32.768kHz LOW POWER SMD CRYTAL OSCILLATOR



Moisture Sensitivity Level (MSL) - Level 1 > FEATURES:

- Ultra-miniature size 3.2x1.5x1.0mm [max.]
- Low Voltage Operation (Min:1.2V)
- Low Current Consumption
- Operating temperature : -40 to +85 °C; -40 to +125 °C
- VDD controls the output amplitude







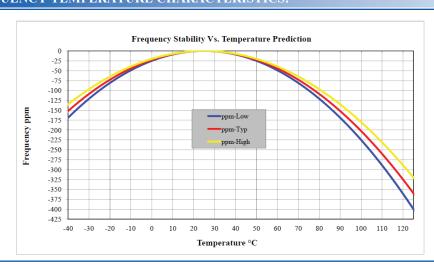
APPLICATIONS:

- Factory Automation
- PC Sever
- W-LAN/GPS Chipset
- General purpose clock generator for digital systems Clock & Data recovery
- Clock drivers for Real Time Clocks
- Timekeeping in network servers and computers
- Electricity, gas and water metering
- Portable field communication
- Mobile phone
- CCD clock for VTR camera
- Computers and peripherals
- Portable MP3 players & games

STANDARD SPECIFICATIONS

| Parameters | | Minimum | Typical | Maximum | Units | Notes |
|---|----------|---|---------|---------|--------------------|--|
| Output Frequency | | 32.768 | | | kHz | |
| Operating Temperature | | -40 | | +85 | °C | Option "L" |
| | | -40 | | +125 | | Option "H" |
| Storage Temperatu | re | -55 | | +125 | °C | |
| Turnover Temperature | | +20 | +25 | +30 | °C | |
| Frequency Tolerance | | -20 | | +20 | ppm | |
| Temperature Coefficient | | -0.035±10% | | | ppm/C ² | |
| Supply Voltage Range (V _{dd}) | | 1.2 | | 5.5 | V | |
| Current Consumption | | | 0.3 | 0.5 | μΑ | $V_{dd}=3.0V, \overline{OE}$ (output disabled) |
| Current Consumption | | | 1.8 | | μΑ | Load=15pF, V _{dd} =3.0V, OE |
| Output Load (CMOS) | | | | 15 | pF | |
| Output Voltage | V_{OH} | V _{dd} -0.4 | | | V | $I_{OH} = -1 \text{mA}$ |
| Output voltage | V_{OL} | | | GND+0.4 | | $I_{OL} = 1 \text{mA}$ |
| CLKOE Pin Function | | "1" (VIH\ge 0.8*Vdd) or Open: Oscillation "0" (VIL\le 0.2*Vdd): Output disabled | | | | |
| Aging@+25 | | -3.0 | | +3.0 | ppm | First year |
| Duty Cycle | | 40 | | 60 | % | |
| Voltage Coefficient | | -1.5 | | +1.5 | ppm/V | |
| Start-up Time | | | | 0.5 | S | |
| Output Rise Time | | | | 70.0 | ns | Load=10pF, 10% to 90% |
| Output Fall Time | | | | 70.0 | ns | Load=10pF, 10% to 90% |

TYPICAL FREQUENCY TEMPERATURE CHARACTERISTICS:



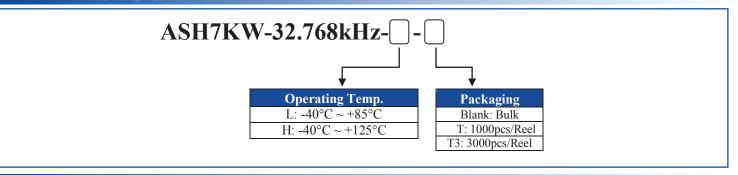
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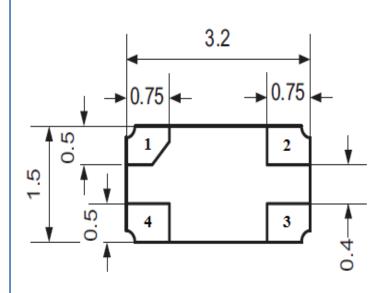


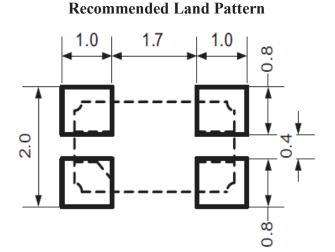


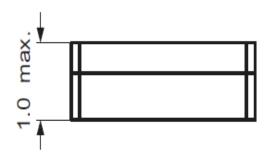
> PART IDENTIFICATIONS:



OUTLINE DIMENSIONS:







| Pin No. | Function | | |
|---------|----------|--|--|
| 1 | Output | | |
| 2 | GND | | |
| 3 | OE | | |
| 4 | Vdd | | |

Note: Due to material availability, the component cover may vary (ceramic or metal). This variation in no way affects the electrical performance of the product.

Dimensions: mm

All Dimensions are typical values.





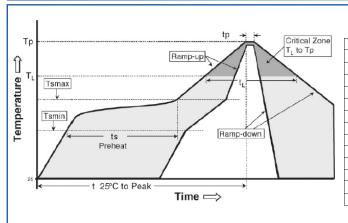
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REFLOW PROFILE:



| Temperature Range | Symbol | Condition | Unit |
|---|---------------------------|----------------|------|
| Average Ramp up Rate | (Ts _{max} to Tp) | 3°C/second max | °C/s |
| Ramp Down Rate | T _{cool} | 6°C/second max | °C/s |
| Time 25°C at Peak Temperature | T _{to-peak} | 8 minutes max | m |
| Preheat | | | |
| Temperature Min | Tsmin | 150 | °C |
| Temperature Max. | Ts _{max} | 200 | °C |
| Time Ts _{min} to Ts _{max} | Ts | 60-180 | Sec |
| Soldering above Liquidus | | | |
| Temperature Liquidus | $T_{\rm L}$ | 217 | °C |
| Time above Liquidus | $t_{ m L}$ | 60-150 | Sec |
| Peak Temperature | | · | |
| Peak Temperature | Тр | 260 | °C |
| Time within 5°C of Peak Temperature | tp | 20-40 | Sec |

TAPE & REEL: T= Tape and reel (1,000pcs/reel) T3= Tape and reel (3,000pcs/reel) 4 ±0,1 0.3 ±0.02 1.75 ±0.1 2±0,1 3.45 ±0.1 12±0.2 4 ± 0.1 1.75 ±0,1 Ø 13 min.12,4 ø 61.5 60 . **Dimensions: mm** max.17

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