



<input checked="" type="checkbox"/>	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
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<input type="checkbox"/>	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: VC20201130b01
		Date: 2020/11/30
<input type="checkbox"/> Quartz Crystal	<input type="checkbox"/> Quartz Crystal Oscillator	<input type="checkbox"/> OCXO
<input type="checkbox"/> M.C.F	<input checked="" type="checkbox"/> TCXO / VCTCXO	<input type="checkbox"/> VCXO
		<input type="checkbox"/> Others _____

Customer	Akizuki
Customer P/N	
Product Type	VCTCXO --- VM53 (SMD --- 5.0 * 3.2 * 1.5 mm)
Nominal Frequency	16.9344 MHz
Mercury P/N	VM53S3-16.9344A-1.5/-20+70

Customer
Approved By
Customer Engineer :
Date : _____
Customer QC :
Date : _____

Vender
Confirmed By
Mercury Engineer :
<i>Wade Huang</i>
Date : 2020/11/30
Mercury QC :
<i>Andy Tsai</i>
Date : 2020/11/30

Specification Sheet Contents :

- | | |
|---|--|
| <input checked="" type="checkbox"/> Specifications Sheet | <input type="checkbox"/> FQC Test Report |
| <input checked="" type="checkbox"/> Package Dimension | <input type="checkbox"/> Temperature Stability Test Report |
| <input checked="" type="checkbox"/> Crystal / Oscillator Introduction | <input checked="" type="checkbox"/> Test Data Of Reliability |
| <input checked="" type="checkbox"/> MSL level1 | <input checked="" type="checkbox"/> Lead Free Approved |

Mercury Electronic Industrial Co., Ltd.

Vicky Chou

Authorized Signature



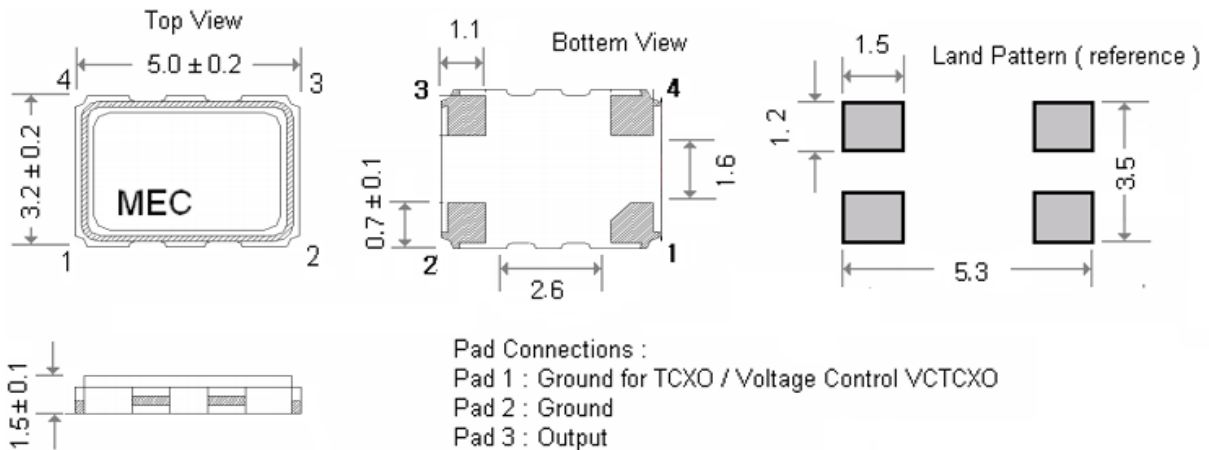
Electrical Specification

Series No. : VC20201130b01

Date : 2020/11/30

	Parameters	SYM.	Electrical Spec.				Notes
			Min.	Typical	Max.	Unit	
1	Mercury Part No.		-				VM53S3-16.9344A-1.5/-20+70
2	Nominal Frequency	FL	16.934400			MHz	
3	Holder Type		-				5.0 * 3.2 * 1.5 mm , 4 pads
4	Output Wave Form		-				Clipped Sine Wave
5	Supply voltage	V _{DD}		3.0		V	D.C ± 5 %
6	Frequency Tolerance	F _{tol}	-1.0		1.0	ppm	at 25°C ± 3 °C
7	Freq. Stability vs Temperature	△Fr	-1.5		1.5	ppm	reference to 25 °C
	Freq. Stability vs Voltage Change	△Fv	-0.3		0.3	ppm	for at ±5% input voltage change
	Freq. Stability vs Load Change	△FL	-0.3		0.3	ppm	for at ±10% loading condition change
	Freq. Stability vs Aging	△Fa	-1.0		1.0	ppm	first year at 25 °C
	Freq. Stability vs Reflow	△FR	-1.0		1.0	ppm	1 reflow and measured 24 hours
8	Frequency Deviation Range	F _{pull}	± 10			ppm	with Vcon = 1.5 V ± 1.0 V
9	Current Consumption	I _{DD}			2.0	mA	measured with terminating resistors
10	Output Voltage level	V _{out}	0.8			V p - p	
11	Start-up Time	ST			3.0	m Sec.	
12	Output Load	CL	10 // 10			KΩ // pF	
13	Operating Temperature	T _{opr}	-20		70	°C	
14	Storage Temperature	T _{stg}	-40		85	°C	
15	Phase Noise	(@1KHz Carrier Offset) -130 dBc / Hz (typ.)					
16	Lead Free Approved Report	SGS Taiwan Ltd. Report No. : CE_2020_22541					

Package Dimension (Unit : mm)



Pad Connections :
 Pad 1 : Ground for TCXO / Voltage Control VCTCXO
 Pad 2 : Ground
 Pad 3 : Output
 Pad 4 : Supply Voltage

Marking

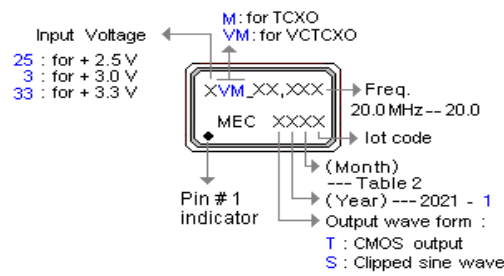


Table 1

-10°C ~ 70 °C	" A " ± 25ppm ; " B " ± 50ppm ; " C " ± 100ppm ;
	If non-standard please enter the desired stability after " C " , for example " C10 " : ± 10ppm
-40°C ~ 85 °C	" D " ± 25ppm ; " E " ± 50ppm ; " F " ± 100ppm ;
	If non-standard please enter the desired stability after " I " , for example " I10 " : ± 10ppm

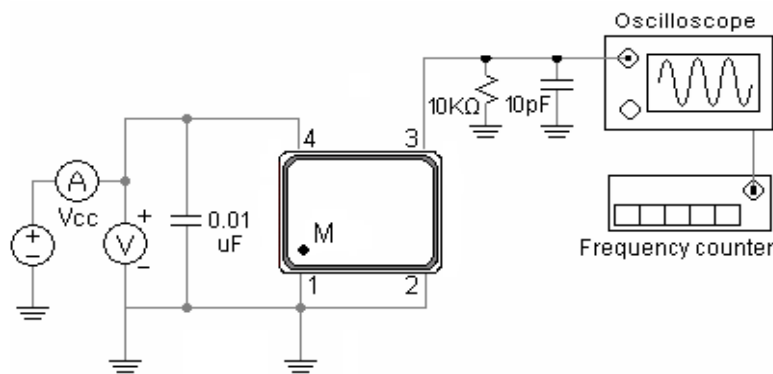
Table 2

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

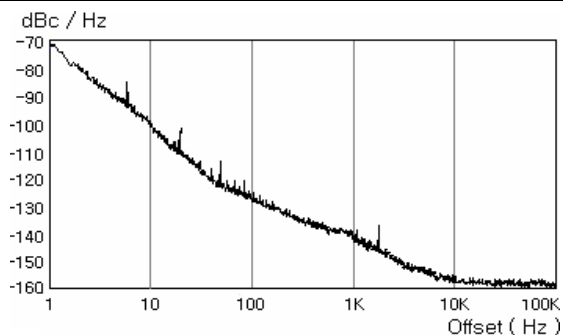
Table 3

Input Voltage	5.0 V	3.3 V	2.8 V	2.5 V	1.8 V	1.2 V	1.0 V
Enable / Disable	B	D	F	H	J	L	N

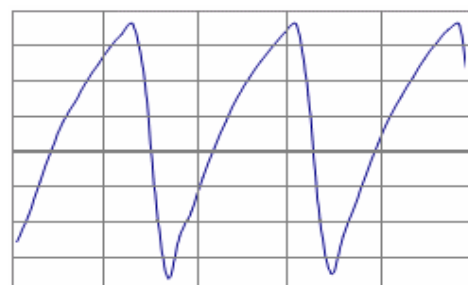
TCXO with clipped sine wave test Circuit



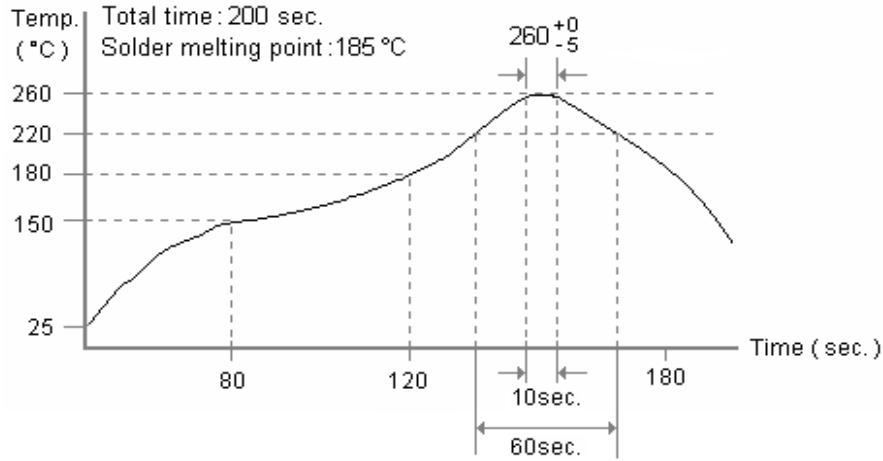
Clipped Sine Wave Typical Phase Noise



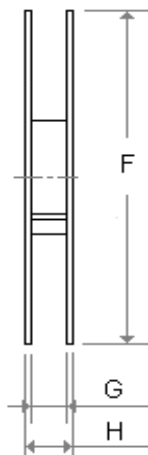
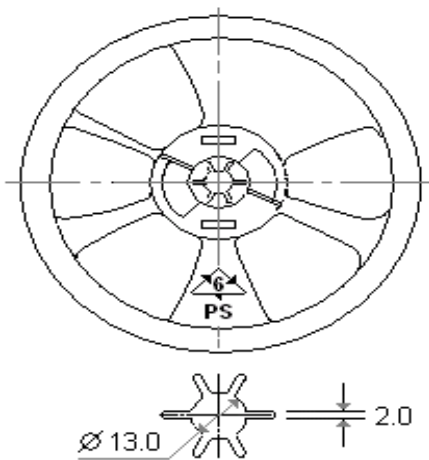
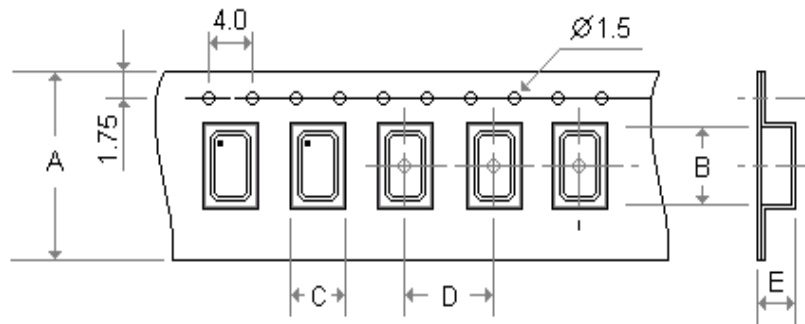
Clipped Sine Wave , " S " series



Recommended Temperature Profile For Reflow Process :



Emboss Taping & Reel Specification :



Dimensions : (Unit : mm)

A	B	C	D	E
120.0	5.3	3.6	8.0	1.4

F	G	H
180.0	13.0	16

- Remark :
- Standard reel quantity is 1000 pcs per reel.
 - 10 sprocket hold pitch cumulative tolerance is ± 0.1 mm.
 - E measured from a place on the inside bottom of the pocket to the top surface of the carrier.



Environmental Specification

1. Temperature Test			
*Temperature Cycling Test			
Conditions:	Steps of cycle	(1)At-55°C , 30minutes	(3)At+85°C , 30minutes
		(2)At+25°C , 10~15minutes	(4)At+25°C , 10~15minutes
	Number of	3 times	
Results:	Performance form of tested products must remain within specifications.		
*Thermal Shock Test			
Conditions:	Temperature T(H)+125°C , T(L)-55°C		Duration of cycle 3 times
	Exposure time at temperature extremes 5minutes		
Results:	Performance form of tested products must remain within specifications.		
*Low Temperature Test			
Conditions:	Temperature -20°C±2°C		Duration of test 96hours
Results:	There Should be no stain on surface of products		
	Frequency and wave form of tested products must remain within specifications.		

2. Aging Test		
Conditions:	Temperature +85°C±2°C	Duration of test 96 hours
Results:	Deviation of frequency must be less than±3ppm	(+/-0.0003%)

3. Salt Spray Test		
Conditions	Temperature 35°C±2°C	Duration of test 48 hours
	NaCl 5%	

4. Humidity Test			
Conditions:	Temperature: +40°C+/-2°C	Relative humidity: 90~95%	Duration of test: 96 hours
Results:	Insulation resistance must be 500Mohm/100 minimum Vdc.		
	Resistance and wave form must remain within specification		



Mechanical Specification Sheet

1.Vibration Test

Conditions:	Frequency	10-55 Hz
	Amplitude	0.762 mm
	Sweep	1.0 minute
	Duration	2 hours
Results:	Performance 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
	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 .