

VA-M Type

3.2 x 2.5 mm SMD CMOS Output Voltage Controlled Crystal Oscillator

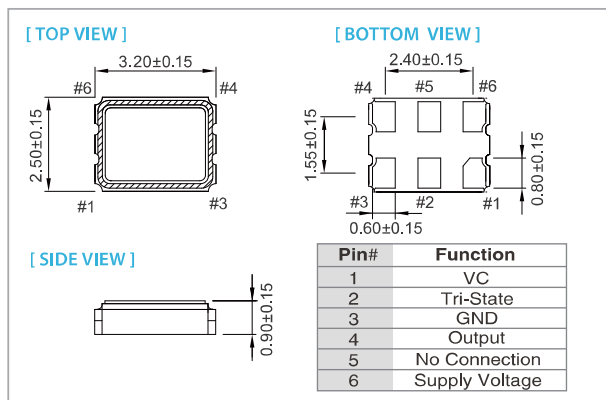
FEATURE

- Low power supply voltage: 3.3, 2.5 supply options
- Singled-end output : CMOS
- Frequency support from 10MHz to 250MHz
- Low phase jitter typical: 0.8 ps RMS from 12kHz to 20MHz
- Wide frequency control range - Tri-state enable/disable function
- Temperature range: -40 to 85 °C operation
- Pb-free/RoHS compliant

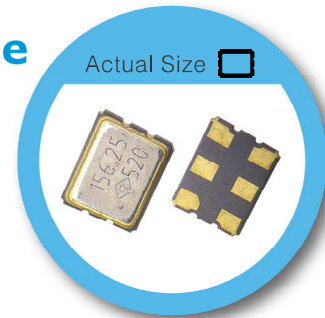
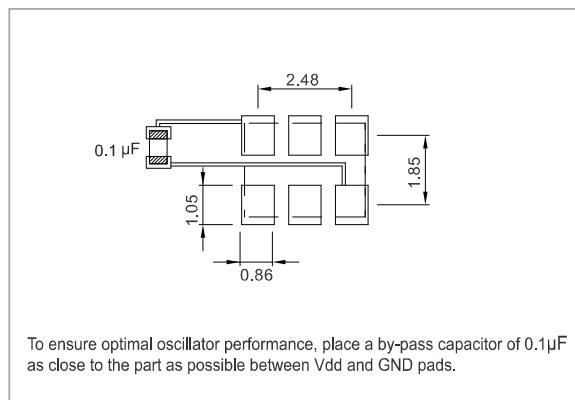
TYPICAL APPLICATION

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

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



RoHS Compliant

ELECTRICAL SPECIFICATION

Parameter	CMOS				unit
	3.3 V		2.5 V		
	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD)	VDD-10%	VDD+10%	VDD-5%	VDD+5%	V
Frequency Range	10	250	10	250	MHz
Supply Current	—	50	—	45	mA
Output Level	Output High	2.97	—	2.25	V
	Output Low	—	0.33	—	0.25
Transition Time (10%-90%)	Rise Time / Fall Time		—	1.0	nSec
			—	1.0	nSec
Duty Cycle	45	55	45	55	%
Startup Time	—	10	—	10	mSec
Tri-State mode (Input to Pin 2)	Enable	0.7 x VDD	—	0.7 x VDD	V
	Disable	—	0.3 x VDD	—	0.3 x VDD
Stand by Current	—	18	—	18	mA
Output Loading (10MHz to 200MHz)	—	15	—	15	pf
Output Loading (200MHz to 250MHz)	—	5	—	5	pf
Phase Noise	Typ.	Max.	Typ.	Max.	
	At VDD=3.3V, f _{out} =250MHz				
	1kHz offset	-107	—	-107	dBc/Hz
	10kHz offset	-111	—	-111	dBc/Hz
	100kHz offset	-114	—	-114	dBc/Hz
	1MHz offset	-125	—	-125	dBc/Hz
	20MHz offset	-147	—	-147	dBc/Hz
RMS Phase Jitter (12kHz to 20MHz)	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	V
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	△	○

* ○ : 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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