



2.0x1.6mm 32.768kHz SMD Oscillator

O1HK
(former FK100 Series)
DATASHEET

1.8V ELECTRICAL CHARACTERISTICS

PARAMETERS	MAX (unless otherwise noted)
Frequency (F ₀)	32.768kHz
Storage Temperature Range (T _{STG})	-55 ~ +125°C
Supply Voltage (V _{DD})	1.8V±10%
Input Current (I _{DD})	120µA
Standby Current	10µA
Output Symmetry (50%V _{DD})	45% ~ 55%
Rise/Fall Time (10%~90%V _{DD} Levels) (T _R /T _F)	50nS
Output Voltage (V _{OL}) (V _{OH})	10%V _{DD} 90%V _{DD} Min
Output Load (HCMOS)	15pF
Start-up Time (T _S)	2mS
Output Disable Time ¹	1µS
Output Enable Time ¹	2mS

ENABLE/DISABLE FUNCTION

Pin 1	Output (pin3)
Open ¹	Active
'1' Level V _{IH} ≥70%V _{DD}	Active
'0' Level V _{IL} ≤30%V _{DD}	High Z

Frequency Stability	Operating Temperature (°C)
±50PPM ²	-20 ~ +70
±50PPM ²	-40 ~ +85
±25PPM ²	-20 ~ +70
±25PPM ³	-40 ~ +85
±20PPM ³	-10 ~ +60

¹ An internal pull-up resistor from pin 1 to pin 4 allows active output if pin 1 is left open

² Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow, one-year aging, shock, and vibration.

³ Inclusive of 25°C tolerance, operating temperature range.



Title / Description: O1HK SERIES STANDARD SPECIFICATIONS	
Drawing Number: O1HK-DOC-1	Size: A
Part Number:	Cage: 61429
Draftsperson: BEC	Approved: MAJ
Revision Date: 08/12/2019	



2.5V ELECTRICAL CHARACTERISTICS

PARAMETERS	MAX (unless otherwise noted)
Frequency Range (F _o)	32.768kHz
Storage Temperature Range (T _{STG})	-55 ~ +125°C
Supply Voltage (V _{DD})	2.5V±10%
Input Current (I _{DD})	126µA
Standby Current	10µA
Output Symmetry (50%V _{DD})	45% ~ 55%
Rise/Fall Time (10%~90%V _{DD} Levels) (T _R /T _F)	50nS
Output Voltage (V _{OL}) (V _{OH})	10%V _{DD} 90%V _{DD} Min
Output Load (HCMOS)	15pF
Start-up Time (T _S)	2mS
Output Disable Time ¹	1µS
Output Enable Time ¹	2mS

ENABLE/DISABLE FUNCTION

Pin 1	Output (pin3)
Open ¹	Active
'1' Level V _{IH} ≥70%V _{DD}	Active
'0' Level V _{IL} ≤30%V _{DD}	High Z

Frequency Stability	Operating Temperature (°C)
±50PPM	-20 ~ +70
±50PPM	-40 ~ +85
±25PPM	-20 ~ +70
±25PPM	-40 ~ +85
±20PPM	-10 ~ +60

¹ An internal pull-up resistor from pin 1 to pin 4 allows active output if pin 1 is left open

² Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow, one-year aging, shock, and vibration.

³ Inclusive of 25°C tolerance, operating temperature range.



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3.3V ELECTRICAL CHARACTERISTICS

PARAMETERS	MAX (unless otherwise noted)
Frequency (F _o)	32.768kHz
Storage Temperature Range (T _{STG})	-55 ~ +125°C
Supply Voltage (V _{DD})	3.3V±10%
Input Current (I _{DD})	130µA
Standby Current	10µA
Output Symmetry (50%V _{DD})	45% ~ 55%
Rise/Fall Time (10%~90%V _{DD} Levels) (T _R /T _F)	50nS
Output Voltage (V _{OL}) (V _{OH})	10%V _{DD} 90%V _{DD} Min
Output Load (HCMOS)	15pF
Start-up Time (T _s)	2mS
Output Disable Time ¹	1µS
Output Enable Time ¹	2mS

ENABLE/DISABLE FUNCTION

Pin 1	Output (pin3)
Open ¹	Active
'1' Level V _{IH} ≥70%V _{DD}	Active
'0' Level V _{IL} ≤30%V _{DD}	High Z

Frequency Stability	Operating Temperature (°C)
±50PPM	-20 ~ +70
±50PPM	-40 ~ +85
±25PPM	-20 ~ +70
±25PPM	-40 ~ +85
±20PPM	-10 ~ +60

¹ An internal pull-up resistor from pin 1 to pin 4 allows active output if pin 1 is left open

² Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow, one-year aging, shock, and vibration.

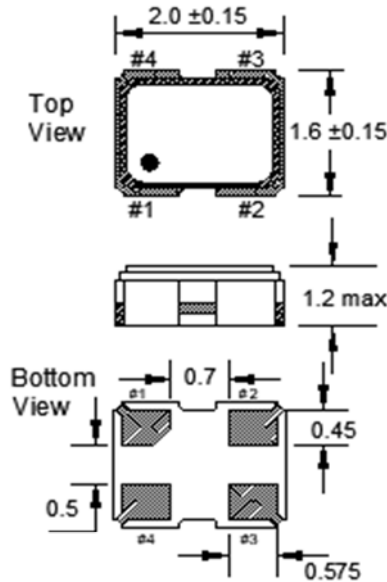
³ Inclusive of 25°C tolerance, operating temperature range.



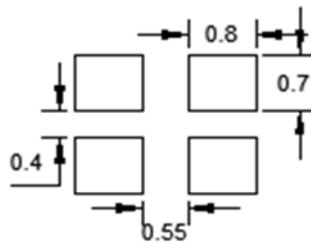
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DIMENSIONS / MECHANICAL SPECIFICATIONS



Recommended Solder Pad Layout



Dimensions are in millimeters.

Pin Connections

- #1 E/D #3 Output
- #2 GND #4 V_{DD}

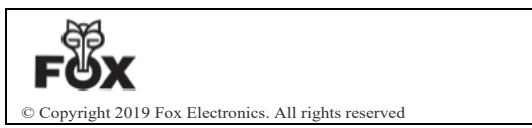
Maximum Soldering Temp / Time	260°C / 10 Seconds x 2
Moisture Sensitivity Level (MSL)	1
Termination Finish	Au over Ni
Seal Method	Seam
Lead (Pb) Free	Yes
ROHS/REACH Compliant	Yes

Notes:

*A 0.01μF capacitor should be placed between V_{DD} (Pin 4) and GND (Pin2) to minimize power supply line noise.

*Dimensional drawing is for reference to critical specifications defined by size measurements.

Certain non-critical visual attributes, such as side castellations, reference pin shape, etc. may vary



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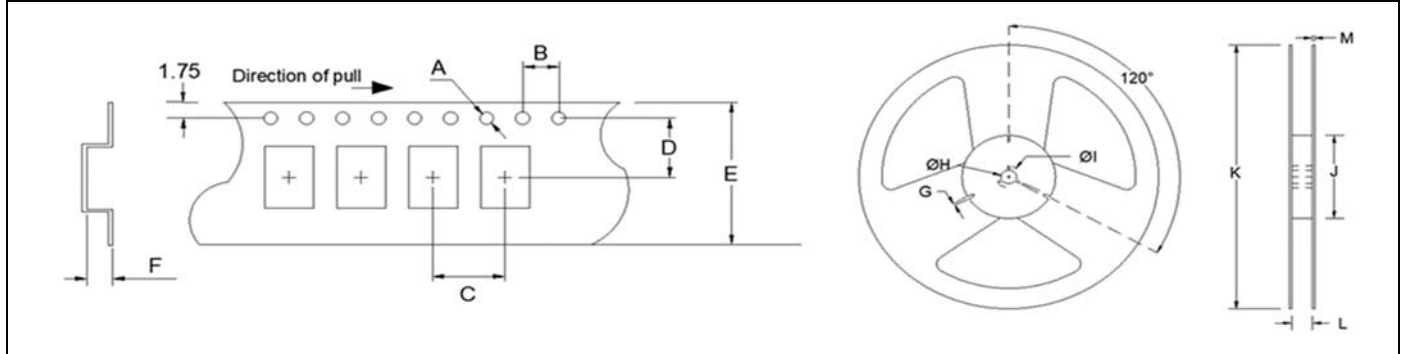
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Tape Specifications (millimeters)						Reel Specifications (millimeters)								
A	B	C	D	E	F	Reel Qty	G	H	I	J	K	L	M	
Ø1.55	4.0	4.0	3.5	8.0	1.15	-T3 = 3,000 -T2 = 2,000 -T1 = 1,000	2.0	Ø13	Ø21	Ø60	Ø180	9.0	1.7	



Available Options & Part Identification

Example: F O1HK L B M 0.032768

F	O1HK	L	B	M	0.032768
Fox	Model Number	Voltage L = 1.8V±10% J = 2.5V±10% C = 3.3V±10%	Stability B = ±50 PPM D = ±25 PPM E = ±20 PPM	Operating Temperature D = -10 ~ +60°C F = -20 ~ +70°C M = -40 ~ +85°C	Frequency



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