



HCMOS 7x5mm SMD Oscillator

O7HS

(former F4500, F4400, F4100 Series)

DATASHEET

- HCMOS Output
- Stabilities to ± 20 PPM
- Temperature Ranges as wide as -40°C to $+85^{\circ}\text{C}$
- Supply Voltages: 1.8V, 2.5V, 3.3V

1.8V ELECTRICAL CHARACTERISTICS

| PARAMETERS | MAX (unless otherwise noted) |
|--|---------------------------------|
| Frequency Range (F_0) | 0.012 ~ 160.000 MHz |
| Storage Temperature Range (T_{STG}) | $-55 \sim +125^{\circ}\text{C}$ |
| Supply Voltage (V_{DD}) | $1.8\text{V} \pm 5\%$ |
| Input Current (I_{DD}) | |
| 0.012 ~ 32.000 MHz | 5 mA |
| $>32.000 \sim 70.000$ MHz | 10 mA |
| $>70.000 \sim 120.000$ MHz | 15 mA |
| $>120.000 \sim 160.000$ MHz | 30 mA |
| Standby Current | 10 μA |
| Output Symmetry (50% V_{DD}) | 40 % ~ 60 % |
| Rise/Fall Time (20%/80% V_{DD} Levels) (T_R/T_F) | |
| 0.012 ~ 32.000 MHz | 5.0 nS |
| $>32.000 \sim 120.000$ MHz | 3.5 nS |
| $>120.000 \sim 160.000$ MHz | 3.0 nS |
| Output Voltage (V_{OL}) | 20% V_{DD} |
| (V_{OH}) | 80% V_{DD} Min |
| Output Current (I_{OL}) | 2 mA Min |
| (I_{OH}) | -2 mA Min |
| Output Load (HCMOS) | 15 pF |
| Start-up Time (T_S) | 10 mS |
| Output Disable Time ¹ | 300 nS |
| Output Enable Time ¹ | 10 mS |

ENABLE / DISABLE FUNCTION

| Pin1 | 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 1.8V²

| Frequency Stability ² | Operating Temperature ($^{\circ}\text{C}$) | Frequency Range (MHz) |
|----------------------------------|--|-----------------------|
| $\pm 100\text{PPM}$ | $-10 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 100\text{PPM}$ | $-20 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 100\text{PPM}$ | $-40 \sim +85$ | 0.012 ~ 160.000 |
| $\pm 50\text{PPM}$ | $-10 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 50\text{PPM}$ | $-20 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 50\text{PPM}$ | $-40 \sim +85$ | 0.012 ~ 160.000 |
| $\pm 25\text{PPM}$ | $-10 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 25\text{PPM}$ | $-20 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 25\text{PPM}$ | $-40 \sim +85$ | 0.012 ~ 160.000 |
| $\pm 20\text{PPM}^*$ | $-10 \sim +70$ | 0.012 ~ 160.000 |
| $\pm 20\text{PPM}^*$ | $-20 \sim +70$ | 0.012 ~ 160.000 |

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. *Excludes Shock/Vibration.





HCMOS 7x5mm SMD Oscillator

O7HS

(former F4500, F4400, F4100 Series)

DATASHEET

- HCMOS Output
- Stabilities to ± 20 PPM
- Temperature Ranges as wide as -40°C to $+85^{\circ}\text{C}$
- Supply Voltages: 1.8V, 2.5V, 3.3V

2.5V ELECTRICAL CHARACTERISTICS

| PARAMETERS | MAX (unless otherwise noted) |
|--|---------------------------------|
| Frequency Range (F_0) | 0.012 ~ 170.000 MHz |
| Storage Temperature Range (T_{STG}) | $-55 \sim +125^{\circ}\text{C}$ |
| Supply Voltage (V_{DD}) | $2.5V \pm 5\%$ |
| Input Current (I_{DD}) | |
| 0.012 ~ 32.000 MHz | 7 mA |
| $>32.000 \sim 50.000$ MHz | 12 mA |
| $>50.000 \sim 125.000$ MHz | 26 mA |
| $>125.000 \sim 160.000$ MHz | 35 mA |
| $>160.000 \sim 170.000$ MHz | 40 mA |
| Standby Current | 10 μA |
| Output Symmetry (50% V_{DD}) | |
| 0.012 ~ 50.000 MHz | 45 % ~ 55 % |
| $>50.000 \sim 200.000$ MHz | 40 % ~ 60 % |
| Rise/Fall Time (10%/90% V_{DD} Levels) (T_R/T_F) | 5 nS |
| Output Voltage (V_{OL}) | 10% V_{DD} |
| (V_{OH}) | 90% V_{DD} Min |
| Output Current (I_{OL}) | 4 mA Min |
| (I_{OH}) | -4 mA Min |
| Output Load (HCMOS) | 15 pF |
| Start-up Time (T_S) | 10 mS |
| Output Disable Time ¹ | 150 nS |
| Output Enable Time ¹ | 10 mS |

ENABLE / DISABLE FUNCTION

| Pin1 | 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 2.5V²

| Frequency Stability ² | Operating Temperature ($^{\circ}\text{C}$) | Frequency Range (MHz) |
|----------------------------------|--|-----------------------|
| $\pm 100\text{PPM}$ | $-10 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 100\text{PPM}$ | $-20 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 100\text{PPM}$ | $-40 \sim +85$ | 0.012 ~ 170.000 |
| $\pm 50\text{PPM}$ | $-10 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 50\text{PPM}$ | $-20 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 50\text{PPM}$ | $-40 \sim +85$ | 0.012 ~ 170.000 |
| $\pm 25\text{PPM}$ | $-10 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 25\text{PPM}$ | $-20 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 25\text{PPM}$ | $-40 \sim +85$ | 0.012 ~ 170.000 |
| $\pm 20\text{PPM}^*$ | $-10 \sim +70$ | 0.012 ~ 170.000 |
| $\pm 20\text{PPM}^*$ | $-20 \sim +70$ | 0.012 ~ 170.000 |

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. *Excludes Shock/Vibration.



© Copyright 2017 Fox Electronics, All rights reserved

Title / Description: O7HS SERIES STANDARD SPECIFICATIONS

Drawing Number: 101147

Size: A

Part Number:

Cage: 61429

Draftsperson: CMR

Approved: BEC

Revision Date: 10/10/2017



HCMOS 7x5mm SMD Oscillator

O7HS

(former F4500, F4400, F4100 Series)

DATASHEET

- HCMOS Output
- Stabilities to ± 20 PPM
- Temperature Ranges as wide as -40°C to $+85^{\circ}\text{C}$
- Supply Voltages: 1.8V, 2.5V, 3.3V

3.3V ELECTRICAL CHARACTERISTICS

| PARAMETERS | MAX (unless otherwise noted) |
|--|----------------------------------|
| Frequency Range (F_0) | 0.012 ~ 170.000 MHz |
| Storage Temperature Range (T_{STG}) | $-55 \sim +125^{\circ}\text{C}$ |
| Supply Voltage (V_{DD}) | $3.3\text{V} \pm 10\%$ |
| Input Current (I_{DD}) | |
| 0.012 ~ 0.040 MHz | 3 mA |
| $>0.040 \sim 1.500$ MHz | 6 mA |
| $>1.500 \sim 32.000$ MHz | 15 mA |
| $>32.000 \sim 50.000$ MHz | 20 mA |
| $>50.000 \sim 67.000$ MHz | 25 mA |
| $>67.000 \sim 170.000$ MHz | 40 mA |
| Standby Current | 10 μA |
| Output Symmetry (50% V_{DD}) | |
| 0.012 ~ 50.000 MHz | 45% ~ 55% |
| $>50.000 \sim 170.000$ MHz | 40% ~ 60% |
| Rise/Fall Time (10%/90% V_{DD} Levels) (T_R/T_F) | |
| 0.012 ~ 80.000 MHz | 6 nS |
| $>80.000 \sim 125.000$ MHz | 4 nS |
| $>125.000 \sim 170.000$ MHz | 3 nS |
| Output Voltage (V_{OL}) (V_{OH}) | 10% V_{DD} 90% V_{DD} Min |
| Output Current (I_{OL}) (I_{OH}) | 2 mA Min -2 mA Min |
| Output Load (HCMOS) | 15 pF |
| Start-up Time (T_S) | 10 mS |
| Output Disable Time ¹ | 150 nS |
| Output Enable Time ¹ | 10 mS |
| Jitter ($F_0 \geq 100$ MHz, 12 kHz ~ 20 MHz) | 0.3 pS Typ. |

ENABLE / DISABLE FUNCTION

| Pin1 | 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 3.3V²

| Frequency Stability ² | Operating Temperature ($^{\circ}\text{C}$) | Frequency Range (MHz) |
|----------------------------------|--|-----------------------|
| ± 100 PPM | $-10 \sim +70$ | 0.012 ~ 170.000 |
| ± 100 PPM | $-20 \sim +70$ | 0.012 ~ 170.000 |
| ± 100 PPM | $-40 \sim +85$ | 0.012 ~ 170.000 |
| ± 50 PPM | $-10 \sim +70$ | 0.012 ~ 170.000 |
| ± 50 PPM | $-20 \sim +70$ | 0.012 ~ 170.000 |
| ± 50 PPM | $-40 \sim +85$ | 0.012 ~ 170.000 |
| ± 25 PPM | $-10 \sim +70$ | 0.012 ~ 170.000 |
| ± 25 PPM | $-20 \sim +70$ | 0.012 ~ 170.000 |
| ± 25 PPM | $-40 \sim +85$ | 0.012 ~ 170.000 |
| ± 20 PPM* | $-10 \sim +70$ | 0.012 ~ 170.000 |
| ± 20 PPM* | $-20 \sim +70$ | 0.012 ~ 170.000 |

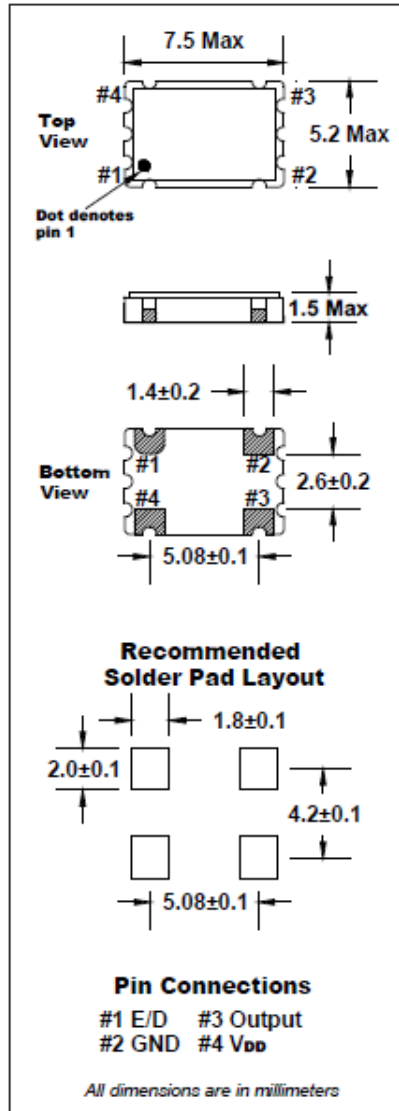
¹ An internal pull-up resistor from pin 1 to pin 4 allows active output if pin 1 is left open

² Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow, and one year aging. *Excludes Shock/Vibration.

| | | | |
|--|---|----------------------|----------------------------------|
| | Title / Description: O7HS SERIES STANDARD SPECIFICATIONS | | |
| | Drawing Number: 101147 | | Size: A |
| | Part Number: | | Cage: 61429 |
| | Draftsperson: CMR | Approved: BEC | Revision Date: 10/10/2017 |



DIMENSIONS / MECHANICAL SPECIFICATIONS



| | |
|----------------------------------|--------------------|
| Maximum Soldering Temp / Time | 260°C / 10 Seconds |
| Moisture Sensitivity Level (MSL) | 1 |
| Termination Finish | Au over Ni |
| Seal Method | Seam Seal |
| 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

| | | |
|--|---|----------------------------------|
| | Title / Description: O7HS SERIES STANDARD SPECIFICATIONS | |
| | Drawing Number: 101147 | Size: A |
| | Part Number: | Cage: 61429 |
| | Draftsperson: CMR | Approved: BEC |
| | | Revision Date: 10/10/2017 |



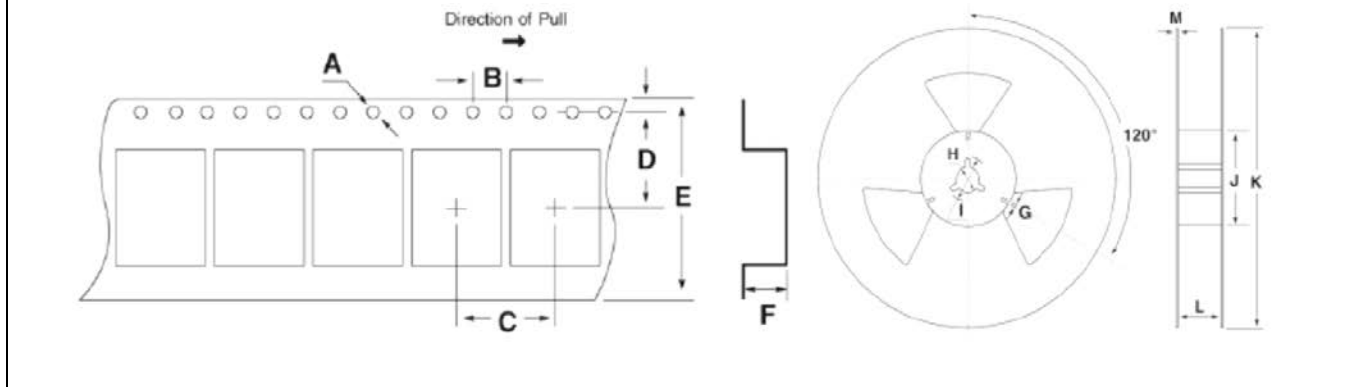
HCMOS 7x5mm SMD Oscillator

O7HS

(former F4500, F4400, F4100 Series)

DATASHEET

| Tape Specifications (millimeters) | | | | | | | Reel Specifications (millimeters) | | | | | | | |
|-----------------------------------|-----|-----|-----|------|------|--------------|-----------------------------------|-----|-----|-----|------|------|-----|--|
| A | B | C | D | E | F | Std Reel Qty | G | H | I | J | K | L | M | |
| Φ1.5 | 4.0 | 8.0 | 7.5 | 16.0 | 2.15 | 2,000 | 2.0 | Φ13 | Φ21 | Φ80 | Φ255 | 17.5 | 2.0 | |



Available Options & Part Identification*

Example: **F O7HS C B M 25.0**

| F | O7HS | C | B | M | 25.0 |
|------------|---------------------|---|--|---|------------------|
| Fox | Model Number | Voltage K = 1.8V±5% H = 2.5V±5% C = 3.3V±10% | Stability A = 100PPM B = 50PPM D = 25PPM E = 20PPM | Operating Temperature E = -10 to +70°C F = -20 to +70°C M = -40 to +85°C | Frequency |

*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}.



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

Sales
1-888-GET-2-FOX (1-888-438-2369)
or
1-239-693-0099
<http://www.FOXONLINE.com/repdisty>

Tech Support
<http://www.FOXONLINE.com/email>

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 | | |
| | Drawing Number: 101147 | | Size: A |
| | Part Number: | | Cage: 61429 |
| | Draftsperson: CMR | Approved: BEC | Revision Date: 10/10/2017 |

© Copyright 2017 Fox Electronics. All rights reserved

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Standard Clock Oscillators](#) category:

Click to view products by [Fox](#) manufacturer:

Other Similar products are found below :

[EP1400SJTSC-125.000M](#) [601137](#) [601252](#) [CSX750FBC-24.000M-UT](#) [CSX750FBC-33.333M-UT](#) [CSX750FCC-3.6864M-UT](#) [F335-12](#) [F335-25](#) [F535L-50](#) [DSC506-03FM2](#) [ASA-20.000MHZ-L-T](#) [ASA2-27.000MHZ-L-T](#) [ASA-25.000MHZ-L-T](#) [ASA-27.000MHZ-L-T](#) [ASV-20.000MHZ-LR-T](#) [ECS-2018-160-BN-TR](#) [EL13C7-H2F-125.00M](#) [EMK41H2H-26.000M](#) [MXO45HS-2C-66.6666MHZ](#) [NBXDBB017LN1TAG](#) [NBXHBA019LN1TAG](#) [SiT1602BI-22-33E-50.000000E](#) [SIT8003AC-11-33S-2.04800X](#) [SiT8256AC-23-33E-156.250000X](#) [SIT8918AA-11-33S-50.000000G](#) [SM4420TEV-40.0M-T1K](#) [SMA4306-TL-H](#) [F335-24](#) [F335-40](#) [F335-50](#) [F535L-10](#) [F535L-12](#) [F535L-16](#) [F535L-24](#) [F535L-27](#) [F535L-48](#) [PE7744DW-100.0M](#) [CSX750FBC-12.000M-UT](#) [CSX750FBC-20.000M-UT](#) [CSX-750FBC33333000T](#) [CSX750FBC-4.000M-UT](#) [CSX750FBC-7.3728M-UT](#) [CSX750FBC-8.000M-UT](#) [CSX-750FCC14745600T](#) [CSX750FCC-16.000M-UT](#) [CSX-750FCC40000000T](#) [CSX750FCC-4.000M-UT](#) [ASA-19.200MHZ-L-T](#) [ASA-22.000MHZ-L-T](#) [ASA2-26.000MHZ-L-T](#)