

### HCMOS Output

- Stabilities to ±20 PPM
- Temperature Ranges to -40°C to +85°C
- Supply Voltages: 1.8V, 2.5V, 3.3V

1.8V ELECTRICAL CHARACTERISTICS			
PARAMETERS	MAX (unless otherwise noted)		
Frequency Range (F <sub>0</sub> )	0.012 ~ 160.000MHz		
Storage Temperature Range (T <sub>STG</sub> )	-55 ~ +125°C		
Supply Voltage (V <sub>DD</sub> )	1.8V±5%		
Input Current (I <sub>DD</sub> )			
0.012 ~ 32.000MHz	5 mA		
>32.000 ~ 70.000MHz	10 mA		
>70.000 ~ 120.000MHz	15 mA		
>120.000 ~ 160.000MHz	30 mA		
Standby Current	10 µA		
Output Symmetry (50% V <sub>DD</sub> )	40% ~ 60%		
Rise/Fall Time (20%/80% V <sub>DD</sub> Levels) (T <sub>R</sub> /T <sub>F</sub> )			
0.012 ~ 32.000MHz	5.0 nS		
>32.000 ~ 120.000MHz	3.5 nS		
>120.000 ~ 160.000MHz	3.0 nS		
Output Voltage (VoL)	20% V <sub>DD</sub>		
(Vон)	80% V <sub>DD</sub> Min		
Output Load (HCMOS)	15 pF		
Start-up Time (Ts)	10 mS		
Output Disable Time <sup>1</sup>	300 nS		
Output Enable Time <sup>1</sup>	10 mS		

ENABLE / DISABLE FUNCTION	
Pin1	Output (pin 3)
OPEN <sup>1</sup>	Active
'1' Level $V_{IH} \ge 70\% V_{DD}$	Active
'0' Level VIL $\leq 30\%V_{DD}$	High Z

Available Options by Stability & Operating Temp for 1.8V			
Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)	
±100PPM <sup>2</sup>	-10 ~ +70	0.012 ~ 160.000	
±100PPM <sup>2</sup>	-20 ~ +70	0.012 ~ 160.000	
±100PPM <sup>2</sup>	-40 ~ +85	0.012 ~ 160.000	
±50PPM <sup>2</sup>	-10 ~ +70	0.012 ~ 160.000	
±50PPM <sup>2</sup>	-20 ~ +70	0.012 ~ 160.000	
±50PPM <sup>2</sup>	-40 ~ +85	0.012 ~ 160.000	
±25PPM <sup>2</sup>	-10 ~ +70	0.012 ~ 160.000	
±25PPM <sup>2</sup>	-20 ~ +70	0.012 ~ 160.000	
±25PPM <sup>3</sup>	-40 ~ +85	0.012 ~ 160.000	
±20PPM <sup>3</sup>	-10 ~ +70	0.012 ~ 160.000	
±20PPM <sup>3</sup>	-20 ~ +70	0.012 ~ 160.000	

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

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

<sup>3</sup> Inclusive of 25°C tolerance, operating temperature range.

Title / Description: O7HS SERIES STANDARD SPECIFICATIONS			
FÖX	Drawing Number: 07HS-DOC-1 Size: A		
FOX	Part Number:	Cage: 61429	
© Copyright 2020 Fox Electronics. All rights reserved	Draftsperson: BEC	Approved: MAJ	<b>Revision Date: </b> 01/13/2020



# HCMOS 7x5mm SMD Oscillator

(former F4500, F4400, F4100 Series) DATASHEET

2.5V ELECTRICAL CHARACTER	ISTICS
PARAMETERS	MAX (unless otherwise noted)
Frequency Range (F <sub>0</sub> )	0.012 ~ 170.000MHz
Storage Temperature Range (T <sub>STG</sub> )	-55 ~ +125°C
Supply Voltage (VDD)	2.5V±5%
Input Current (I <sub>DD</sub> )	
0.012 ~ 32.000MHz	7mA
>32.000 ~ 50.000MHz	12mA
>50.000 ~ 125.000MHz	26mA
>125.000 ~ 160.000MHz	35mA
>160.000 ~ 170.000MHz	40mA
Standby Current	10µA
Output Symmetry (50% V <sub>DD</sub> )	
0.012 ~ 50.000MHz	45% ~ 55%
>50.000 ~ 200.000MHz	40% ~ 60%
Rise/Fall Time (10%/90% V <sub>DD</sub> Levels) (T <sub>R</sub> /T <sub>F</sub> )	5nS
Output Voltage (VoL)	10%V <sub>DD</sub>
(Vон)	90%V <sub>DD</sub> Min
Output Load (HCMOS)	15pF
Start-up Time (Ts)	10mS
Output Disable Time <sup>1</sup>	150nS
Output Enable Time <sup>1</sup>	10mS

ENABLE / DISABLE FUNCTION		
Pin1 Output (pin 3)		
OPEN <sup>1</sup>	Active	
'1' Level VIH $\ge 70\%V_{DD}$	Active	
'0' Level $V_{IL} \le 30\% V_{DD}$ High Z		

Available Options by Stability & Operating Temp for 2.5V			
Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)	
±100PPM <sup>2</sup>	-10 ~ +70	0.012 ~ 170.000	
±100PPM <sup>2</sup>	-20 ~ +70	0.012 ~ 170.000	
±100PPM <sup>2</sup>	-40 ~ +85	0.012 ~ 170.000	
±50PPM <sup>2</sup>	-10 ~ +70	0.012 ~ 170.000	
±50PPM <sup>2</sup>	-20 ~ +70	0.012 ~ 170.000	
±50PPM <sup>2</sup>	-40 ~ +85	0.012 ~ 170.000	
±25PPM <sup>2</sup>	-10 ~ +70	0.012 ~ 170.000	
±25PPM <sup>2</sup>	-20 ~ +70	0.012 ~ 170.000	
±25PPM <sup>3</sup>	-40 ~ +85	0.012 ~ 170.000	
±20PPM <sup>3</sup>	-10 ~ +70	0.012 ~ 170.000	
±20PPM <sup>3</sup>	-20 ~ +70	0.012 ~ 170.000	

 $^1\mbox{An}$  internal pull-up resistor from pin 1 to pin 4 allows active output % 1 if pin 1 is left open

<sup>2</sup> Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow, one-year aging, shock, and vibration.
<sup>3</sup> Inclusive of 25°C tolerance, operating temperature range.

24	NS		
FÖX	Drawing Number:     O7HS-DOC-1     Size: A       Part Number:     Cage: 61429		Size: A
FOX			Cage: 61429
© Copyright 2020 Fox Electronics. All rights reserved	Draftsperson: BEC	Approved: MAJ	<b>Revision Date: </b> 01/13/2020



3.3V ELECTRICAL CHARACTER	ISTICS
PARAMETERS	MAX (unless otherwise noted)
Frequency Range (F <sub>0</sub> )	0.012 ~ 170.000MHz
Storage Temperature Range (T <sub>STG</sub> )	-55 ~ +125°C
Supply Voltage (VDD)	3.3V±10%
Input Current (IDD)	
0.012 ~ 0.040MHz	3 mA
>0.040 ~ 1.500MHz	6 mA
>1.500 ~ 32.000MHz	15 mA
>32.000 ~ 50.000MHz	20 mA
>50.000 ~ 67.000MHz	25 mA
>67.000 ~ 170.000MHz	40 mA
Standby Current	10 µA
Output Symmetry (50% V <sub>DD</sub> )	
0.012 ~ 50.000MHz	45% ~ 55%
>50.000 ~ 170.000MHz	40% ~ 60%
Rise/Fall Time (10%/90% V <sub>DD</sub> Levels) (T <sub>R</sub> /T <sub>F</sub> )	
0.012 ~ 80.000MHz	6 nS
>80.000 ~ 125.000MHz	4 nS
>125.000 ~ 170.000MHz	3 nS
Output Voltage (VoL)	10% V <sub>DD</sub>
(Vон)	90% V <sub>DD</sub> Min
Output Load (HCMOS)	15 pF
Start-up Time (Ts)	10 mS
Output Disable Time <sup>1</sup>	150 nS
Output Enable Time <sup>1</sup>	10 mS

ENABLE / DISABLE FUNCTION		
Pin1 Output (pin 3)		
OPEN <sup>1</sup>	Active	
'1' Level $V_{IH} \ge 70\% V_{DD}$	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 <sup>2</sup>	-10 ~ +70	$0.012 \sim 170.000$
±100PPM <sup>2</sup>	-20 ~ +70	$0.012 \sim 170.000$
±100PPM <sup>2</sup>	-40 ~ +85	$0.012 \sim 170.000$
±50PPM <sup>2</sup>	-10 ~ +70	$0.012 \sim 170.000$
±50PPM <sup>2</sup>	-20 ~ +70	$0.012 \sim 170.000$
±50PPM <sup>2</sup>	-40 ~ +85	$0.012 \sim 170.000$
±25PPM <sup>2</sup>	-10 ~ +70	$0.012 \sim 170.000$
±25PPM <sup>2</sup>	-20 ~ +70	$0.012 \sim 170.000$
±25PPM <sup>3</sup>	-40 ~ +85	$0.012 \sim 170.000$
±20PPM <sup>3</sup>	-10 ~ +70	$0.012 \sim 170.000$
±20PPM <sup>3</sup>	-20 ~ +70	$0.012 \sim 170.000$

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

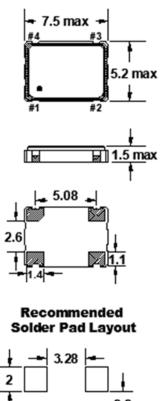
<sup>2</sup> Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow, one-year aging, shock, and vibration.

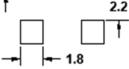
<sup>3</sup> Inclusive of 25°C tolerance, operating temperature range.

Title / Description: O7HS SERIES STANDARD SPECIFICATIONS			
FÖX	Drawing Number:O7HS-DOC-1Size: APart Number:Cage: 61429		
FOX			Cage: 61429
© Copyright 2020 Fox Electronics. All rights reserved	Draftsperson: BEC	Approved: MAJ	<b>Revision Date: </b> 01/13/2020



### DIMENSIONS / MECHANICAL SPECIFICATIONS





Dimensions in mm

#### **Pin Connections**

#1 E/D	#3 Output
#2 GND	#4 VDD

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<sub>DD</sub> (Pin 4) and GND (Pin2) to minimize power supply line noise. \*Dimensional drawing is for reference to critical specifications defined by size measurements.

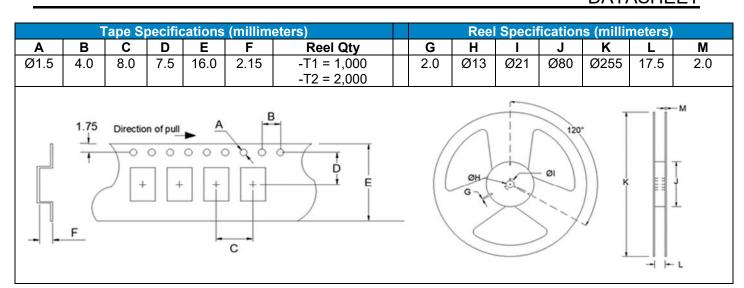
Certain non-critical visual attributes, such as side castellations, reference pin shape, etc. may vary

Title / Description: O7HS SERIES STANDARD SPECIFICATIONS			
FÖX	Drawing Number: 07HS-DOC-1 Size: A		
FOX	Part Number:		Cage: 61429
© Copyright 2020 Fox Electronics. All rights reserved	Draftsperson: BEC	Approved: MAJ	<b>Revision Date: </b> 01/13/2020



# HCMOS 7x5mm SMD Oscillator

(former F4500, F4400, F4100 Series) DATASHEET



Available Options & Part Identification* Example: <u>F O7HS C B M 25.0</u>					
F	O7HS	С	В	М	25.0
Fox	Model Number	Voltage	Stability	Operating Temperature	Frequency(MHz)
		K = 1.8V±5%	A = ±100PPM	E = -10 to +70°C	
		H = 2.5V±5%	$B = \pm 50 PPM$	F = -20 to +70°C	
		C = 3.3V±10%	$D = \pm 25 PPM$	M = -40 to +85°C	
			$E = \pm 20 PPM$		

\*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<sub>DD</sub>.



### Corporate Headquarters 5570 Enterprise Parkway Fort Myers, FL 33905 http://www.FOXONLINE.com

### Sales

or

1-888-GET-2-FOX (1-888-438-2369)

Tech Support

http://www.FOXONLINE.com/email

1-239-693-0099 http://www.FOXONLINE.com/repdisty

**Product use:** Fox Electronics reserves the right to modify the products and/or specifications described herein at any time and at Fox Electronics' sole discretion. All information in this document, including descriptions of product features and performance, is subject to change without notice. Performance specifications and the operating parameters of the described products are determined in the independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of Fox Electronics' products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of Fox Electronics or any third parties.

Fox Electronics' products are not intended for use in applications involving extreme environmental conditions or in life support systems or similar devices where the failure or malfunction of a Fox Electronics product can be reasonably expected to significantly affect the health or safety of users. Anyone using a Fox Electronics product in such a manner does so at their own risk, absent an express, written agreement by Fox Electronics.

Fox Electronics and the Fox logo are registered trademarks of Fox Electronics. Product specification is subject to change without notice. Other trademarks and service marks used herein, including protected names, logos and designs, are the property of Fox Electronics or their respective third party owners.

Title / Description: O7HS SERIES STANDARD SPECIFICATIONS			
FÖX	Drawing Number: 07HS-DOC-1	Size: A	
FOX	Part Number:		Cage: 61429
© Copyright 2020 Fox Electronics. All rights reserved	Draftsperson: BEC	Approved: MAJ	<b>Revision Date: </b> 01/13/2020

### **X-ON Electronics**

Largest Supplier of Electrical and Electronic Components

Click to view similar products for fox manufacturer:

Other Similar products are found below :

277LF-27-7 278LF-33.1776-1 TR 220-10-7 TR 278LF-20-29 603-25-132 TR 218-20-17966 278LF-5-11 117-102.6494 589-33.33-3 TR 218-25-94 FD-25 FOXLF049-20 FOXSDLF/240F-20 FXO-HC736R-125 FO5LSCDM100.00 FOX924B-10.000 FOXSDLF/240F-20/TR F4105R-250 HC49ULF-11.0592MHz FOXSDLF/040R/TR VCS25AXT-447 FOXLF098-20 70M15A FO7HHAAM32.0 FO7HHAAM20.0-BULK FO7HSCDM50.0 FC7BSCCMM6.0-T1 FOXSLF/120-20 VCS25AXT-270 27.000MHZ FOX801BELF-160 FOXLF250F-20 FOXSDLF/049-20/TR FXO-LC735RGB-156.25 FOXSDLF/245FR-20/TR FOXSDLF/200-20/TR FC3VREEEM38.4-T1 FOX923CH-19.20M FXO-HC735-48 FO7HSCAE48.0-BULK FOXSDLF/184-20 F1100E-48.000MHZ FOXLF221-20 F535L-24 FO7HSCDM25.0-BULK FO7HSCDM20.0-BULK FXO-PC536R-150 FOXSLF041 F4100-75.00 FOXSLF/240F-20 FOXLF05A