



**THE DATASHEET OF
XLH526100.000000I**



Features

- HCMOS Output
- Stabilities to ± 20 PPM
- Temperature Ranges from -40°C to $+85^{\circ}\text{C}$
- Supply Voltages: 1.8V, 2.5V, 3.3V, 5.0V

| 1.8V ELECTRICAL CHARACTERISTICS | |
|--|---|
| PARAMETERS | MAX (Unless otherwise noted) |
| Frequency Range (F_0) | 1.000 ~ 160 MHz |
| Temperature Range | |
| Storage (T_{STG}) | $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$ |
| Supply Voltage (V_{DD}) | $1.8\text{V} \pm 5\%$ |
| Input Current (I_{DD}) | |
| 1.000 ~ 32.000MHz | 5 mA |
| >32.000 ~ 70.000MHz | 10 mA |
| >70.000 ~ 120.000MHz | 15 mA |
| >120.000 ~ 160.000MHz | 30 mA |
| Standby Current | $10\mu\text{A}$ |
| Output Symmetry (50% V_{DD}) | 40 % ~ 60 % |
| Rise/Fall Time (20%~80% V_{DD} Levels) (T_R/T_F) | |
| 1.000 ~ 32.000MHz | 5 nS |
| >32.000 ~ 120.000MHz | 3.5 nS |
| >120.000 ~ 160.000MHz | 3 nS |
| Output Voltage (V_{OL}) | 20 % V_{DD} |
| (V_{OH}) | 80 % V_{DD} 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 |

FO5HS

(Former F510L, F540L, F530L, F550L)

5mm x 3.2mm
HCMOS SMD Oscillator



| Available Options by Stability & Operating Temp for 1.8V | | |
|--|----------------------------|-----------------------|
| Frequency Stability | Operating Temperature (°C) | Frequency Range (MHz) |
| ±100PPM ² | -10 ~ +70 | 1.000 ~ 160.000 |
| ±100PPM ² | -20 ~ +70 | 1.000 ~ 160.000 |
| ±100PPM ² | -40 ~ +85 | 1.000 ~ 160.000 |
| ±50PPM ² | -10 ~ +70 | 1.000 ~ 160.000 |
| ±50PPM ² | -20 ~ +70 | 1.000 ~ 160.000 |
| ±50PPM ² | -40 ~ +85 | 1.000 ~ 160.000 |
| ±25PPM ² | -10 ~ +70 | 1.000 ~ 160.000 |
| ±25PPM ² | -20 ~ +70 | 1.000 ~ 160.000 |
| ±25PPM ³ | -40 ~ +85 | 1.000 ~ 160.000 |
| ±20PPM ³ | -10 ~ +70 | 1.000 ~ 160.000 |
| ±20PPM ³ | -20 ~ +70 | 1.000 ~ 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, one-year aging, shock, and vibration.

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

| 2.5V ELECTRICAL CHARACTERISTICS | |
|--|------------------------------|
| PARAMETERS | MAX (Unless otherwise noted) |
| Frequency Range (F _O) | 1 ~ 160 MHz |
| Temperature Range | |
| Storage (T _{STG}) | -55°C ~ +125°C |
| Supply Voltage (V _{DD}) | 2.5V±5% |
| Input Current (I _{DD}) | |
| 1.000 ~ 32.000MHz | 7 mA |
| >32.000 ~ 50.000MHz | 12 mA |
| >50.000 ~ 125.000MHz | 26 mA |
| >125.000 ~ 160.000MHz | 35 mA |
| Standby Current (I _{ST}) | 10µA |
| Output Symmetry (50% V _{DD}) | |
| 1.000 ~ 50.000MHz | 45 % ~ 55 % |
| > 50.000 ~ 160.000MHz | 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 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} ≥ 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 | -10 ~ +70 | 1.000 ~ 160.000 |
| ±100PPM ² | -20 ~ +70 | 1.000 ~ 160.000 |
| ±100PPM ² | -40 ~ +85 | 1.000 ~ 160.000 |
| ±50PPM ² | -10 ~ +70 | 1.000 ~ 160.000 |
| ±50PPM ² | -20 ~ +70 | 1.000 ~ 160.000 |
| ±50PPM ² | -40 ~ +85 | 1.000 ~ 160.000 |
| ±25PPM ² | -10 ~ +70 | 1.000 ~ 160.000 |
| ±25PPM ² | -20 ~ +70 | 1.000 ~ 160.000 |
| ±25PPM ² | -40 ~ +85 | 1.000 ~ 160.000 |
| ±20PPM ³ | -10 ~ +70 | 1.000 ~ 160.000 |
| ±20PPM ³ | -20 ~ +70 | 1.000 ~ 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, one-year aging, shock, and vibration.

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

| 3.3V ELECTRICAL CHARACTERISTICS | |
|--|------------------------------|
| PARAMETERS | MAX (Unless otherwise noted) |
| Frequency Range (F ₀) | 1 ~ 170MHz |
| Temperature Range | |
| Storage (T _{STG}) | -55°C ~ +125°C |
| Supply Voltage (V _{DD}) | 3.3V±10% |
| Input Current (I _{DD}) | |
| 1.000 ~ 32.000MHz | 15 mA |
| >32.000 ~ 50.000MHz | 20 mA |
| >50.000 ~ 67.000MHz | 25 mA |
| >67.000 ~ 170.000MHz | 40 mA |
| Standby Current (I _{ST}) | 10µA |
| Output Symmetry (50% V _{DD}) | |
| 1.000 ~ 50.000MHz | 45 % ~ 55 % |
| >50.000 ~ 170.000MHz | 40 % ~ 60 % |
| Rise/Fall Time (10%~90%V _{DD} Levels) (T _R /T _F) | |
| 1.000 ~ 80.000MHz | 6 nS |
| >80.000 ~ 125.000MHz | 4 nS |
| >125.000 ~ 170.000MHz | 3 nS |
| Output Voltage (V _{OL}) | 10 % V _{DD} |
| (V _{OH}) | 90 % V _{DD} 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} ≥ 70%V _{DD} | Active |
| '0' Level V _{IL} ≤ 30%V _{DD} | High Z |

| Available Options by Stability & Operating Temp for 3.3V | | |
|--|----------------------------|-----------------------|
| Frequency Stability | Operating Temperature (°C) | Frequency Range (MHz) |
| ±100PPM ² | -10 ~ +70 | 1.000 ~ 170.000 |
| ±100PPM ² | -20 ~ +70 | 1.000 ~ 170.000 |
| ±100PPM ² | -40 ~ +85 | 1.000 ~ 170.000 |
| ±50PPM ² | -10 ~ +70 | 1.000 ~ 170.000 |
| ±50PPM ² | -20 ~ +70 | 1.000 ~ 170.000 |
| ±50PPM ² | -40 ~ +85 | 1.000 ~ 170.000 |
| ±25PPM ² | -10 ~ +70 | 1.000 ~ 170.000 |
| ±25PPM ² | -20 ~ +70 | 1.000 ~ 170.000 |
| ±25PPM ² | -40 ~ +85 | 1.000 ~ 170.000 |
| ±20PPM ³ | -10 ~ +70 | 1.000 ~ 170.000 |
| ±20PPM ³ | -20 ~ +70 | 1.000 ~ 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, one-year aging, shock, and vibration.

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

| 5.0V ELECTRICAL CHARACTERISTICS | |
|--|----------------------------------|
| PARAMETERS | MAX (Unless otherwise noted) |
| Frequency Range (F_o) | 1.0 ~ 50MHz |
| Temperature Range Storage (T_{STG}) | -55 ~ +125°C |
| Supply Voltage (V_{DD}) | 5.0V ± 10% |
| Input Current (I_{DD}) | 35 mA |
| Output Symmetry (50% V_{DD}) | 40% ~ 60% |
| Rise/Fall Time (10%~90% V_{DD} Levels) (T_R/T_F) | 10 nS |
| Output Voltage (V_{OL}) (V_{OH}) | 10% V_{DD} 90% V_{DD} Min |
| Output Load (HCMOS) | 15 pF |
| Start-up Time (T_S) | 10 mS |
| Output Disable Time ¹ | 100 nS |
| Output Enable Time ¹ | 10 mS |

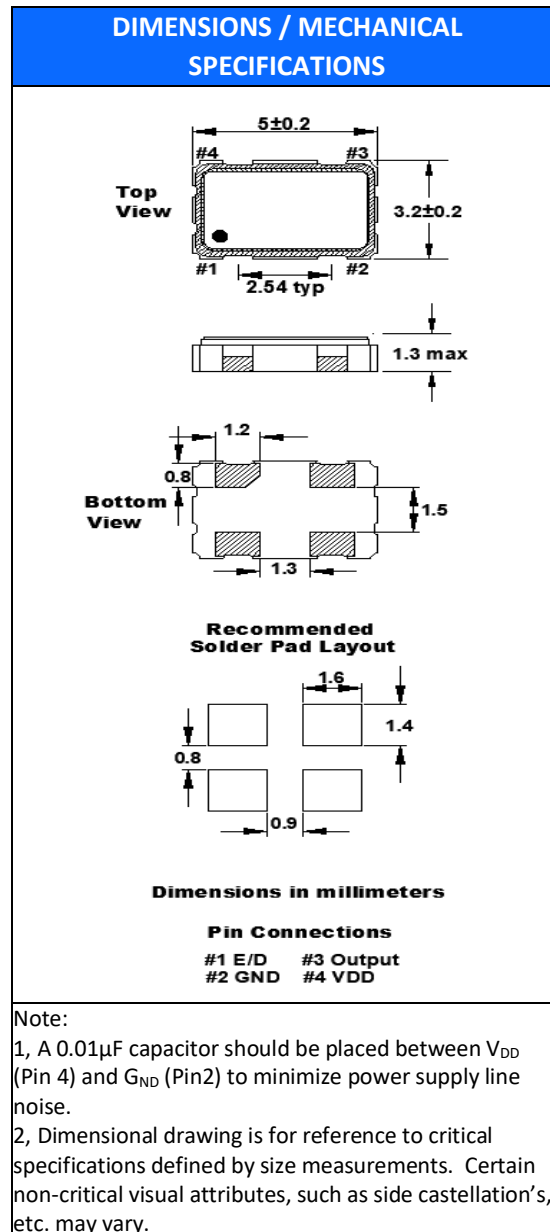
| ENABLE / DISABLE FUNCTION | |
|------------------------------------|----------------|
| Pin1 | Output (pin 3) |
| OPEN ¹ | Active |
| '1' Level $V_{IH} \geq 70\%V_{DD}$ | Active |
| '0' Level $V_{IL} \leq 30\%V_{DD}$ | High Z |

| Available Options by Stability & Operating Temp for 5.0V | | |
|--|----------------------------|-----------------------|
| Frequency Stability | Operating Temperature (°C) | Frequency Range (MHz) |
| ±100PPM ² | -10 ~ +70 | 1.0 ~ 50.000 |
| ±100PPM ² | -40 ~ +85 | 1.0 ~ 50.000 |
| ±50PPM ² | -10 ~ +70 | 1.0 ~ 50.000 |
| ±50PPM ² | -40 ~ +85 | 1.0 ~ 50.000 |
| ±25PPM ² | -10 ~ +70 | 1.0 ~ 50.000 |
| ±25PPM ³ | -40 ~ +85 | 1.0 ~ 50.000 |
| ±25PPM ³ | -10 ~ +70 | 1.0 ~ 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, one-year aging, shock, and vibration.

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



| STANDARD SPECIFICATIONS | |
|----------------------------------|-------------------------------------|
| PARAMETERS | MAX (Unless otherwise noted) |
| Maximum Soldering Temp / Time | 260°C / 10 Seconds x 2 |
| Moisture Sensitivity Level (MSL) | N/A |
| Termination Finish | Au (0.3~1μm) over Ni (1.27~8.89μm) |
| Seal Method | Seam |
| Lead (Pb) Free | Yes |
| ROHS Compliant | Yes |

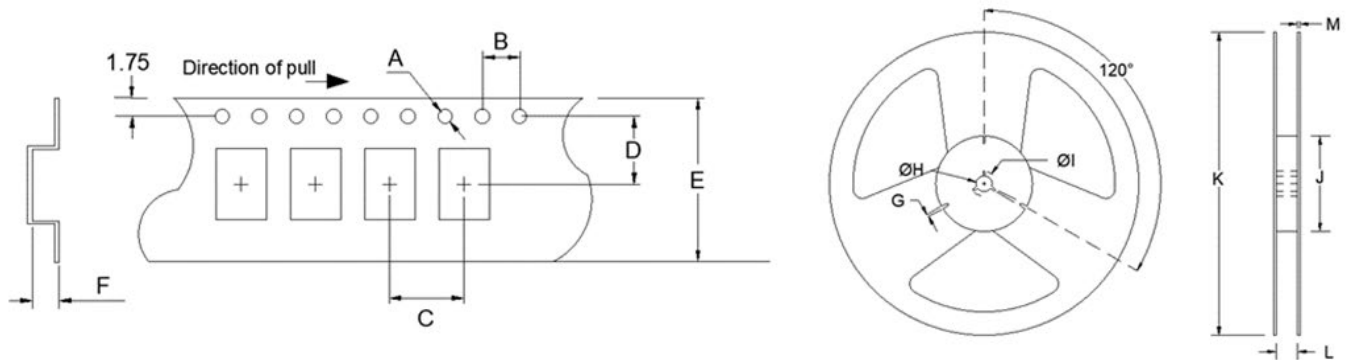
FO5HS

(Former F510L, F540L, F530L, F550L)

5mm x 3.2mm
HCMOS SMD Oscillator



| TAPE SPECIFICATIONS (mm) | | | | | | | REEL SPECIFICATIONS (mm) | | | | | | |
|--------------------------|-----|-----|-----|------|-----|-------------|--------------------------|-----|-----|-----|------|------|-----|
| A | B | C | D | E | F | REEL QTY | G | H | I | J | K | L | M |
| ø1.5 | 4.0 | 8.0 | 5.5 | 12.0 | 1.5 | -T1 = 1,000 | 2.0 | ø13 | ø21 | ø62 | ø180 | 13.5 | 2.0 |



Available Options & Part Identification*

Sample PN: **FO5HSCBM25.0-T1**

| F | O5HS | C | B | M | 25.0 | -T1 |
|------------|---------------------|---|--|---|------------------------|--|
| Fox | Model Number | Voltage K = 1.8V±5% H = 2.5V±5% C = 3.3V±10% A = 5.0V±10% | Stability A = ±100 PPM B = ±50 PPM D = ±25 PPM E = ±20 PPM | Operating Temperature E = -10 to +70°C F = -20 to +70°C M = -40 to +85°C | Frequency (MHz) | Values Added Options Blank = Bulk T1 = 1,000 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

Please contact Abracon Quality Assurance department

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