

VA-M Type High Frequency up to 1.5GHz

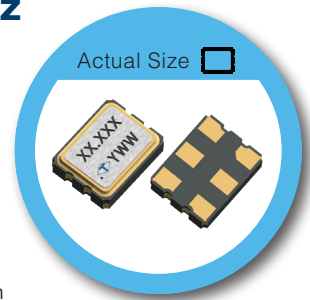
3.2 x 2.5 mm SMD Differential Output Crystal Oscillator

FEATURE

- Low power supply voltage: 3.3, 2.5 supply options
- Differential output : LVPECL, LVDS
- Frequency support from 10MHz to 1.5GHz
- Low phase jitter typical: 0.6 ps RMS from 12kHz to 20MHz
- Wide frequency control range - Pb-free/RoHS compliant
- Tri-state enable/disable function - Temperature range: -40 to 85 °C operation

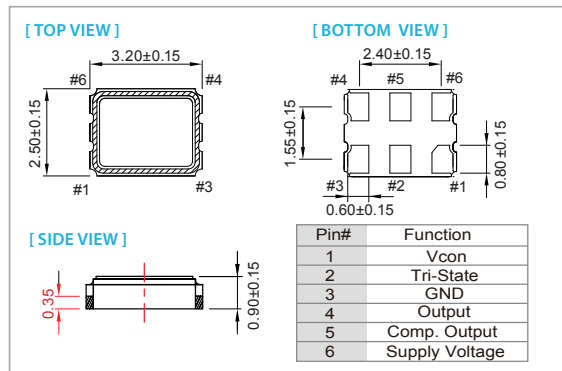
TYPICAL APPLICATION

- High-Speed Gigabite Ethernet, Fiber Channel, Storages Area Network, SONET
- Enterprise Server, SAS/SATA - Microprocessors/DSP/FPGA
- Broadband Access - Smart Grid

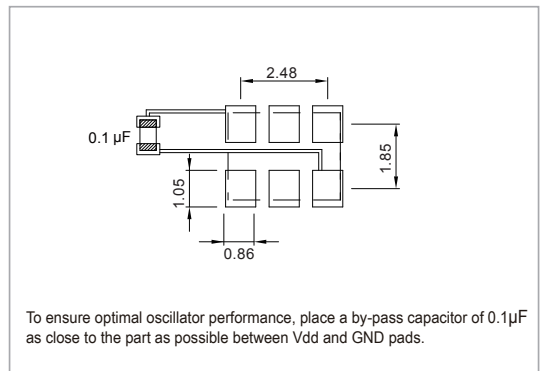


RoHS Compliant

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

Parameter	LVPECL				LVDS				unit		
	3.3 V		2.5 V		3.3 V		2.5 V				
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			
Supply Voltage Variation (VDD)	VDD-10%	VDD+10%	VDD-5%	VDD+5%	VDD-10%	VDD+10%	VDD-5%	VDD+5%	V		
Frequency Range	10	1500	10	1500	10	1500	10	1500	MHz		
Supply Current	-	50	-	45	-	45	-	35	mA		
Output Level	Output High	2.27	2.7	1.47	1.9	-	1.6	-	1.6	V	
	Output Low	1.45	1.7	0.65	0.9	0.9	-	0.9	-		
Transition Time (10%-90%)	Rise Time / Fall Time	-	1.0	-	1.0	-	1.0	-	1.0	nSec	
		-	-	-	-	-	-	-	-	-	
Duty Cycle		45	55	45	55	45	55	45	55	%	
Startup Time		-	10	-	10	-	10	-	10	mSec	
Tri-State mode (Input to Pin 2)	Enable	0.7 x VDD	-	0.7 x VDD	-	0.7 x VDD	-	0.7 x VDD	-	V	
	Disable	-	0.3 x VDD	-	0.3 x VDD	-	0.3 x VDD	-	0.3 x VDD		
Stand by Current		-	18	-	18	-	18	-	18	mA	
Output Loading		50Ω into VDD-2V				100Ω					
Phase Noise	At VDD=3.3V, f _{out} =250MHz	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	dBc/Hz	
		1kHz offset	-107	-	-107	-	-107	-	-107		-
		10kHz offset	-111	-	-111	-	-111	-	-111		-
		100kHz offset	-114	-	-114	-	-114	-	-114		-
		1MHz offset	-125	-	-125	-	-125	-	-125		-
		20MHz offset	-147	-	-147	-	-147	-	-147		-
RMS Phase Jitter (12kHz to 20MHz)(Fractional mode)	0.8	1.5	0.8	1.5	0.8	1.5	0.8	1.5	pSec		
RMS Phase Jitter (12kHz to 20MHz)(Integer mode)	0.6	1.2	0.6	1.2	0.6	1.2	0.6	1.2	pSec		
Parameter	Control Voltage Function on Pin 1				unit						
	3.3 V		2.5 V								
Control Voltage Center	1.65		1.25		V						
Control Voltage Range	0.3	3	0.25	2.25							
Frequency Pulling Range	±50	±150	±50	±150	ppm						
Linearity	5	10	5	10	%						
Modulation Bandwidth	10	-	10	-	kHz						
VC Input Impedance	1	-	1	-	MΩ						

FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm	±25	±50
-10 ~ +60		○	○
-20 ~ +70		○	○
-40 ~ +85		△	○
-40 ~ +105		×	△

* ○: Available △: Conditional 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.