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

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

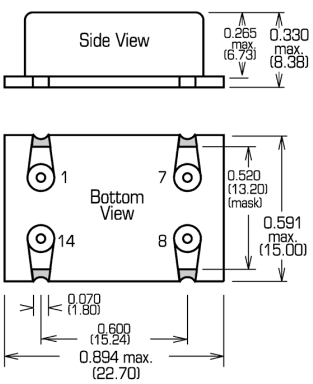
Typical Phase Noise @ 10 MHz

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

Corning Frequency Control Inc. • 100 Watts Street • Mt. Holly Springs, PA 17065 • Tel 1-717-486-3411 • Fax 1-717-486-5920 • www.corningfrequency.com
Tele Quarz GmbH & Co. KG • Landstrasse • D-74924 Neckarbischofsheim, Germany • Tel +49-7268-801-0 • Fax +49-07268-801-281 • www.telequarz.de

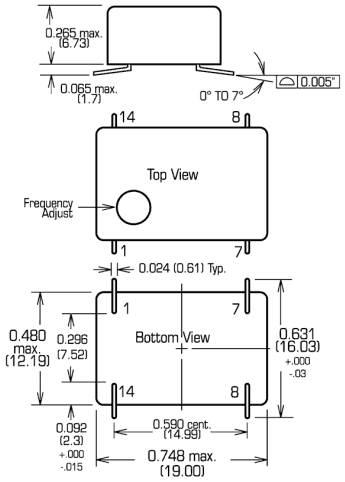
Enclosures

SMT "S" Package



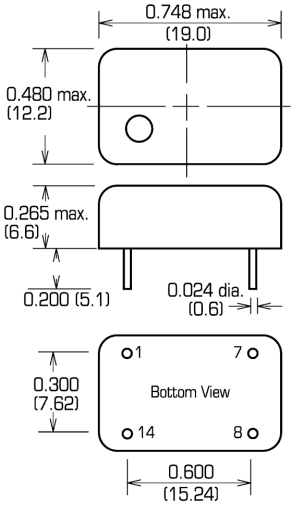
PIN CONNECTIONS
1 – EFC or N/C
7 – GND
8 – RF Output
14 – Supply Voltage

Gullwing "G" Package



PIN CONNECTIONS
1 – EFC or N/C
7 – GND
8 – RF Output
14 – Supply Voltage

Through-hole "T" Package



PIN CONNECTIONS
1 – EFC when specified
(Pin 1 eliminated when not required.)
7 – GND
8 – RF Output
14 – Supply Voltage

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

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