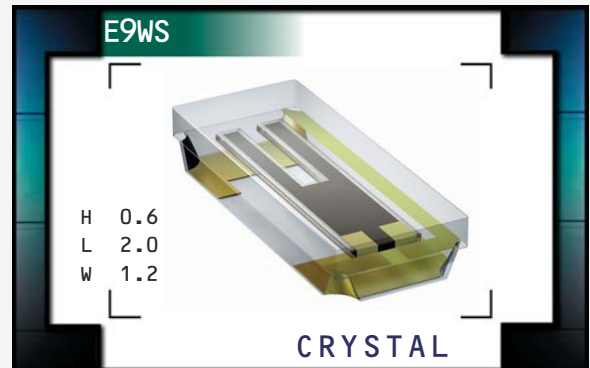


E9WS Series

- 32.768kHz watch crystal
- Miniature two pad surface mount package
- ± 10 ppm frequency tolerance
- 9.0pF or 12.5pF Parallel Resonant load capacitance
- Tape and reel available



NOTES

ELECTRICAL SPECIFICATIONS

Frequency	32.768kHz
Frequency Tolerance (at 25°C)	± 20 ppm ± 10 ppm
Frequency Stability	-0.04ppm / $(\Delta^\circ\text{C})^2$ Maximum, Parabolic; Turn Over Temperature at 25°C $\pm 5^\circ\text{C}$
Aging (at 25°C)	± 3 ppm/year Maximum
Operating Temperature Range	-40°C to +85°C
Load Capacitance (C_L)	9pF Parallel Resonant 12.5pF Parallel Resonant
Shunt Capacitance	1.0pF Typical, 2pF Maximum
Motional Capacitance	7.0fF Typical
Equivalent Series Resistance	90,000 Ohms Maximum
Drive Level	0.5 μ Watt Maximum
Storage Temperature Range	-55°C to +125°C
Insulation Resistance	500 Megaohms Minimum at 100V _{DC}

PART NUMBERING GUIDE

E9WS E C 09 - 32.768K TR

FREQUENCY TOLERANCE

D = ± 20 ppm at 25°C
E = ± 10 ppm at 25°C

OPERATING TEMPERATURE RANGE

C = -40°C to +85°C

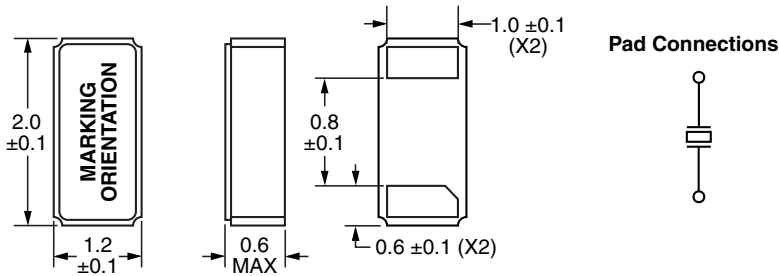
PACKAGE OPTIONS

Blank = Bulk
TR = Tape and Reel

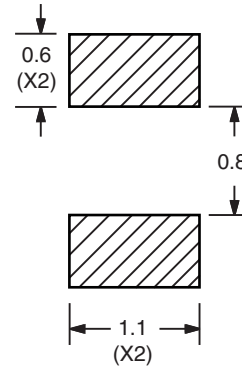
LOAD CAPACITANCE

09 = 9pF Parallel Resonant
12 = 12.5pF Parallel Resonant

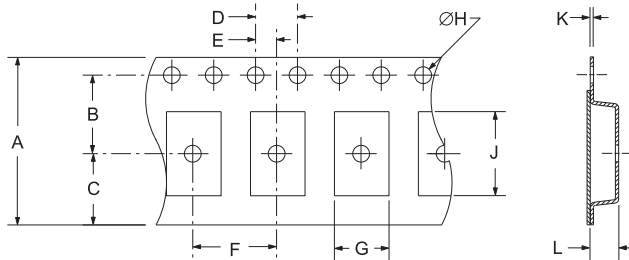
MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



SUGGESTED SOLDER PAD LAYOUTS ALL DIMENSIONS IN MILLIMETERS



TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS

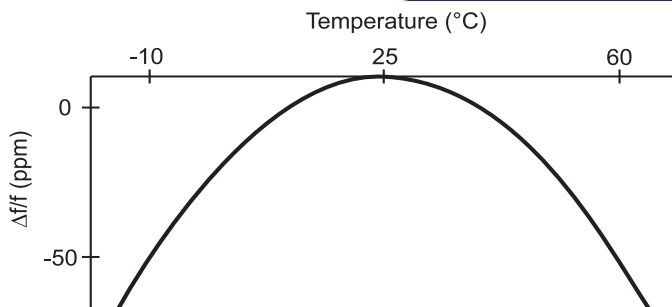


TAPE	A	B	C	D	E
	8.00 ± 0.30	3.50 ± 0.05	2.75 ± 0.05	4.00 ± 0.10	2.00 ± 0.05
F	G	H	J	K	L
4.00 ± 0.10	A0*	1.5 +0.1/-0.0	B0*	0.25 ± 0.05	K0*

REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13 ± 0.5	40 MIN
R	S	T	U	V	QTY/REEL
2.5 MIN	10 MIN	14.4 MAX	180 MAX	8.4 +1.5/-0.0	3,000

PARABOLIC TEMPERATURE CURVE

*Compliant to EIA481A



MARKING SPECIFICATIONS

Line 1: XXXXX
Ecliptek Manufacturing Code

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

Characteristic	Specification	Characteristic	Specification
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Resistance to Soldering Heat	MIL-STD-202, Method 210
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Solderability	MIL-STD-883, Method 2003
Mechanical Shock	MIL-STD-883, Method 213, Condition C	Vibration	MIL-STD-883, Method 2007, Condition A

MANUFACTURER
ECLIPTEK CORP.

CATEGORY
CRYSTAL

SERIES
E9WS

PACKAGE
CERAMIC

CLASS
CR61

REV. DATE
09/10