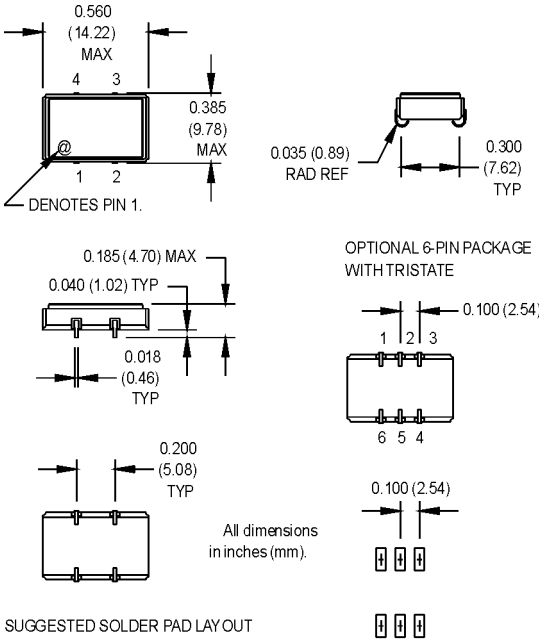
M3V Series
9x14 mm, 3.3 Volt, HCMOS/TTL, VCXO

- HCMOS/TTL output to 160 MHz and excellent jitter (2.1 ps typ.) in a SMT package
- Phase-Locked Loops (PLL's), Clock Recovery, Reference Signal Tracking, Synthesizers, Frequency Modulation/Demodulation



Ordering Information

M3V 1 3 V 2 C J -R 00.0000 MHz

- **Product Series**
- **Temperature Range**
  - **1:** 0°C to +70°C
  - **2:** -40°C to +85°C
  - **6:** -20°C to +70°C
- **Stability**
  - **1:** ±1000 ppm
  - **2:** ±500 ppm
  - **3:** ±100 ppm
  - **4:** ±50 ppm
  - **5:** ±35 ppm
  - **6:** ±25 ppm
  - ***8:** ±20 ppm
- **Output Type**
  - **V:** Voltage Controlled
  - **T:** Tristate
- **Pull Range (Vc = 0.3 to 3.0 V)****
  - **1:** ±50 ppm min.
  - **2:** ±80 ppm min.
- **Symmetry/Logic Compatibility**
  - **A:** 40/60 CMOS/TTL
  - **C:** 45/55 CMOS
- **Package/Lead Configurations**
  - **J:** J Lead
- **RoHS Compliance**
  - **Blank:** non-RoHS compliant part
  - **-R:** RoHS compliant part
- **Frequency (customer specified)**

*Contact factory for availability.
**Other pull ranges available. Contact factory.

Pin Connections

FUNCTION	4 Pin Pkg.	6 Pin Pkg.
Control Voltage	1	1
Tristate		2
Circuit/Case Ground	2	3
Output	3	4
N/C		5
+Vdd	4	6

Electrical Specifications

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	1.544		160	MHz	See Note 1
Operating Temperature	TA	(See Ordering Information)				
Storage Temperature	Ts	-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/APR		(See Ordering Information)				Over control voltage
Control Voltage	Vc	0.3	1.65	3.0	V	
Linearity				10	%	Positive Monotonic Slope
Modulation Bandwidth	fm	10			kHz	
Input Impedance	Zin	50k			Ohms	
Input Voltage	Vdd	3.135	3.3	3.465	V	
Input Current	Idd			20		1.544 to 24 MHz
				55	mA	24.001 to 96 MHz
				65	mA	96.001 to 160 MHz
Output Type						HCMOS/TTL
Load						See Note 2
1.544 to 60 MHz		10 TTL or 50 pF				
60.001 to 160 MHz		5 TTL or 30 pF				
Symmetry (Duty Cycle)		(See Ordering Information)				See Note 3
Logic "1" Level	Voh	90% Vdd			V	HCMOS load
		Vdd -0.5			V	TTL Load
Logic "0" Level	Vol			10% Vdd	V	HCMOS load
				0.5	V	TTL load
Rise/Fall Time	Tr/Tf		3	10	ns	See Note 4
Tristate Function		Input Logic "1" or floating: output active Input Logic "0": output disables to high-Z				
Start up Time			4		ms	
Phase Jitter @ 155.52 MHz	ϕJ		3	5	ps RMS	Integrated 12 kHz - 20 MHz
Phase Noise (Typical)	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	Offset from carrier
@ 155.52 MHz	-60	-90	-112	-123	-120	dBc/Hz

1. Frequencies above 70 MHz utilize a PLL design. Fundamental and PLL designs are available at other frequencies. Contact factory for availability.
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% Vdd with HCMOS load.
4. Rise/Fall times are measured between 0.5 V and 2.4 V with TTL load, and between 10% Vdd and 90% Vdd with HCMOS load.

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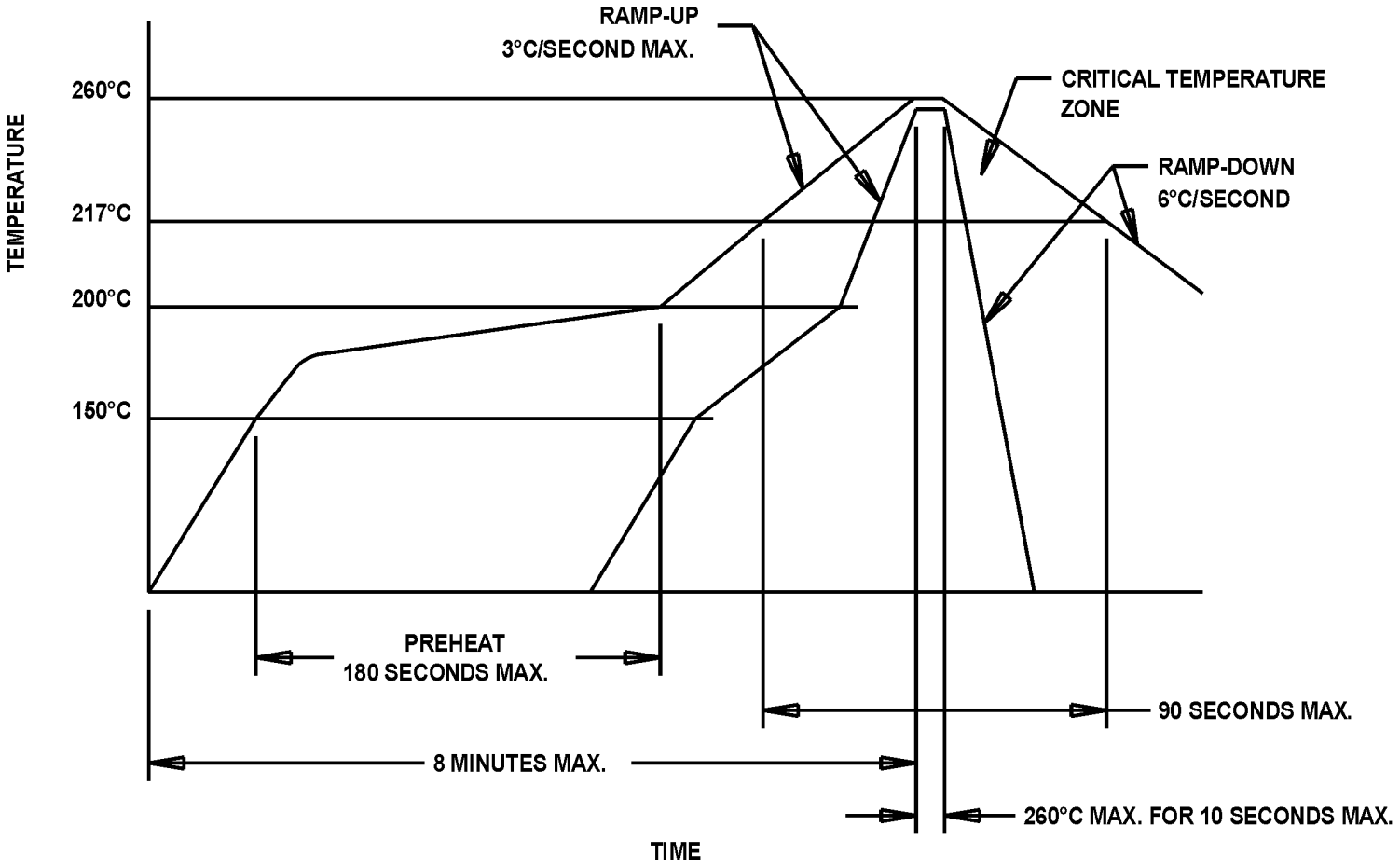
MtronPTI Lead Free Solder Profile



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Please see **www.mtronpti.com** for our complete offering and detailed datasheets. Contact us for your application specific requirements: MtronPTI **1-800-762-8800.**