



Accurate Kinetic Energy

# APPROVAL SHEET

Customer Name : 亚特联  
Customer P/N :  
Frequency : 32.768000 KHz  
Aker Approved P/N : D31N-032768-3D1C430  
Aker MPN : D31N-032768-3D1C430  
REVISION : A0  
ISSUED DATE : 2020/9/21

APPROVED	CHECKED	PREPARED
<i>Earnest</i>		<i>Kika</i>
APPROVED BY CUSTOMER		

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**RoHS compliant**



CUST. P/N	:		
Aker Approved P/N	:	D31N-032768-3D1C430	
APPROVED	:	Earnest	SHEET : 1 of 4
PREPARED	:	Kiku	REV . : A0

Rev.	Date	Reviser	Revise contents
A0	2020/9/21	Kiku	Initial Released

\*Please kindly be noted that AKER DO NOT guarantee parts quality which involves human security application.\*



CUST. P/N	:	
Aker Approved P/N	:	D31N-032768-3D1C430
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		REV . : A0

## TUNING FORK CRYSTAL SPECIFICATION

### 1. ELECTRICAL CHARACTERISTICS

Item	Symbol	Rating	Note
Storage temperature range	T_stg	-55~+125°C	
Maximum drive level	DL max.	0.5 μW max.	

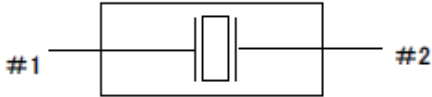
Item	Symbol	Rating	Note
Operating temperature range	T_use	-40~+85°C	
Drive level	DL	0.1 μW typ.	

Item	Symbol	Specifications	Conditions
Nominal frequency	f_nom	32.768 kHz	
Frequency tolerance	f_tol	$\pm 20 \times 10^{-6}$	
Load capacitance	C <sub>L</sub>	12.5 pF	
Motional resistance	R <sub>1</sub>	70 kΩ max.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
Motional capacitance	C <sub>1</sub>	3 fF typ.	
Shunt capacitance	C <sub>0</sub>	1 pF typ.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
Turnover temperature	T <sub>i</sub>	25 ± 5°C	Measure this coefficient at 3 points of 10°C, 25°C, 40°C using C-MOS circuit
Parabolic coefficient	B	$(-3 \pm 1) \times 10^{-8} / ^\circ\text{C}^2$	
Frequency aging	f_age	$\pm 3 \times 10^{-6} / \text{year}$	25±3°C, First year
Insulation resistance	IR	500 MΩ min.	Measured with ATI 4329A Insulation Resistance Meter Apply DC100V

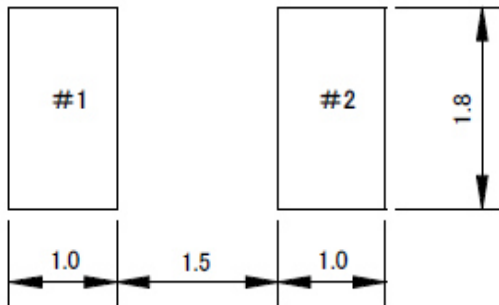
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## 2. INTERNAL CONNECTION:

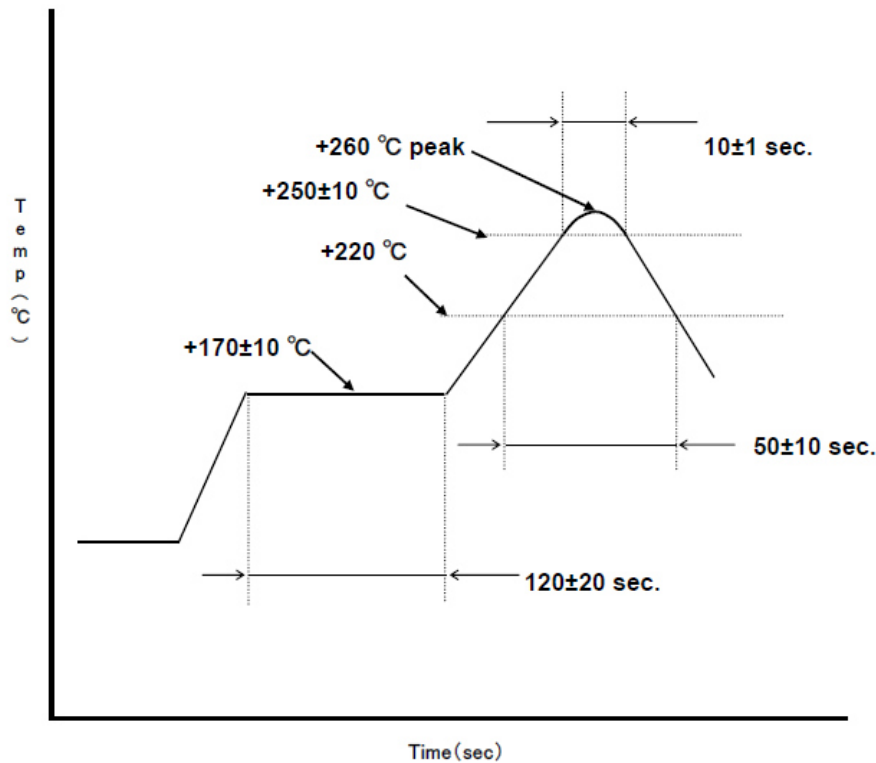


## 3. RECOMMENDED SOLDERING PATTERN:( Unit : mm )



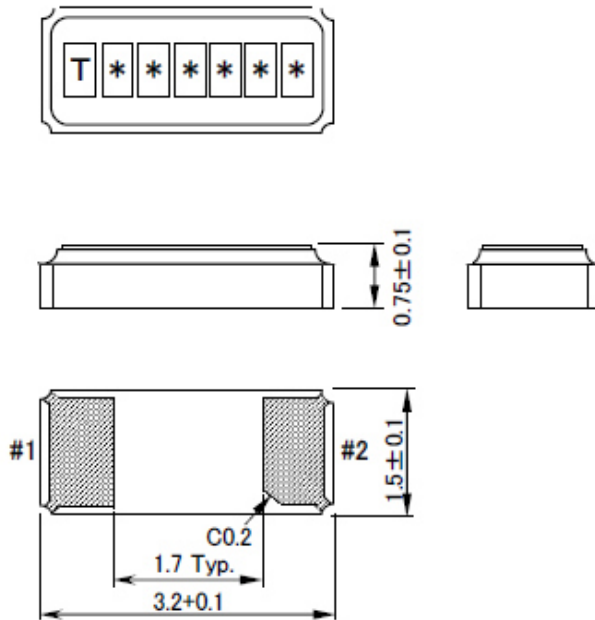
## 4. SOLDERING REFLOW PROFILE :

Pre-Heating temperature : +170°C      Pre-Heating time : 120sec  
 Heating temperature : +220°C      Heating time : 50sec



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## 5 . DIMENSIONS : ( Unit : mm )



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\*1 \*2 \*3 \*4 \*5 \*6 \*7

- \*1 Product name #
- \*2 Type of product
- \*3 Specification
- \*4 CL ( 7pF:B、9pF:J、12.5pF:F )
- \*5 Year of Production( Last digit of year )
- \*6,7 Week of Production(01~ 52)

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