

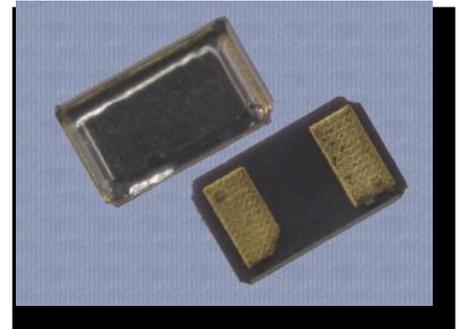


KN PRODUCT FAMILY

Surface Mount Tuning Fork Crystal 2.0 x 1.2

Features

- Ultra-Small Package
- 32.768 kHz
- Precision Sealed Unit



❖ Specifications

Parameter	Value
Nominal Frequency	32.768 kHz
Frequency Tolerance at 25°C	±50 ppm Standard (±10 and ±20 ppm available)
Parabolic Curvature Constant	(-0.03 ±0.01) ppm/°C ²
Operating Temperature Range	-40°C to +85°C Standard
Storage Temperature Range	-55°C to +125°C
Aging	±3 ppm per Year Maximum
Load Capacitance	9 pF or 12.5 pF
Equivalent Series Resistance	90K ohms Maximum
Shunt Capacitance	1.5 pF Typical
Drive Level	0.5 µW typical, 1 µW Max
Shock Resistance	±5 ppm Maximum 75 cm Drop Test in 3 axes onto a hardwood surface

❖ Environmental

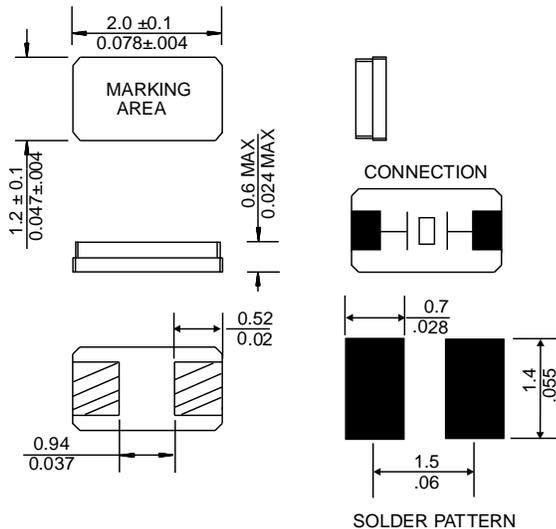
Parameter	Value
Moisture Sensitivity Level	1
RoHS	6/6 Complaint & Lead Free
REACH SVHC	Compliant
Halogen Free	Compliant
ESD Classification Level	N/A
Termination Finish	Au
Unit Weight (grams)	0.051

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

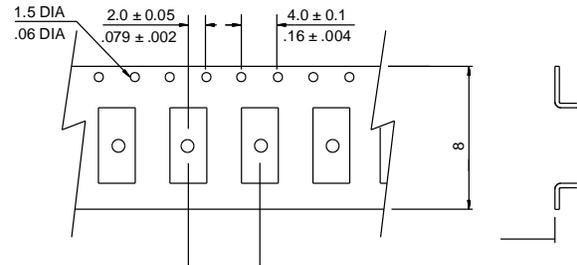


KN PRODUCT FAMILY

❖ Mechanical Specification



❖ Carrier Tape Dimension



NOTE: REFER TO EIA-481 FOR DIMENSIONS

❖ Packaging

180 mm Reel Diameter
8 mm Tape Width, 4 mm Pitch
Quantity: 3000 pcs per Reel

In accordance with EIA-481

❖ Part Numbering

KN	-	32.768	-	12.5	-	XXXX
Product Family		Frequency (MHz)		Load Capacitance (pF)		1) Tolerance, 2) Stability, 3) Mode, 4) Temperature
				9 or 12.5		Tolerance: E=±10 ppm, D=±20 ppm, B=±50 ppm standard
						Stability: blank
						Mode: blank
						Temperature range: blank standard, E=Extended

EXAMPLE: KN-32.768-12.5-D

Surface Mount Tuning Fork Crystal, 8.0 x 3.8 mm, 32.768 kHz, 12.5 pF load Capacitance, standard tolerance (±20 ppm) standard Temperature range -10°C to +60°C

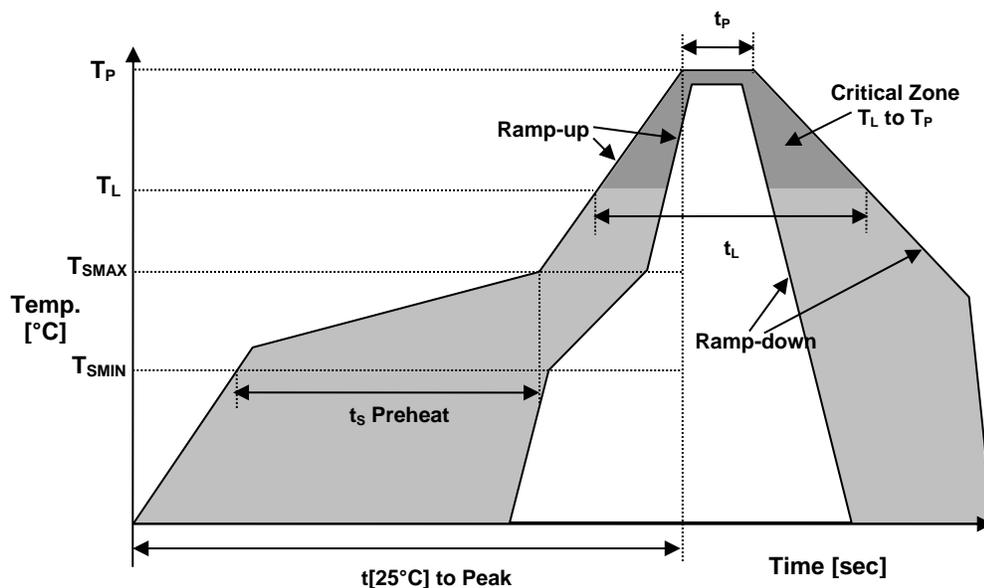
EXAMPLE: KN-32.768-10-DE

Surface Mount Tuning Fork Crystal, 8.0 x 3.8 mm, 32.768 kHz, 10 pF load Capacitance, standard tolerance (±20 ppm), Extended Temperature range -40°C to +85°C



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Reflow Profile



Reflow Profile (Reference IPC/JEDEC J-STD-020)		
Temperature Min Preheat	$T_{S_{MIN}}$	150°C
Temperature Max Preheat	$T_{S_{MAX}}$	200°C
Time ($T_{S_{MIN}}$ to $T_{S_{MAX}}$)	t_s	60 – 180 sec.
Temperature	T_L	217°C
Peak Temperature	T_P	260°C
Ramp-Up Rate	R_{UP}	3°C / sec. max
Ramp-Down Rate	R_{DOWN}	6°C / sec. max
Time within 5°C of Peak Temperature	T_P	10 sec.
Time $t[25^\circ\text{C}]$ to Peak Temperature	$t[25^\circ\text{C}]$ to Peak	480 sec.
Time	T_L	60 – 150 sec.

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● MARKING

xFLmyR

x – Internal Production ID code
 F – Frequency Code
 L – Load Capacitance Code
 m – Month code
 y – Year code
 R

LOAD CAPACITANCE CODE	
CODE	C _L (pF)
9	9
F	12.5

FREQUENCY CODE	
CODE	Frequency (kHz)
3	32.768

YEAR CODE	
Year	Code
2011	1
2012	2
2013	3
2014	4
2015	5
2016	6
2017	7
2018	8
2019	9
2020	0

MONTH CODE	
Month	Code
JANUARY	A
FEBRUARY	B
MARCH	C
APRIL	D
MAY	E
JUNE	F
JULY	G
AUGUST	H
SEPTEMBER	J
OCTOBER	K
NOVEMBER	L
DECEMBER	M

● APPROVAL

DRAWN BY	FP, 29 March 2017
APPROVED BY	FP, 29 March 2017
REVISION	A, Initial Release

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