machine

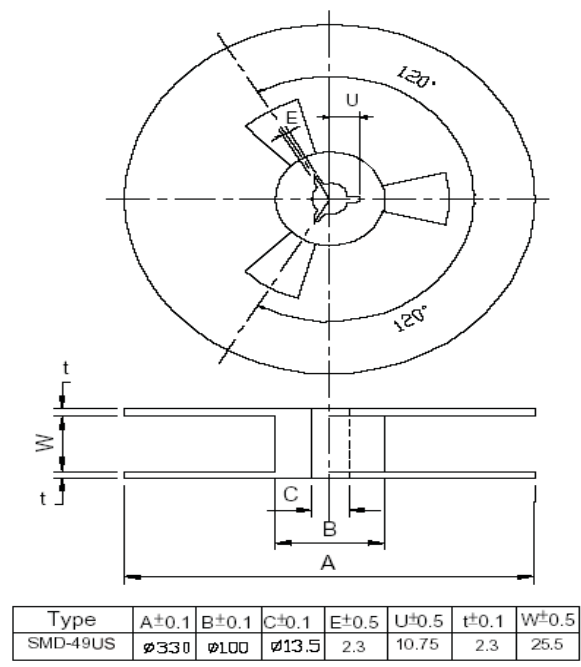
1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M

14	15	16	17	18	19	20	21	22	23	24	25	26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

a.) Dimensions of carrier tape



b.) Dimensions of Reel



編碼原則:

(一)

產品類型	基本型	腳長長度(L)	矮殼高度(H)
XTAL 49U	X25.000M20P2530	X25.000M20P2530L32	
XTAL 49US	XS25.000M20P4030	XS25.000M20P4030L32	XS25.000M20P4030H25
XTAL 49US SMD	XS25.000M20P4030D		XS25.000M20P4030DH30

X □□.□□□□ M □□P □□ □□ L □□
 XTAL 49U, 頻率MHZ, PF值, OHM值 PPM值, 腳長長度(mm)

XS □□.□□□□ M □□P □□ □□
 XTAL 49US, 頻率MHZ, PF值, OHM值, PPM值

XS □□.□□□□ M □□P □□ □□ H □□
 XTAL 49US, 頻率MHZ, PF值, OHM值, PPM值, 矮殼/晶體高度(mm)

XS □□.□□□□ M □□P □□ □□ D
 XTAL 49US, 頻率MHZ, PF值, OHM值, PPM值, SMD

XS □□.□□□□ M □□P □□ □□ DH □□
 XTAL 49US, 頻率MHZ, PF值, OHM值, PPM值, SMD矮殼/晶體高度(mm)

(二)

產品類型	基本型/ 4 PAD	2PAD
XTAL 6X3.5/5X7/5X3.2/..等系列,貼	SX6325.000M20P4030	SX6325.000M20P40302P

S X 6 3 □□.□□□□ M □□P □□ □□ 2P
 XTAL 6X3.5 SMD , 頻率MHZ, PF值, OHM值, PPM值, 2PAD

(三)

產品類型	基本型	無鉛(RS)
XTAL 圓柱型 DIP 3X10,3X9,.(MHZ)	NC3912.000M20P12030	NC3912.000M20P12030R
XTAL 圓柱型 DIP 3X8..(KHZ)	NC3832.768K12.5P30	
XTAL 圓柱型 DIP 2X6 (KHZ)	NC2632.768K12.5P50	NC2632.768K12.5P50R
XTAL 圓柱型 3X9,3X8,2X6 SMD..等	NC2612.000M20P12030	NC2612.000M20P12030DR
XTAL 圓柱型 206,306,146,等 EPS	NC32.768KMC206	

NC39 □□.□□□□ M □□P □□ □□ R
 XTAL 圓柱體 3X9 , 頻率MHZ, PF值, OHM值, PPM值, R(RS)無鉛

NC39 □□.□□□□ M □□P □□ R
 XTAL 圓柱體 3X8 , 頻率KHZ, PF值, PPM值, R(RS)無鉛

NC26 □□.□□□□ M □□P □□
 XTAL 圓柱體 2X6 , 頻率KHZ, PF值, PPM值

NC26 □□.□□□□ M □□P □□ DR
 XTAL 圓柱體 2X6 , 頻率KHZ, PF值, PPM值, SMD R(RS)無鉛

NC □□.□□□□ K MC □□ □
 XTAL 圓柱體 , 頻率KHZ, EPSON 型號 SMD

產品類型	基本型/4PAD/15PF(常規)	2PAD	GLASS封裝 2PAD
OSC FULL SIZE DIP	O25.000M3.3V50		
OSC HALF SIZE DIP	OH25.000M3.3V50		
OSC 5X7/6X3.5.. 等 系列 SMD	O25.000M3.3V5057	O25.000M3.3V50572P	O25.000M3.3V5057G2P

產品類型	基本型	備註
VCXO FULL DIP	VCXO35.328M3.3V50	
VCXO HALF DIP	VCXOH35.328M3.3V50	
VCXO SMD系列5X7, 5X3.2	VCXO35.328M3.3V5057	
TCXO FULL DIP	TCXO35.328M3.3V50	
TCXO HALF DIP	TCXOH35.328M3.3V50	
TCXO SMD系列 5X7, 5X3.2	TCXO35.328M3.3V50532	
RESONATOR 2PIN MHZ DIP	ZTA4.0A	
RESONATOR 2PIN MHZ SMD	ZTA4.0BD	
RESONATOR 3PIN MHZ DIP	ZTT4.0C	
RESONATOR 3PIN MHZSMD	ZTT4.0CD	
RESONATOR KHZ	ZXZT500	
BAND PASS FILTER	B 開頭	
BULUM	B 開頭	
SAW FILTER	NDF開頭	
SAW RESONATOR	NDR開頭	
ANTENNA	A開頭	天線

TCXO □□ . □□ □ M □□ V □□
OSCILLATOR TCXO FULL SIZE DIP , 頻率MHZ, 伏特值, PPM值,

NOTE:

- (1) Lead Free Products are "Directive 2002/95/EC of The European Parliament of 27 January 2003 on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment" Compliant (Attachment: SGS Test Report).
- (2) Chen Moun requires one copy returned with signature and title of authorized individual that signifies acceptance of the attached specifications.
- (3) Orders received and accepted by Chen Moun after return of signed copy of specification will be produced per these specifications.
- (4) Any changes to these specifications must be agreed upon by both parties and new revision of the Product Specification Sheet will be issued.
- (5) Any issuance of purchase order prior to consigning back the Approval page of "Specification Sheets" from customers will be regarded as the agreement on the contents of these specifications.