



MONITOR PRODUCTS COMPANY INC

SM990 M SM991 M SM992

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

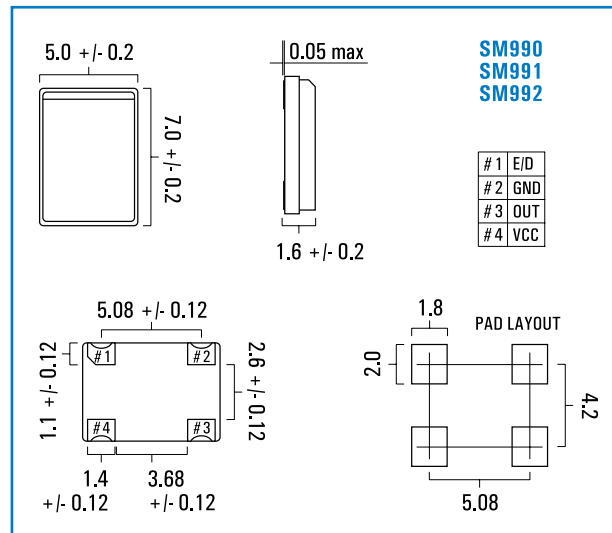
Monitor Products' SM990 Series provides miniature, surface mount oscillators in highly reliable packages that can be reflow soldered at 260°C for 10 seconds, and are available in convenient tape and reel packaging.

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	0°C ~ 70°C 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 0.1 V max		
Logic 1 Level	Vcc X 0.9 V 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

[11-01-99]

A BOWTHORPE company



CORPORATE OFFICE / FACTORY

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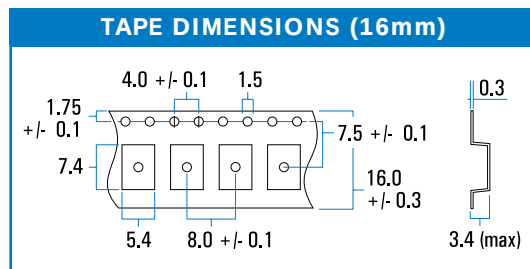
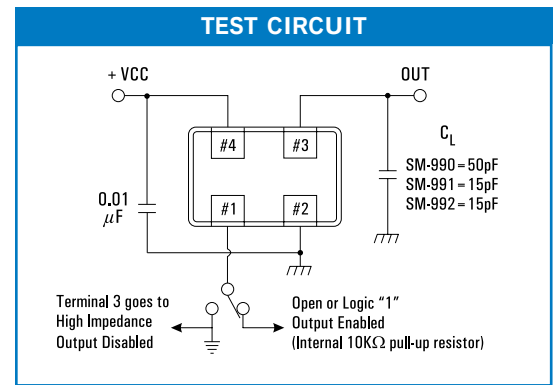
Regional Sales Office

3415 Custer Road, Suite 117, Plano, TX 75023
Tel: 972 758-8687 Fax: 972 758-7574

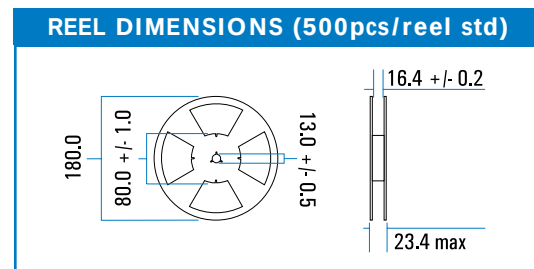
www.monitor-products.com


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 2×10^{-8} ATM-cm ³ /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).

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