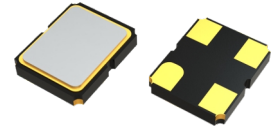


2.5 × 2.0 mm Ultra Low Power SMD Crystal Oscillator

Feature

- Typical 2.5 x 2.0 x 0.81 mm SMD package
- Singled-end Output: CMOS
- Ultra Low Power Supply Voltage: 0.9V, 1.2V, 1.5V
- Low Noise Typical: 0.3ps at 12kHz to 20MHz Frequency Offsets
- Temperature Range: -40 to 85°C Operation
- Pb-free/RoHS Compliant



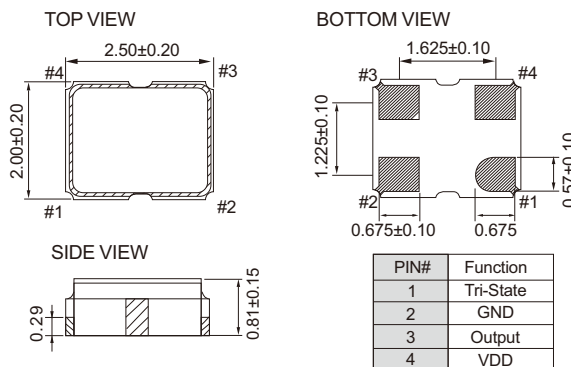
Electrical Specifications

Parameter		0.9V		1.2V		1.5V		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation		V _{DD} -5%	V _{DD} +5%	V _{DD} -5%	V _{DD} +5%	V _{DD} -5%	V _{DD} +5%	V
Frequency Range		1	50	1	50	1	50	MHz
Supply Current(At 15pF Load)		-	1.5	-	2	-	3	mA
Duty Cycle		45	55	45	55	45	55	%
Transition Time : Rise/Fall Time	1 MHz ≦ FO<10MHz	-	4	-	3	-	3	nSec
	10 MHz ≦ FO<20MHz	-	3	-	3	-	3	
	20 MHz ≦ FO<50MHz	-	2	-	2	-	2	
Output Level	Out High	0.9V _{DD}		0.9V _{DD}		0.9V _{DD}		V
	Out Low	0.1V _{DD}		0.1V _{DD}		0.1V _{DD}		
Startup Time		-	4	-	4	-	4	mSec
Tri-State (Input to Pin 1)	Enable	0.7V _{DD}		0.7V _{DD}		0.7V _{DD}		V
	Disable	0.3V _{DD}		0.3V _{DD}		0.3V _{DD}		
Period Jitter (Pk-Pk)		-	40	-	40	-	40	pSec
RMS Phase Jitter (integrated12KHz to 20MHz)		-	1	-	1	-	1	pSec
Phase Noise @24MHz @100KHz		-148		-150		-150		dBc/Hz
Standby Current		-	100	-	100	-	100	μA
Aging(@25 1st year)		-	±3	-	±3	-	±3	ppm
Storage Temp. Range		-55	125	-55	125	-55	125	°C

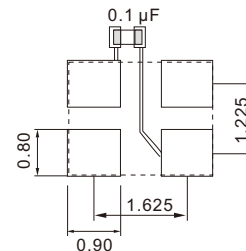
Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position

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

Dimension(mm)



Solder Pad Layout(mm)



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

FREQ. STABILITY vs. TEMP. RANGE

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

○: Available △: Conditional X: Not available

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