SPEC. NO.: SCO-C507

OSC SPECIFICATION

Customer :

Customer P/N :

Agent :

Agent Code :

SIWARD P/N : OSC813300-SCO-C507

Customer Approval :

希華晶體科技股份有限公司
SIWARD CRYSTAL TECHNOLOGY CO., LTD.

業務部/ SALE DEPARTMENT
TEL: (04)25347909
FAX: (04)25327885 / 25337396
URL HTTP://www.siward.com.tw

品質保證部/ QUALITY ASSURANCE DEPT.
TEL: (04)25347909 EXT 1340/1341

研發部/R & D DEPT.
TEL: (04)25347909 EXT 1534

DATE : 2026/06/02

Approved By : Steve Chen

Checked By : Angel Hsu

Designer : Amy Ou

Address:1-1,LANE 111,JUNG-SHAN RD.,SEC.3, TANTZU HSING,TAICHUNG 427,TAIWAN,R.O.C.

Rev.	Description of Revision History	Date	Designer	Checked By
1	New Publication	2010/10/15	Amy Ou	Angel Hsu
2	MODIFY Marking(Date code Description)(104K1408-004)	2014/08/29	Amy Ou	Angel Hsu

SPEC. NO.: SCO-C507

OSC SPECIFICATION

1. Description : Crystal Oscillator

2. Center Frequency : 50.000000 MHz

3. Dimension & Drawing No. : OSC81 ; CXO-012

4. Packing Style : TP-102

5. Measurement Circuit :

6. Absolute Maximum Ratings :

Item	Symbol	Rating	Unit	Condition
Supply Voltage	Vcc	-0.6 to 6	V	
Storage Temperature	Tstg	-55 to 125	℃	

7. Electrical Characteristics :

[1] Operating Conditions :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Operating Temp. Range	Topt	-40		85	℃	
Load(Capacitance)	C	16.2	18	19.8	pF	
Tri-state(standby function)	Vih	2.97		Vdd	V	Oscillation Enable
Tri-state(standby function)	Vil	GND		0.33	V	Oscillation Disable

[2] Frequency Stability :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Frequency Stability	dF/Fo	-30		30	ppm	Include Freq. Tolerance, Temp., Supply voltage, Load.
Frequency Tolerance	dF/Fo				ppm	Refer to Center Frequency @25±3℃
Vs. Temperature	dF/Fo				ppm	
Vs. Supply Voltage	dF/F25				ppm	
Vs. Load	dF/F25				ppm	
Vs. Aging	dF/F25	-5		5	ppm	PER YEAR (AT 25℃ ± 5℃)

[3] Electrical Performance :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Output Waveform						Square / HCMOS
Current Consumption	Icc			19	mA	
Output Level Logic 1	Voh	2.97			V	
Output Level Logic 0	Vol			0.33	V	
Duty Cycle	D.C	45	50	55	%	@ 1.65 V
Rise/Fall Time	Tr/Tf			10	nS	
Start Time				10	mS	@+3.135V

dF/Fo: Frequency Deviation Refer to Center Frequency

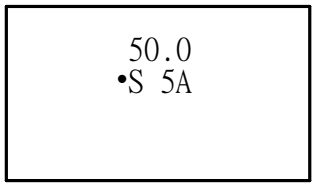
dF/F25: Frequency Deviation Refer to 25 ℃ Frequency

8. Marking : Laser

＊5A: YEAR -> 5 (Last 1 digit of the year) MONTH -> A

MONTH : 1 2 3 4 5 6 7 8 9 10 11 12

CODE : A B C D E F G H J K L M



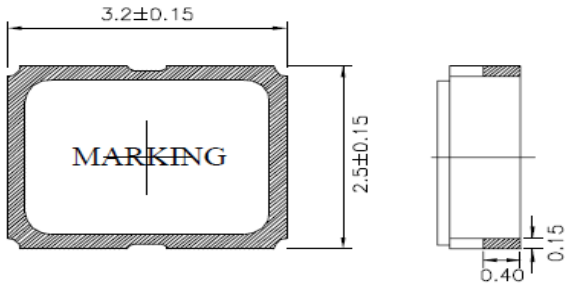
9. Remark :

＊The component complies with Moisture Sensitivity Level(MSL)-Level 1 defined on JEDEC J-STD-020 standard.

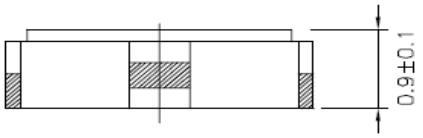
＊Lead Free, RoHS compliant

TOP VIEW

■ DIMENSIONS

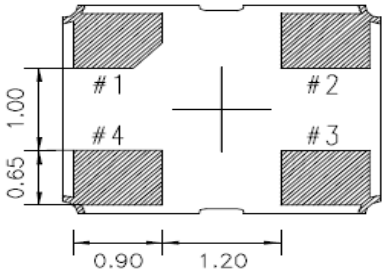


Terminal	Connection
#1	Tri-state or N.C
#2	GND
#3	Output
#4	Vcc

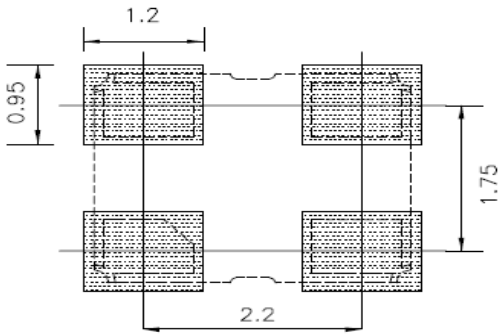


Tri-state Function	
Tri-state pin	Output
High or Floating	Active
Low	Hi-Impedance

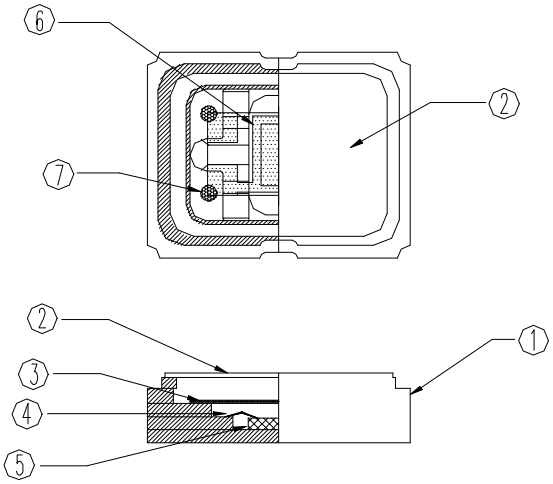
BOTTOM VIEW



LAND PATTERN (REFFENCE)



■ STRUCTURE ILLUSTRATION



PART NAME		MATERIAL	PART NAME		MATERIAL
1.	BASE	CERAMIC	5.	IC	CHIP
2.	LID	KOVAR	6.	ELECTRODE	Metal
3.	BLANK	QUARTZ	7.	ADHESIVES	SILVER GLUE
4.	WIRE	Au			

■RELIABILITY SPECIFICATION

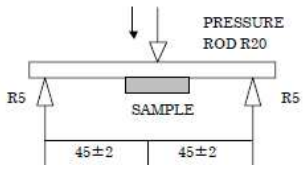
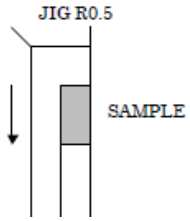
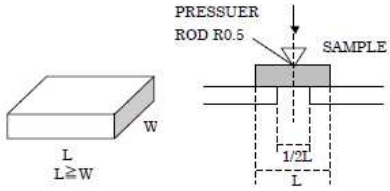
REFER TO JIS C 6710

1. ENVIRONMENTAL PERFORMANCE

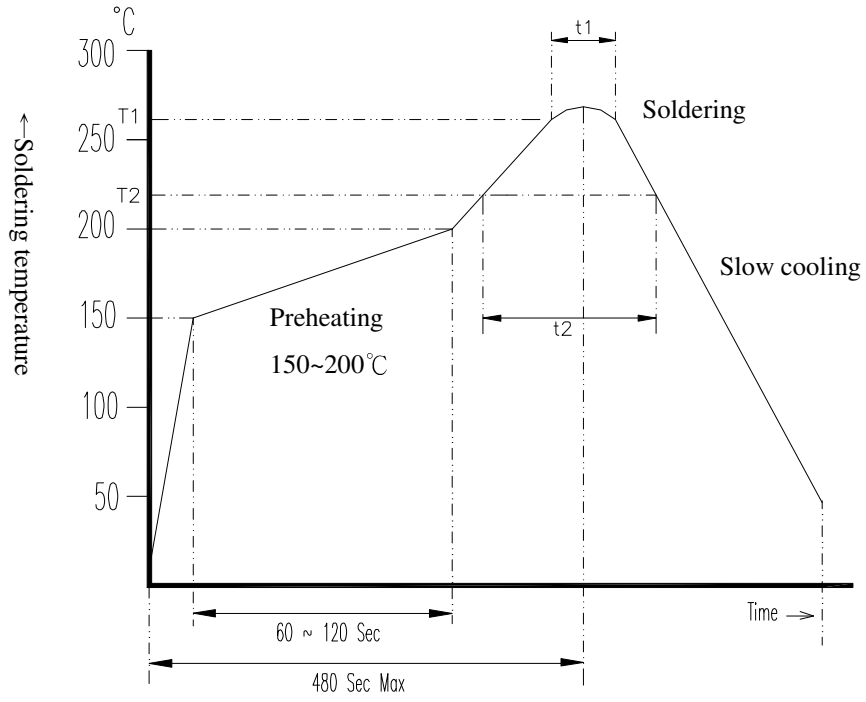
ITEM	CONDITION
1.AGING ON POWER	TEMPERATURE:85±3℃ TIME:720H±12H. VOLTAGE: SUPPLY VOLTAGE Vcc MEASURE UNDER THE STABILIZED THE ENVIRONMENT.
2. DRY HEAT	STORED AT 85±3℃ FOR 500±12H. THEN 25±2℃ OVER 2H BEFORE TESTING.
3. COLD	STORED AT -40±3℃ FOR 500±12H. THEN 25±2℃ OVER 2H BEFORE TESTING.
4. DAMP HEAT	STORED AT 60±2℃ AND HUMIDITY 90～95% FOR 500±12 H. THEN 25±2℃ OVER 2H BEFORE TESTING.
5. TEMPERATURE CYCLE	THE OSC UNIT SHALL BE SUBJECTED TO 100 SUCCESSIVE CHANGE OF TEMPERATURE CYCLES, THEN 25±2℃ OVER 2H BEFORE TESTING, EACH CYCLE AS BELLOW： TEMPERATURE DURATION 1. -40+0/-6℃ 30±3 MINUTES 2. 25℃±2℃ 2～3 MINUTES 3. 85+4/-0℃ 30±3 MINUTES 4. 25℃±2℃ 2～3 MINUTES

2. MECHANICAL PERFORMANCE

ITEM	CONDITION
6. SOLDERABILITY	THE LEAD IS IMMERSED IN A 260±5℃ SOLDER BATH WITHIN 2±0.5 SECONDS.
7. RESISTANCE TO SOLDERING HEAT	REFLOW CHART AS ATTACH SHEET. TWICE PASS.
8. SEALING	MASS-SPECTROMETER-TYPE LEAK DETECTOR SHALL BE USED TO MEASURE THE LEAKAGE RATE OF GAS THROUGH ANY FAULTY SEAL.
9. VIBRATION	FREQUENCY：10～55Hz, AMPLITUDE (TOTAL EXCURSION)：1.5mm±15%, SWEEP TIME：1MIN, 3 DIRECTION(X, Y, Z) EACH 2H.
10. FREE FALL	FREE DROPPING FROM 100 cm HEIGHT 3 TIMES ON A HARD WOODEN BOARD.

11. TERMINAL STRENGTH	SHALL BE PRESSURIZED AT A SPEED OF APPROX.0.5mm/sec IN THE DIRECTION INDICATED BY THE ARROW UNTIL THE BENDING WIDTH REACHES 3mm AND HELD FOR 5 SECONDS. 
12. STICKING TENDENCY	A R0.5 JIG SHALL BE USED TO APPLY A 10N DEAD LOAD IN THE DIRECTION INDICATED BY THE ARROW TO THE ELEMENT AND RETAIN IT FOR 10 SECONDS. 
13. ELEMENT ASSEMBLY STRENGTH	A R0.5 PRESSURIZED BAR SHALL BE USED TO APPLY A 10N LOAD IN THE CENTER OF ELEMENT AND RETAIN IT FOR 10 SECONDS. 

■ SUGGESTED REFLOW PROFILE

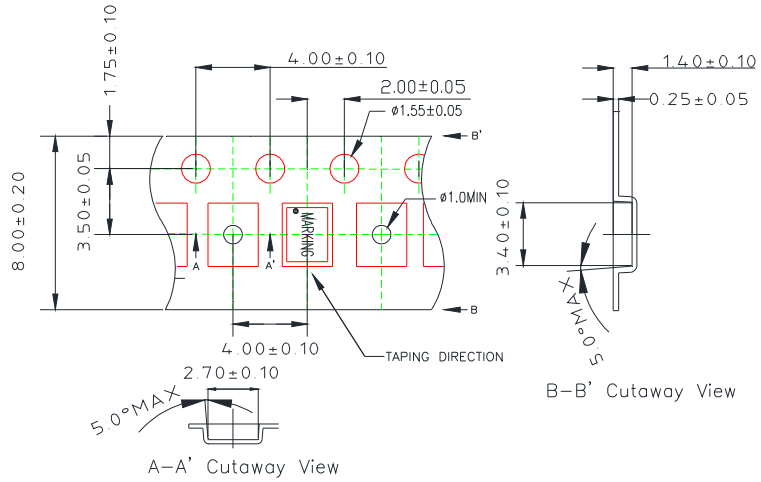


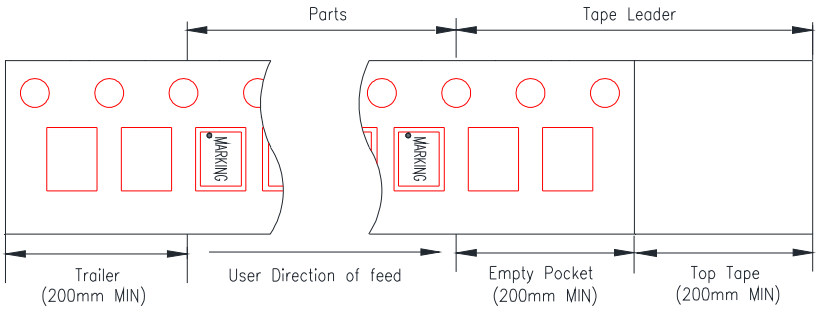
Application\Temperature Time	T1 / t1	T2 / t2
Lead Free	260±5℃ / 10±5 Sec Max	217℃ Min / 60~150 Sec
Non Lead Free	240±5℃ / 10±5 Sec Max	183℃ Min / 60~150 Sec

■ PACKING

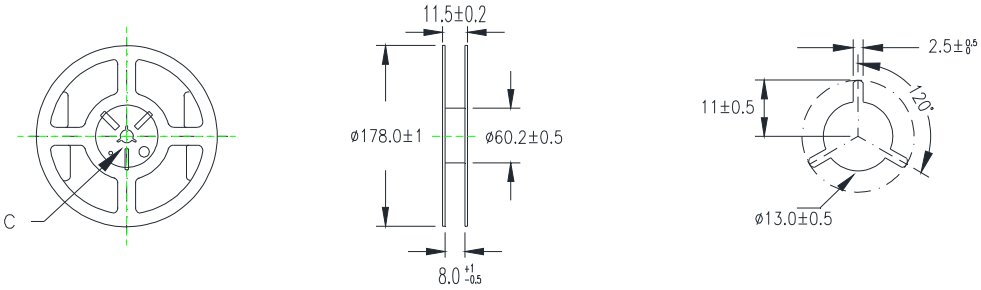
Unit: mm

1. CARRIER TYPE

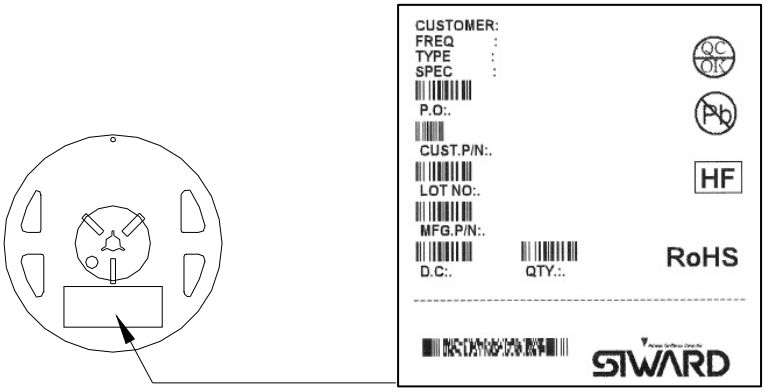




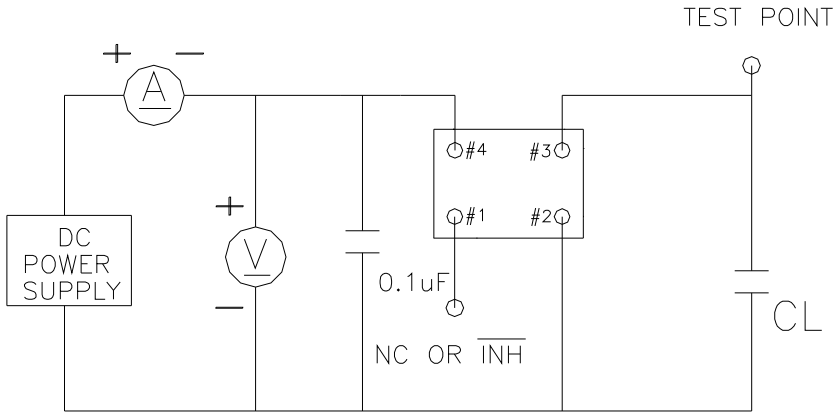
2. REEL： 3000PCS



3. LABEL



■ TEST CIRCUIT



CL:Refer to Load(Capacitance)listed on Electrical Characteristics(including probe and jig capacitance)

■ OUTPUT WAVEFORM

