



# MONITOR PRODUCTS COMPANY INC

## SM990 M SM991 M SM992

Ultra-Miniature, Ceramic, Surface Mount, Tristate HCMOS Oscillators

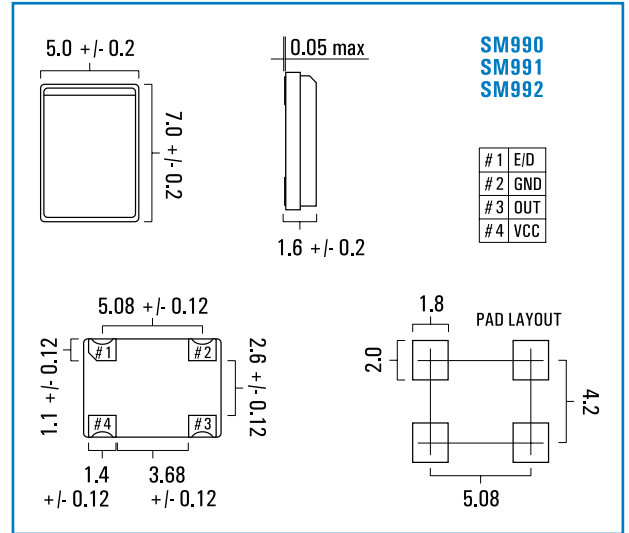
Monitor Products' SM990 Series provides miniature, surface mount oscillators in highly reliable packages that can be reflow soldered at 260°C for 10 seconds, and are available in convenient tape and reel packaging.

### APPLICATIONS

- M PDAs
- M ATM
- M PCMCIA
- M Laptops
- M Controller Boards
- M Wireless RF
- M Networking
- M Disk & Tape Drives
- M Cameras

### FEATURES

- M Low profile (1.6mm)
- M TTL/CMOS compatible
- M Hermetically-sealed, ceramic package
- M Tristate enable/disable
- M Reflow solderable at 260°C for 10 secs
- M 16mm tape & reel (500 pcs/reel)



### ELECTRICAL SPECIFICATIONS

	SM990	SM991	SM992
Frequency Range	1.5 ~ 66.666 MHz	1.5 ~ 106.25 MHz	1.8432 ~ 106.25 MHz
Frequency Stability	± 100 ppm standard (± 50 ppm available)		
Oper Temp Range	01C ~ 701C standard (call for additional temperature ranges)		
Load Capacitance	50 pF	15 pF	15 pF
Supply Voltage	5.0V DC ± 0.5V	5.0V DC ± 0.5V	3.3V DC ± 0.3V
Input Current	1.5 ~ 20.0 MHz: 20 mA max 20.1 ~ 50.0 MHz: 35 mA max 50.1 ~ 66.666 MHz: 60 mA max	1.5 ~ 30.0 MHz: 10 mA max 30.1 ~ 35.0 MHz: 15 mA max 35.1 ~ 66.0 MHz: 30 mA max 66.1 MHz & up : 50 mA max	1.5 ~ 20.0 MHz: 10 mA max 20.1 ~ 50.0 MHz: 20 mA max 50.1 MHz & up : 25 mA max
Disabled Current	10 µA max	10 µA max	8 µA max
Symmetry	55/45% at 1/2 Vcc max		
Rise and Fall Time	10 nS max		
Start Up Time	5 mS max		
Logic 0 Level	Vcc X 0.1V max		
Logic 1 Level	Vcc X 0.9V min		
E/D Phase Delay	100 nS max		
Phase Jitter RMS	50 ps max		

Need all these features with ± 25ppm stability? Ask about our SM996 & SM997 oscillators.

Monitor Products Company Inc reserves the right to make changes to its products and product specifications without notice. No liability is assumed as a result of their use or application.

## MONITOR PRODUCTS COMPANY INC

Designers and manufacturers of quality frequency control devices since 1927



### CORPORATE OFFICE / FACTORY

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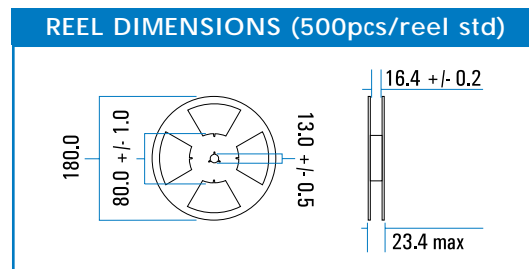
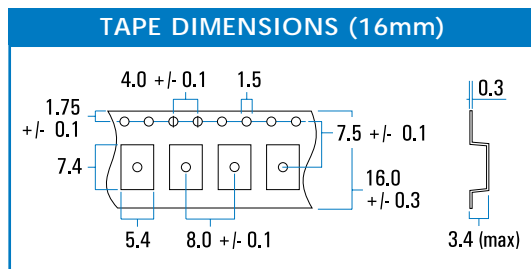
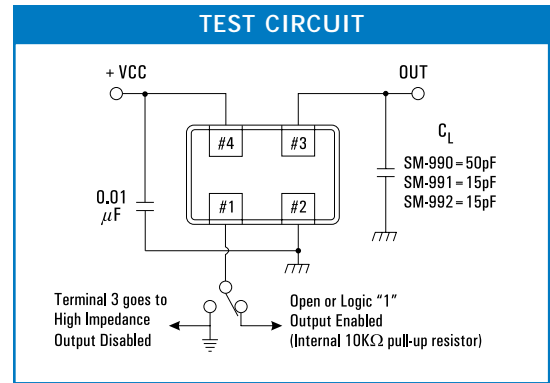
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ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

Operating Temp Range	-101C ~ 701C Standard
Storage Temp Range	-551C ~ 1251C
Vibration	MIL-STD-202F Method 204, 35G, 50 to 2000 Hz
Shock	MIL-STD-202F Method 213B Test Cond E, 1000G, 1/2 Sine Wave
Humidity	85% RH, 851C, 48 Hours
Hermetic Seal	Leak Rate $2 \times 10^{-8}$ ATM-cm <sup>3</sup> /sec max
Solderability	MIL-STD-202F Method 208E
Reflow Solderability	2601C for 10 seconds
MIL-0-55310	Exceeds environmental and electrical specifications of equivalent MIL-0-55310
Packaging	16mm Tape & Reel (500pcs/reel) or Bulk (< 500pcs)



Units : mm

HOW TO ORDER

	SM990 SERIES	SYMMETRY	FREQUENCY STABILITY	TEMPERATURE RANGE	PACKAGING	FREQUENCY
	SM990 = 5.0V, 50pF SM991 = 5.0V, 15pF SM992 = 3.3V, 15pF	21 = 55/45 %	B = 100 ppm* C = 50 ppm	2 = 01C ~ 701C* 3 = -201C ~ 701C 5 = -401C ~ 851C	A = Bulk (< 500pcs) E = Tape & Reel* (500pcs/reel)	
Sample Part Numbers						
SM99021B2E @ 14.31818 MHz =	SM990	21	B	2	E	14.31818
SM99121B5E @ 66.666 MHz =	SM991	21	B	5	E	66.666
SM99221C2A @ 48.933 MHz =	SM992	21	C	2	A	48.933

\* Standard

Call factory for additional options. Use full descriptive part number when ordering. Parts will be marked with series and frequency only.

Monitor Products has a proven track record as a pioneer manufacturer in the frequency control market. If our extensive selection of standard and engineered crystals and oscillators does not meet your spec, we will work with you towards a customized solution.

Monitor Products is one of over 90 wholly-owned subsidiaries of Bowthorpe plc, an international technology group focused on the design, development, manufacture and marketing of specialist electronic products ([www.bowthorpe.com](http://www.bowthorpe.com)).

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