

EB8WSDX12-32.768K TR [Click part number to visit Part Number Details page](#)
REGULATORY COMPLIANCE (Data Sheet downloaded on Jul 1, 2019)

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ITEM DESCRIPTION

Automotive Grade Watch Crystal Resonator 1.5mm x 3.2mm x 0.9mm 4 Pad Ceramic Surface Mount (SMD)
32.768KHz ± 20 ppm at 25°C 12.5pF Parallel Resonant


ELECTRICAL SPECIFICATIONS

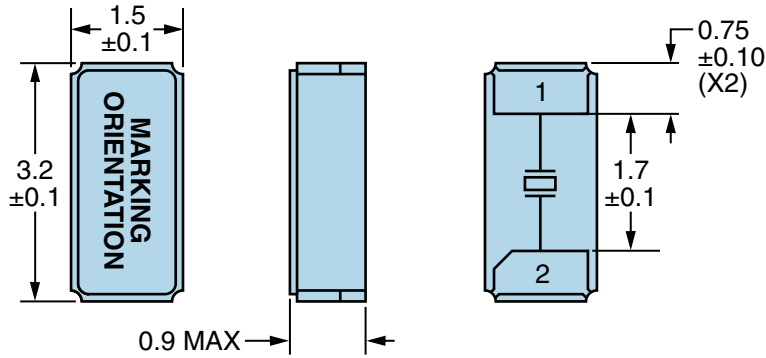
Nominal Frequency	32.768KHz
Frequency Tolerance	± 20 ppm at 25°C
Frequency Stability Temperature Coefficient	-0.034ppm/(Change in °C) ² Typical
Turn over Temperature	25°C ± 5 °C
Aging at 25°C	± 3 ppm/year Maximum
Operating Temperature Range	-40°C to +125°C
Load Capacitance	12.5pF Parallel Resonant
Shunt Capacitance	1.0pF Typical
Motional Capacitance	3.0fF Typical
Equivalent Series Resistance	70,000 Ohms Maximum
Mode of Operation	Fundamental
Drive Level	1 μ Watt Maximum
Crystal Cut	Tuning Fork
Storage Temperature Range	-55°C to +125°C
Insulation Resistance	500 Megaohms Minimum (Measured at 100Vdc)

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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

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MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Crystal
2	Crystal

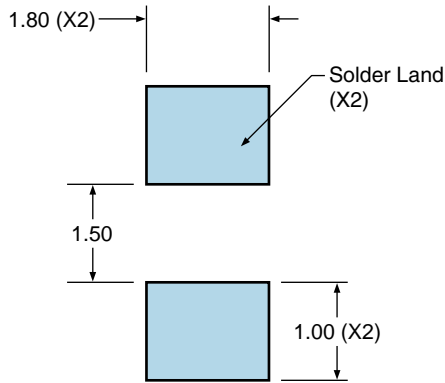
LINE	MARKING
1	XXXXXX XXXXXX=Ecliptek Manufacturing Identifier

Seam Sealed

Terminal Plating Thickness: Gold (0.3 to 1.0µm) over Nickel (3.0 to 4.0µm).

Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

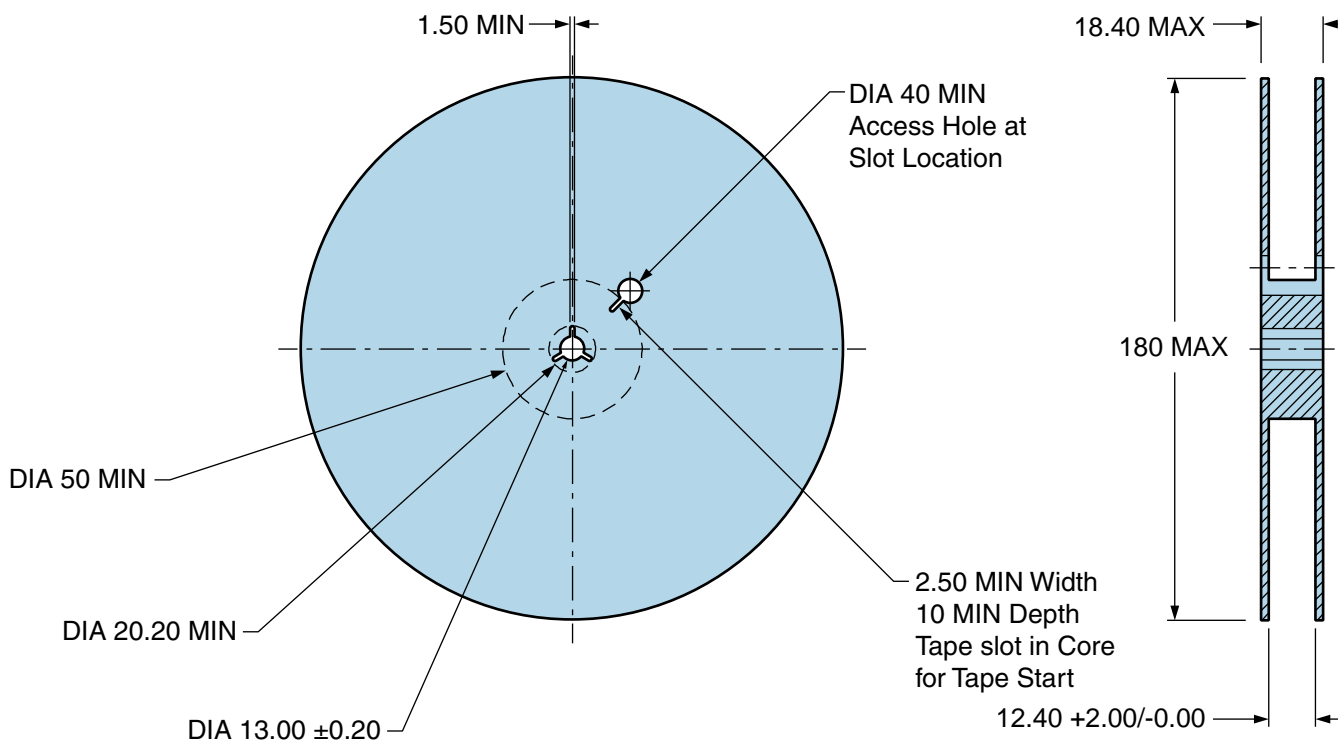
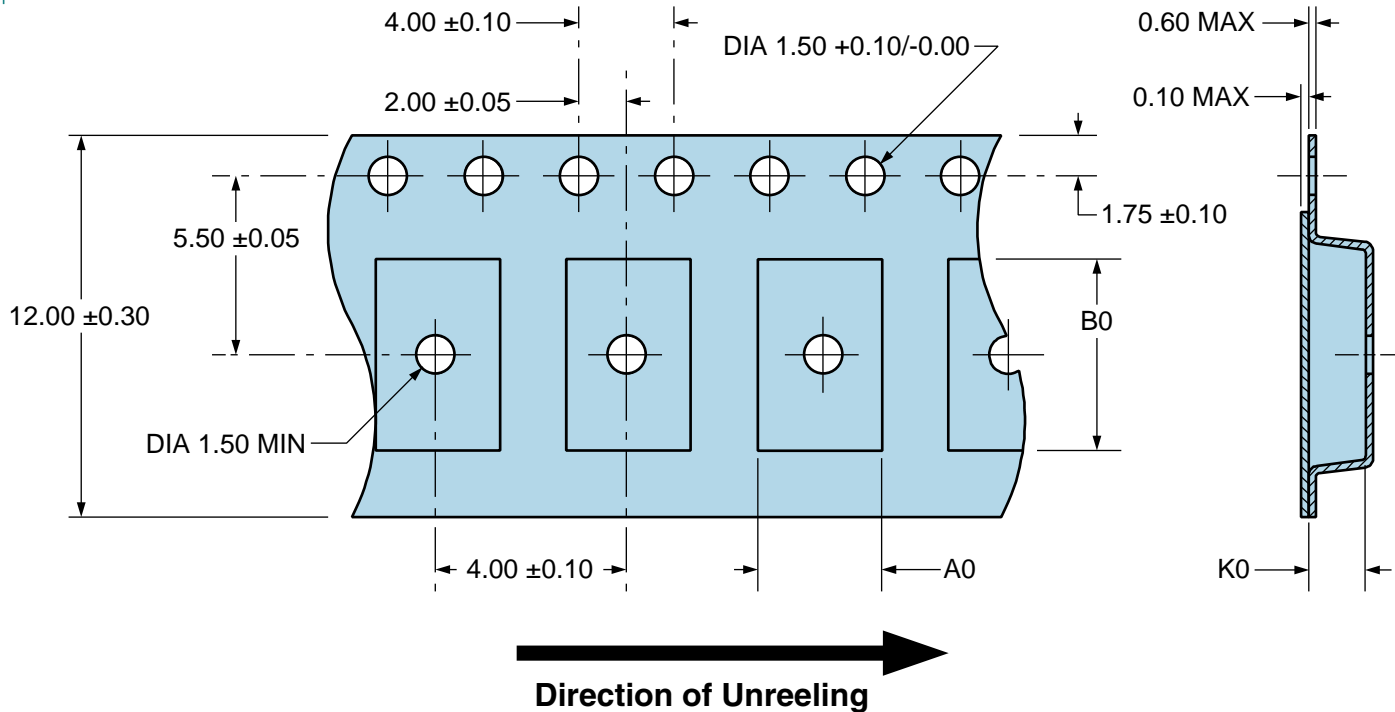
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Tape & Reel Dimensions

Quantity Per Reel: 3,000 units

All Dimensions in Millimeters

Compliant to EIA-481



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Recommended Solder Reflow Methods

High Temperature Infrared/Convection

$T_S \text{ MAX}$ to T_L (Ramp-up Rate)	3°C/Second Maximum
Preheat	
- Temperature Minimum ($T_S \text{ MIN}$)	150°C
- Temperature Typical ($T_S \text{ TYP}$)	175°C
- Temperature Maximum ($T_S \text{ MAX}$)	200°C
- Time ($t_s \text{ MIN}$)	60 - 180 Seconds
Ramp-up Rate (T_L to T_P)	3°C/Second Maximum
Time Maintained Above:	
- Temperature (T_L)	217°C
- Time (t_L)	60 - 150 Seconds
Peak Temperature (T_P)	260°C Maximum for 10 Seconds Maximum
Target Peak Temperature ($T_P \text{ Target}$)	250°C +0/-5°C
Time within 5°C of actual peak (t_p)	20 - 40 Seconds
Ramp-down Rate	6°C/Second Maximum
Time 25°C to Peak Temperature (t)	8 Minutes Maximum
Moisture Sensitivity Level	Level 1
Additional Notes	Temperatures shown are applied to body of device.

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 245°C

T_s MAX to T_L (Ramp-up Rate)	5°C/Second Maximum
Preheat	
- Temperature Minimum (T_s MIN)	N/A
- Temperature Typical (T_s TYP)	150°C
- Temperature Maximum (T_s MAX)	N/A
- Time (t_s MIN)	30 - 60 Seconds
Ramp-up Rate (T_L to T_P)	5°C/Second Maximum
Time Maintained Above:	
- Temperature (T_L)	150°C
- Time (t_L)	200 Seconds Maximum
Peak Temperature (T_P)	245°C Maximum
Target Peak Temperature (T_P Target)	245°C Maximum 2 Times / 230°C Maximum 1 Time
Time within 5°C of actual peak (t_p)	10 Seconds Maximum 2 Times / 80 Seconds Maximum 1 Time
Ramp-down Rate	5°C/Second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1
Additional Notes	Temperatures shown are applied to body of device.

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

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