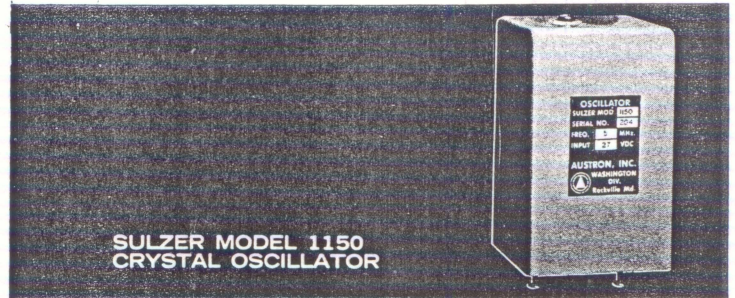


SULZER MODEL 1150 CRYSTAL OSCILLATOR

GENERAL

The Sulzer Model 1150 is a very rugged, high precision crystal oscillator which was specifically developed for use in satellite navigation systems. The Model 1150 has application whenever system requirements demand a precise time base or frequency reference. Technical features include:

- An ultimate aging of 5×10^{-11} /day
- Exceptional medium and short-term stability
- Low phase noise
- Double proportional ovens
- Low power drain.



SULZER MODEL 1150
CRYSTAL OSCILLATOR

TECHNICAL DESCRIPTION

The Sulzer Model 1150 Oscillator employs a high quality 5 MHz, fifth-overtone, high-temperature bake-out crystal unit which exhibits exceptional retrace and long-term aging characteristics. The crystal is mounted in a proportionally controlled oven which is mounted in another proportionally controlled oven. This arrangement assures almost complete freedom from frequency shifts due to environmental temperature changes. A high-gain AGC system is used to keep the crystal drive level constant, assuring excellent long-term aging.

The 5 MHz output level is 1 volt into 50 ohms. Provisions are made for external monitoring of the oscillator's critical functions.

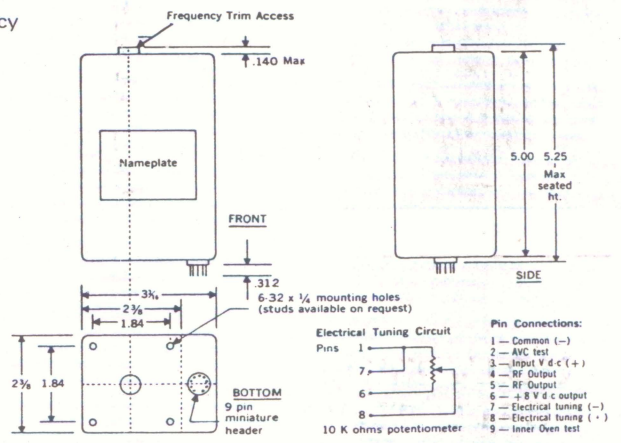
SPECIFICATIONS

OUTPUT FREQUENCY: ..	5 MHz, Standard
OUTPUT VOLTAGE:	1 V rms $\pm 20\%$ into a 50-ohm load, sine wave. Short circuit protection
AGING RATE:	5×10^{-10} /24 hrs after 24 hrs operation, 1×10^{-10} /24 hrs after 30 days operation Ultimate drift is typically 5×10^{-11} after 90 days operation
RETRACE:	Frequency offset less than $\pm 1 \times 10^{-9}$ after 2 hours warm-up following a 24-hour off time
STABILITY:	
Medium term:	Less than $\pm 2 \times 10^{-11}$ rms for a 120-second averaging time
Short-term:	Less than $\pm 1 \times 10^{-11}$ rms for a 1 second averaging time
As a function of supply voltage:	Less than $\pm 5 \times 10^{-10}$ for a $\pm 10\%$ change from 27 V dc
As a function of load: ..	Less than $\pm 1 \times 10^{-10}$ for a $\pm 10\%$ change from 50 ohms
As a function of ambient temperature: ...	Less than 2×10^{-9} total change from -55°C to $+60^\circ\text{C}$
INPUT VOLTAGE:	27 V dc $\pm 10\%$, floating, protected against polarity reversal
INPUT POWER:	4.5 watts typical during warm-up 2.5 watts typical operating at 25°C
TUNING RANGE:	Mechanical - 300×10^{-9} minimum
MECHANICAL:	Size: $2 \frac{3}{8} \times 3 \frac{3}{16} \times 5$ inches Weight: 2 pounds maximum Mounting: (4) $6\text{-}32 \times 1/4$ mounting holes Socket: 9-pin miniature Sealing: Case is sealed, Mechanical frequency adjustment via gasketed screw

OPTIONS AVAILABLE

The Sulzer Model 1150 may be ordered with the following optional features:

OUTPUT FREQUENCY: ..	4.5 to 6.5 MHz
OUTPUT VOLTAGE:	Shaped waveform suitable for IC triggering
TUNING:	Electrical fine tuning: 60×10^{-9} minimum
INPUT VOLTAGE:	13.5 V dc $\pm 3\%$; 15 V dc $\pm 3\%$; 20 V dc $\pm 3\%$; 24 V dc $\pm 3\%$; 27 V dc $\pm 10\%$
MECHANICAL:	Nickel plated can Various mountings (specify) Various socket arrangements



Technical specifications subject to change without notice.