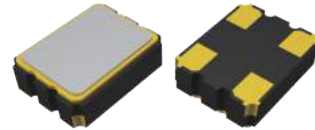


## Crystal Oscillator, Series FCO-3K

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



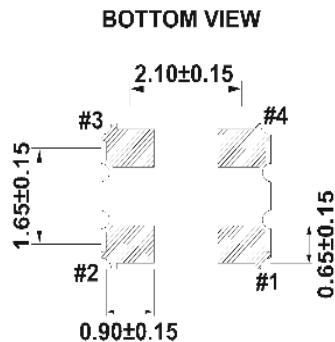
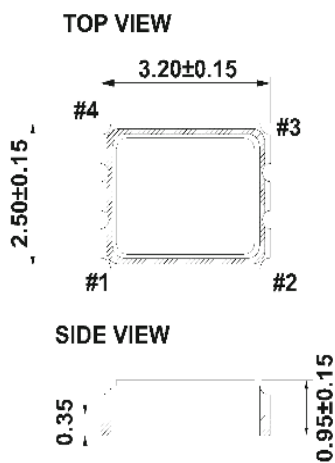
### ELECTRICAL SPECIFICATIONS

Item	Specifications						Unit	
	3.3V		2.5V		1.8V			
Parameter	Min.	Max.	Min.	Max.	Min.	Max.		
Supply Voltage Variation	2.97	3.63	2.25	2.75	1.62	1.98	V	
Supply Current	@ 15pF Load		-	70	-	66	-	uA
	@ no load		-	65	-	62	-	
Duty Cycle	45	55	45	55	45	55	%	
Transition Time :Rise/Fall Time	-	50	-	50	-	50	nSec	
Output Level	Out High(Logic"1")		2.97		2.25		1.62	
	Out Low(Logic"0")		0.33		0.25		0.18	
Startup Time	-	2	-	2	-	2	mSec	
Tri-State (Input to Pin 1)	Enable(High Voltage or floating)		2.31	-	1.75	-	1.26	-
	Disable(Low Voltage or GND)		-	0.99	-	0.75	-	0.54
Aging(@25 1st year)	-	±3	-	±3	-	±3	ppm	
Storage Temp. Range	-55	125	-55	125	-55	125	°C	

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

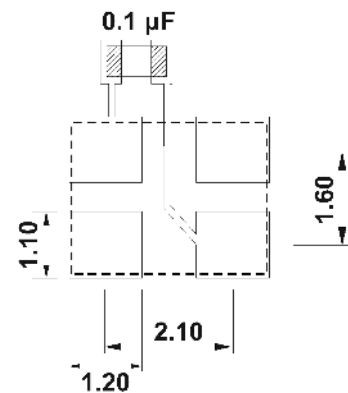
+ Transition times are measured between 10% and 90% of VDD, with an output load of 15pF.

### DIMENSION (mm)



PIN#	Function
1	Tri-State
2	GND
3	Output
4	VDD

### SOLDER PAD LAYOUT(mm)



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

### FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C) \ ppm	±20	±25	±40	±50
-10 ~ +60	○	○	○	○
-20 ~ +70	△	○	○	○
-40 ~ +85	×	△	○	○
-40 ~ +125	×	×	△	○

○: Available △: Conditional ×: Not available

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