

Typical Applications

*PCS Base Stations
Land Mobile Radio
Cellular Telephony
Radio in the Local Loop
Test Equipment
Avionics*

Features

*3.3 Volt Supply
Low Profile Package
Standard 4-Pin DIP Package
Mechanical Control, EFC Optional
High Stability
Surface Mount Options Available*

Frequency Range

1 MHz – 30 MHz

Parameters

		Model Numbers	
Operating Temperature Range	Frequency Stability (ppm)	Clipped Sine Wave (1 Vpp min. into 1kΩ)	Square Wave (CMOS)
0....50°C	± 0.5 ppm ± 1.0 ppm ± 2.0 ppm	978AA 978AB 978AD	978HAA 978HAB 978HAD
0.....70°C	± 1.0 ppm ± 2.5 ppm ± 5.0 ppm	978DB 978DE 978DF	978HDB 978HDE 978HDF
-20....+70°C	± 1.0 ppm ± 1.5 ppm ± 2.0 ppm ± 2.5 ppm	978BB 978BC 978BD 978BE	978HBB 978HBC 978HBD 978HBE
-30....+70°C	± 1.0 ppm ± 2.0 ppm ± 2.5 ppm	978CB 978CD 978CE	978HCB 978HCD 978HCE
-40....+85°C	± 1.0 ppm ± 2.0 ppm ± 2.5 ppm	978EB 978ED 978EE	978HEB 978HED 978HEE

Note: Model 978 custom versions available with output waveforms of ACMOS, SINE, ECL & PECL

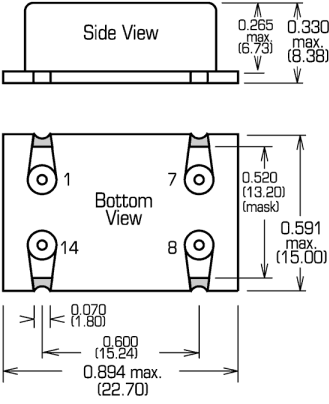
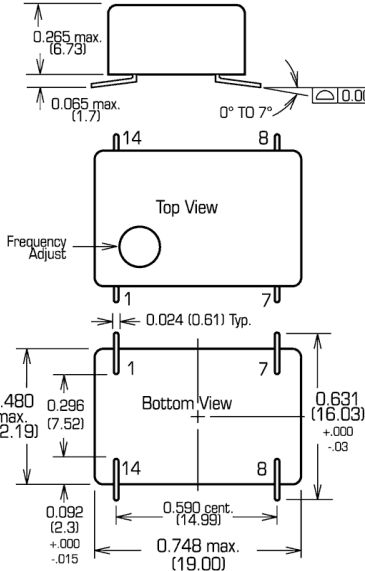
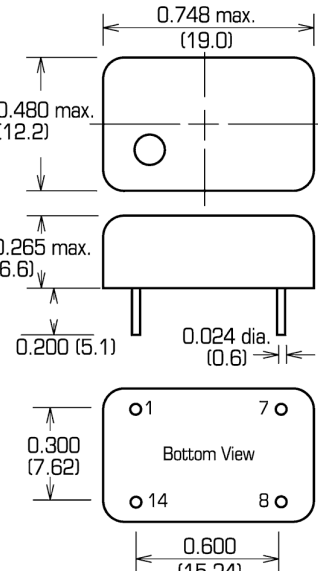
Additional Parameters

Supply Voltage: +3.3 Vdc ± 5%
Current
Clipped Sinewave: 2 mA to 6 mA
CMOS: 5 mA to 20 mA
Aging: ± 1 ppm/year
Mechanical Frequency Control: ± 3 ppm min.
Electrical Frequency Control
Voltage Range: 0 to 3 Vdc
Deviation: ± 8 ppm min.
(others available)
Slope: Positive
Input Impedance: > 10 kohms

Typical Phase Noise @ 10 MHz

1Hz Offset <- 55 dBc / Hz
10Hz Offset <-90 dBc / Hz
100Hz Offset <-120 dBc / Hz
1kHz Offset <-140dBc / Hz
10kHz Offset <-150dBc / Hz

Enclosures

SMT "S" Package	Gullwing "G" Package	Through-hole "T" Package
 Pin Connections 1 EFC or N/C 7 GND 8 RF Output 14 Supply Voltage Dimensions: Inches (mm)	 Pin Connections 1 EFC or N/C 7 GND 8 RF Output 14 Supply Voltage Dimensions: Inches (mm)	 Pin Connections 1 EFC when specified 7 GND 8 RF Output 14 Supply Voltage Dimensions: Inches (mm)

Model	EFC	Waveshape Freq. Stab. Temp. Range	Package Code	Frequency
978	Blank = No EFC V= EVC Option	HAA	T = Through-hole S = SMT G = Gullwing	10M00000

* Typical P/N = 978VHAAT10

Note: Package is non-hermetic