



### Features and Benefits

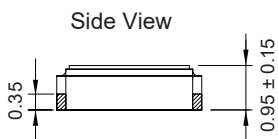
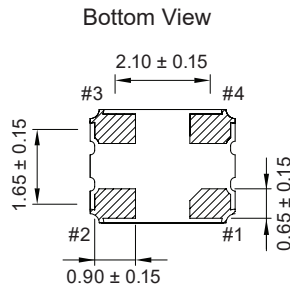
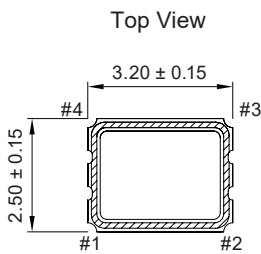
- Low Power Supply Voltage: 1.8V, 2.5V and 3.3V Supply Options
- Singled-end Output: CMOS
- Frequency: 32.768kHz
- Low Current Consumption: < 10µA
- Temperature Range: -40°C to 125°C Operation
- Pb-free/RoHS Compliant

### Typical Applications

- RTC Module
- Smartphone
- IoT
- Wearable Device--Watch, Medical

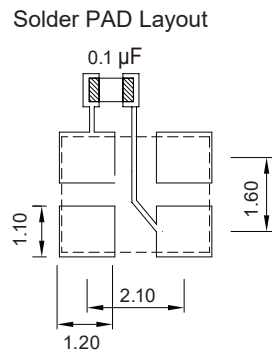
### Mechanical Drawing & Pin Connections

Drawing No: MD200006-1



Pin#	Function
1	Tri-state
2	GND
3	Output
4	VDD

Unit in mm  
1mm = 0.0394 inches



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.



**Specifications**

Specification	Conditon	3.3V		2.5V		1.8V		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation		VDD -10%	VDD +10%	VDD -5%	VDD +5%	VDD -5%	VDD +5%	V
Frequency Range		32.768						KHz
Supply Current (No Load)		-	10	-	10	-	10	uA
Output Loading (CMOS)		-	15	-	15	-	15	pF
Duty Cycle		45	55	45	55	45	55	%
Output Level	Output High	2.97	-	2.25	-	1.62	-	V
	Output Low	-	0.33	-	0.25	-	0.18	
Transition Rise/Fall Time		-	15	-	15	-	15	nSec
Start Time		-	20	-	20	-	20	mSec
Tri-State (Input to Pin2)	Enable	0.7xVDD	-	0.7xVDD	-	0.7xVDD	-	V
	Disable	-	0.3xVDD	-	0.3xVDD	-	0.3xVDD	
Standby Current		-	3	-	3	-	3	uA
Aging	@25°C 1 <sup>st</sup> year	-	±3	-	±3	-	±3	ppm
Storage Temp. Range		-55°C to +125°C						°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

**Frequency Stability vs. Temperature**

	±20PPM	±25PPM	±30PPM	±50PPM
-10°C to +60°C	Available	Available	Available	Available
-20°C to +70°C	Conditional	Available	Available	Available
-40°C to +85°C	Not Available	Conditional	Available	Available
-40°C to +105°C	Not Available	Not Available	Conditional	Available
-40°C to +125°C	Not Available	Not Available	Not Available	Available

Note: Inclusive of calibration @25°C, operating temperature range, input voltage variation, load variation, aging (1<sup>st</sup> year), shock and vibration.