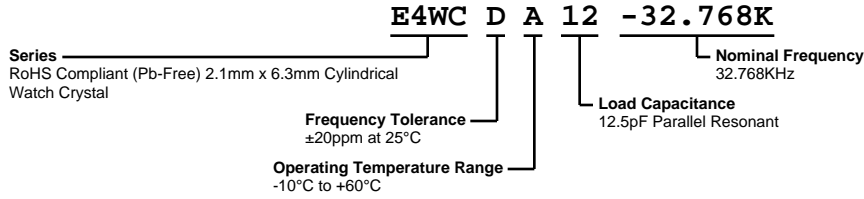


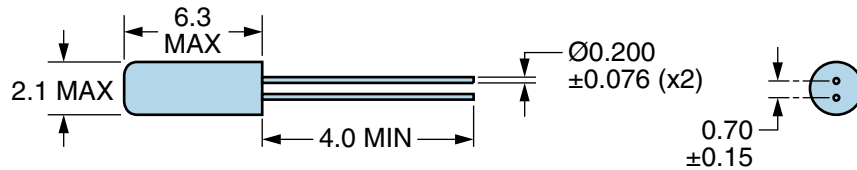
E4WCDA12-32.768K



ELECTRICAL SPECIFICATIONS

Nominal Frequency	32.768KHz
Frequency Tolerance	± 20 ppm at 25°C
Frequency Stability	Parabolic -0.042 ppm/(Change in °C) ² Maximum
Aging at 25°C	± 5 ppm/year Maximum
Operating Temperature Range	-10°C to +60°C
Load Capacitance	12.5pF Parallel Resonant
Shunt Capacitance (C0)	0.85pF Typical, 2pF Maximum
Motional Capacitance	2.0fF Typical
Equivalent Series Resistance	50,000 Ohms Maximum
Mode of Operation	Tuning Fork, Turn Over Temperature at 25°C ± 5 °C
Drive Level	1 μ Watt Maximum
Storage Temperature Range	-20°C to +70°C
Insulation Resistance	100 Megaohms Minimum at 100Vdc

MECHANICAL DIMENSIONS (all dimensions in millimeters)



LINE	MARKING
1	32.768K 32.768=Nominal Frequency in kHz K=Blank or K

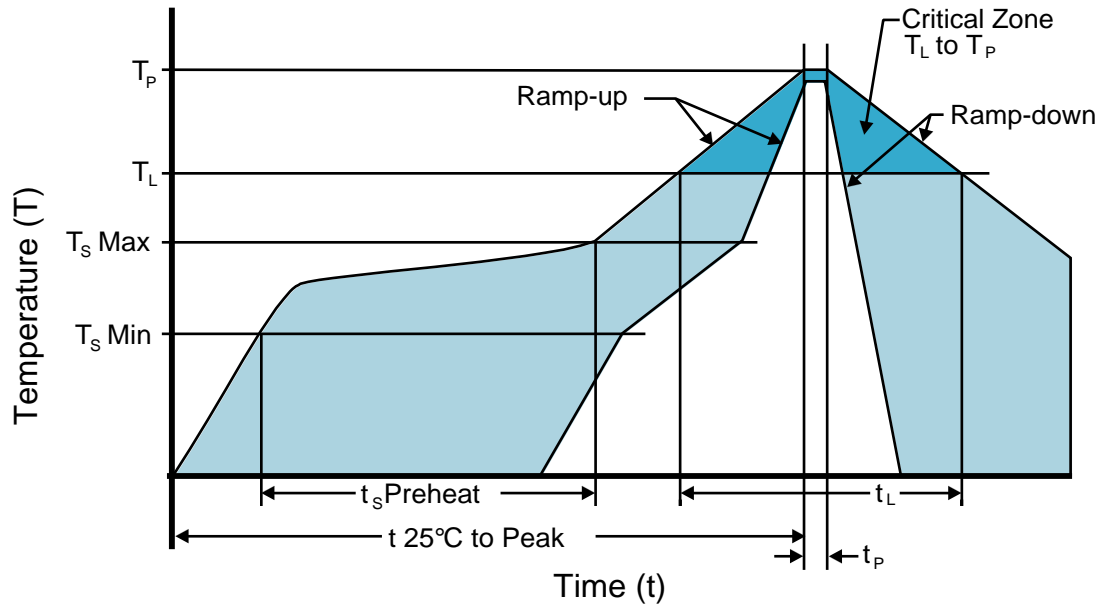
Recommended Solder Reflow Methods



High Temperature Solder Bath (Wave Solder)

T_s MAX to T_L (Ramp-up Rate)	3°C/second Maximum
Preheat	
- Temperature Minimum (T_s MIN)	150°C
- Temperature Typical (T_s TYP)	175°C
- Temperature Maximum (T_s MAX)	200°C
- Time (t_s 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 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

Recommended Solder Reflow Methods



Low Temperature Solder Bath (Wave Solder)

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 1 Time / 235°C Maximum 2 Times
Time within 5°C of actual peak (t_p)	5 seconds Maximum 1 Time / 15 seconds Maximum 2 Times
Ramp-down Rate	5°C/second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1

Low Temperature Manual Soldering

185°C Maximum for 10 seconds Maximum, 2 times Maximum.

High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum.