

ECN/PCN No.: 4223

For Manufacturer			
Product Description: SMD Low Profile Crystal	Abracon Part Number / Part Series: ABS07-157	<input type="checkbox"/> Documentation only <input type="checkbox"/> ECN <input checked="" type="checkbox"/> EOL	<input type="checkbox"/> Series <input checked="" type="checkbox"/> Part Number
Affected Revision: A	New Revision: EOL	Application:	<input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety
Prior to Change: ABS07-157 Rev A			
After Change: EOL			
Cause/Reason for Change: Discontinuation of product series.			
Change Plan			
Effective Date: 02/14/2022	Additional Remarks:		
Change Declaration:			
Issued Date: 02/14/2022	Issued By:	Issued Department:	
Approval:	Approval:	Approval:	
For Abracon EOL only			
Last Time Buy (if applicable): None	Alternate Part Number / Part Series: ABS07-120		
Additional Approval:	Additional Approval:	Additional Approval:	
Customer Approval (If Applicable)			
Qualification Status: <input type="checkbox"/> Approved <input type="checkbox"/> Not accepted <i>Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.</i>			
Customer Part Number:		Customer Project:	
Company Name:	Company Representative:	Representative Signature:	
Customer Remarks:			

1.0 Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency		32.768		kHz	
Operation Mode	Tuning Fork – AT Cut				
Operating Temperature	-40		+85	°C	
Storage Temperature	-55		+125	°C	
Frequency Tolerance @+25°C	-10		+10	ppm	Tested at 0.1uW
Temperature Coefficient:	-0.045	-0.035	-0.025	ppm/T ²	
Turn-over temperature:	+20	+25	+30	°C	
Equivalent series resistance (R1)		55	60	kΩ	
Shunt capacitance (C0)		1.10		pF	
Motional capacitance (Cm)		4.7		fF	
Load capacitance (CL)		6.0		pF	
Drive Level		0.1	0.5	μW	
Q value	13000				
Aging@25°C±3°C	-3		3	ppm	First year
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V

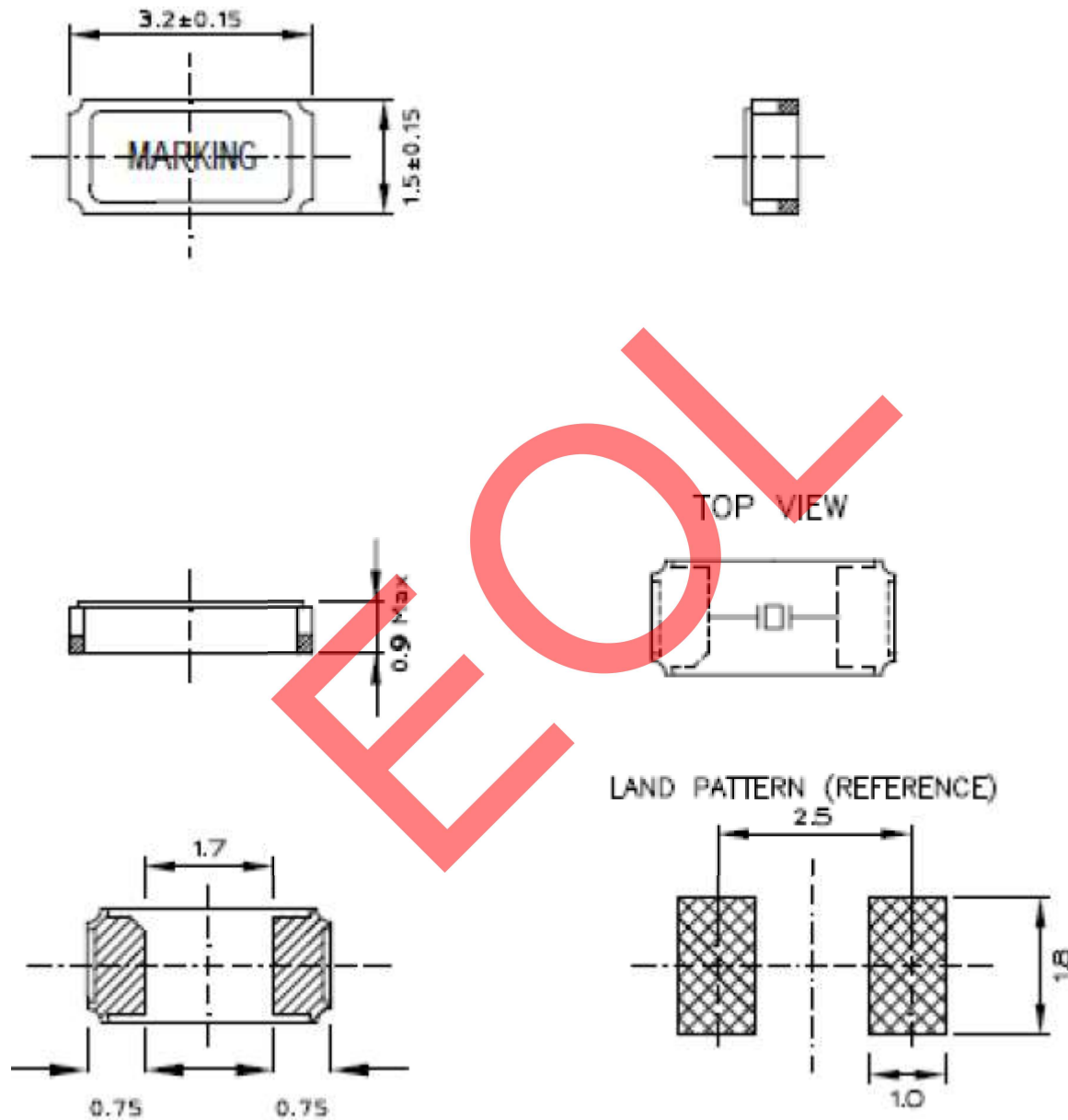
2.0 ABS07-157-32.768kHz-T is RoHS/RoHS II Compliant and Pb free.

3.0 Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive - MSL = N/A: Not Applicable

4.0 Part Identification

ABS07-157-32.768 kHz-T

6.0 Mechanical Dimensions



All dimensions are in mm

6.1 Sealing Method = Seam Sealing

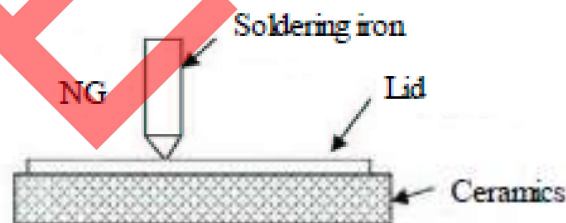

7.0 Reliability Tests Conditions

ITEM	CONDITION										
1. HIGH TEMPERATURE STORAGE	STORED AT 85±2°C FOR 500±12H. (If Customer's temperature request is higher than the standard, Temperature test must be done for customer requirements.) THEN 25±2°C OVER 2H BEFORE TESTING.										
2. LOW TEMPERATURE STORAGE	STORED AT -40±2°C FOR 500±12H. (If Customer's temperature request is lower than the standard, Temperature test must be done for customer requirements.) THEN 25±2°C OVER 2H BEFORE TESTING.										
3. HIGH TEMP. & HUMIDITY	STORED AT 60±2°C AND HUMIDITY 90~95% FOR 500±12 H. THEN 25±2°C OVER 2H BEFORE TESTING.										
4. TEMPERATURE CYCLE	<p>THE CRYSTAL UNIT SHALL BE SUBJECTED TO 100 SUCCESSIVE CHANGE OF TEMPERATURE CYCLES, THEN 25±2°C OVER 2 H BEFORE TESTING, EACH CYCLE AS BELLOW :</p> <table border="1"> <thead> <tr> <th>TEMPERATURE</th> <th>DURATION</th> </tr> </thead> <tbody> <tr> <td>1. -40+0/-6°C</td> <td>30±3 MINUTES</td> </tr> <tr> <td>2. 25°C±2°C</td> <td>2~3 MINUTES</td> </tr> <tr> <td>3. 85+4/-0°C</td> <td>30 ±3 MINUTES</td> </tr> <tr> <td>4. 25°C±2°C</td> <td>2~3 MINUTES</td> </tr> </tbody> </table>	TEMPERATURE	DURATION	1. -40+0/-6°C	30±3 MINUTES	2. 25°C±2°C	2~3 MINUTES	3. 85+4/-0°C	30 ±3 MINUTES	4. 25°C±2°C	2~3 MINUTES
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7.1 Mechanical Performance

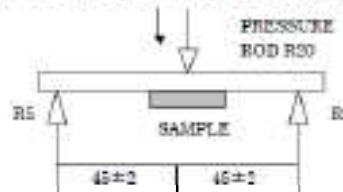
ITEM	CONDITION
5. RESISTANCE TO SOLDERING HEAT	REFLOW CHART AS ATTACH SHEET. TWICE PASS.
6. DROP	Dummy : 150 g, Height : 180 cm, Dropped Cycle : 3 Cycle, DROP IT ONTO A CONCRETE BOARD FOR 6 DIRECTIONS (XX',YY'ZZ'). THIS SHOULD BE 1 CYCLE.
7. VIBRATION	FREQUENCY : 10~60Hz, AMPLITUDE (TOTAL EXCURSION) : 1.5mm±15%, SWEEP TIME(PERIOD) : 2~3 min, 3 DIRECTION (X, Y, Z) EACH FOR 2 Hrs.
8. FINE LEAK	HELIUM BOMBING 5.0~5.5 Kgf / cm ² FOR 2 HOURS.

Please note that parts should specify above test condition each by each article not all at once. Also the variation of series resistance should $\pm 20\%$ min or $\pm 15k\Omega$ min which ever big value on above test. Please do not touch by hot soldering iron and do not put shock on top lid.

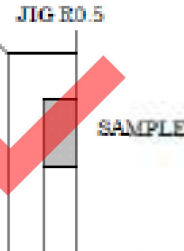


9. TERMINAL STRENGTH

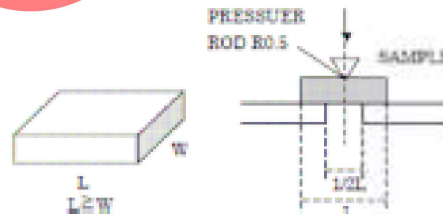
SHALL BE PRESSURIZED AT A SPEED OF APPROX. 0.5mm/sec IN THE DIRECTION INDICATED BY THE ARROW UNTIL THE BENDING WIDTH REACHES 3mm AND HELD FOR 5 SECONDS.


10. STICKING TENDENCY

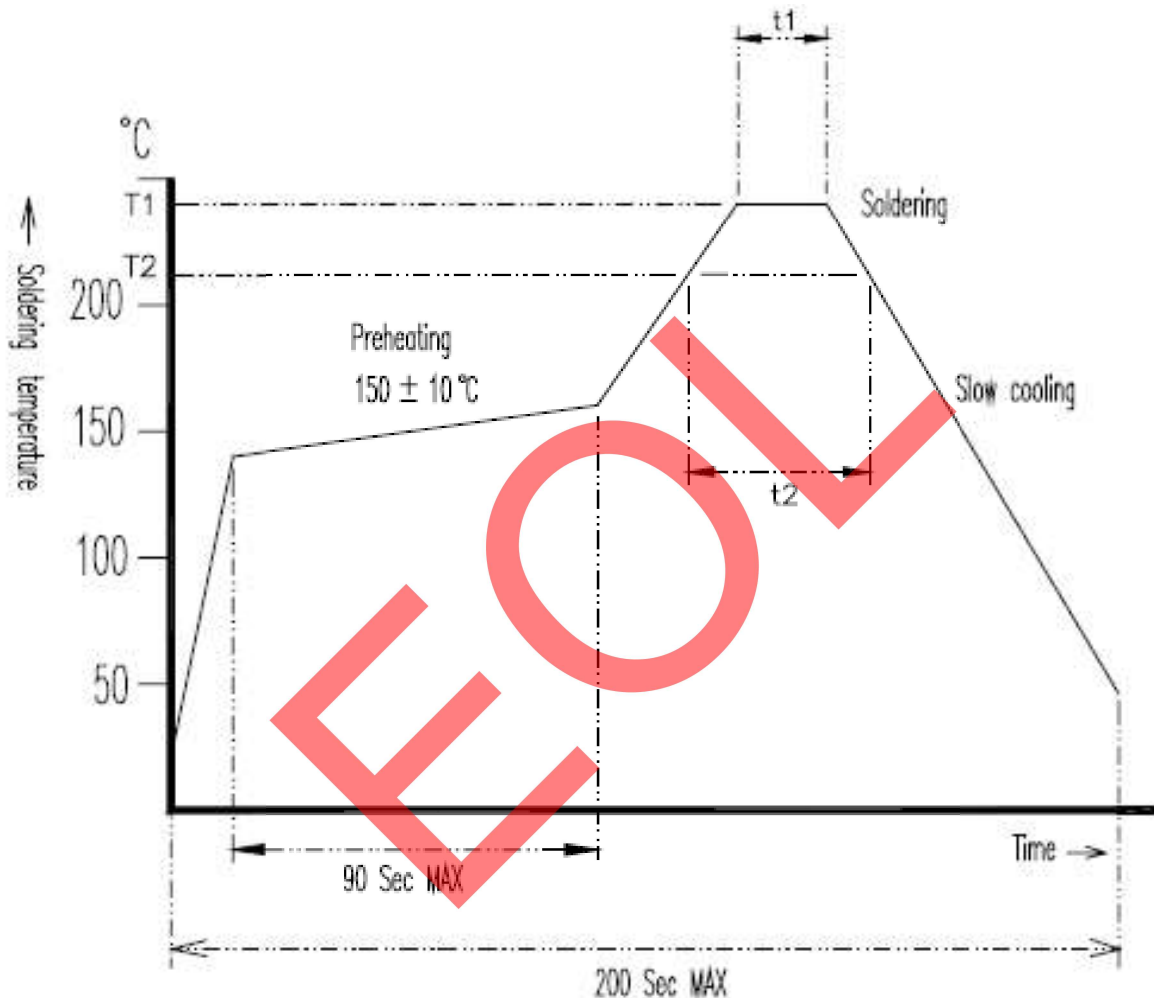
A R0.5 JIG SHALL BE USED TO APPLY A 10N DEAD LOAD IN THE DIRECTION INDICATED BY THE ARROW TO THE ELEMENT AND RETAIN IT FOR 10 SECONDS.


11. 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.



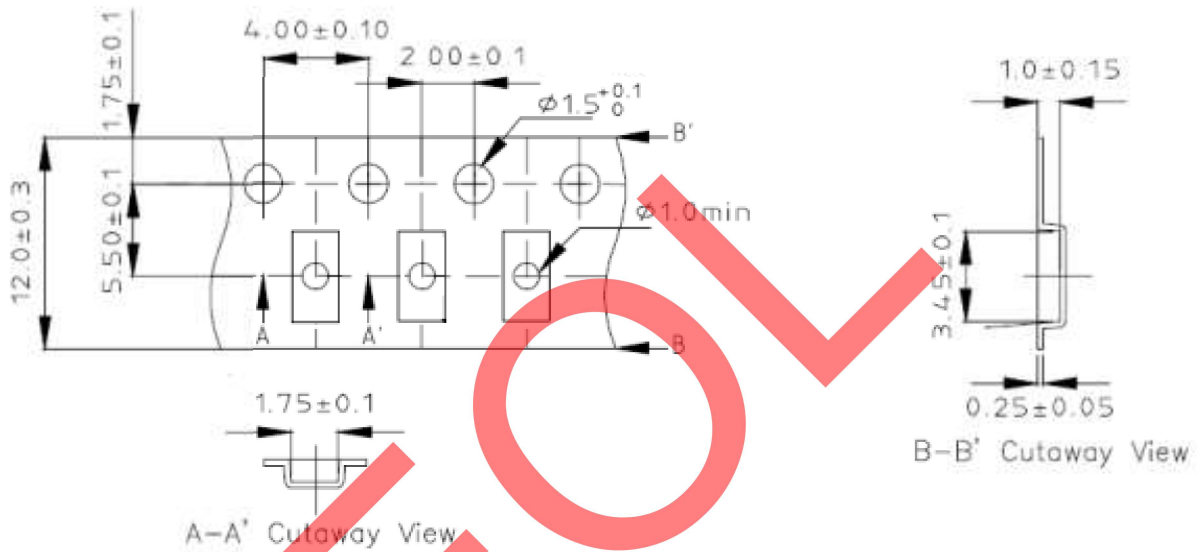
7.2 Reflow Profile



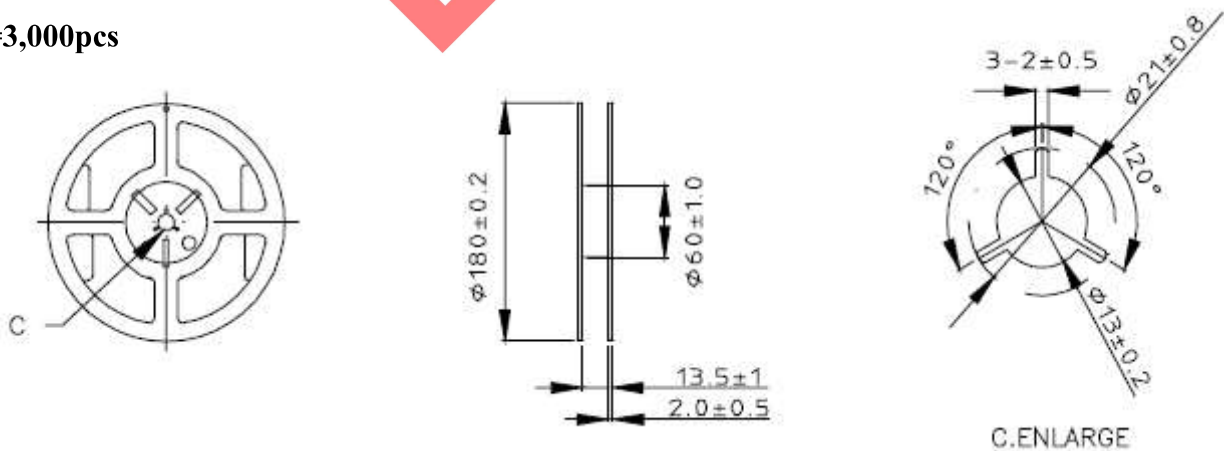
Application \ Temperature Time	T1 / t1	T2 / t2
Lead Free	260 ± 5°C / 10-seconds Max.	225 Min / 60 Seconds Max.

8.0 Packaging:

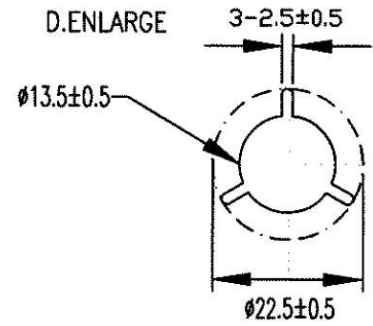
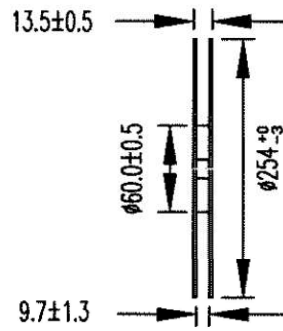
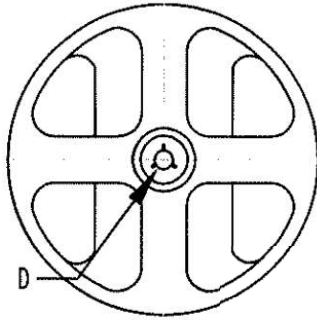
T=Tape and reel (9,000pcs/reel)



Reel=3,000pcs



Reel=9,000pcs



Dimensions: mm

REVOL