

PART NUMBER 017-10077017-00

PART NUMBER REQUEST FORM

Requestor: RICHARD PHAM Part Number Prefix: _____Description of Part: CRYSTAL OCXO, 10 MHz

Buyer Code: _____ Source Code: _____

Fixed Lead Time: _____ Planner Code: _____

☐ NEW PART:☒ AVL CHANGE:

New Part Inventory

Add Change Delete

☐ Raw Materials

Vendor

☐☐☐☐ Finished Goods

Manufacturer

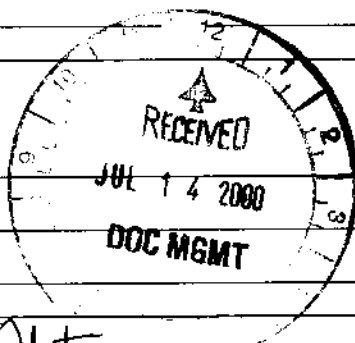
☒☐☐

SPECIAL CONDITIONS

☐ Single Source (Justification Attached?) ☐ Std Cost Change ☐ Std Lead Time Change

Manufacturer	MFG. Part Number	Price	Lead Time	Vendor
<u>VECTRON INTL</u>	<u>770D17@10MHZ</u>	<u>110. - 20pcd.</u>		<u>RF ASSOC</u>
<u>TEMEX ELEC.</u>	<u>DOC 298CP</u>	<u>93.48 100pcd.</u>		

NOTES:

Project BSCQuantity Per (1)Purchasing : [Signature]Date: 7/26/00Engineering : Richard PhamDate: 7/14/00Data Entry : David HornDate: 7/14/00



VECTRON
INTERNATIONAL

A **DOVER** TECHNOLOGIES COMPANY

CO-770 Series 4 Pin DIP Oven Controlled Crystal Oscillator



Features

- Extremely Small Dimensions
- Very Fast Warm-up
- Low Power Consumption
- Shock Resistance: 2000g/0.3 ms (1/2 sine)
- Vibration Resistance: 10g/10 to 2000 Hz
- Acceleration Sensitivity: $3.5 \times 10^{-9}/G$
- Standard 10 MHz Version Available from Stock

Applications

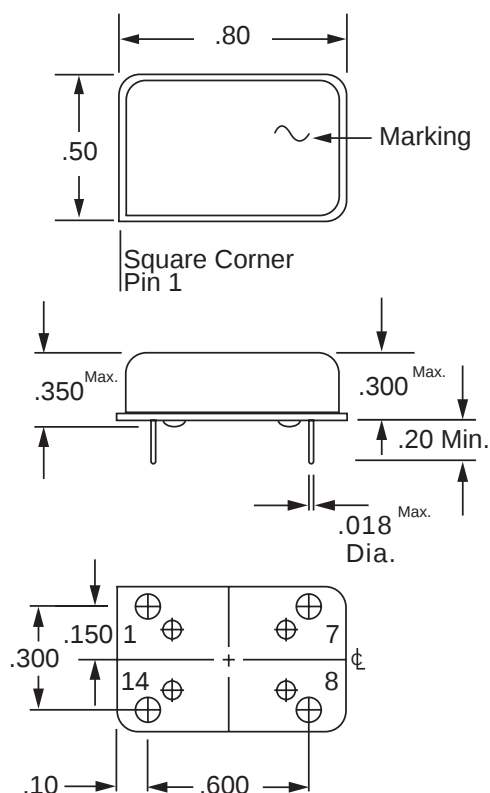
- Telecom Transmission and Switching Equipment
- Wireless Communication Equipment
- Networking Equipment

Description

The model CO-770, low profile 4 Pin DIP Oven Controlled Crystal Oscillator (OCXO) is available in frequencies from 10 kHz to 24 MHz with higher frequencies available to 80 MHz on special order.

This unit provides exceptionally low aging rates and temperature stabilities in an extremely small package. It measures only 0.50" x 0.80" x 0.35" (12.7mm x 20.3mm x 8.9mm); provides aging rates of $<3 \times 10^{-9}/\text{day}$ average, $<7 \times 10^{-7}/\text{first year}$ and $<4 \times 10^{-6}$ over 10 years with temperature stabilities from $\pm 5 \times 10^{-8}$ over 0°C to 50°C . Wider temperature ranges are available to -40°C to $+85^{\circ}\text{C}$.

The CO-770 series offers a +5V or +12V supply and HCMOS or clipped sinewave output options.



Pin	Function
1	Frequency control
7	0V, Case
8	Output
14	Vcc

CO-770 4 Pin DIP Oven Controlled Crystal Oscillator

Performance Characteristics

Parameter	Characteristic																				
Frequency	10 MHz Standard. Advertised specifications available from 10 kHz to 24 MHz. Available to 80 MHz on special order.																				
Temperature Stability	0°C to +50°C: B58: ± 5 x 10 ⁻⁸ -20°C to +70°C: D17: ± 1 x 10 ⁻⁷ -40°C to +85°C: H27: ± 2 x 10 ⁻⁷																				
Aging	<3 x 10 ⁻⁹ /day average, <7 x 10 ⁻⁷ first year, <4 x 10 ⁻⁶ for 10 years																				
Frequency vs. Supply (± 4%)	± 1 x 10 ⁻⁷																				
Short Term (Allan Variance)	<5 x 10 ⁻¹⁰ , 0.1 seconds to 10 seconds																				
Supply/Output	<table><tr><td>Type</td><td>Supply Voltage</td><td>Output</td></tr><tr><td>CO-770</td><td>+12 Vdc ± 0.5V</td><td>HCMOS*</td></tr><tr><td>CO-771</td><td>+ 5 Vdc ± 0.2V</td><td>Clipped Sine (1-2VPK-PK into 1K W)</td></tr><tr><td>CO-772</td><td>+ 5 Vdc ± 0.2V</td><td>HCMOS*</td></tr><tr><td>CO-773</td><td>+12 Vdc ± 0.5V</td><td>Clipped Sine (1-2VPK-PK into 1K W)</td></tr></table>	Type	Supply Voltage	Output	CO-770	+12 Vdc ± 0.5V	HCMOS*	CO-771	+ 5 Vdc ± 0.2V	Clipped Sine (1-2VPK-PK into 1K W)	CO-772	+ 5 Vdc ± 0.2V	HCMOS*	CO-773	+12 Vdc ± 0.5V	Clipped Sine (1-2VPK-PK into 1K W)					
Type	Supply Voltage	Output																			
CO-770	+12 Vdc ± 0.5V	HCMOS*																			
CO-771	+ 5 Vdc ± 0.2V	Clipped Sine (1-2VPK-PK into 1K W)																			
CO-772	+ 5 Vdc ± 0.2V	HCMOS*																			
CO-773	+12 Vdc ± 0.5V	Clipped Sine (1-2VPK-PK into 1K W)																			
*Symmetry (@50% Vdd)	60/40 to 40/60																				
*Rise/Fall Time: (10-90%) (15pF load)	<7ns																				
*Level 0 and 1	<0.4V, >4.5V																				
Input Current	<table><tr><td>+12 Vdc</td><td>+5 Vdc</td></tr><tr><td><25 mA @ +30°C</td><td><60 mA @ +30°C</td></tr><tr><td><40 mA @ -20°C</td><td><80 mA @ -20°C</td></tr></table>	+12 Vdc	+5 Vdc	<25 mA @ +30°C	<60 mA @ +30°C	<40 mA @ -20°C	<80 mA @ -20°C														
+12 Vdc	+5 Vdc																				
<25 mA @ +30°C	<60 mA @ +30°C																				
<40 mA @ -20°C	<80 mA @ -20°C																				
Turn-on Current	<table><tr><td>+12 Vdc</td><td>+5 Vdc</td></tr><tr><td><120 mA first 10 seconds</td><td><200 mA first 10 seconds</td></tr></table>	+12 Vdc	+5 Vdc	<120 mA first 10 seconds	<200 mA first 10 seconds																
+12 Vdc	+5 Vdc																				
<120 mA first 10 seconds	<200 mA first 10 seconds																				
Warm-Up @ 25° C (24 hours off relative to the frequency 2 hours after turn-on)	<table><tr><td><1 x 10⁻⁶</td><td>15 seconds</td></tr><tr><td><1 x 10⁻⁷</td><td>60 seconds</td></tr><tr><td><5 x 10⁻⁸</td><td>10 minutes</td></tr></table>	<1 x 10 ⁻⁶	15 seconds	<1 x 10 ⁻⁷	60 seconds	<5 x 10 ⁻⁸	10 minutes														
<1 x 10 ⁻⁶	15 seconds																				
<1 x 10 ⁻⁷	60 seconds																				
<5 x 10 ⁻⁸	10 minutes																				
Phase Noise (Typical @ 10 MHz) Sine and HCMOS	<table><tr><td></td><td>+12 Vdc</td><td>+5 Vdc</td></tr><tr><td>Offset</td><td>Phase Noise</td><td>Phase Noise</td></tr><tr><td>1 Hz</td><td>- 70 dBc/Hz</td><td>- 60 dBc/Hz</td></tr><tr><td>10 Hz</td><td>-100 dBc/Hz</td><td>- 90 dBc/Hz</td></tr><tr><td>100 Hz</td><td>-125 dBc/Hz</td><td>-120 dBc/Hz</td></tr><tr><td>1 kHz</td><td>-135 dBc/Hz</td><td>-130 dBc/Hz</td></tr></table>		+12 Vdc	+5 Vdc	Offset	Phase Noise	Phase Noise	1 Hz	- 70 dBc/Hz	- 60 dBc/Hz	10 Hz	-100 dBc/Hz	- 90 dBc/Hz	100 Hz	-125 dBc/Hz	-120 dBc/Hz	1 kHz	-135 dBc/Hz	-130 dBc/Hz		
	+12 Vdc	+5 Vdc																			
Offset	Phase Noise	Phase Noise																			
1 Hz	- 70 dBc/Hz	- 60 dBc/Hz																			
10 Hz	-100 dBc/Hz	- 90 dBc/Hz																			
100 Hz	-125 dBc/Hz	-120 dBc/Hz																			
1 kHz	-135 dBc/Hz	-130 dBc/Hz																			
Acceleration Sensitivity: (Worst case axis)	3.5 x 10 ⁻⁹ /G																				
Frequency Voltage Control	>± 4 ppm range with 0 to +5V input (external resistor adjustment available on special order)																				
Size	0.50" x 0.80" x 0.35" (12.7 x 20.3 x 8.9 mm)																				
Base	4 pin DIP package with standoffs																				
How To Order	CO-77 at Supply/Output Temperature Stability Option Frequency																				
For Additional Information Please Contact:																					

For Additional Information Please Contact:



VECTRON
INTERNATIONAL
A DOWNEY TECHNOLOGIES COMPANY

USA: Vectron International • 166 Glover Avenue, Norwalk, CT 06856 • Tel: 1-88-VECTRON-1 • Fax: 1-888-FAX-VECTRON

EUROPE: In Denmark, Finland, Ireland, Italy, Israel, Norway, Spain, UK: Tel: 44(0) 1703 766 288 • Fax: 44 (0) 1703 766 822

In Austria, Belgium, France, Germany, Luxembourg, Netherlands, Sweden, Switzerland: Tel: 49 (0) 72 63 648 0 • Fax: 49(0) 72 63 619 6

ASIA: In China, Taiwan, Japan: Tel: 1-603-598-0070 • Fax: 1-603-598-0075

In Korea, Singapore, Australia, India: Tel: 1-203-853-4433 • Fax: 1-203-849-1423



TEMEX ELECTRONICS INC.

3030 W. Deer Valley Rd.

Phoenix, AZ 85027

Phone: (623) 780-1995 Fax: (623) 780-9622

Aperto Networks
 Phone: 408-719-9977
 Fax: 408-719-9970
 ATTN: Bill Domitilli

Quote #: 2000071002
 Date: July 13, 2000
 Product Code: 00

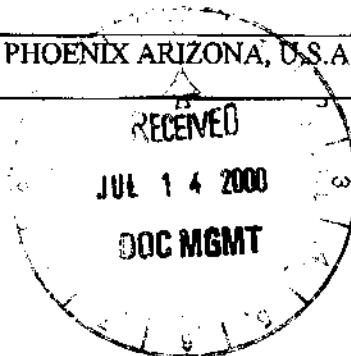
This Quotation is Valid for 30 Days

We are pleased to quote as follows:

Item#	Part Number	Description	Quantity	Unit Price
1	DOC2986	OCXO @ 10MHz	3	\$350.00
			100	130.00
			500	94.00
		See attached data sheet	1000	77.00
			5000	62.00
			10k	53.00
		Delivery: <u>3 – 100 pieces, 12-14 Weeks ARO.</u> <u>Larger qty's, TBD.</u>		
PRICES ARE F.O.B. PHOENIX ARIZONA, U.S.A / TERMS = NET 30 DAYS OAC				

Our Representative in your area is:

Frequency Control Associates
 Phone: 707-838-9200
 Fax: 707-838-7510

Signature: *D'Alene Baldwin*

Name: D'Alene Baldwin

Title: Sales

Date: July 13, 2000

PRICES

Prices, terms, condition of sale and final acceptance of orders are made at Temex's facility ONLY. Prices quoted are F.O.B. Phoenix, AZ. Once established, standard terms are Net 30 days, unless otherwise negotiated. We also accept VISA® and MASTERCARD® as alternative forms of payment.

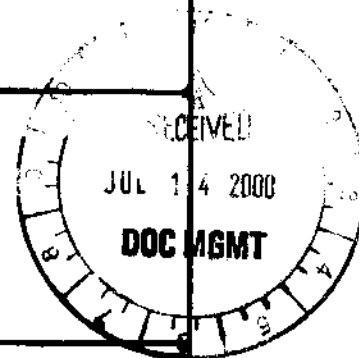
WARRANTY

Temex Electronics, Inc. warrants its products to be free from defects in materials and workmanship. The period of warranty is one year from date of shipment to the original purchaser.

Temex Electronics' obligation for any defect shall be limited to repair, replacement or credit of defective parts at Temex's discretion. Temex Electronics assumes no liability if defects result from improper use, repairs not made by Temex, negligence, accident or misapplication of part. No other warranty is expressed or implied and Temex Electronics is not liable for consequential damages. Temex Electronics, Inc. does not authorize any other person(s) to make any other warranty concerning its product(s).

	OCXO Oven Controlled Crystal Oscillator	OSCILLATOR DATA SHEET		
		NUMBER DOC 2986	REVISION W0	DATE 11 jul 2000

	Unit	Min	Nominal	Max	Note
NOMINAL FREQUENCY	MHz		16.384		
TEMPERATURE RANGE					
Operating G1	°C	0		70	
Functional G2	°C				
Storage G3	°C	-40		85	
POWER SUPPLY	V	11.4	12	12.6	12V ±5%
CONSUMPTION					
Vs temperature range	°C				
Consumption at temp. range	mA			200	steady state
Warm up	mA			500	
FREQUENCY ADJUSTMENT					
External potentiometer value	KOhm				
External resistor	KOhm				
External control voltage	V	0		10	
Input impedance	KOhm	10			
Frequency range	±ppm	2			Positive slope
Reference voltage	V				
Zout or Iout	mA				
OUTPUT SIGNAL WAVEFORM					
Level	V	0.5		3.5	Square HCMOS
Harmonics / Duty cycle	%	40	50	60	
Sub harmonics / Rise time	ns			10	
Non harmonics / Fall time	ns			10	
Load	TTL gates			10	
FREQUENCY STABILITY					
Vs temperature range G1	±ppm			0.3	
G2	±ppm				
Vs power supply	±ppm				
Vs load	±ppm				
	X	4 mn	6 mn	15 mn	
Vs warm up time	±ppm				compared to the frequency after 1 hour
AGEING	X	1 day	1 month	1 year	After continuous operating for:
Medium/long term stability	±ppb	10			
	X	1 ms	10 ms	100 ms	1 s Allan variance
Short term stability	±ppb				
RETRACE	X	30 mn	1 h	24 h	After 24hours turn off
	±ppm				
PHASE NOISE	X	1 Hz	10 Hz	1 KHz	10 KHz 100 KHz
Static conditions	dBc/Hz	-50	-80	-110	-120
Dynamic conditions	dBc/Hz				
MECHANICAL CONDITIONS					
Shocks					
Vibrations					



BNA
Systems

Approved Vendor List

[illegible]

Part Number Registration Form

DATE: 12-14-99

PART NUMBER: 017 — 10077017 — 00

CATEGORY:

Component: ☒ 0XX
Assembly: ☐ 1XX
Document: ☐ 2XX
Software: ☐ 3XX

Enter a description of the part or document below: Include any options or packaging

OCXO, 10 00000MHz, 12Vdc, HCMOS, +/- 1x10⁻⁷ stability -20C to +70C

Package Type: DIP 14