

Features

- Ultra High Stability MCXO
- Low Power Consumption
- Up to 105°C in preparation
- Meets Stratum 3 acc. GR-1244
- ROHS 6 Compliant
- Frequency Range¹: 8 - 50 MHz
- Standard Frequencies : 10, 12.8, 16.384, 19.2, 20, 22.1184, 24.576, 25, 38.4, 40 MHz
- Uses Vectron's Ultra Smooth Compensation (USC) Algorithm
- Excellent Phase Noise and Allan Deviation

Applications

- Communication Equipment
- 1588 Application
- Test Equipment
- Radio Applications

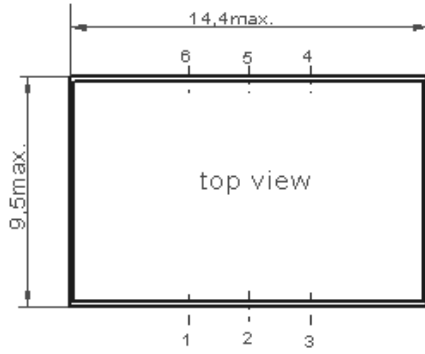
Performance Specifications

Frequency Stabilities ^{1,3} (Standard - 8 to 26 MHz)						
Parameter	Min	Typical	Max	Units	Condition ²	Options ³
vs. operating temperature range referenced to (dFmax+dFmin)/2	-20		+20	ppb	-20 to +70°C	
	-30		+30	ppb	-40 to +85°C	
	-100		+100	ppb	-40 to +105°C	
In a 24h period at constant temperature	-5		+5	ppb	after 7 days of continuous operation	
Frequency vs. temperature slope		±1.0		ppb/°C	-30 to +80°C, 10 & 20MHz	
		±1.5		ppb/°C	-40 to +85°C, 10 & 20MHz	
Initial tolerance	-0.5		+0.5	ppm	V _s ±5% static Load ±10% static after 30 days of operation after 30 days of operation	
vs. supply voltage change	-10		+10	ppb		
vs. load change	-10		+10	ppb		
vs. aging / 1. year	-0.8		+0.8	ppm		
vs. aging / 10 years	-2.5		+2.5	ppm		

Performance Specifications

Supply Voltage (V _s)					
Parameter	Min	Typical	Max	Units	Condition ²
Supply Voltage (standard)	3.135	3.3	3.465	V	8 - 50MHz
Current Consumption			12	mA	
Supply Voltage (Option)	4,75	5	5.25	V	
Current Consumption			8	mA	
RF Output					
Signal [standard]	HCMOS				
Load		15		pF	
Signal Level (Vol)			0.3	V	V _s = 3.3V
Signal Level (Voh)	3			V	V _s = 3.3V
Duty Cycle	45		55	%	@ V _s /2
Rise and Fall time			5	ns	10 to 90 %
Frequency Tuning (EFC) 8 to 26 MHz					
Tuning Range	Fixed frequency; No adjust				Option ³
Tuning Range	±3.0		+10	ppm	
Linearity			2	%	10 & 20MHz
Tuning Slope	Positive				
Control Input Impedance	20			kOhm	
Control Voltage (V _c) Range	0.0	1.65	3.3	V	@ 3.3V
	0.5	2.5	4.5	V	@ 5V
Additional Parameters					
Phase Noise ⁴		-65 -93 -118 -140 -154 -156		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	1 Hz 10 Hz 100 Hz 1 kHz 10 kHz 100 kHz @ 20MHz
ADEV			80	E-12	@ 1sec.
			80	E-12	@10sec
Weight			2.0	g	
Processing & Packing	Handling & Processing Note				
Reflow Profile	IPC / JEDEC J-STD-020 (latest version)				
Absolute Maximum Ratings					
Supply Voltage (V _s)	-0.6		6.0	V	
Output Load			50	pF	
Operable Temperature Range	-40		+85	°C	
Storage Temperature Range	-40		+90	°C	
Environmental Conditions					
Rapid Temperature Changes	MIL-883-1010 Cond B 500 cycles -55/125C				
Vibration	MIL-STD-883 Meth 2007 Cond A 20G 20-2000Hz 4x in each 3axis 4 min				
Shock	MIL-STD-202 Meth 213B Cond. F; 1500g 0,5ms 6 shocks in each direction				
Solderability	J_STD_002C Cond A, Through hole device/ Cond. B, SMD 255C (diving time 50,5sec.) Dip+Look with 8h damp pre-treatment: solder wetting >95%				
Solvent Resistance	MIL-STD-883 Meth 2015 Solv. 1,3,4				
ESD	JESD22-A114F Class 1B; 10* 2000V				
Moisture Sensitivity	Level 1 JESD22-A113-B				
RoHS Compliance	100% ROHS 6 Compliant				
MSL Level	MSL 1				

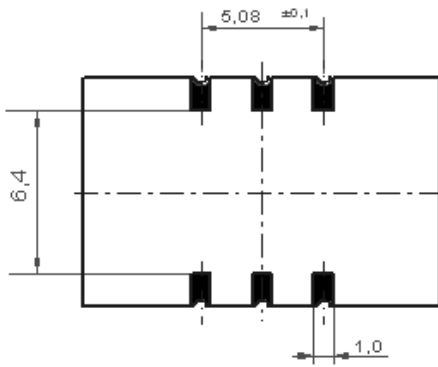
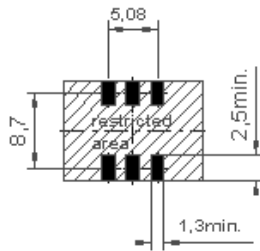
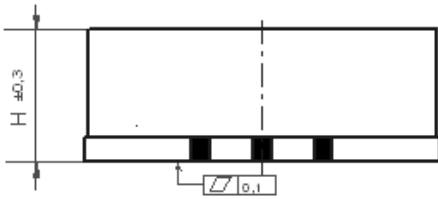
Outline Drawing / Enclosure



G 287

MX-503	
Height "H"	Pin Length "L"
3.8	NA

Pin Connections	
1	Control Voltage Input (Vc) / N.C.
2	N.C.
3	Ground (Case)
4	RF-Output
5	N.C.
6	Supply Voltage Input (Vs)



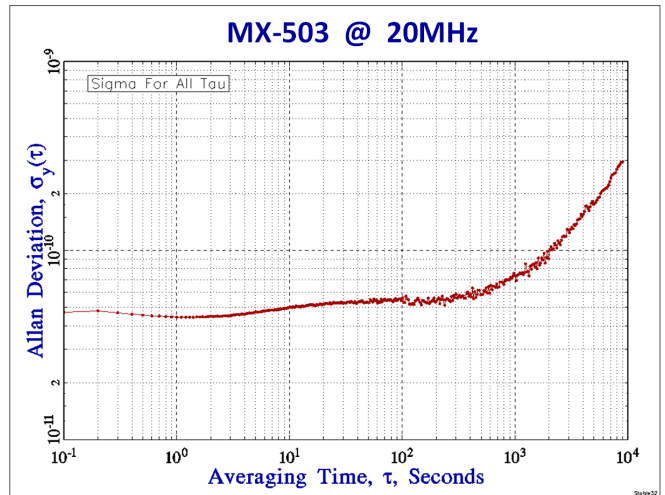
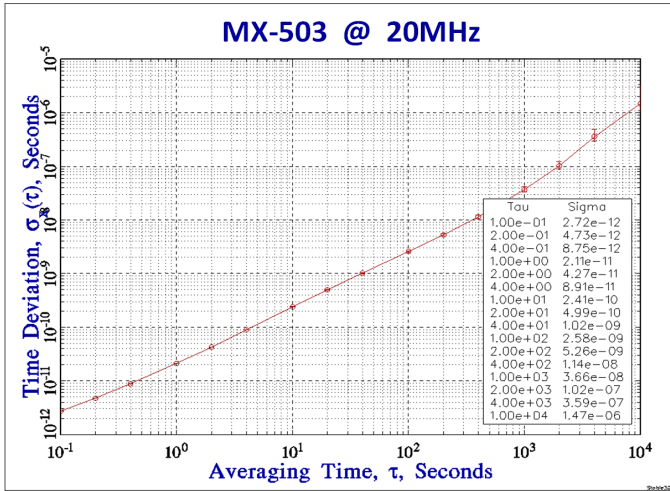
Padvorschlag
land pattern
recommendation

Dimensions in mm

Performance Data

TDEV-without filter

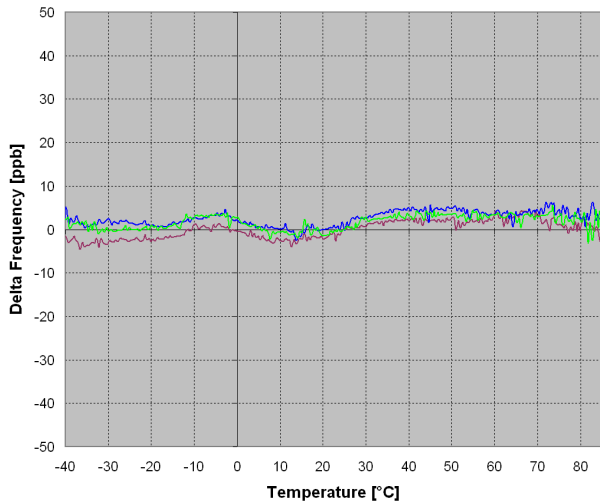
ADEV



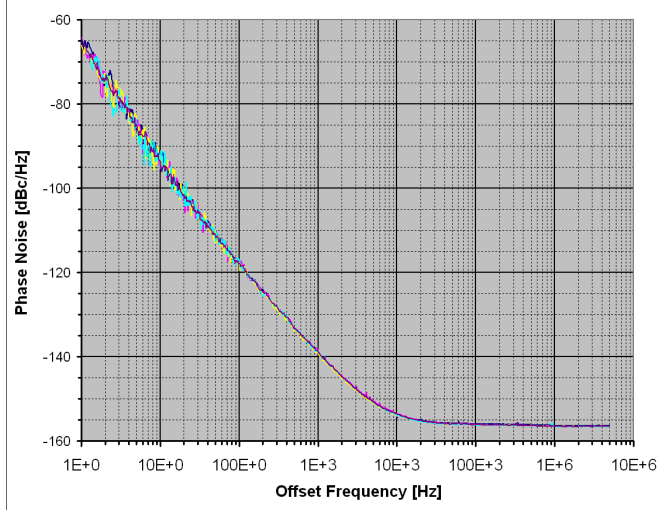
Temperature Stability

Phase Noise⁴

Frequency vs. Temperature
MX-503 @ 20MHz



MX-503 @ 20MHz
Typical Phase Noise

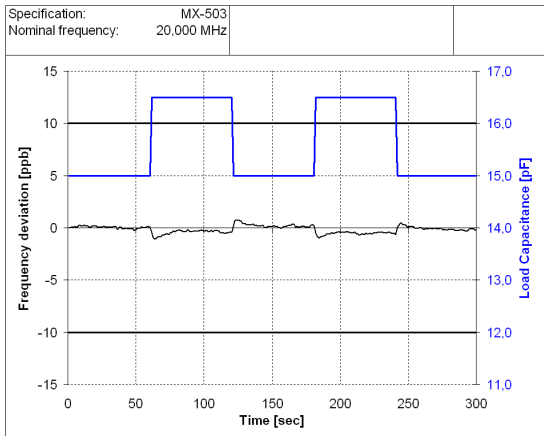


Performance Data

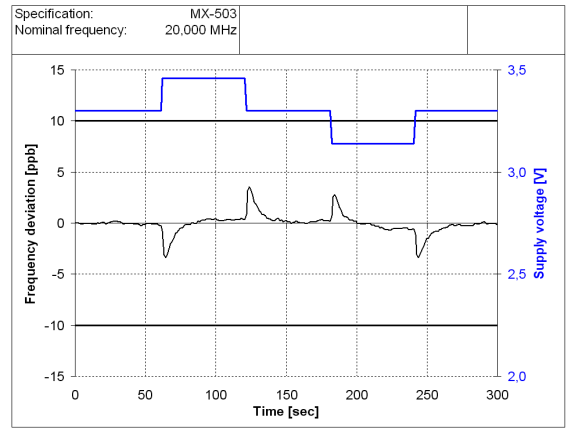
Frequency vs. Load

Frequency vs. Supply Voltage

Frequency vs. Load

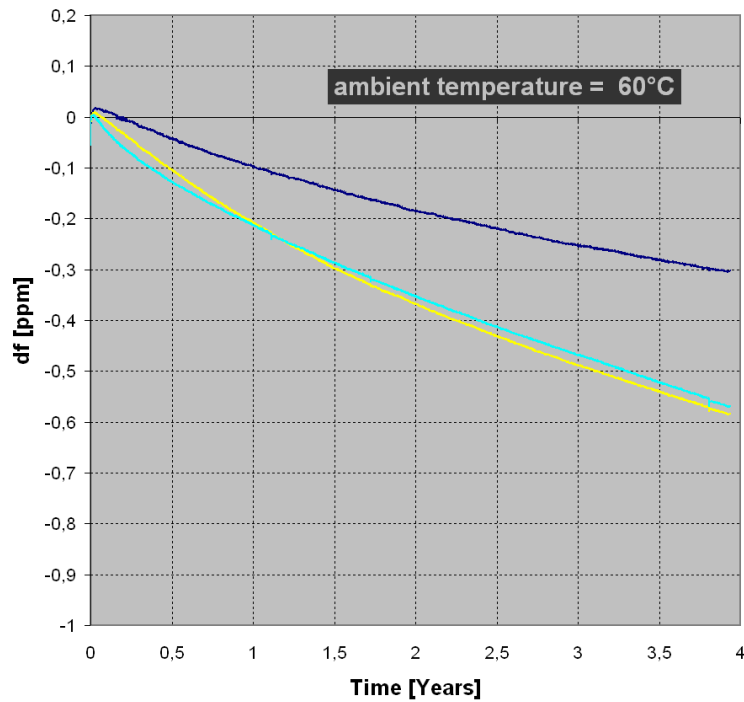


Frequency vs. Supply Voltage



Aging

Aging: MX-503 @ 20MHz



Recommended Reflow Profile

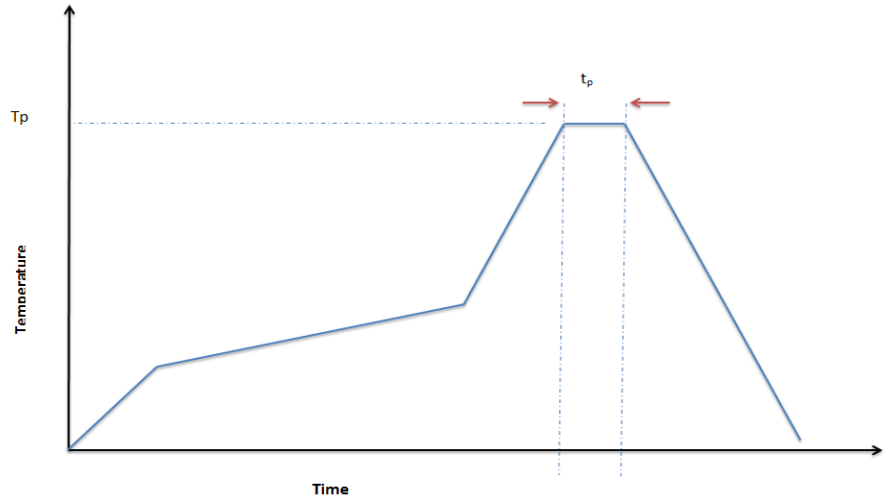
TP: max 250°C (@ solder joint, customer board level)

T_p: max: 10...30 sec

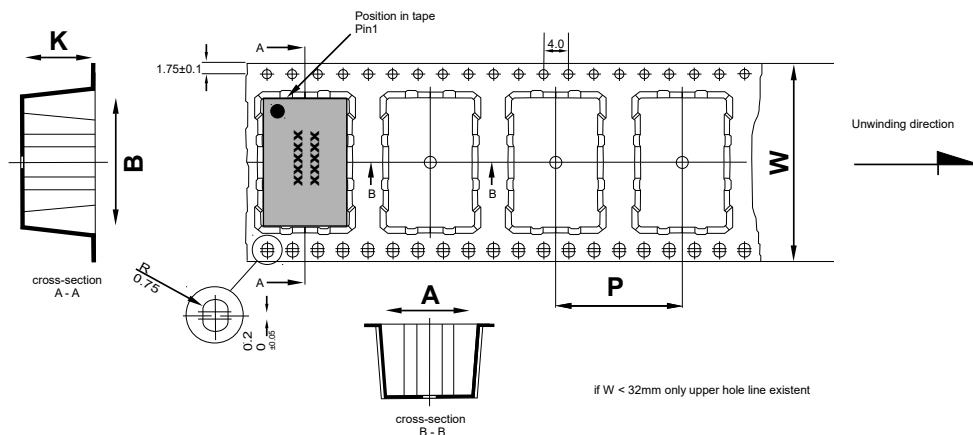
Additional Information:

This SMD oscillator has been designed for pick and place reflow soldering

SMD oscillators must be on the top side of the PCB during the reflow process.



Standard Shipping Method (MX-503)

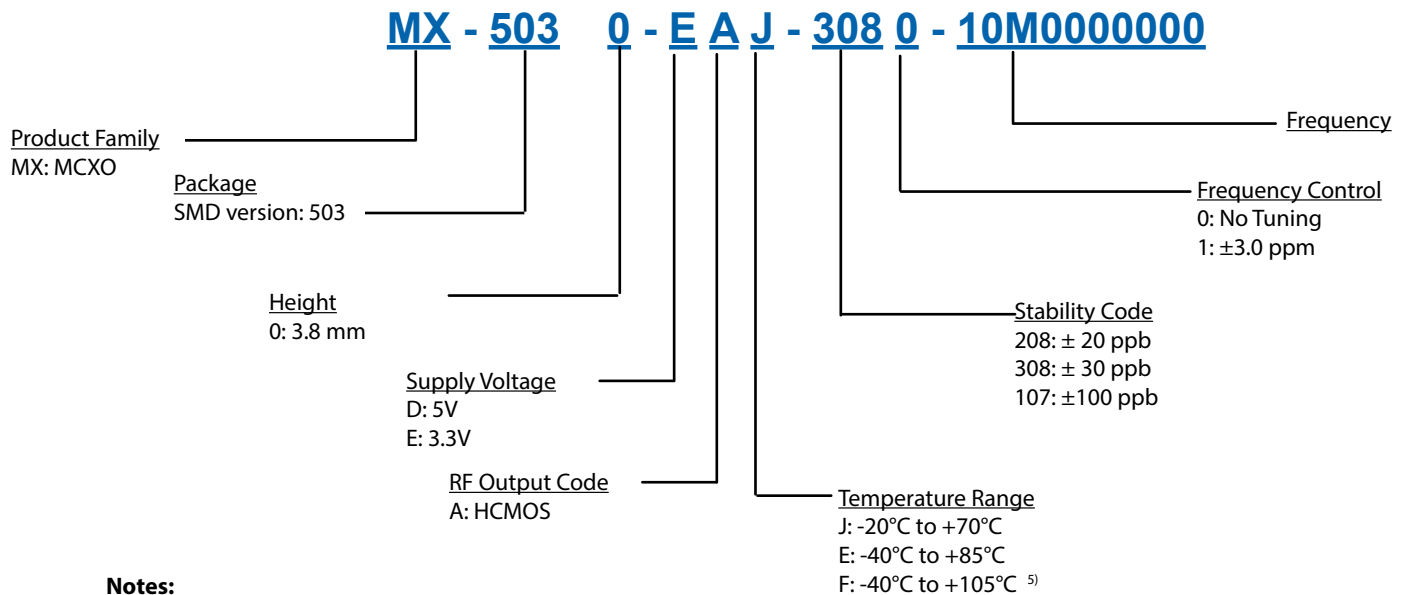


Dimension in mm:
 A, B and K are dependent upon component dimensions
 production tolerance complying DIN IEC 286-3

All dimensions in millimeters unless otherwise stated

Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G287	24	83,3	750	16

Ordering Information^{1,3}



Notes:

1. Contact factory for other frequencies. Not all options and codes are available at all frequencies.
2. Unless otherwise stated conditions are valid at F=20MHz; V_s=3.3V; V_c=1.65; T=25°C; Output Signal=HCMOS; load=15pF
3. Contact factory for availability.
4. Phase noise degrades with increasing output frequency.
5. In preparation with stability code 107

Subject to technical modification.

Contact Information

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