

32.768kHz LOW POWER SMD CRYTAL OSCILLATOR

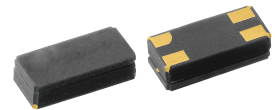
ASH7KW



ESD Sensitive



RoHS/RoHS II Compliant



3.2 x 1.5 x 1.0mm

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

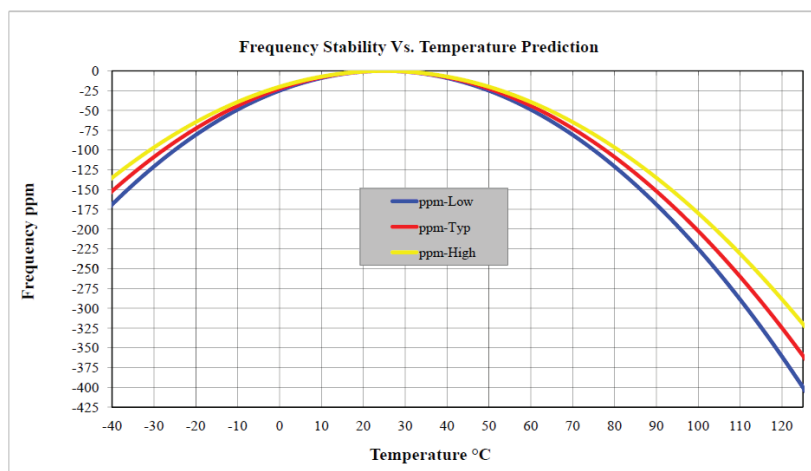
APPLICATIONS:

- Factory Automation
- PC Server
- W-LAN/GPS Chipset
- General purpose clock generator for digital systems
- Clock drivers for Real Time Clocks
- Timekeeping in network servers and computers
- Electricity, gas and water metering
- Portable field communication
- Mobile phone
- Clock & Data recovery
- 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 Temperature	-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	μA	V _{dd} =3.0V, $\overline{\text{OE}}$ (output disabled)
Current Consumption		1.8		μA	Load=15pF, V _{dd} =3.0V, OE
Output Load (CMOS)			15	pF	
Output Voltage	V _{OH}	V _{dd} -0.4		V	I _{OH} = -1mA
	V _{OL}		GND+0.4		I _{OL} = 1mA
CLKOE Pin Function	"1" (VIH≥0.8*V _{dd}) or Open: Oscillation "0" (VIL<0.2*V _{dd}) : 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:

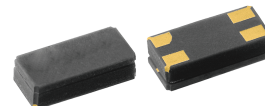


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RoHS/RoHS II Compliant



3.2 x 1.5 x 1.0mm

PART IDENTIFICATIONS:

ASH7KW-32.768kHz-□-□

Operating Temp.

L: -40°C ~ +85°C

H: -40°C ~ +125°C

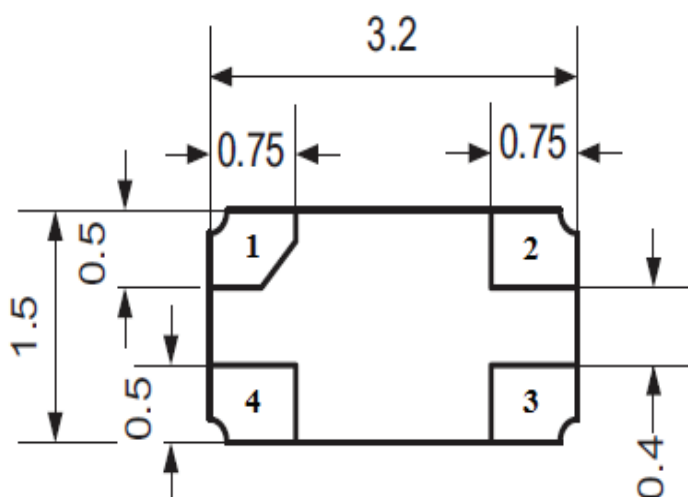
Packaging

Blank: Bulk

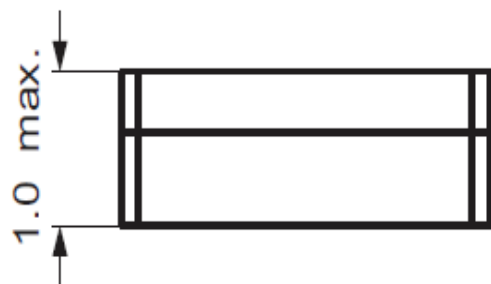
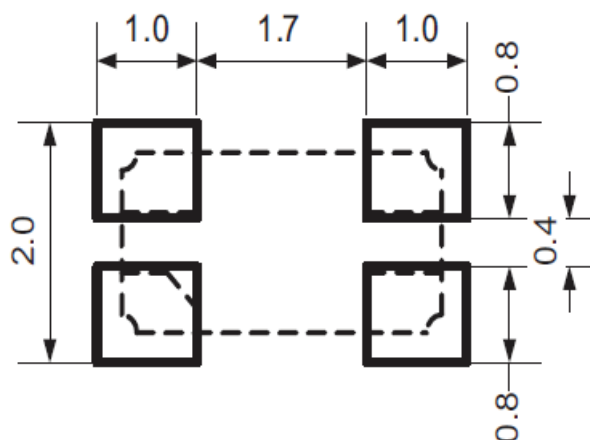
T: 1000pcs/Reel

T3: 3000pcs/Reel

OUTLINE DIMENSIONS:



Recommended Land Pattern



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

Dimensions: mm

All Dimensions are typical values.

ASH7KW

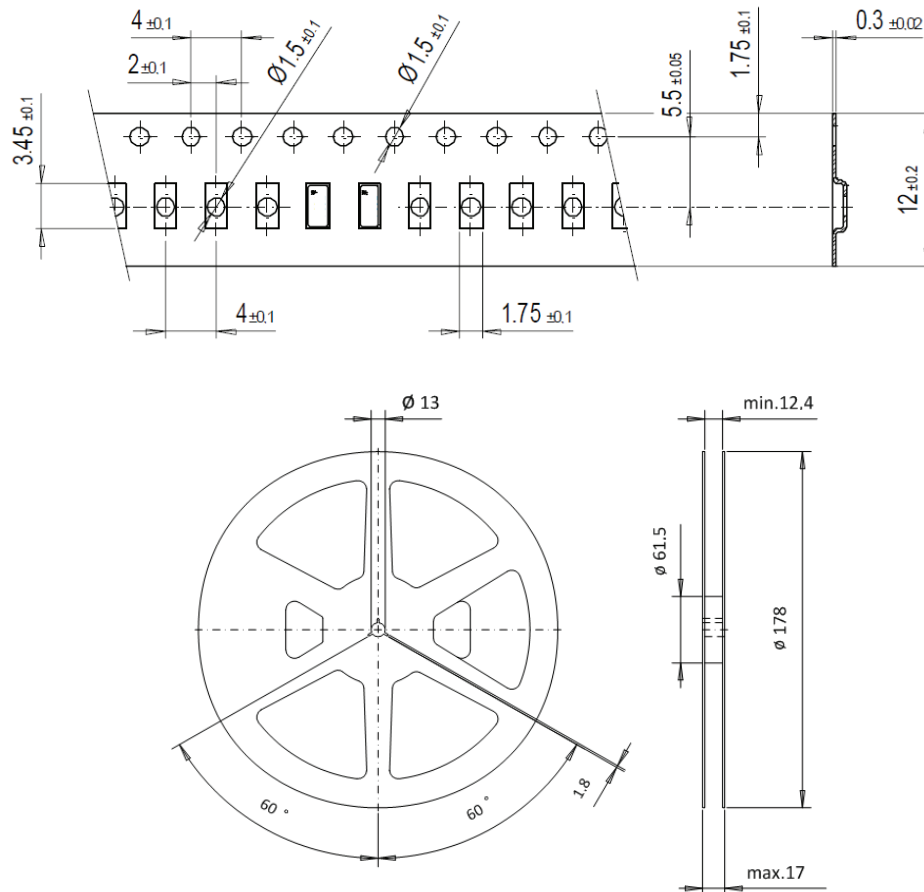


3.2 x 1.5 x 1.0mm

The graph illustrates the temperature profile over time for a heat treatment process. The y-axis represents Temperature, and the x-axis represents Time. The curve starts at 25°C, rises through a preheat stage (ts), and then enters a critical zone (TL to Tp) where it reaches a peak (tp) and then cools down. Key parameters labeled include Tl, Tp, Tlmax, Tlmin, and time intervals tL, ts, and t. The area under the curve is shaded gray.

Temperature Range	Symbol	Condition	Unit
Average Ramp up Rate	(T _{Smax} to T _p)	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	T _{Smin}	150	°C
Temperature Max.	T _{Smax}	200	°C
Time T _{Smin} to T _{Smax}	T _s	60-180	Sec
Soldering above Liquidus			
Temperature Liquidus	T _L	217	°C
Time above Liquidus	t _L	60-150	Sec
Peak Temperature			
Peak Temperature	T _p	260	°C
Time within 5°C of Peak Temperature	t _p	20-40	Sec

T= Tape and reel (1,000pcs/reel)
T3= Tape and reel (3,000pcs/reel)



Dimensions: mm

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