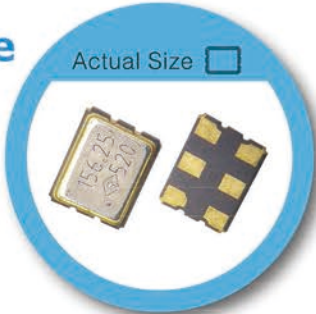


VA-M Type

3.2 x 2.5 mm SMD CMOS Output Voltage Controlled Crystal Oscillator



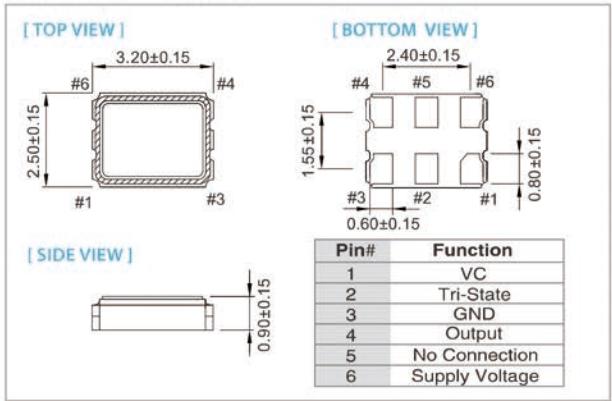
FEATURE

- 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

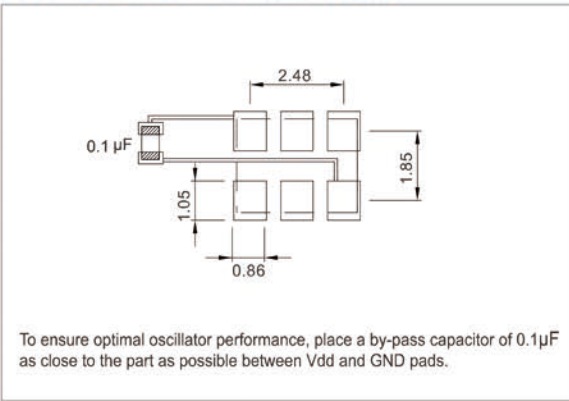
TYPICAL APPLICATION

- 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)



ELECTRICAL SPECIFICATION

Parameter		CMOS				unit
		3.3 V		2.5 V		
		Min.	Max.	Min.	Max.	
Supply Voltage Variation (V _{DD})		V _{DD} -10%	V _{DD} +10%	V _{DD} -5%	V _{DD} +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	V
Transition Time (10%-90%)	Rise Time / Fall Time	—	1.0	—	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 V _{DD}	—	0.7 x V _{DD}	—	V
	Disable	—	0.3 x V _{DD}	—	0.3 x V _{DD}	
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 V _{DD} =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	
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.

Rev(1)06/2018

Specifications subject to change without notice.