



# APPROVAL SHEET

Customer Name : \_\_\_\_\_  
Customer P/N : \_\_\_\_\_  
Frequency : 32.768000 KHz  
Aker Approved P/N : D31-032768-BDTD41  
Aker MPN : D31-032768-BDTD41  
REVISION : A0  
ISSUED DATE : 2016/12/12

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

## AKER TECHNOLOGY CO., LTD.

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**RoHS compliant**



CUST. P/N :			
Aker Approved P/N :	D31-032768-BDTD41		
APPROVED :	Earnest	SHEET : 1 of 4	
PREPARED :	Kiku	REV . : A0	

Rev.	Date	Reviser	Revise contents
A0	2016/12/12	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	:	D31-032768-BDTD41
APPROVED	:	Earnest
PREPARED	:	Kiku
		SHEET : 2 of 4
		REV . : A0

## TUNING FORK OSC SPECIFICATION

### 1. ELECTRICAL CHARACTERISTICS

Measurement temperature: 25±2°C

Item	Symbol	Specification	Condition
1 Nominal frequency	f <sub>nom</sub>	32.768 kHz	
2 Frequency tolerance	f <sub>tol</sub>	± 20 × 10 <sup>-6</sup>	
3 Load capacitance	C <sub>L</sub>	6.0 pF	
4 Motional resistance	R <sub>1</sub>	70 kΩ max.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
5 Motional capacitance	C <sub>1</sub>	3 fF typ.	
6 Shunt capacitance	C <sub>0</sub>	1 pF typ.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
7 Turnover temperature	T <sub>i</sub>	25 ± 5°C	Measure this coefficient at 5 points of -40°C, -20°C, 25°C, 60°C, 85°C using C-MOS circuit.
8 Parabolic coefficient	B	(-0.03±10%) × 10 <sup>-6</sup> /°C <sup>2</sup>	
9 Frequency aging	f <sub>age</sub>	± 3 × 10 <sup>-6</sup> /year	25±3°C, First year
10 Insulation resistance	IR	500 MΩ min.	Measured with ATI 4329A Insulation Resistance Meter Apply DC100V

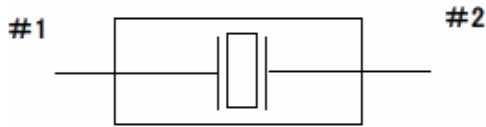
### 2. ENVIRONMENTAL CHARACTERISTICS :

Item	Symbol	Rating	Note
Storage temperature range	T <sub>stg</sub>	-55~+125°C	
Maximum drive level	DL max.	1.0 μW max.	
Operating temperature range	T <sub>use</sub>	-40~+85°C	
Drive level	DL	0.1 μW typ.	

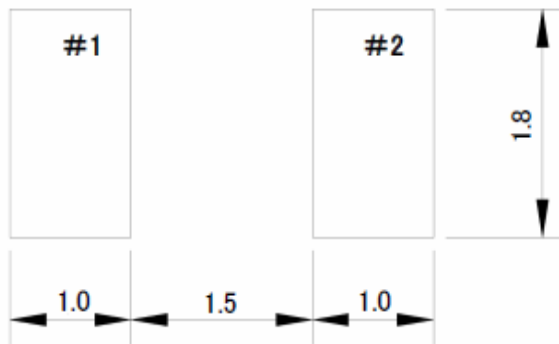
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### 3 . INTEMAL CONNECTION:

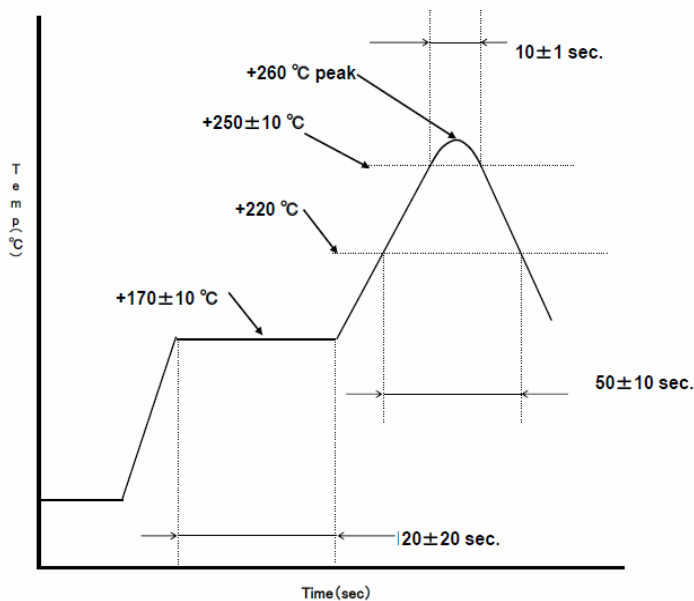


### 4 . RECOMMENDED SOLDERING PATTEM:



### 5. SOLDERING REFLOW PROFILE :

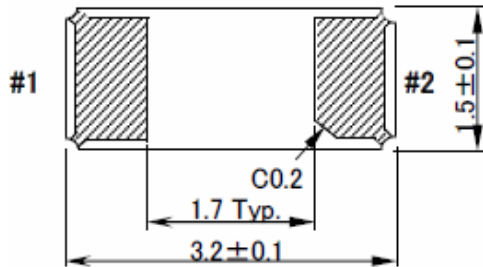
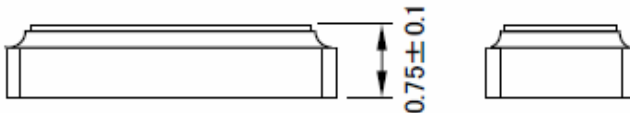
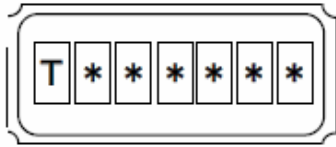
Pre-heating temperature : +170°C    Pre-heating time : 120sec  
 Heating temperature : +220°C    Heating time : 50sec



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## 6 . 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 (6pF:A, 7pF:B, 9pF:J, 12.5pF:F)
- \*5 Year of production (Last digit of year)
- \*6,7 Week of production (01 ~ 52)