MONITOR

Designing and manufacturing innovative frequency control devices since 1927

Miniature, Surface Mount Crystal Crystals

SM55

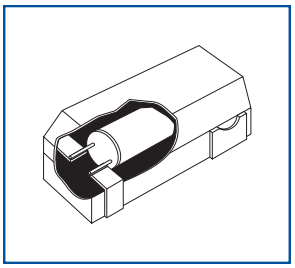
Monitor Products' SM55 provides a miniature crystal in a highly reliable package that is specifically designed for surface mount applications. The inner hermetically-sealed construction ensures long-term stability and aging characteristics.

APPLICATIONS

- Communication equipment
- Computers & peripherals
- Measuring instrumentation
- Disk & Tape Drives
- Cameras

FEATURES

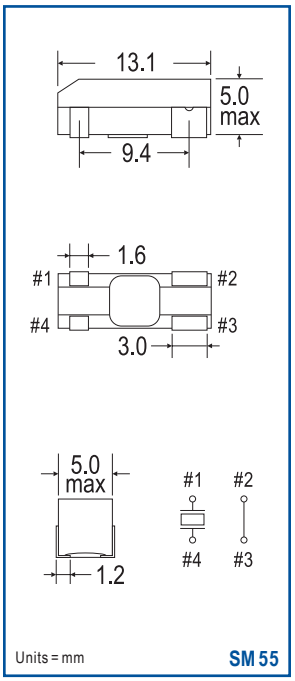
- Double construction for high reliability
- Low power consumption
- Reflow solderable at 260°C for 10 secs
- 24mm tape & reel (1000 pcs/reel) available



ELECTRICAL SPECIFICATIONS

Frequency Range	**(Fundamental)** 3.579545 ~ 29.4912 MHz **(Overtone)** 32.0 ~ 70.0 MHz	
Calibration Tolerance	±100 ppm @ 25°C std (±50 ppm avail)	
Frequency Tolerance vs Temperature Range	±100 ppm from -10°C to 70°C	
Operating Temp Range	-10°C ~ 70°C	
Equivalent Series Resistance (MHz = Ω)	3.5 ~ 4.0 = 250 4.0 ~ 5.0 = 150 5.0 ~ 6.0 = 120 6.0 ~ 7.0 = 100	7.0 ~ 9.0 = 80 9.0 ~ 13.0 = 60 13.0 ~ 32.0 = 50 32.0 ~ 70.0 = 100 **
Drive Level	100.0 μW max	
Shunt Capacitance	7.0 pF	

** Call for your specific frequency requirement* ***3rd Overtone*



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.

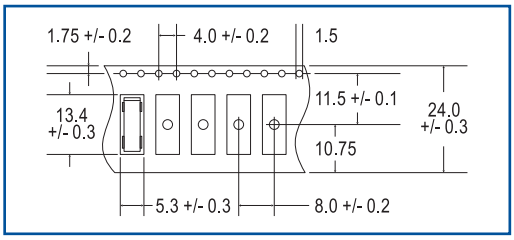
07-02-01

MONITOR PRODUCTS COMPANY INC
502 VIA DEL MONTE, OCEANSIDE, CA 92054 **TEL:** 760.433.4510 **FAX:** 760.434.0255
WWW.MONITOR-PRODUCTS.COM

SM55

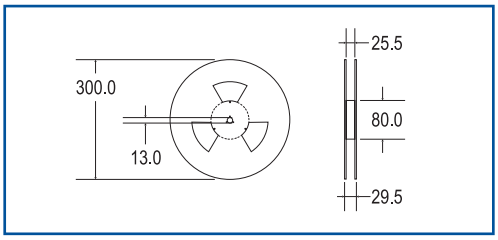
ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

Operating Temperature Range	-101C ~ 701C Standard
Storage Temperature Range	-551C ~ 1251C
Vibration	MIL-STD-202 Method 204, 35G, 50 to 2000 Hz
Shock	MIL-STD-202 Method 213B Test Cond E, 1000G, 1/2 Sine Wave
Humidity	85% RH, 851C, 48 Hours
Hermetic Seal	Leak Rate 2 x 10^{-8} ATM-cm^3/sec max
Solderability	MIL-STD-202 Method 208
Reflow Solderability	2601C for 10 seconds
Packaging	24mm Tape & Reel (1000pcs/reel) or Bulk (<1000pcs)



TAPE DIMENSIONS (24mm)

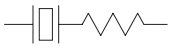
Units : mm



REEL DIMENSIONS (1000 pcs/reel)

CRYSTAL CORRELATION THEORY

Series Resonance:
At series resonance, the crystal looks resistive in the circuit, and correlation of frequency is not a problem. It must be specified if unit is to be manufactured at series or at a particular load capacitance.



$$F_s = \frac{1}{2\pi\sqrt{L_1 C_1}}$$

Anti-Resonance Parallel:
Crystals operating at anti-resonance will look inductive in the circuit. Changes of reactive values in the circuit will change the crystal frequency. If the crystal is to be used at anti-resonance, the load capacitance should always be specified. The load capacitance C_L is the dynamic capacitance of the total circuit as measured across the crystal terminals.

$$F_p = \frac{1}{2\pi}\sqrt{\frac{C_1 + C_0}{L_1 C_1 C_0}}$$

PART NUMBERING KEY

SM55	CORRELATION	MODE	CALIBRATION TOLERANCE @ 251C	TEMPERATURE RANGE	PACKAGING	FREQUENCY (MHz)
	M = 15 pF N = 20 pF* S = Series Resonant X = Customer Spec	1 = Fundamental 7 = 3rd Overtone	B = 100 ppm* C = 50 ppm	7 = -101C~701C	A = Bulk (<1000pcs) E = Tape & Reel* (1000pcs/reel) X = Customer spec	

Sample Part Number

SM55NIB7E @ 4.0 MHz =

SM55	N	1	B	7	E	4.0

* Standard

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

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