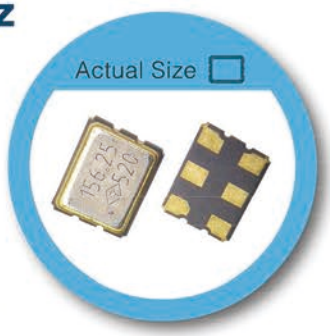
VA-M Type High Frequency up to 1.5GHz
3.2 x 2.5 mm SMD Differential Output Crystal Oscillator



RoHS Compliant

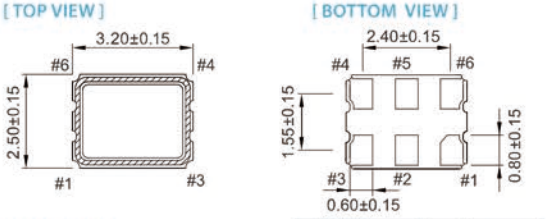
FEATURE

- 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: 0.8 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

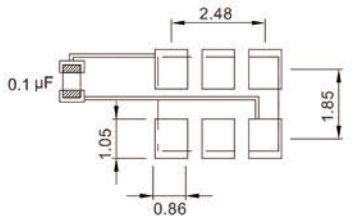
- High-Speed Gigabite Ethernet, Fiber Channel, Storages Area Network, SONET
- Enterprise Server, SAS/SATA
- Microprocessors/DSP/FPGA
- Broadband Access
- Smart Grid

DIMENSION (mm)



Pin#	Function
1	VC
2	Tri-State
3	GND
4	Output
5	No Connection
6	Supply Voltage

SOLDER PAD LAYOUT (mm)



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

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 (V_{DD})			V_{DD}-10%	V_{DD}+10%	V_{DD}-5%	V_{DD}+5%	V_{DD}-10%	V_{DD}+10%	V_{DD}-5%	V_{DD}+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	–	V
Transition Time (10%-90%)	Rise Time / Fall Time		–	0.3	–	0.3	–	0.5	–	0.5	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 V_{DD}	–	0.7 x V_{DD}	–	0.7 x V_{DD}	–	0.7 x V_{DD}	–	V
		Disable	–	0.3 x V_{DD}	–	0.3 x V_{DD}	–	0.3 x V_{DD}	–	0.3 x V_{DD}	
Stand by Current			–	18	–	18	–	18	–	18	mA
Output Loading			50Ω into V_{DD}-2V				100Ω				
Phase Noise			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	
At VDD=3.3V, fout=250MHz		1kHz offset	-107	–	-107	–	-107	–	-107	–	dBc/Hz
		10kHz offset	-111	–	-111	–	-111	–	-111	–	dBc/Hz
		100kHz offset	-114	–	-114	–	-114	–	-114	–	dBc/Hz
		1MHz offset	-125	–	-125	–	-125	–	-125	–	dBc/Hz
		20MHz offset	-147	–	-147	–	-147	–	-147	–	dBc/Hz
RMS Phase Jitter (12kHz to 20MHz)			0.8	1.5	0.8	1.5	0.8	1.5	0.8	1.5	pSec

Parameter	Control Voltage Function on Pin 1				unit
	3.3 V		2.5 V		
	Min.	Max.	Min.	Max.	
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	%
Linearity	5	10	5	10	ppm
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	△	○

* ○: 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.

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