

### FEATURES

- 7x5mm Surface Mount Footprint
- Clipped Sinewave Output
- Frequency Range 10 – 36 MHz
- Frequency Stability, several options to choose from,  $\pm 0.5$  ppm to  $\pm 5$  ppm
- +2.8Vdc, +3.0Vdc, +3.3Vdc, +5.0Vdc Operation
- Voltage Control for Frequency Tuning
- Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Tape & Reel Packaging
- **RoHS/Green Compliant**

### DESCRIPTION

The Model 575 is a Voltage Controlled Temperature Compensated Crystal Oscillator (VCTCXO) offering reduced size, low power consumption and enhanced frequency stability. The M575 is the perfect choice for today's compact or portable wireless communications applications that require tight frequency control.



### ORDERING INFORMATION



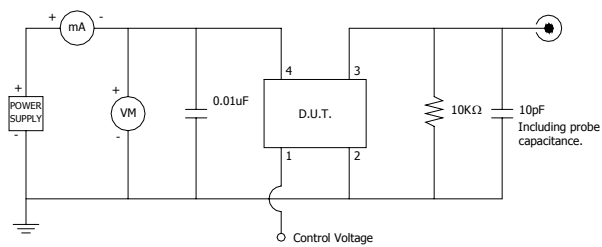
Example Part Number: 575L20DA19M4400



## ELECTRICAL CHARACTERISTICS

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Absolute Maximums	Maximum Supply Voltage	$V_{CC}$	-	-0.5	-	7.0	V
	Maximum Control Voltage	$V_C$	-	-0.5	-	$V_{CC}$	V
	Storage Temperature	$T_{STG}$	-	-55	-	125	°C
	Frequency Range	$f_0$	-	10	-	36	MHz
	Frequency Stability	$\Delta f/f_0$	Frequency vs. Temperature	Refer to Ordering Information			± ppm
	Frequency Stability vs. Supply Voltage vs. Load vs. Aging	-	5% change 10% change 1st year	-	-	0.2 0.2 1.0	± ppm
	Pulling Range	-	$V_C = 1.5V \pm 1.0V$	Refer to Ordering Information			± ppm
	Operating Temperature Order Code 'H' Order Code 'C' Order Code 'D' Order Code 'I'	$T_A$	-	-10 -20 -30 -40	25	60 70 85 85	°C
	Supply Voltage Order Code 'T' Order Code 'R' Order Code 'L' Order Code 'S'	$V_{CC}$	-	2.66 2.85 3.14 4.75	2.8 3.0 3.3 5.0	2.94 3.15 3.47 5.25	V
	Supply Current	$I_{CC}$	10.00 MHz - 15.00 MHz 15.10 MHz - 25.00 MHz 25.10 MHz - 36.00 MHz	- - -	- - -	1.5 2.0 2.5	mA
Electrical and Waveform Parameters	Output Load	$R_L // C_L$	-	10 kOhm // 10 pF			
	Control Voltage	$V_C$	-	0.5	1.5	2.5	V
	Output Voltage Levels	$V_O$	Clipped Sinewave	0.8	-	-	Vp-p
	$V_C$ Input Impedance	$Z_C$	-	1.0	-	-	MOhm
	Start Up Time	$T_S$	-	-	-	2	ms
	Phase Noise	-	@100 Hz @1 kHz @10 kHz	- - -	-110 -130 -140	- - -	dBc/Hz

### TEST CIRCUIT, $R_L//C_L$ LOAD



### D.U.T. PIN ASSIGNMENTS

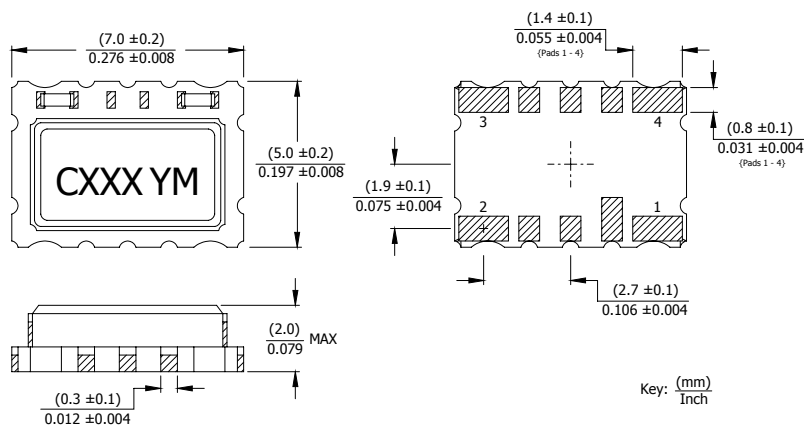
PIN	SYMBOL	DESCRIPTION
1	$V_C$	Control Voltage (Note 1)
2	GND	Circuit & Package Ground
3	Output	Clipped Sine Wave Output
4	$V_{CC}$	Supply Voltage

#### Note:

1. Connect to ground for TCXO (no AFC) option.

## MECHANICAL SPECIFICATIONS

### PACKAGE DRAWING



### MARKING INFORMATION

1. C – CTS and Pin 1 identifier.
2. XXX – Frequency. See Table I for codes.
3. YM – Date code, Y – year, M – month, see Table II for codes.

TABLE I - FREQUENCY CODING

Frequency	Marking Code	Frequency	Marking Code
10.0 MHz	100	19.2 MHz	192
12.8 MHz	128	19.44 MHz	194
13.0 MHz	130	19.68 MHz	196
14.4 MHz	144	19.8 MHz	198
15.36 MHz	153	20.0 MHz	200
16.8 MHz	168	26.0 MHz	260

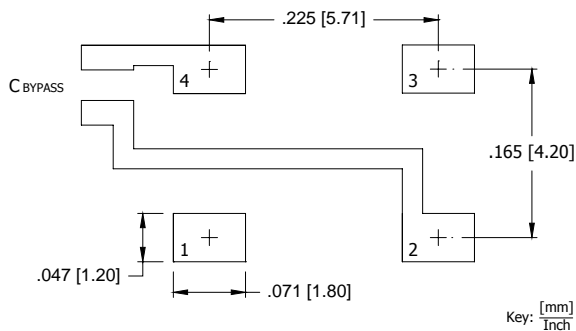
TABLE II – DATE CODE

Year	Month	
4 = 2004	1 = January	7 = July
5 = 2005	2 = February	8 = August
6 = 2006	3 = March	9 = September
7 = 2007	4 = April	10 = October
8 = 2008	5 = May	11 = November
9 = 2009	6 = June	12 = December

### NOTES

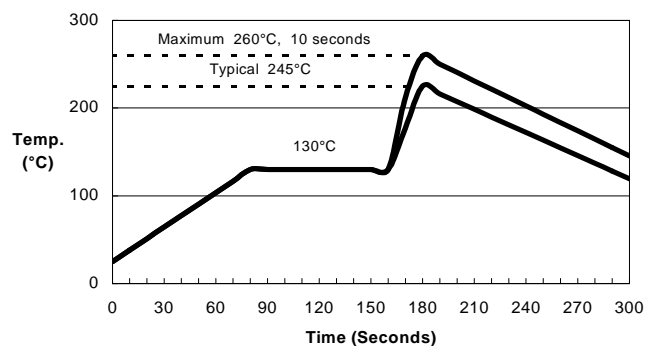
1. DO NOT make connections to non-labeled pins. Castellation pins may have internal connections used in the manufacturing process.
2. Termination pads (e4), barrier-plating is nickel (Ni) with gold (Au) flash plate.
3. Reflow conditions per JEDEC J-STD-020.

### SUGGESTED SOLDER PAD GEOMETRY



$C_{BYPASS}$  should be  $\geq 0.01 \mu F$ .

### SUGGESTED REFLOW PROFILE



## TAPE AND REEL INFORMATION



Device quantity is 1,000 pieces per 180mm reel.

## ENVIRONMENTAL SPECIFICATIONS

Temperature Cycle:	200 cycles from $-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ , 10 minute dwell at each temperature, 1 minute transfer time between temperatures.
Mechanical Shock:	1,500g's, 0.5mS duration, $\frac{1}{2}$ sinewave, 3 shocks each direction along 3 mutually perpendicular planes (18 total shocks).
Sinusoidal Vibration:	0.06 inches double amplitude, 10 to 55 Hz and 20g's, 55 to 2,000 Hz, 3 cycles each in 3 mutually perpendicular planes (9 times total).
Gross Leak:	No leak shall appear while immersed in an FC40 or equivalent liquid at $+125^{\circ}\text{C}$ for 20 seconds.
Fine Leak:	Mass spectrometer leak rates less than $2 \times 10^{-8}$ ATM cc/sec air equivalent.
Resistance to Solder Heat:	Product must survive 3 reflows of $+260^{\circ}\text{C}$ peak, 10 seconds maximum.
Temperature and Humidity:	$85^{\circ}\text{C}$ , 85% R.H., full bias, 500 hours.
High Temperature Operating Bias:	2,000 hours at $+125^{\circ}\text{C}$ , maximum bias, disregarding frequency shift.
Frequency Aging:	1,000 hours at $+85^{\circ}\text{C}$ , full bias, less than $\pm 1$ ppm shift.
Moisture Sensitivity Level:	Level 1 per JEDEC J-STD-020.

## QUALITY AND RELIABILITY

Quality systems meet or exceed the requirements of ISO 9000:2000 standards.