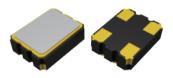
FUJI CRYSTAL

Crystal Oscillator, Series FCO-3K

SMD Crystal Oscillator 3.2×2.5 mm 32.768kHz

FEATURE

- Typical 3.2×2.5×0.95mm SMD package
- Tight symmetry (45 to 55%) available
- Operation voltage: 1.8V, 2.5V, 3.3V
- Tri-state enable / disable
- Built-in ASIC enables reduction of current consumption



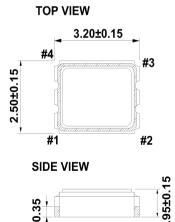
O ELECTRICAL SPECIFICATIONS

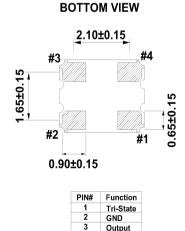
| | 3. | 3\/ | 2 | | | | |
|----------------------------------|--|--|---|---|---|--|--|
| | | 3.3V | | 2.5V | | 1.8V | |
| Parameter | | Max. | Min. | Max. | Min. | Max. | Unit |
| Supply Voltage Variation | | 3.63 | 2.25 | 2.75 | 1.62 | 1.98 | V |
| @ 15pF Load | - | 70 | - | 66 | - | 63 | uA |
| @ no load | - | 65 | - | 62 | - | 60 | |
| | 45 | 55 | 45 | 55 | 45 | 55 | % |
| Transition Time :Rise/Fall Time | | 50 | - | 50 | - | 50 | nSec |
| Out High(Logic"1") | 2.97 | | 2.25 | | 1.62 | | V |
| Out Low(Logic"0") | | 0.33 | | 0.25 | | 0.18 | |
| | - | 2 | - | 2 | - | 2 | mSec |
| Enable(High Voltage or floating) | 2.31 | - | 1.75 | - | 1.26 | - | V |
| Disable(Low Voltage or GND) | - | 0.99 | - | 0.75 | - | 0.54 | V |
| | - | ±3 | - | ±3 | - | ±3 | ppm |
| Storage Temp. Range | | 125 | -55 | 125 | -55 | 125 | °C |
| | @ no load ime Out High(Logic"1") Out Low(Logic"0") Enable(High Voltage or floating) Disable(Low Voltage or GND) | @ no load - @ no load 45 ime - Out High(Logic"1") 2.97 Out Low(Logic"0") - Enable(High Voltage or floating) 2.31 Disable(Low Voltage or GND) - | @ 15pF Load - 70 @ no load - 65 45 55 ime - 50 Out High(Logic"1") 2.97 0.33 Out Low(Logic"0") 0.33 - Particular - 2 Enable(High Voltage or floating) 2.31 - Disable(Low Voltage or GND) - 0.99 - ±3 -55 125 | @ 15pF Load - 70 - @ no load - 65 - 45 55 45 ime - 50 - Out High(Logic"1") 2.97 2.25 Out Low(Logic"0") 0.33 - Enable(High Voltage or floating) 2.31 - 1.75 Disable(Low Voltage or GND) - 9.99 - - ±3 - - - 55 125 -55 | @ 15pF Load - 70 - 66 @ no load - 65 - 62 45 55 45 55 ime - 50 - 50 Out High(Logic"1") 2.97 2.25 - 2 Out Low(Logic"0") - 0.33 0.25 - Imable(High Voltage or floating) 2.31 - 1.75 - Disable(Low Voltage or GND) - 0.99 - 0.75 -55 125 -55 125 125 | @ 15pF Load - 70 - 66 - @ no load - 65 - 62 - 45 55 45 55 45 45 ime - 50 - 50 - Out High(Logic"1") 2.97 2.25 1.62 Out Low(Logic"0") 0.33 0.25 - Enable(High Voltage or floating) 2.31 - 1.75 - Disable(Low Voltage or GND) - 0.99 - 0.75 - - ±3 - ±3 - ±3 - - 55 125 55 125 -55 55 | @ 15pF Load - 70 - 66 - 63 @ no load - 65 - 62 - 60 45 55 45 55 45 55 55 ime - 50 - 50 - 50 Out High(Logic"1") 2.97 2.25 1.62 0.18 Out Low(Logic"0") 0.33 0.25 0.18 Low - 2 - 2 - 2 Enable(High Voltage or floating) 2.31 - 1.75 - 1.26 - Disable(Low Voltage or GND) - 0.99 - 0.75 - 0.54 - ±3 - ±3 - ±3 - ±3 - 55 125 -55 125 -55 125 55 |

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

+ Transition times are measured between 10% and 90% of VDD, with an output load of 15pF.

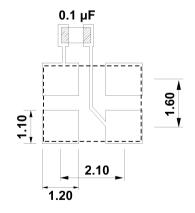
DIMENSION (mm)





VDD

SOLDER PAD LAYOUT(mm)



To ensure optimal oscillator performance, place a by-pass capacitor of 0.1μ F as close to the part as possible between Vdd and GND pads.

O FREQ. STABILITY vs. TEMP. RANGE

| ppm Temp. (°C) | ±20 | ±25 | ±40 | ±50 |
|-------------------|-----|-----|-----|-----|
| -10 ~ +60 | 0 | 0 | 0 | 0 |
| -20 ~ +70 | Δ | 0 | 0 | 0 |
| -40 ~ +85 | × | Δ | 0 | 0 |
| -40 ~ +125 | × | × | Δ | 0 |

Inclusive of calibration @ 25 °C, operating temperature range, input voltage variation, load variation, aging (1st year), shock, and vibration