

220 • 221 Series OCXO - Hermetically Sealed 16-Pin DIP & SMT

Description

The 220 Series 16-Pin DIP OCXO is available with an AT or SC cut crystal. Housed in a hermetically sealed package that measures only 0.975"L x 0.800"W x 0.500"H (24.8 x 20.3 x 12.7mm), this series is offered as both through-hole (220 Series) and surface mount (221 Series). The 220 Series performs to STRATUM III, IIIe standards. It is ideal for applications requiring low power consumption and space restrictive environments. The 220 Series offers a thermal stability of 2.0E-08 over a 100°C temperature range, warms up in less than 5 minutes and consumes less than 1.0W at a noise floor of -155dBc/Hz.



Features

- STRATUM III, IIIe Performance
- Low Phase Noise
- Compact Package
- Hermetically Sealed
- High Reliability
- Surface Mount
- Available on Tape and Reel

Applications

- STRATUM III, IIIe Telephony
- GPS Receivers
- Instrumentation, PC, VXI/VME
- V-SAT Terminals
- Rack Mounted Applications
- Cellular Paging Base Stations

Performance Range

Parameters	Available Range
Frequency	4.8 MHz to 100 MHz
Thermal Stability	5.00E-09 to 5.00E-07
Operating Temperature	-40°C to +85°C
Output	HCMOS/ACMOS 0 to +9dBm Sine
Supply Voltage	+5 to +15V (DC)
Tuning Voltage	0 to +10V (DC)

Design Note:

Base Models can be customized to your specifications using the performance range for this series.

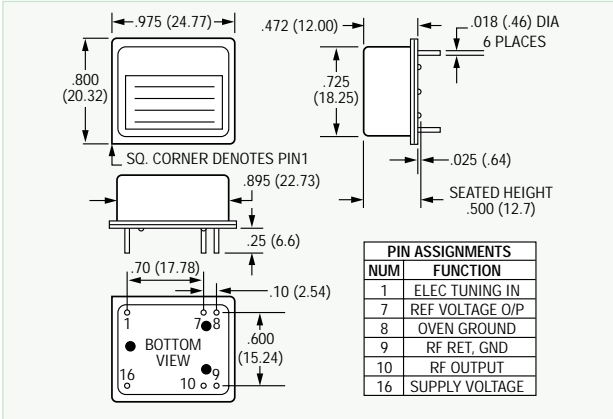
220 Series Base Model Performance Guide

Frequency MHz	Crystal Cut	Thermal Stability*	Aging Rate per Day	Aging Rate per Year	Output	Phase Noise @ offsets (dBc/Hz)					
						1Hz	10Hz	100Hz	1kHz	10kHz	100kHz
5.000	AT	2.00E-07	1.00E-09	2.00E-07	HCMOS	-70	-100	-125	-145	-155	-155
5.000	SC	2.00E-08	4.00E-10	5.00E-08	9dBm Sine	-100	-125	-140	-150	-155	-155
8.192	AT	2.00E-07	2.00E-09	2.00E-07	9dBm Sine	-80	-110	-130	-140	-150	-155
8.192	SC	2.00E-08	5.00E-10	7.00E-08	9dBm Sine	-90	-120	-140	-150	-155	-155
9.600	AT	2.00E-07	2.00E-09	2.00E-07	HCMOS	-80	-110	-130	-140	-150	-155
9.600	SC	2.00E-08	1.00E-09	1.00E-07	9dBm Sine	-85	-115	-140	-150	-155	-155
10.000	AT	2.00E-07	1.00E-09	2.00E-07	9dBm Sine	-80	-110	-130	-140	-150	-155
10.000	SC	2.00E-08	1.00E-09	1.00E-07	HCMOS	-85	-115	-140	-150	-155	-155
12.800	AT	2.00E-07	2.00E-09	2.00E-07	HCMOS	-80	-110	-130	-140	-150	-155
12.800	SC	2.00E-08	1.00E-09	1.00E-07	9dBm Sine	-85	-115	-140	-150	-155	-155
13.000	AT	2.00E-07	2.00E-09	2.00E-07	9dBm Sine	-80	-110	-130	-140	-150	-155
13.000	SC	2.00E-08	1.00E-09	1.00E-07	HCMOS	-85	-115	-140	-150	-155	-155
16.384	AT	2.00E-07	2.00E-09	2.00E-07	HCMOS	-70	-100	-125	-140	-150	-155
16.384	SC	2.00E-08	1.00E-09	1.00E-07	9dBm Sine	-85	-115	-140	-150	-155	-155
38.880	AT	5.00E-07	4.00E-09	4.00E-07	9dBm Sine	-65	-95	-125	-140	-150	-155
38.880	SC	5.00E-08	4.00E-09	4.00E-07	ACMOS	-65	-95	-125	-135	-145	-155
40.000	AT	5.00E-07	4.00E-09	4.00E-07	ACMOS	-65	-95	-125	-140	-150	-155
40.000	SC	5.00E-08	4.00E-09	3.00E-07	9dBm Sine	-65	-95	-125	-135	-145	-155
50.000	AT	5.00E-07	4.00E-09	4.00E-07	9dBm Sine	-60	-90	-120	-140	-150	-155
50.000	SC	5.00E-08	4.00E-09	4.00E-07	ACMOS	-60	-90	-120	-135	-145	-155
100.000	AT	5.00E-07	1.00E-09	1.00E-06	9dBm Sine	-50	-80	-110	-130	-140	-150

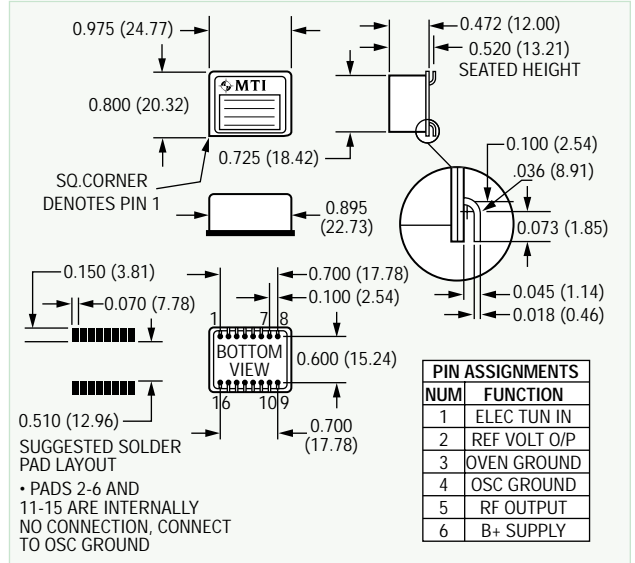
* Temperature Range is from -30°C to +70°C



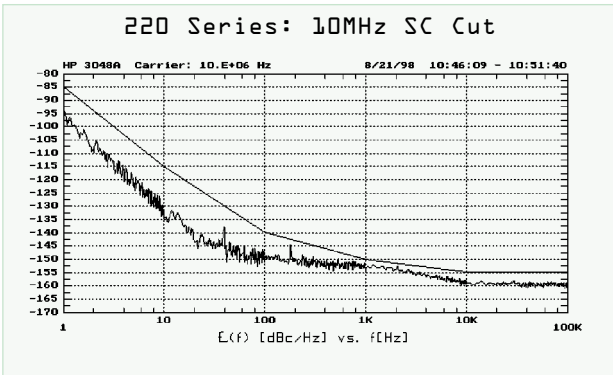
220 Interface Control Drawing



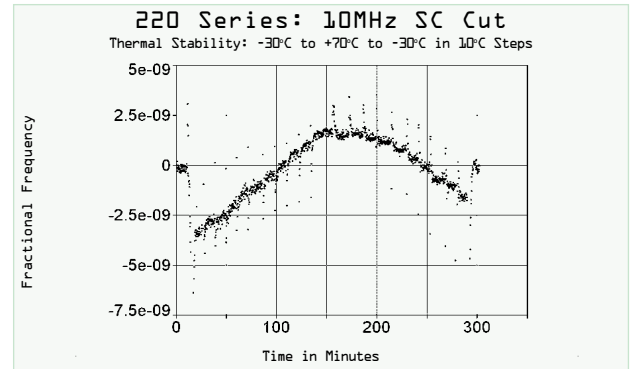
221 Interface Control Drawing



Phase Noise



Thermal Stability



Short Term Stability	dF/dV	dF/dL	Warm Up Time (Min)	Warm Up dF/F	Warm Up Power (W)	Continuous Power (W) @25°C	Tuning (Min)	MTI Model #
3.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±1.20E-06	220-0151
5.00E-12	2.00E-09	2.00E-09	5	5.00E-08	3	0.8	±5.00E-07	220-0102
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	5	0.8	±1.20E-06	220-0153
3.00E-11	4.00E-09	4.00E-09	5	5.00E-08	5	0.8	±1.20E-06	220-0108
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0156
1.00E-11	5.00E-09	5.00E-09	3	5.00E-08	3	0.8	±1.20E-06	220-0109
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0103
1.00E-11	5.00E-09	5.00E-09	3	5.00E-08	3	0.8	±1.20E-06	220-0116
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0158
1.00E-11	5.00E-09	5.00E-09	3	5.00E-08	3	0.8	±1.20E-06	220-0110
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0159
1.00E-11	5.00E-09	5.00E-09	3	5.00E-08	3	0.8	±1.20E-06	220-0118
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0161
1.00E-11	5.00E-09	5.00E-09	3	5.00E-08	3	0.8	±1.20E-06	220-0112
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0163
1.00E-10	1.00E-08	1.00E-08	5	1.00E-08	3	0.8	±4.00E-06	220-0174
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0166
1.00E-10	1.00E-08	1.00E-08	5	1.00E-07	3	0.8	±4.00E-06	220-0107
2.00E-11	1.00E-08	1.00E-08	10	2.00E-08	3	0.8	±3.00E-06	220-0167
1.00E-10	1.00E-08	1.00E-08	5	1.00E-07	3	0.8	±4.00E-06	220-0176
1.00E-08	1.00E-07	1.00E-07	10	1.00E-07	3	0.9	±5.00E-06	220-0207

Sinewave output is into a 50ohm load with harmonics less than -20 dBc and spurious less than -80dBc. Standard supply Voltage is +12V ±5%.