

CRYSTAL SPECIFICATION

Manufacturer:

ECS Inc. International

Manufacturer P/N: ECS-320-CDX-2152

Application:

Nordic Chipset nRF5340

Customer Approval :

ECS Inc. International Tel: (913)-782-7787 Fax: (913)-782-6991 Website: <u>www.ecsxtal.com</u> Sales: <u>sales@ecsxtal.com</u> Engineering: <u>engineering@ecsxtal.com</u> <u>Date: 01-25-2021</u>

Approved By: B. Slatten

Checked By: D. Kelly

Designer: A. Anderson



Rev.	Description of Revision History	Date	Designer	Checked By
1	New Publication	01-25-2021	A. Anderson	D. Kelly



CRYSTAL SPECIFICATION

1.	Description	:	Quartz Crystal
2.	Nominal Frequency	:	32.000000 MHz
3.	Center Frequency	:	32.000000 MHz
4.	Dimension & Drawing No.	:	ECX-1247
5.	Oscillation Mode	:	Fundamental
6.	Cutting Mode	:	AT cut
7.	Packing Style	:	Tape & Reel
8.	Measurement Instrument	:	S&A 250B(Measured FL)
9	Electrical Characteristics		

9. Electrical Characteristics [1] Operating Conditions :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Operating Temperature Range	Topt	-30		85	°C	
Storage Temperature Range	Tstg	-40		105	°C	
Load Capacitance	CL		8		pF	
Drive Level	DL			100	μW	

[2] Frequency Stability :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Tolerance	dF/Fo	-10		10	ppm	Refer to Center Frequency @25±3°C
Stability Over Temperature	dF/F25	-10		10	ppm	$-30 \sim +85^{\circ}C$
Aging	dF/F25	-2		2	ppm	First Year

dF/Fo: Frequency Deviation Refer to Center Frequency

dF/F25: Frequency Deviation Refer to 25 $^\circ\text{C}$ Frequency



[3] Electrical Performance :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Equivalent Series Resistance	ESR			50	Ω	@Series
Shunt Capacitance	C0			5	pF	
Insulation Resistance	IR	500			MΩ	@DC 100 Volt

10. Marking : Laser



x = Variable ECS internal lot

11. Remark :

*Compliant with EU RoHS 2015/863 * MSL 1

∎Note

1. General cleaning solutions or ultrasonic cleaning method may be used to clean our products. However, under certain circumstances, ultrasonic cleaning machine could generate resonance at the oscillation frequency of our products and thus deteriorate the electrical characteristics in devices, and even damage the overall structure of devices. Therefore, verification test is recommended before cleaning.

2. Avoid mounting and processing by Ultrasonic welding this method has a possibility of an excessive vibration spreading inside the crystal products and becoming the cause of characteristic deterioration and not oscillating.



Dimensions: Top, Side and Bottom View Unit: mm



Land Pattern: (Reference)





RELIABILITY SPECIFICATION

1. ENVIRONMENTAL PERFORMANCE

ITEM		CONDITION	
1. HIGH TEMPERATURE	STORED AT 85±2°C FOR 1000	0±12H. (If Customer's temperature request is	
STORAGE	higher than the standard, Temper	rature test must be done for customer	
	requirements.)		
	THEN 25±2°C OVER 2H BEFC	DRE TESTING.	
2. LOW TEMPERATURE	STORED AT -40±2°C FOR 500	0±12H. (If Customer's temperature request is	
STORAGE	lower than the standard, Temper	ature test must be done for customer	
	requirements.)		
	THEN 25±2°C OVER 2H BEFC	DRE TESTING.	
3. HIGH TEMP. & HUMIDITY	STORED AT $60 \pm 2^{\circ}$ C AND HU	JMIDITY $90 \sim 95\%$ FOR 500 ± 12 H.	
	THEN 25±2°C OVER 2H BEFC	DRE TESTING.	
4. TEMPERATURE CYCLE THE CRYSTAL UNIT SHALL BE SUBJECTED TO 1000 SU			
	CHANGE OF TEMPERATURE	E CYCLES, THEN 25 $\pm 2^{\circ}$ C OVER 2 H	
	BEFORE TESTING, EACH CY	CLE AS BELLOW:	
	TEMPERATURE	DURATION	
	140+0/-6°C	30 ± 3 MINUTES	
	$2.25^{\circ}C \pm 2^{\circ}C$	2~3 MINUTES	
	3. 125+4/-0°C	30 ±3 MINUTES	
	4.25°C±2°C	$2\sim$ 3 MINUTES	

2. MECHANICAL PERFORMANCE

ITEM	CONDITION
5. SOLDERABILITY	THE LEAD IS IMMERSED IN A $260 \pm 5^{\circ}$ C SOLDER BATH WITHIN
	2±0.6 SECONDS.
6. RESISTANCE TO	REFLOW CHART AS ATTACH SHEET. TWICE PASS.
SOLDERING HEAT	
7. FREE FALL	FREE DROPPING FROM 75 cm HEIGHT 3 TIMES ON A HARD
	WOODEN BOARD.
8. VIBRATION	FREQUENCY: 10~55Hz,
	AMPLITUDE (TOTAL EXCURSION) $: 1.5$ mm ± 15 %,
	SWEEP TIME: 1MIN, 3 DIRECTION(X, Y, Z) EACH FOR 2 Hrs.
9. GROSS LEAK	STANDARD SAMPLE FOR AUTOMATIC GROSS LEAK DETECTOR,
	TEST PRESSURE: 0.2 Mpa
10. FINE LEAK	HELIUM BOMBING 5.0~5.5 Kgf / cm ²
	FOR 2 HOURS.



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





PACKING
Unit: mm
1. CARRIER TYPE



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

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