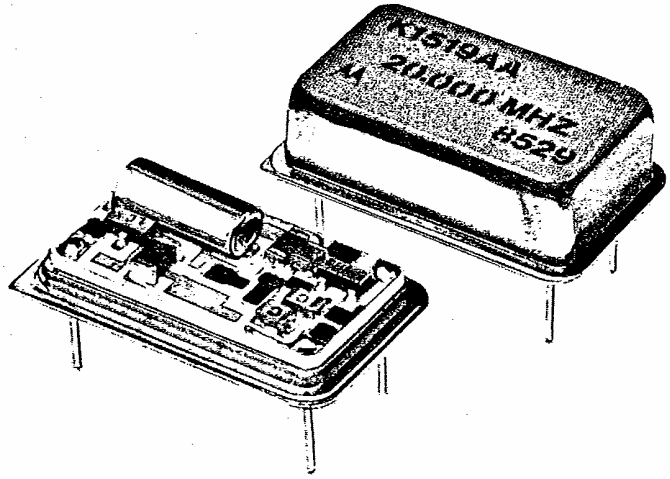
MOTOROLA

MDO-3 Series

Temperature Compensated Crystal Oscillators

Model K1519AA (Low Current CMOS)
Model K1519AB (High Output CMOS)
Model K1520AA (ECL)

- Inclusive ± 5 ppm Frequency Stability
- 10 MHz to 26 MHz
- All-Metal Welded Package
- Low Current Drain
- Sinewave Output Standard
- Volume Production Capability



± 5 PPM Frequency Stability over the full operating range of -30°C to +70°C. This specification is inclusive of stability vs input voltage change while also including variations for operating in a high humidity environment. The MDO-3 series TCXO's perform after 1,000 hours at +85°C, 85% relative humidity.

All-Metal Welded Package —The shielding provided by the all-metal package minimizes RF radiation, to help you meet FCC EMI specifications. The package also offers a full hermetic seal which helps keep the oscillator on frequency in environmental extremes of temperature and humidity. Every MDO-3 series oscillator is gross and fine leak tested to MIL-STD-883-B to ensure its reliability.

Maximum Reliability—Computer-automated testing of all critical functional parameters under maximum environmental and mechanical conditions provides our customers with uniform high quality and with reliability that is unsurpassed in the industry. Quality control discipline in all aspects of the manufacturing process insures maximum reliability for temperature variations, mechanical shock, and vibration.

Complete Vertical Integration—Motorola is a totally integrated manufacturer of quartz frequency control devices, with complete control of all the processes from growing, sawing, lapping, and finishing quartz into high precision crystals and combining them with proprietary thick film circuit technology into superior electronic products—Motorola TCXO's.

Volume Production—Modern automated production techniques are used to provide and assure volume production capability. Motorola Component Products is one of the world's largest suppliers of TCXO's—more than 10 million have been produced in our facilities.

MDO-3 Series Specifications

Model K1519AA (Low Current CMOS)
Model K1519AB (High Output CMOS)
Model K1520AA (ECL)

OUTPUT FREQUENCY:
10.0 MHz to 26.0 MHz

FREQUENCY STABILITY vs. ENVIRONMENT:
± 5 ppm including temperature, humidity and voltage

TEMPERATURE RANGE:
OPERATING: −30°C to +70°C
STORAGE: −55°C to +85°C

CURRENT DRAIN:
2 mA max. @ 5.0V dc (K1519AA, K1520AA)
4 mA max. @ 5.0V dc (K1519AB)

POWER OUTPUT: (sinewave standard*)
K1519AA: 1.0 to 2.5V p-p into 15 pF//50K ohms
K1519AB: 3.5 to 5.0V p-p into 15 pF//50K ohms
K1520AA: 200 to 350 mV p-p into 15 pF//900 ohms

SUPPLY:
5.0V dc ± 0.1V dc
± 1.3mV per °C Max Allowable Supply Variation

AGING:
1.0 ppm/1 year maximum

FREQUENCY ADJUST: (ELECTRICAL)
± 7 ppm minimum — Settable to 1 Hz

SHOCK:
< ± 1 ppm frequency change per MIL-STD-202, Method 213B, Condition A

VIBRATION:
< ± 0.5 ppm frequency change per MIL-STD-202 Method 204, Condition C

HUMIDITY:
Performs after 1000 hours at +85° C/85% RH

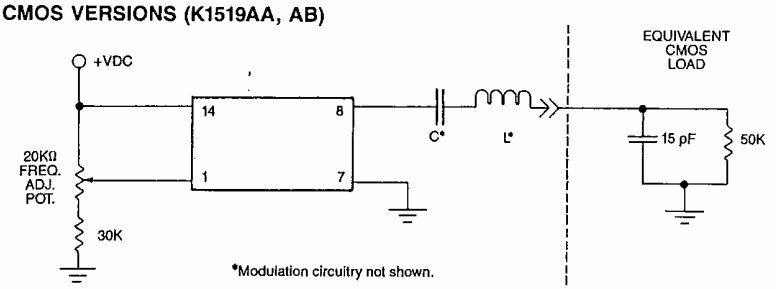
PHASE NOISE:
RMS deviation not to exceed −146 dBc/Hz, 25 kHz from oscillator frequency

HERMETIC SEAL:
Mass spectrometer leak rate less than 2 x 10^{-8} atmos. cc/sec. of helium

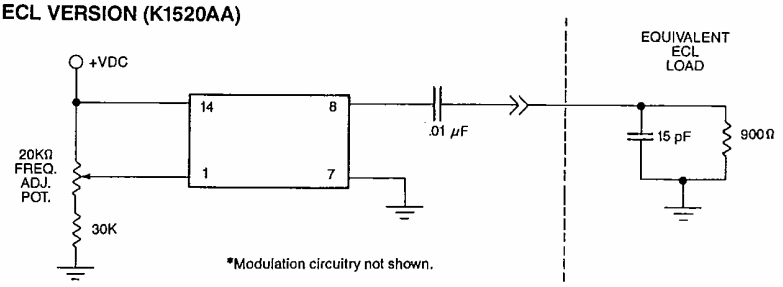
MODULATION:
Modulation capability standard on all models.*

*Application Note #151 describes interface circuitry required to drive logic families and provide modulation, along with other technical information. Available upon request.

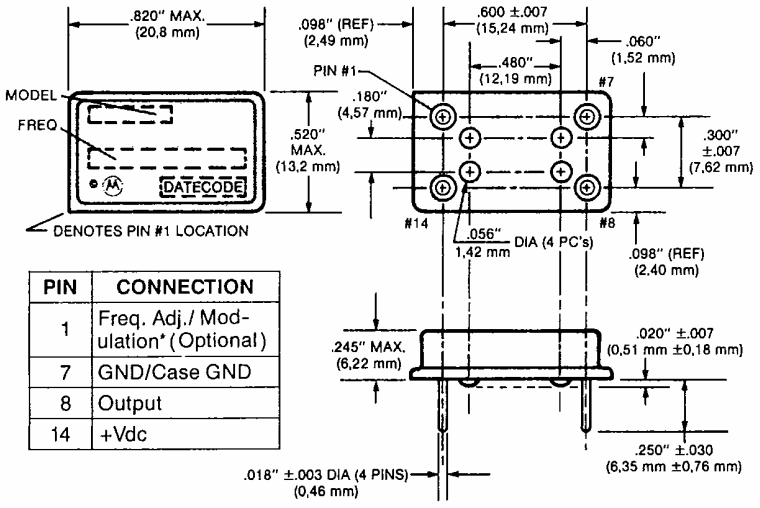
CMOS VERSIONS (K1519AA, AB)



ECL VERSION (K1520AA)



DIMENSIONAL DETAIL



PIN	CONNECTION
1	Freq. Adj./ Modulation* (Optional)
7	GND/Case GND
8	Output
14	+Vdc

TCXO PATENTS

Devices described herein are manufactured under one or more of the following (Motorola) U.S. patents:

3,041,550	3,252,109	3,322,982	3,345,573
3,372,348	3,373,379	3,397,367	3,409,841
3,731,230	3,845,410	3,970,818	3,970,966
3,982,210	4,001,724	4,011,526	4,254,382

Other patents pending.

MOTOROLA INC.
Components Division
2553 N. Edgington
Franklin Park, Ill. 60131
312/451-1000 x4835 FAX: 312/451-7585
TWX: 910-255-4619 Telex: 4990104

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