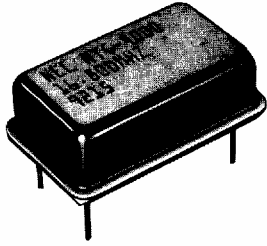




Temperature Compensated Crystal Oscillators

NTC-4000 SERIES TCXO LEADED PACKAGE

Analog Compensated



The common thread running through the NTC-4000 TCXO family is its use of our custom bipolar three segment compensation IC. In addition to the IC and the crystal, these oscillators have adjustable thick film resistors for compensation and varactors to provide the changing reactance for temperature compensation. The NTC-4000 Series is available in a hermetically sealed, leaded DIP.

The custom IC offers several additional benefits. There is a built in automatic gain control circuit to decrease starting time, improve output level consistency and minimize the effects of crystal starting resistance. A

low noise regulator is also integrated; thus any voltage variations in the regulator over temperature are compensated. The low noise bipolar circuits also provide superior sideband noise performance. A buffer amplifier is also included to minimize load pull.

NTC-4000 TCXOs feature:

- 0.820 x 0.520 x 0.245 inches hermetic, leaded DIP
- Current drain of 2.5 mA
- DC voltage frequency adjustment
- Sinewave output

Specifications

Reference Oscillator Frequency

Range: 12.8 to 20 MHz

Standard Frequencies: 12.8 MHz
14.4 MHz
16.8 MHz

Frequency Stability

vs temperature: ± 2 ppm

-30°C to +85°C

aging: $< \pm 1$ ppm/year, max

$< \pm 7$ ppm/10 years

Operating Temperature Range

-30°C to +85°C

Supply Voltage

+5V $\pm 10\%$

Current Drain

2.5 mA into 1K//15pF

Output Waveform

sinewave

Output Level Range

200 mVp-p to 1.2 Vp-p

Frequency Adjustment Range

± 10 ppm to ± 17 ppm

Phase Noise

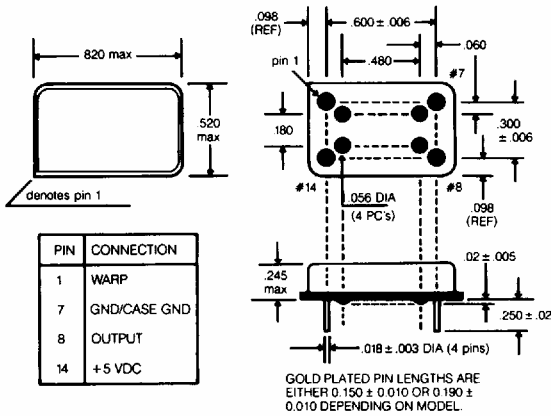
-145 dBc/Hz at 10 kHz offset

Temperature Compensated Crystal Oscillators

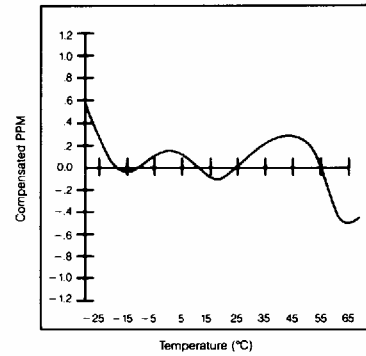


NTC-4000 SERIES TCXO LEADED PACKAGE

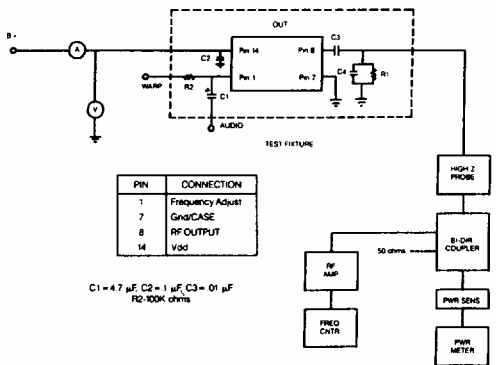
PACKAGE (DIMENSIONS IN INCHES)



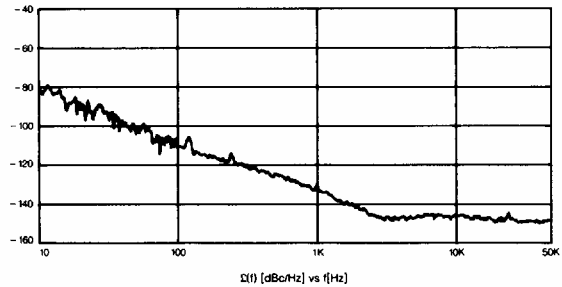
FREQUENCY VS TEMPERATURE



TEST CIRCUIT



PHASE NOISE



NEL TCXO PART NUMBER DEVELOPMENT

