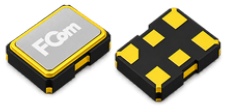
FCom Crystal Oscillator

Series FCO-6L-UJ



Differential Oscillator 2.0×1.6 mm

Feature

- Frequency support up to 220MHz
- Ultra low phase jitter: 40 fS, typ. RMS from 12kHz - 20MHz
- Tri-state enable/disable

Application

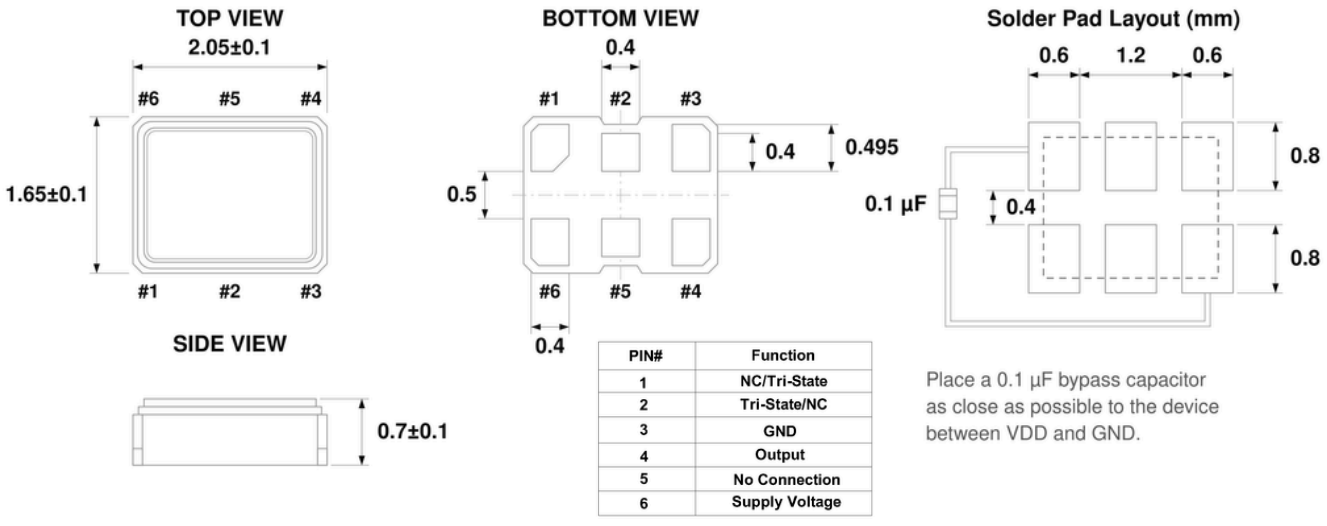
- 400Gbit/ 800Gbit/ 1.6Tbit Optical
- Module, Fiber Channel
- Network Equipment: Router, Switch
- Ethernet, MAN, SONET, Data Center
- Test Instrumentation

ELECTRICAL SPECIFICATIONS

Parameters		Symbol	LVPECL				Units	Notes	
			3.3V		2.5V				
			Min.	Max.	Min.	Max.			
Frequency Range		F	100~220				MHz		Test condition Ambient temperature: 25 ± 5°C Relative humidity: 40% ~ 70%
Standard Frequency		F(ST)	100, 125, 156.25, 212.5				MHz		
Supply Current		Icc	-	60	-	60	mA		
Transition Time	Rise Time	Tr	-	0.4	-	0.4	nSec	Measured from 20% ~ 80%	
	Fall Time	Tf	-	0.4	-	0.4			
Output Level		VoH	Vdd-1.105	Vdd-0.88	Vdd-1.105	Vdd-0.88	V	Output High	
		VoL	Vdd-1.81	Vdd-1.59	Vdd-1.81	Vdd-1.59	V	Output Low	
Tri-State Mode		VIH	70% Vdd	-	70% Vdd	-	V	Enable	
		VIL	-	30% Vdd	-	30% Vdd	V	Disable	
Phase Noise		PN	Typ.	Max.	Typ.	Max.	dBc/Hz	At VDD=3.3V, fout=156.25MHz	
10 kHz			-151		-151				
100 kHz			-158	-	-158				
1 MHz			-159	-	-159				
RMS Phase Jitter		PJ	40 Typ.	80 Max.	40 Typ.	80 Max.	fSec	Integrated 12 kHz~20 MHz @ 3.3V	
Duty Cycle		TH/T	45 ~ 55				%		
Stand by Current		Icc(ST)	-	10	-	10	μA		
Output Load		RL	50Ω, VDD – 2V				/		
Start-up Time		Tosc	2				mSec	Max	
Aging		ppm/yr	±3				ppm/yr	1st. Year at 25°C	

Note : The table shows common spec. if you have special spec. requirement , please feel free to contact our salesperson.

DIMENSION(mm)



PIN#	Function
1	NC/Tri-State
2	Tri-State/NC
3	GND
4	Output
5	No Connection
6	Supply Voltage

Place a 0.1 μF bypass capacitor as close as possible to the device between VDD and GND.

Parameters	Symbol	LVDS						Units	Notes	
		3.3V		2.5V		1.8V				
		Min.	Max.	Min.	Max.	Min.	Max.			
Frequency Range	F	100~220						MHz		
Standard Frequency	F(ST)	100, 125, 156.25, 212.5						MHz		
Supply Current	Icc	-	20	-	20	-	20	mA		
Transition Time	Tr	-	0.5	-	0.5	-	0.5	nSec	Measured from 20% ~ 80%	
	Tf	-	0.5	-	0.5	-	0.5			
Output Level	VoH	-	1.6	-	1.6	-	1.6	V		
	VoL	0.9	-	0.9	-	0.9	-	V		
Tri-State Mode	VIH	70% Vdd	-	70% Vdd	-	70% Vdd	-	V	Enable	Test condition Ambient temperature: 25 ± 5°C Relative humidity: 40% ~ 70%
	VIL	-	30% Vdd	-	30% Vdd	-	30% Vdd	V	Disable	
Phase Noise	PN	Typ.	Max.	Typ.	Max.	Typ.	Max.	dBc/Hz	At VDD=3.3V, fout=156.25MHz	
10 kHz		-147		-147		-146				
100 kHz		-156	-	-156		-156				
1 MHz		-158	-	-158		-158				
RMS Phase Jitter	PJ	40 Typ.	70 Max.	40 Typ.	70 Max.	40 Typ.	70 Max.	fSec	Integrated 12 kHz~20 MHz @ 3.3V	
Duty Cycle	TH/T	45 ~ 55						%		
Stand by Current	Icc(ST)	10						µA	Max	
Output Load	RL	100Ω (Between OUT & OUTN)						Ω		
Start-up Time	Tosc	-	2	-	2	-	2	mSec		
Aging	ppm/yr	±3						ppm/yr	1st. Year at 25°C	

Note : The table shows common spec. if you have special spec. requirement , please feel free to contact our salesperson.

Parameters	Symbol	HCSL						Units	Notes	
		3.3V		2.5V		1.8V				
		Min.	Max.	Min.	Max.	Min.	Max.			
Frequency Range	F	100~220						MHz		
Standard Frequency	F(ST)	100, 125, 156.25, 212.5						MHz		
Supply Current	Icc	-	38	-	38	-	32	mA		
Transition Time	Tr	-	0.6	-	0.6	-	0.6	nSec	Measured from 20% ~ 80%	
	Tf	-	0.6	-	0.6	-	0.6			
Output Level	VoH	0.55	0.9	0.55	0.9	0.5	1.0	V		
	VoL	-0.15	0.15	-0.15	0.15	-0.15	0.15	V		
Tri-State Mode	VIH	70% Vdd	-	70% Vdd	-	70% Vdd	-	V	Enable	Test condition Ambient temperature: 25 ± 5°C Relative humidity: 40% ~ 70%
	VIL	-	30% Vdd	-	30% Vdd	-	30% Vdd	V	Disable	
Phase Noise	PN	Typ.	Max.	Typ.	Max.	Typ.	Max.	dBc/Hz	At VDD=3.3V, fout=156.25MHz	
10 kHz		-152		-152		-152				
100 kHz		-157	-	-157		-157				
1 MHz		-160	-	-160		-160				
RMS Phase Jitter	PJ	40 Typ.	70 Max.	40 Typ.	70 Max.	50 Typ.	80 Max.	fSec	Integrated 12 kHz~20 MHz @ 3.3V	
Duty Cycle	TH/T	45 ~ 55						%		
Stand by Current	Icc(ST)	10						µA	Max	
Output Load	RL	50 to GND						Ω		
Start-up Time	Tosc	-	2	-	2	-	2	mSec		
Aging	ppm/yr	±3						ppm/yr	1st. Year at 25°C	

Note : The table shows common spec. if you have special spec. requirement , please feel free to contact our salesperson.

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C) \ ppm	± 20	± 25	± 50	± 100
@-20~70°C	○	○	○	○
@-40~85°C	△	○	○	○
@-40~105°C	×	×	○	○
@-40~125°C	×	×	△	○

○: Available △: Conditional ×: Not available

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