

Features

- AEC-Q200 Qualified
- IATF-16949 Certified
- Temperature Ranges to -40°C to +125°C
- Supply Voltage: 1.8V, 2.5V, 3.3V

1.8V ELECTRICAL CHARACTERISTICS	
PARAMETERS	MAX (Unless otherwise noted)
Frequency Range (Fo)	2.000 ~ 50.000 MHz
Storage Temperature Range (T _{STG})	-55 ~ +150°C
Supply Voltage (V _{DD})	1.8V±5%
Input Current (I _{DD})	
2.000 ~ 9.999999 MHz	5 mA
10.000 ~ 31.999999 MHz	6 mA
32.000 ~ 50.000 MHz	15 mA
Standby Current	
Ta = -40 ~ +85°C	10 µA
Ta = -40 ~ +105°/125°C	20 µA
Output Symmetry (50% V _{DD})	40% ~ 60%
Rise/Fall Time (10%/90% V _{DD} Levels) (T _R /T _F)	6.5 nS
Output Voltage (V _{OL})	10% V _{DD}
(V _{OH})	90% V _{DD} Min
Output Load (HCMOS)	15pF
Start-up Time (T _S)	10 mS
Output Disable Time 1	100 nS
Output Enable Time 1	10 mS
Aging (per year @25°C)	±5 PPM

ENABLE / DISABLE FUNCTION	
Pin ¹	Output (pin 3)
OPEN ¹	Active
'1' Level V _{IH} ≥ 70%V _{DD}	Active
'0' Level V _{IL} ≤ 30%V _{DD}	High Z

Available Options by Stability & Operating Temp for 1.8V		
Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
±100PPM ²	-40 ~ +85	2.000 ~ 50.000
±100PPM ²	-40 ~ +105	2.000 ~ 50.000
±100PPM ²	-40 ~ +125	2.000 ~ 50.000
±50PPM ²	-40 ~ +85	2.000 ~ 50.000
±50PPM ²	-40 ~ +105	2.000 ~ 50.000
±50PPM ³	-40 ~ +125	2.000 ~ 50.000
±25PPM ³	-40 ~ +85	2.000 ~ 50.000

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, and one-year aging.

³ Inclusive of 25°C tolerance and operating temperature rang.

2.5V ELECTRICAL CHARACTERISTICS	
PARAMETERS	MAX (Unless otherwise noted)
Frequency Range (Fo)	2.000 ~ 75.000 MHz
Storage Temperature Range (T _{STG})	-55 ~ +150°C
Supply Voltage (V _{DD})	2.5V±5%
Input Current (I _{DD})	
2.000 ~ 9.999999 MHz	6 mA
10.000 ~ 31.999999 MHz	8 mA
32.000 ~ 75.000 MHz	20 mA
Standby Current	
Ta = -40 ~ +85°C	10 µA
Ta = -40 ~ +105°C/125°C	20 µA
Output Symmetry (50% V _{DD})	40% ~ 60%
Rise/Fall Time (10%/90% V _{DD} Levels) (T _R /T _F)	
2.000 ~ 47.999999 MHz	6.5 nS
48.000 ~ 49.999999 MHz	5 nS
50.000 ~ 75.000 MHz	4 nS
Output Voltage (V _{OL})	10% V _{DD}
(V _{OH})	90% V _{DD} Min
Output Load (HCMOS)	15pF
Start-up Time (T _S)	10 mS
Output Disable Time 1	100 nS
Output Enable Time 1	10 mS
Aging (per year @25°C)	±5 PPM

ENABLE / DISABLE FUNCTION	
Pin ¹	Output (pin 3)
OPEN ¹	Active
'1' Level V _{IH} ≥ 70%V _{DD}	Active
'0' Level V _{IL} ≤ 30%V _{DD}	High Z

Available Options by Stability & Operating Temp for 2.5V		
Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
±100PPM ²	-40 ~ +85	2.000 ~ 75.000
±100PPM ²	-40 ~ +105	2.000 ~ 75.000
±100PPM ²	-40 ~ +125	2.000 ~ 75.000
±50PPM ²	-40 ~ +85	2.000 ~ 75.000
±50PPM ²	-40 ~ +105	2.000 ~ 75.000
±50PPM ³	-40 ~ +125	2.000 ~ 75.000
±25PPM ³	-40 ~ +85	2.000 ~ 75.000

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, and one-year aging.

³ Inclusive of 25°C tolerance and operating temperature rang.

3.3V ELECTRICAL CHARACTERISTICS	
PARAMETERS	MAX (Unless otherwise noted)
Frequency Range (F_o)	2.000 ~ 135.000 MHz
Storage Temperature Range (T_{STG})	-55 ~ +150°C
Supply Voltage (V_{DD})	3.3V±5%
Input Current (I_{DD})	
2.000 ~ 19.999999 MHz	7 mA
20.000 ~ 31.999999 MHz	12 mA
32.000 ~ 49.999999 MHz	20 mA
50.000 ~ 79.999999 MHz	25 mA
80.000 ~ 99.999999 MHz	30 mA
100.000 ~ 135.00 MHz	40 mA
Standby Current	
$T_a = -40 \sim +85^\circ\text{C}$	10 μA
$T_a = -40 \sim +105^\circ\text{C}/125^\circ\text{C}$	20 μA
Output Symmetry (50% V_{DD})	40% ~ 60%
Rise/Fall Time (10%/90% V_{DD} Levels) (T_R/T_F)	
2.000 ~ 49.999999 MHz	10 nS
50.000 ~ 79.999999 MHz	8 nS
80.000 ~ 99.999999 MHz	5 nS
100.000 ~ 135.000 MHz	4 nS
Output Voltage (V_{OL})	10% V_{DD}
(V_{OH})	90% V_{DD} Min
Output Load (HCMOS)	15pF
Start-up Time (TS)	10 mS
Output Disable Time 1	150 nS
Output Enable Time 1	10 mS
Aging (per year @25°C)	±5 PPM

ENABLE / DISABLE FUNCTION	
Pin ¹	Output (pin 3)
OPEN ¹	Active
'1' Level $V_{IH} \geq 70\%V_{DD}$	Active
'0' Level $V_{IL} \leq 30\%V_{DD}$	High Z

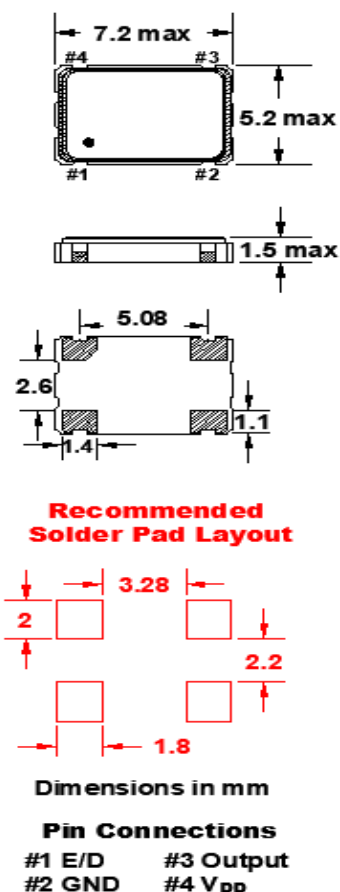
Available Options by Stability & Operating Temp for 3.3V		
Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
±100PPM ²	-40 ~ +85	2.000 ~ 135.000
±100PPM ²	-40 ~ +105	2.000 ~ 135.000
±100PPM ²	-40 ~ +125	2.000 ~ 135.000
±50PPM ²	-40 ~ +85	2.000 ~ 135.000
±50PPM ²	-40 ~ +105	2.000 ~ 135.000
±50PPM ³	-40 ~ +125	2.000 ~ 135.000
±25PPM ³	-40 ~ +85	2.000 ~ 135.000

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

³ Inclusive of 25°C tolerance and operating temperature rang

DIMENSIONS / MECHANICAL SPECIFICATIONS



Note:

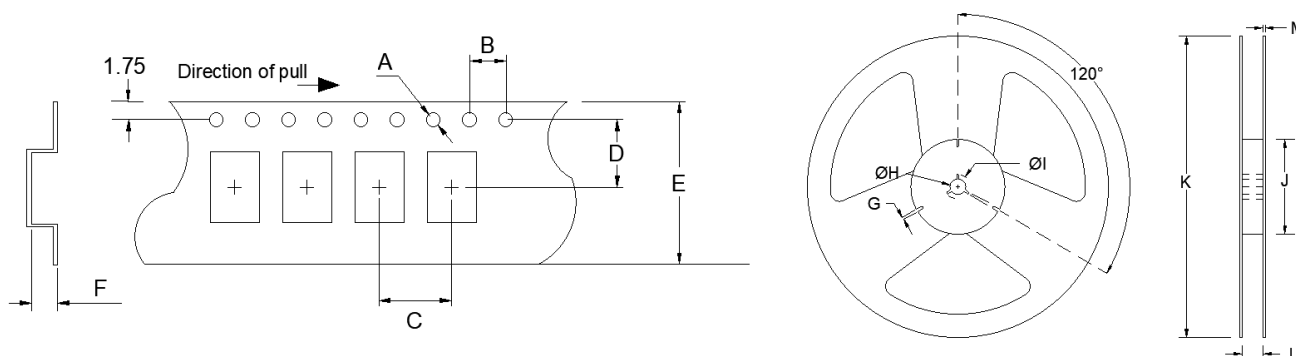
A 0.01 μ F capacitor should be placed between V_{DD} (Pin 4) and GND (Pin2) to minimize power supply line noise.

*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.

STANDARD SPECIFICATIONS

PARAMETERS	MAX (Unless otherwise noted)
Maximum Soldering Temp / Time	260°C / 10 Seconds x 2
Moisture Sensitivity Level (MSL) per J-STD-033	1
Termination Finish	Au (0.3~1 μ m) over Ni (1.27~8.89 μ m)
Seal Method	Seam
Lead (Pb) Free	Yes
RoHS Compliant	Yes, no exemptions
RERACH Compliant (latest version)	Yes

TAPE SPECIFICATIONS (mm)							REEL SPECIFICATIONS (mm)						
A	B	C	D	E	F	REEL QTY	G	H	I	J	K	L	M
ø1.55	4.0	8.0	7.5	16.0	2.15	-T2 = 2,000 -T1 = 1,000	2.0	ø13	ø21	ø80	ø255	17.5	2.0



Available Options & Part Identification for HCMOS SMD Oscillator O7HA*

Sample PN: **FO7HAKAM25.0-T2**

F	O7HA	K	A	M	25.0	-T2
<u>Fox</u>	<u>Model Number</u>	<u>Voltage</u> K = 1.8V±5% H = 2.5V±5% C = 3.3V±10%	<u>Stability</u> A = ±100 PPM B = ±50 PPM D = ±25 PPM	<u>Operating Temperature</u> M = -40 to +85°C P = -40 to +105°C I = -40 to +125°C	<u>Frequency (MHz)</u>	<u>Values Added Options</u> Blank = Bulk T1 = 1,000 pcs T2 = 2,000 pcs

* Not all frequencies in the frequency range, or every combination of stability, temp range, and voltage available.
See stabilities and op temps for each V_{DD}.

Reliability Test Conditions

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