



浙江汇隆晶片技术有限公司
Zhejiang Huilong Crystals Technology Co.,Ltd

SPECIFICATION FOR APPROVAL

CUSTOMER _____

NOMINAL FREQUENCY _____ 48.000000 MHz _____

HOLDER TYPE _____ 3225 _____

SPEC. NO. (P/N) _____ HL48000076 _____

CUSTOMER P/N _____

ISSUE DATE _____ Feb.17,2023 _____

APPROVED	PREPARED	QA
		
APPROVED BY CUSTOMER:		AVL Status
Please return one copy with approval to HLC		

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<http://www.cn-hlc.com>



ISO9001
ISO14001



RoHS Compliant (Pb- Free)



TYPE HL SEAM SEALED X'TAL

ELECTRICAL SPECIFICATIONS

HLC Parts Number : HL48000076

Item	Symbol	Specifications				Notes
		Min	Type	Max	Units	
Nominal frequency	FO	48.000000			MHz	
Mode of Oscillation	OT	Fundamental				
Load Capacitance	LC	12			pF	
Frequency Tolerance	FT	± 10			ppm	at 25°C $\pm 3^\circ\text{C}$
Frequency Stability		± 20			ppm	with working temperature Reference to 25°C frequency
Working temperature range	TR	-30~85			°C	
Drive Level	DL	100			μW	
Series Resonant Resistance RR	CI/RR	30			Ω	Max.
Insulation Resistance	IR	>500			M Ω	
Shunt Capacitance C0	C0	7			pF	Max.
Aging		± 3			ppm/yr.	
Storage temperature range		-55 ~ 125			°C	
Unit Weight					g	

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TYPE HL SEAM SEALED X'TAL

MARKING

HLC
* 48.05x

HLC: HLC Use Code x: CL Code x: Date Code

CL	Code	CL	Code	CL	Code
0pf	0	7.5pf	H	11.2pf	a
6pf	1	11pf	I	11.4pf	b
8pf	2	8.5pf	J	13.5pf	d
10pf	3	7.1pf	K	20.5pf	e
12pf	5	19pf	L	8.8pf	f
15pf	6	12.5pf	M	17pf	g
16pf	7	27pf	N	4.3pf	h
18pf	8	7.3pf	O	9.9pf	i
20pf	9	13pf	P	24pf	j
22pf	A	11.5pf	Q		
25pf	B	7pf	R		
28pf	C	14pf	S		
30pf	D	23pf	T		
32pf	E	11.1pf	U		
9.5pf	F	33pf	V		
9pf	G	10.5pf	W		
		9.2pf	Y		
		50pf	Z		

Jan-23	N	Jan-24	A
Feb-23	P	Feb-24	B
Mar-23	Q	Mar-24	C
Apr-23	R	Apr-24	D
May-23	S	May-24	E
Jun-23	T	Jun-24	F
Jul-23	U	Jul-24	G
Aug-23	V	Aug-24	H
Sep-23	W	Sep-24	J
Oct-23	X	Oct-24	K
Nov-23	Y	Nov-24	L
Dec-23	Z	Dec-24	M

备注：年份印字代码原则按奇偶年两年一个循环

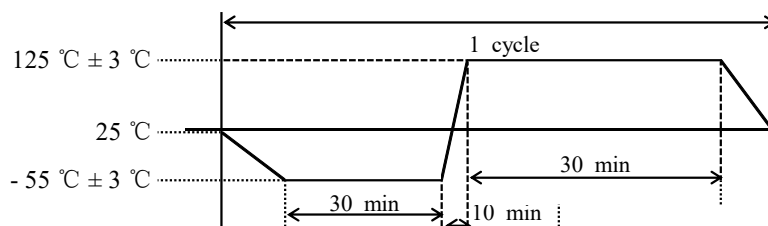
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TYPE HL SEAM SEALED X'TAL

RELIABILITY SPECIFICATIONS

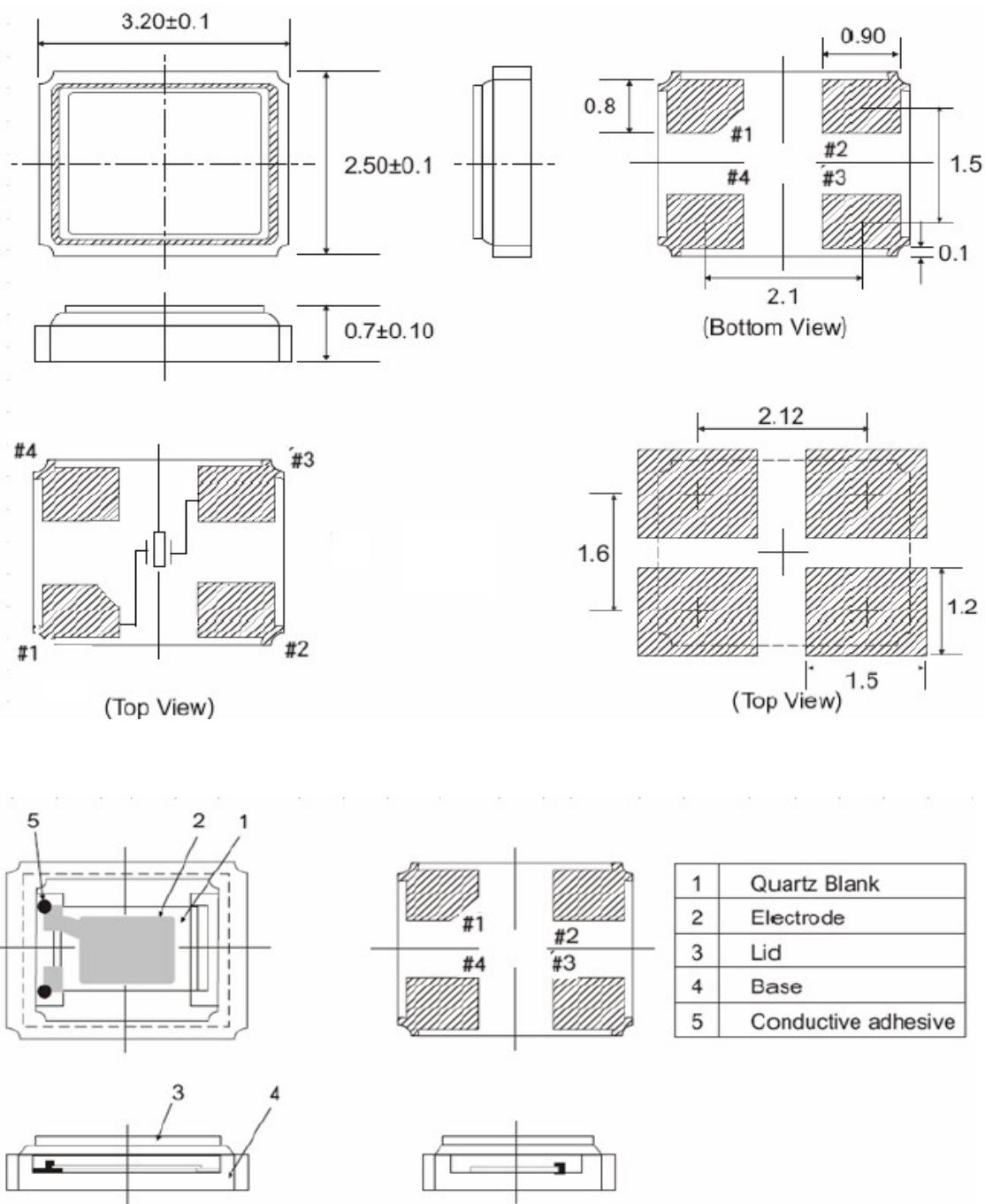
NO.	TEST ITEM	TEST METHODS
1	DROP TEST	Device are dropped from a height of 150 cm onto 2 mm thickness stainless plate executing 3 times of random drops.
2	MECHANICAL SHOCK	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times.
3	VIBRATION	Frequency range 10 ~ 2000 Hz Amplitude 1.5 mm Sweep Time 20 minute Test Time 2 hours
4	SOLDERABILITY	MIL - STD - 20E Method 208C Temperature $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Material H63A (Silver 2 ~ 3 %) Immersion depth 0.5 mm minimum Immersion time 3 ± 0.5 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)
5	RESISTANCE TO SOLDERING HEAT	MIL - SLD -202, Method 210, Condition I or J 10 sec immersion into $260 \pm 5^{\circ}\text{C}$ solder pot, above 180°C is 90 ~ 120 sec.
6	LOW TEMP. STORAGE	Leave at $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 1000 ± 12 hours
7	HIGH TEMP. STORAGE	Leave at $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 1000 ± 12 hours
8	THERMAL SHOCK	Total 100 cycles of the following temperature cycle



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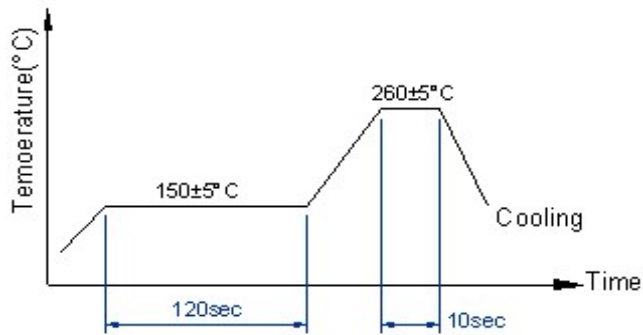
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DIMENSIONS



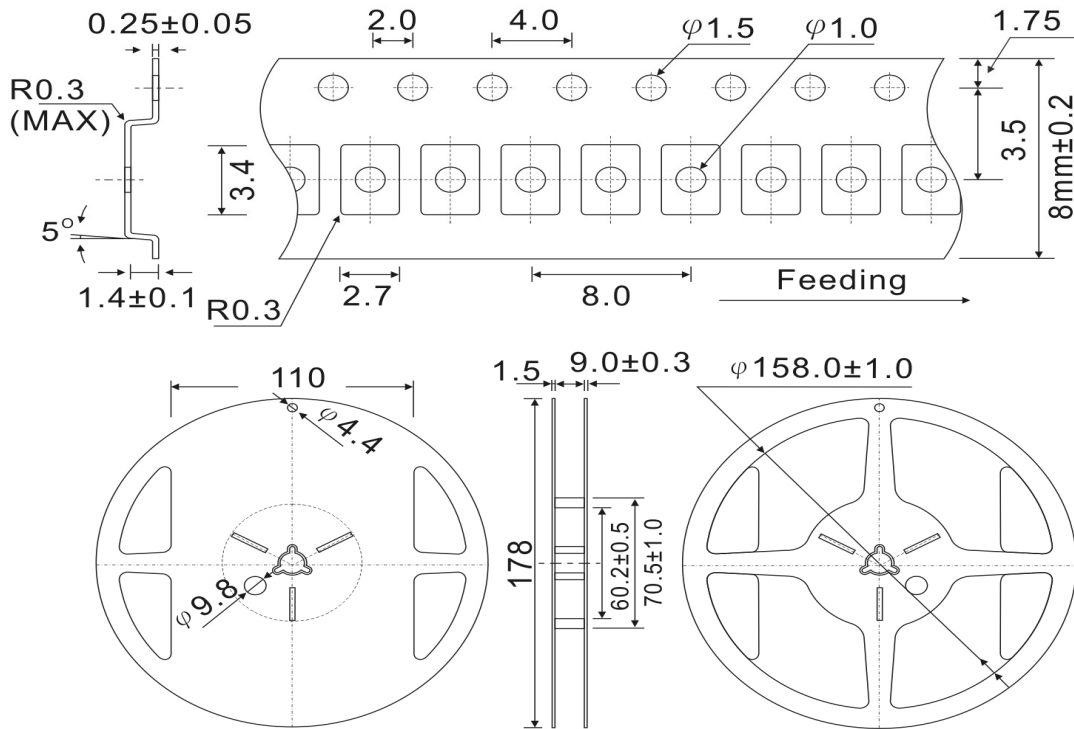
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SUGGESTED IR REFLOW PROFILE



Total Time: 200 Sec.Max
Solder melting point : 185°C

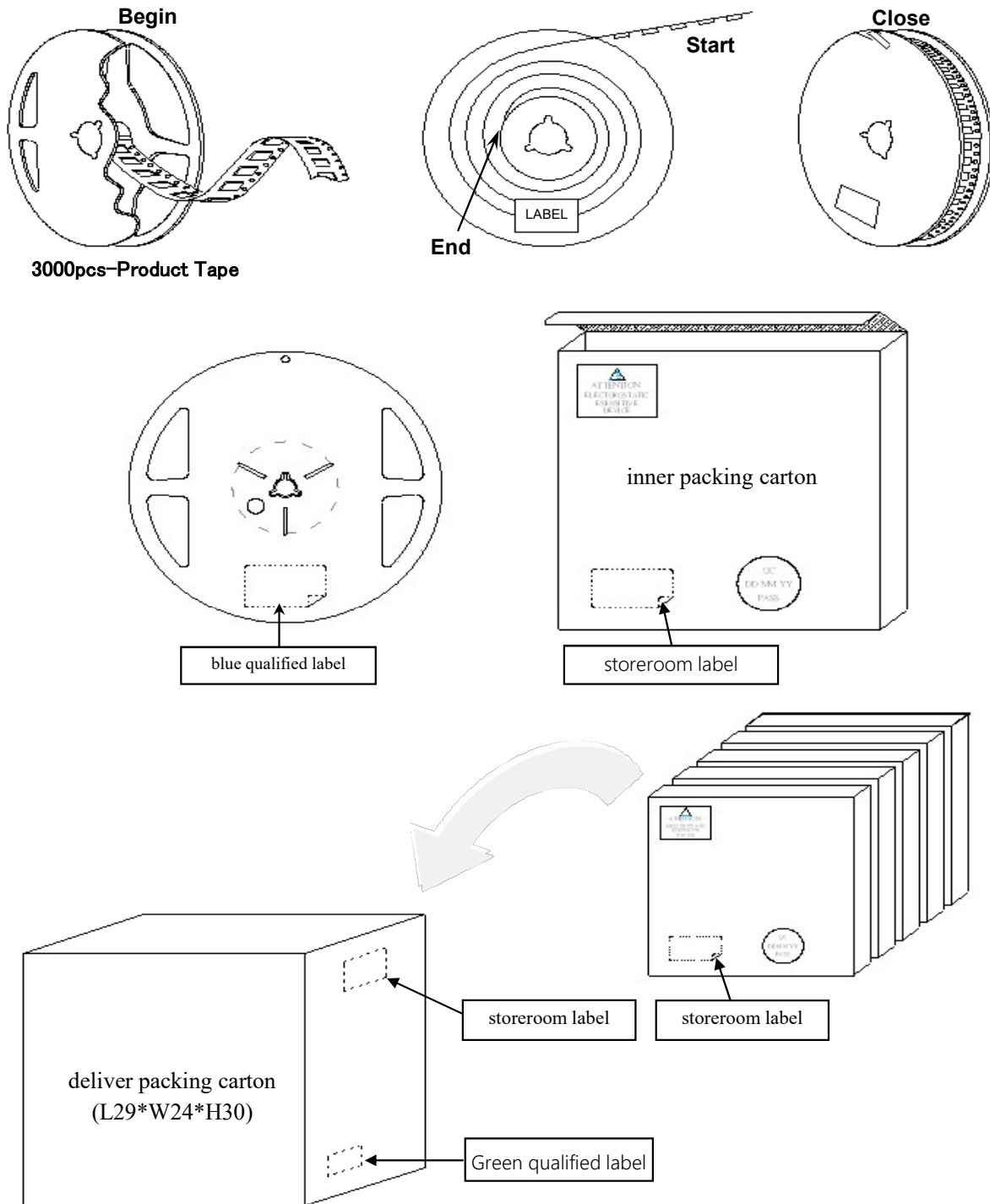
PACKING



1. 230mm minimum leafer which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

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PACKING



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