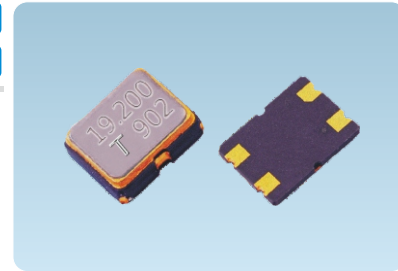


## TP2 TYPE

Typical 2.5 × 2.0 × 0.85 mm

Smaller Size



Crystal Oscillator

### Feature

- Typical 2.5 × 2.0 × 0.85 mm ceramic SMD package.
- Tight symmetry(45 to 55%) available.
- Operation voltage:1.8V,2.5V,3.3V.
- Packing:Tape & Reel,3000 pcs per Reel.

### Typical Application

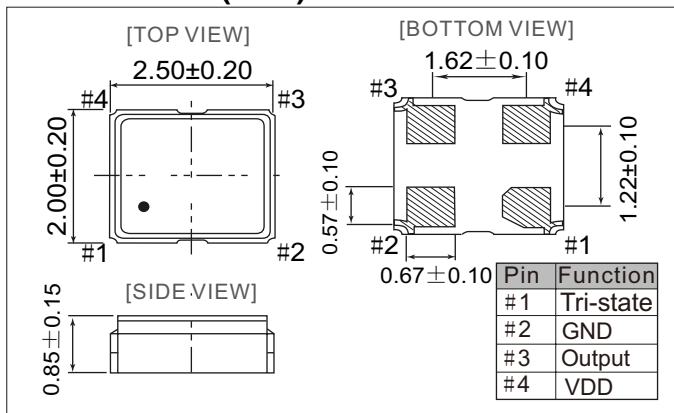
- Computer Peripherals
- DSC,PDA
- Set-top Box,HDTV

### Specifications

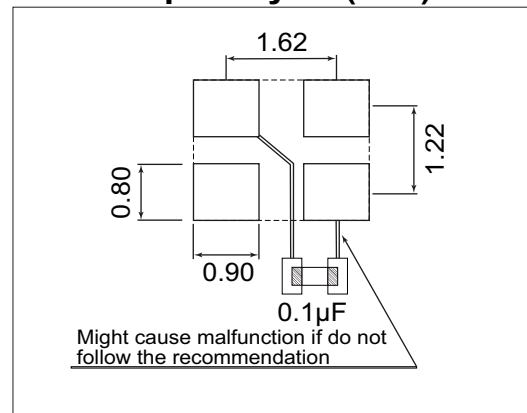
Parameter	3.3V		2.5V		1.8V		Unit
	Min	Max	Min	Max	Min	Max	
Supply Voltage Variation(VDD)	2.97	3.63	2.25	2.75	1.62	1.98	V
Frequency Range	2.048	200	2.048	166	2.048	110	MHz
VDD Sensitivity(± 10%)	-2	2	-2	2	-2	2	ppm
Supply Current							
1MHz≤Fo < 30MHz	-	10	-	8	-	6	mA
30MHz≤Fo < 75MHz	-	15	-	10	-	8	
75MHz≤Fo < 133MHz	-	20	-	15	-	12	
133MHz≤Fo < 166MHz	-	22	-	15	-	-	
166MHz≤Fo≤200MHz	-	25	-	-	-	-	
Duty Cycle	45	55	45	55	45	55	%
Output Level (CMOS)							
Output High (Logic "1")	90% V <sub>DD</sub>	-	90%V <sub>DD</sub>	-	90%V <sub>DD</sub>	-	V
Output Low (Logic "0")	-	10%V <sub>DD</sub>	-	10%V <sub>DD</sub>	-	10%V <sub>DD</sub>	
Transition Time: Rise/Fall Time*							
1MHz≤Fo < 10MHz	-	3	-	4	-	5	nSec
10MHz≤Fo	-	2	-	3	-	4	
Start Time	-	2	-	2	-	2	mSec
Tri-State(Input to Pin 1)							
Enable(High voltage floating)	0.7V <sub>DD</sub>	-	0.7V <sub>DD</sub>	-	0.7V <sub>DD</sub>	-	V
Disable(Low voltage or GND)	-	0.3V <sub>DD</sub>	-	0.3V <sub>DD</sub>	-	0.3V <sub>DD</sub>	
Absolute Clock Period Jitter							
Specific Frequency	-	40	-	40	-	40	pSec
Others	-	200	-	200	-	200	
Standby Current	-	15	-	15	-	15	µA
Aging (@25°C 1st year)	-	±3	-	±3	-	±3	ppm
Storage Temp.Range	-55	125	-55	125	-55	125	°C

\*Transition times are measures between 10% and 90% of VDD,With an output load of 15pF.  
Specific frequency including 4.0,6.0,8.0,12.0,13.0,16.0,19.2,20.0,24.0,26.0,32.0,and38.4MHz.

### Dimension(mm)



### Solder pad layout(mm)



### Frequency Stability Vs. Temperature Range

Temp.(°C)	Ppm	±20	±25	±50
-10 ~ +60	✓	✓	✓	✓
-20 ~ +70	+	✓	✓	✓
-40 ~ +85	×	✓	✓	✓

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

✓ Available + Conditional × Not Available

Q.C PASS

T1903A