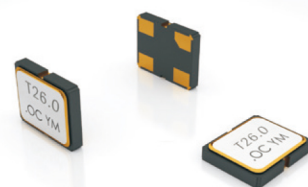


4.2 XO2520

2.5 x 2.0mm SMD CMOS Output Crystal Oscillator



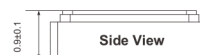
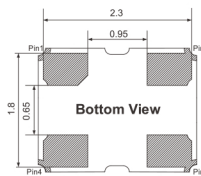
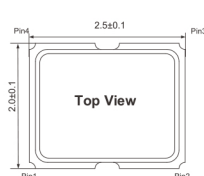
FEATURES

- Ultra Low Power Supply Voltage: 1.35-5.5V
- Low Noise Typical: 0.3 pS at 12 kHz ~ 20 MHz
Supply Options Frequency Offsets
- Singled-end Output: CMOS
- Temperature Range: -40 ~ 85°C Operation
- Frequency Support from 1 MHz to 50MHz
- Pb-free/RoHS Compliant

TYPICAL APPLICATION

- IoT
- Game Console
- Smartphone
- Wearable Device
- Digital Camera
- Digital Consumer Electronics

DIMENSIONS



Pin Connection

Name	Connection
pin 1	Tri - State
pin 2	GND
pin 3	Fout
pin 4	Vdd

ELECTRICAL SPECIFICATION

Parameter		3.3V		2.5V		1.8V		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD)		VDD-5%	VDD+5%	VDD-5%	VDD+5%	VDD-5%	VDD+5%	V
Frequency Range		1	125	1	125	1	125	MHz
Supply Current	At 15pF Load	—	25	—	25	—	20	mA
	No Load Condition, $1\text{MHz} \leq F_o < 10\text{MHz}$	—	1.0	—	1.0	—	0.75	mA
	No Load Condition, $10\text{MHz} \leq F_o < 20\text{MHz}$	—	1.0	—	1.0	—	0.75	mA
	No Load Condition, $20\text{MHz} \leq F_o < 80\text{MHz}$	—	1.3	—	1.3	—	1.0	mA
	No Load Condition, $80\text{MHz} \leq F_o < 125\text{MHz}$	—	6	—	6	—	3	mA
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 Time: Rise/Fall Time+	$1.25\text{MHz} \leq F_o < 10\text{MHz}$	—	4	—	3	—	3	nSec
	$10\text{MHz} \leq F_o < 20\text{MHz}$	—	3	—	3	—	3	nSec
	$20\text{MHz} \leq F_o < 80\text{MHz}$	—	2	—	2	—	2	nSec
Startup Time		—	4	—	4	—	4	mSec
Tri-State (Input to Pin2 or Pin1)	Enable (High Voltage or Floating)	0.7VDD	—	0.7VDD	—	0.7VDD	—	V
	Disable (Low Voltage or GND)	—	0.3VDD	—	0.3VDD	—	0.3VDD	

ELECTRICAL SPECIFICATION

Parameter		3.3V		2.5V		1.8V		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
Output Loading		15		15		15		pF
Stand by Current		—	100	—	100	—	100	uA
Aging (@25°C, 1st Year)		—	±3	—	±3	—	±3	ppm
Storage Temp. Range		-55	125	-55	125	-55	125	°C
Phase Noise(Typ.)		Typ.	Max.	Typ.	Max.	Typ.	Max.	
At VDD=1.2V, Fout=24MHz	1 kHz offset	-130	—	-133	—	-135	—	dBc/Hz
	10 kHz offset	-140	—	-143	—	-143	—	
	100 kHz offset	-148	—	-150	—	-150	—	
	1 MHz offset	-152	—	-155	—	-155	—	
Period Jitter(Pk-Pk)		—	40	—	40	—	40	pSec
RMS Phase Jitter(Integrated 12KHz ~ 20MHz)		—	1	—	1	—	1	pSec

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

+ Transition times are measured between 20% and 80% of VDD.

FREQ. STABILITY vs. TEMP. RANGE

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

*○: Available △: Condition X: Not available

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

Note: not all combination of options are available. Other specifications may be available upon request.

Specifications subject to change without notice.