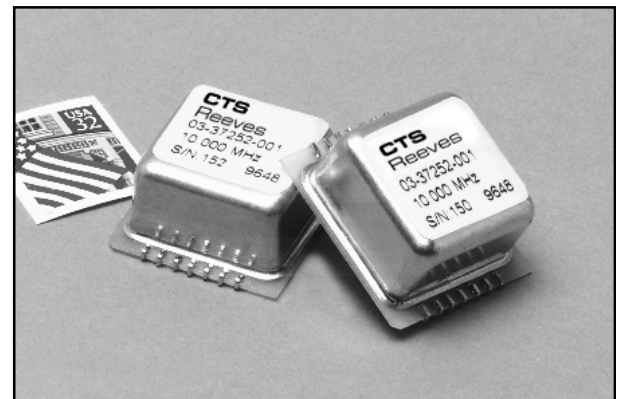


**Features:**

- Frequency Range: 5 to 50 MHz
- Low Cost Options Available
- Able to Withstand 240°C Reflow
- Electronic Frequency Adjust Standard
- Matched TCE for Mounting means excellent long term reliability

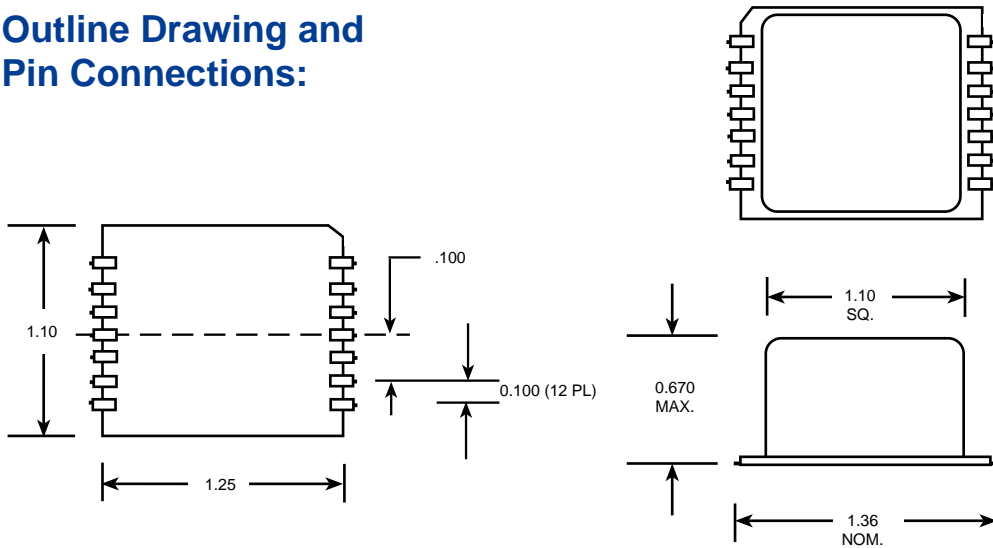


The FR-4 base of the Model 110 assures reliable solder joints without thermal expansion problems. The Model 110 is capable of covering a wide range of performance through the use of precision AT crystals and newer SC cut crystals. The 110 series is able to meet the requirements of GSM systems, Private Branch Exchange (PBX) and Central Office Switch (COS) applications. Its size and performance also make it ideal for Microwave and Synthesizer applications that require more economy while maintaining a high level of performance.

**Electrical Specifications:**

<i>Parameter</i>		<i>Frequency Range (MHz)</i>		
		5 to 50 MHz		
Supply Voltage (Vdd)	Maximum Operating	12 Vdc $\pm$ 5% (+5 Vdc Optional)		
Supply Current (@ 25°C)	Warm-up Steady State	350 ma. Max. 120 ma. Typ.		
Output Type		HCMOS Compatible (Sinewave Optional)		
Logic 1 - Voh		4.5V Min.		
Logic 0 - Vol		.5V Min.		
Warm-up (@ 25°C) Ref. to Freq. at 1 hr.		$\pm 1 \times 10^{-7}$ / 5 Min. $\pm 1 \times 10^{-8}$ / 30 Min.		
Phase Noise (1 Hz Bandwidth) (Typical @ 10 MHz)	Offset	Level (dBc)	Standard	Low Noise
	10 Hz	-100		-115
	100 Hz	-120		-135
	1 kHz	-140		-150
	10 kHz	-150		-155
Electrical freq. adjust (negative slope)		Sufficient for 10 years Aging (Range is Option Dependent) 0 to 5 Vdc		

**Outline Drawing and Pin Connections:**



**Pin Connections**

PIN	FUNCTION
1	RF OUT
3,5 10,12	GROUND
7	ELECTRONIC FREQ. ADJUST
8	V REF OUTPUT
14	V+ SUPPLY

**Mechanical Specifications:**

**Case:**

CRS, Hot Tin Dipped  
FR-4 Base

**Leads:**

Nickel plated with solder coating

**Seal:**

Solder seal

**Leak Test:**

Leak rate less than  $5 \times 10^{-5}$   
atmosphere-cc/sec of helium

**Solderability:**

95% solder coverage, using RMA flux 63  
SN / 37 Pb solder at  $+245^{\circ}\text{C} \pm 5^{\circ}\text{C}$

**Temperature:**

Operating: See chart  
Storage:  $-55^{\circ}$  to  $85^{\circ}\text{C}$   
Reflow:  $240^{\circ}\text{C}$ , 10 Sec

**Vibration:**

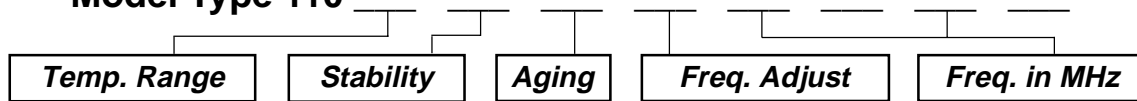
10 G's rms, 20 to 500 Hz

**Mechanical Shock:**

100 G's 5ms pulse (3 shock/plane)

**Ordering Information:**

**Model Type 110**



<b>Temp Stability</b>		$\pm 5 \times 10^{-9}$	$\pm 1 \times 10^{-8}$	$\pm 2 \times 10^{-8}$	$\pm 5 \times 10^{-8}$	$\pm 1 \times 10^{-7}$	<b>1<sup>st</sup> Year Aging Code</b>	
Temp Range	Code	A	B	C	D	E		
$0^{\circ}$ to $50^{\circ}\text{C}$	A	X	X	X	X	X	$\pm 0.5$ ppm	A
$0^{\circ}$ to $70^{\circ}\text{C}$	B		X	X	X	X	$\pm 0.3$ ppm	B
$-30^{\circ}$ to $70^{\circ}\text{C}$	C			X	X	X	$\pm 0.1$ ppm	C
$-40^{\circ}$ to $+85^{\circ}\text{C}$	D				X	X	$\pm 0.05$ ppm	D

Note: Not all Options are Available at all Frequencies. Consult Factory for Details.