

# MV Series

## 14 DIP, 5.0 Volt, HCMOS/TTL, VCXO

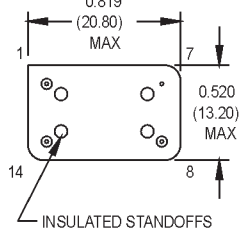
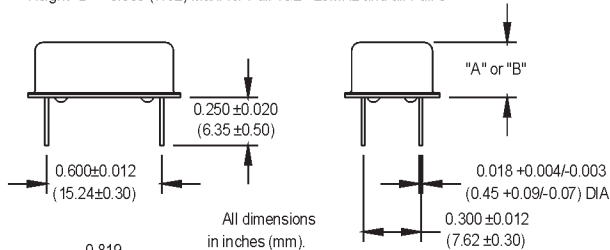


### Ordering Information

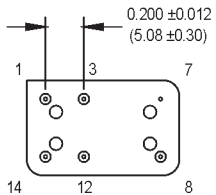
Product Series	MV	1	3	V	2	C	D	-R	00.0000	MHz		
Temperature Range	1: 0°C to +70°C		2: -40°C to +85°C		3: ±100 ppm		4: ±50 ppm		5: ±35 ppm		6: ±25 ppm	
Stability	1: ±1000 ppm		2: ±500 ppm		3: ±100 ppm		4: ±50 ppm		5: ±35 ppm		6: ±25 ppm	
Output Type	V: Voltage Controlled		T: Tristate		1: ±50 ppm min.		2: ±100 ppm min.		3: ±200 ppm min. ("B" package only)			
Pull Range (Vc = .5 to 4.5V)	1: ±50 ppm min.		2: ±100 ppm min.		3: ±200 ppm min. ("B" package only)							
Symmetry/Logic Compatibility	A: 40/60 CMOS/TTL		C: 45/55 HCMOS									
Package/Lead Configurations	D: DIP; Nickel Header		G: Gull Wing; Nickel Header									
RoHS Compliance	Blank: non-RoHS compliant part		-R: RoHS compliant part									
Frequency (customer specified)												

- General purpose VCXO for Phase Lock Loops (PLLs), Clock Recovery, Reference Signal Tracking, and Synthesizers
- Frequencies up to 160 MHz
- Tri-state Option Available

Height "A" = 0.200 (5.08) Max. for Pull 1&2 < 25 MHz  
 Height "B" = 0.300 (7.62) Max. for Pull 1&2 > 25MHz and all Pull 3



OPTIONAL 6-PIN PACKAGE WITH TRISTATE



### Pin Connections

PIN	FUNCTION
1	Control Voltage
3	Tristate (6-Pin Pkg. Only)
7	Ground
8	Output
12	N/C (6-Pin Pkg. Only)
14	+Vdd

\*Contact factory for availability  
 M3002Sxxx - Contact factory for datasheet.

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	1.5		160	MHz	See Note 1
Operating Temperature	T <sub>a</sub>	(See Ordering Information)				
Storage Temperature	T <sub>s</sub>	-55		125	°C	
Frequency Stability	ΔF/F	(See Ordering Information)				
Aging						
1st Year		-3/-5		+3/+5	ppm	< 52 MHz / ≥ 52 MHz
Thereafter (per year)		-1/-2		+1/+2	ppm	< 52 MHz / ≥ 52 MHz
Pullability		(See Ordering Information)				
Control Voltage	V <sub>c</sub>	0.5	2.5	4.5	V	Over control voltage
Linearity				10	%	Positive Monotonic Slope
Modulation Bandwidth	f <sub>m</sub>	10			kHz	
Input Impedance	Z <sub>in</sub>	50k			Ohms	
Input Voltage	V <sub>dd</sub>	4.75	5	5.25	V	
Input Current	I <sub>dd</sub>		25	40	mA	1.5 to 24.999 MHz
			35	60	mA	25 to 69.999 MHz
			55	90	mA	70 to 160 MHz
Output Type						HCMOS/TTL
Load						See Note 2
		10 TTL or 50 pF				1.5 to 54.999 MHz
		5 TTL or 15 pF				55 to 160 MHz
Symmetry (Duty Cycle)		(See Ordering Information)				
Logic "1" Level	V <sub>oh</sub>	90% V <sub>dd</sub>			V	HCMOS load
		V <sub>dd</sub> - 0.5			V	TTL load
Logic "0" Level	V <sub>ol</sub>			10% V <sub>dd</sub>	V	HCMOS load
				0.5	V	TTL load
Rise/Fall Time	Tr/Tf				ns	See Note 4
1.5 to 54.999 MHz				6 / 10	ns	TTL/HCMOS
55 to 160 MHz				1.5 / 5	ns	TTL/HCMOS
Tri-state Function		Input Logic "1" or floating: output active				
		Input Logic "0": output disables to high-Z				
Start up Time				10	ms	
Phase Jitter	φ <sub>J</sub>				ps RMS	Integrated 12 kHz - 20 MHz
@ 38.88 MHz			0.3	1	ps RMS	Integrated 12 kHz - 20 MHz
@ 155.52 MHz			10	15	ps RMS	Offset from carrier
Phase Noise (Typical)		10 Hz	100 Hz	1 kHz	10 kHz	100 kHz
@ 38.88 MHz		-71	-104	-134	-151	-153
@ 155.52 MHz		-62	-93	-113	-115	-114

1. Frequencies above 90 MHz utilize a PLL design. Fundamental and PLL designs are available for other frequencies. Contact factory.
2. TTL load – see load circuit diagram #1. HCMOS load – see load circuit diagram #2
3. Symmetry is measured at 1.4 V with TTL load, and at 50% with HCMOS load.
4. Rise/Fall times are measured between 0.5 V and 2.4 V for TTL load, and between 10% V<sub>dd</sub> and 90% V<sub>dd</sub> for HCMOS load.
5. Maximum Wave Soldering Conditions: +260°C for 10 secs.

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