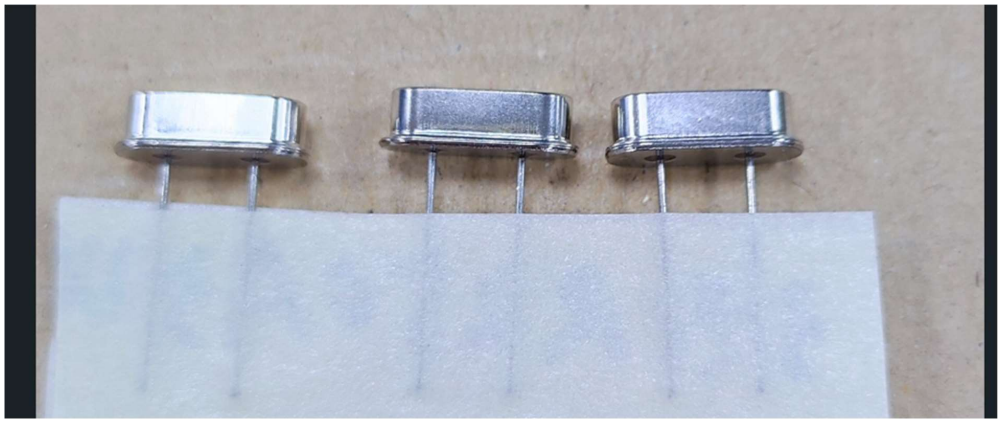




設計驗證
工程課
2024.01.24
發行
紅緯科技開發股份有限公司

客　　戶：　鈺緯科技開發股份有限公司

型　　號：　FXHUSG-25.000-20-10/20/-40+85

規　　格：　DIP Crystal 25MHz, 20pF ±10ppm,
49US H=3.5mm, -40℃~+85℃

RoHS

承　認　書
APPROVAL SHEET

訂寶企業股份有限公司
TEL:886-2-8912-1515
FAX:886-2-8912-1518
新北市新店區寶橋路235巷118號2F-1

核准		確認		承辦	

訂寶企業股份有限公司
HSIN-BAO CORPORATION
23145 新北市新店區寶橋路235巷118號2F-1
TEL:886-2-8912-1515　FAX:886-2-8912-1518

2024　年　1　月　23　日

☑	Taiwan Plant	NO. 31,Ting-Ping Rd., Shui-Fong Ind. Park, Shui-Fong , District , New Taipei City 224012 Taiwan
		TEL: 886-2-2406-2779 FAX: 886-2-2496-0769 E-Mail : sales-tw @mercury-crystal.com
☐	China Office	Room 401 Dongan Building Chunxu Road 258, Development Zone Kunshan City, Jiangsu Province, China
		TEL: 86-512-5763-8100 FAX: 86-512-5763-8103 E-Mail : sales-cn @mercury-crystal.com
☐	U.S.A. Plant	Unit 603, 9804 Crescent Center Dr., Rancho Cucamonga,California 91730-5782 USA
		TEL: 1-909-466-0427 FAX: 1-909-466-0762 E-Mail : sales-us @mercury-crystal.com

Specification Sheet For Approval	Series No: SC20231129k01
	Date : 12/1/2023

☑ Quartz Crystal ☐ Quartz Crystal Oscillator ☐ OCXO ☐ VCXO
☐ M.C.F ☐ TCXO / VCTCXO ☐ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _

Customer	訢寶企業股份有限公司
Customer P/N	3ZCR250A39X(Z0528)
Product Type	Crystal --- 49/US (Dip --- 10.7 * 4.3 * 3.5 mm)
Nominal Frequency	25.000 MHz
Mercury P/N	FXHUSG-25.000-20-10/20/-40+85

Customer	Vender
Approved By	Confirmed By
Customer Engineer :	Mercury Engineer : Peter Huang
Date : 設計驗證 工程課 2024.01.24	Date : 12/1/2023
Customer QC : 發行 鈺緯科技開發股份有限公司	Mercury QC : Andy Tsai
Date :	Date : 12/1/2023

Specification Sheet Contents :

☑ Specifications Sheet
☑ Package Dimension
☑ Crystal / Oscillator Introduction
☑ MSL level1
☐ FQC Test Report
☐ Temperature Stability Test Report
☑ Test Data Of Reliability
☑ Lead Free Approved

Mercury Electronic Industrial Co., Ltd.

Steve

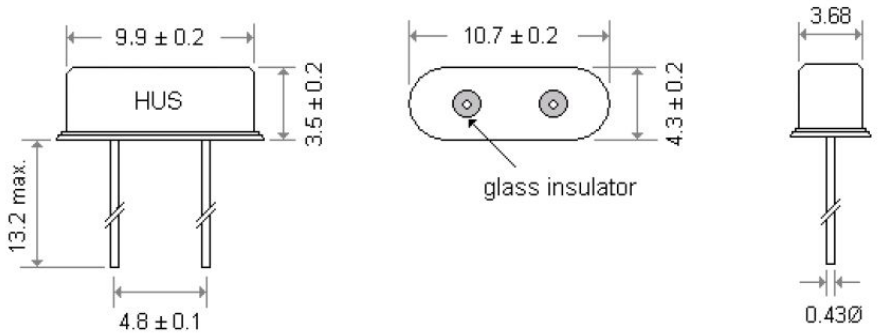
Authorized Signature

Electrical Specification

Series No. : SC20231129k01
Date : 12/1/2023

	Parameters	SYM.	Electrical Spec.				Notes
			Min.	Typical	Max.	Unit	
1	Mercury Part No.			-			FXHUSG-25.000-20-10/20/-40+85
2	Nominal Frequency	FL		25.000000		MHz	
3	Holder Type			-			49/US (Dip --- 10.7 * 4.3 * 3.5 mm)
4	Crystal Cut			-			AT-Cut
5	Mode of Oscillation			-			Fundamental Mode
6	Frequency Tolerance	F_use	-10	~	10	ppm	at 25°C ± 3°C
7	Frequency Stability	F_tem	-20	~	20	ppm	Refer at 25°C
8	Spurious Attenuation	SPDB			-4	dB	-2000ppm ~ +10000 ppm , 25 points
9	Equivalent Series Resistance	ESR			30	Ω	
10	Shunt Capacitance	C0			5.0	pF	
11	Load Capacitance	CL		20		pF	
12	Drive Level	DL			500	uW	
13	MaxR-MinR	DLD2			10	Ω	0.1 uw ~ 100 uW , 10 points
14	MaxFR-MinFR	FDLD			10	ppm	0.1 uw ~ 100 uW , 10 points
15	Operating Temperature	T_opr	-40	~	85	°C	
16	Storage Temperature	T_stg	-40	~	85	°C	
17	Aging	F_aging	-3		3	ppm	First year

Package Dimension (Unit : mm)



Marking

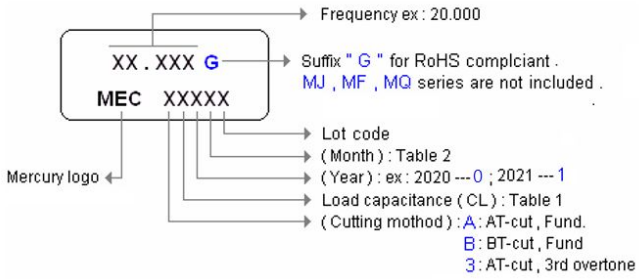


Table 1

CL	<10	10	11	12	13	14	15	16	17	18	19	20
Code	A	B	C	D	E	F	G	H	I	J	K	L

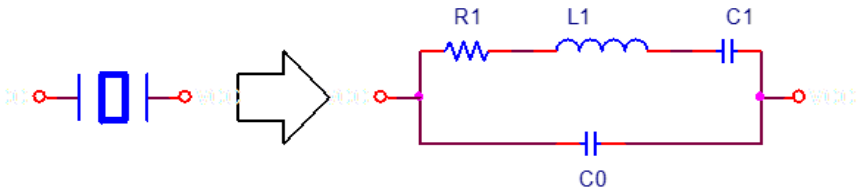
CL	21	22	23	24	25	26	27	28	29	30	31	32
Code	M	N	O	P	Q	R	S	T	U	V	W	X

CL	33	34	>34	Series
Code	Y	Z	a	b

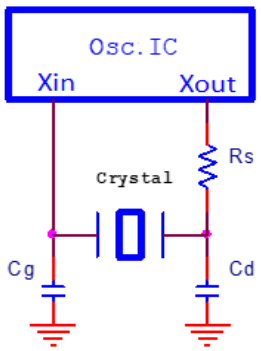
Table 2

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Code	A	B	C	D	E	F	G	H	I	J	K	L

Equivalent Circuit of crystal



Oscillation circuit



Environmental Specification

1.Temperature Test			
*Temperature Cycling Test			
Conditions:	Steps of cycle	(1)Extreme Cold Temp: -55℃(+0/-10℃)/ 15±3min	
		(2)Extreme Hot Temp: +125℃(+15/-0℃)/ 15±3min	
	Number of	10 cycles min	
Results:	Frequency and wave form of tested products must remain within specifications.		
*Thermal Shock Test			
Conditions:	Temperature -55(+0/-10)℃ to 125(+10/-0)℃		Duration of cycle 15 times(min)
	ExTotal Transfer Time < 10 seconds		
	Total Dwell time > 2minutes		
	Specified Temp reached in < 5 minutes		
Results:	Frequency and wave form of tested products must remain within specifications.		
*Low Temperature Test			
Conditions:	Temperature -50℃±5℃		Duration of test 168hours(min)
Results:	Frequency and wave form of tested products must remain within specifications.		

2.Accelerated Life Test(Aging Biased)		
Conditions:	Temperature +85°C±5°C	Duration of test 168hours±6hours
Results:	DC Power supply	
	Frequency and wave form of tested products must remain within specifications.	

3.Salt Spray Test		
Conditions	Temperature 35°C	Duration of test 24 hours
	NaCl 5%	
Results:	There Should be no rust on surface of products	

4.Humidity Test			
Conditions:	Temperature: 85℃±5℃	Relative humidity:85%±5℃	Duration of test:168 hours(min)
Results:	Frequency and wave form of tested products must remain within specifications.		

Mechanical Specification Sheet		
1.Vibration Test		
Conditions:	Freq. range: 20~2000Hz Peak to Peak	
	amplitude:1.52mm Peak acceleration:20G(98m/s2)	
	3direction(X,Y,Z),each 20min, 4cycles	
Results:	Frequency and wave form of tested products must remain within specifications.	
2.Drop Test		
Conditions:	Method of drop	Free drop
	Dropping floor	Hard wood board
	Height	75 cm +1/-0cm
	Number of drops	3 times
Results:	Frequency and wave form of tested products must remain within specifications.	

Notice :

1 Mercury requires the copy of this specification returned with approved.
2 Any change to these specification have to be agreed by both parties and new revision of the specification will be issued .