

### DESCRIPTION

The DQXO-3 oscillator has very high accuracy, stability and low current. The design consists of a CMOS-compatible hybrid circuit, packaged in a hermetically sealed standard TO-39 metal package. Permanent, precision tuning of the oscillator allows for very tight calibration tolerance and eliminates the need for a trimming capacitor, a major source of long-term frequency drift. The specifications and characteristics of the DQXO-3 vary with frequency. The characteristics of the 400Hz model are presented in this data sheet.



\*Consult factory for other frequencies.

### FEATURES

- Very low power consumption
- Low aging
- CMOS compatible
- Full military testing available
- Multiple frequency output available (6-pin TO-5 package)
- Designed and manufactured in the USA

### APPLICATIONS

Industrial, Computer & Communications

- General purpose clock oscillator
- Remote data timers

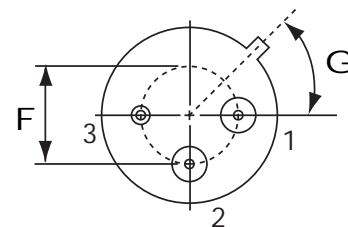
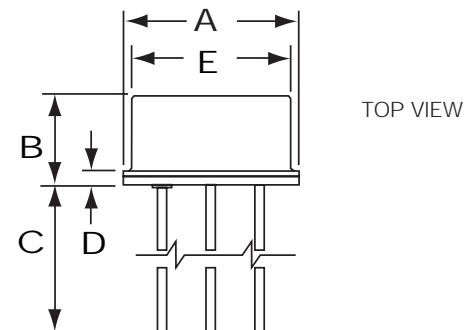
Military & Aerospace

- Process controllers
- Repeat cycle timers
- Tone generators
- Airborne hybrid computer
- Flight recorder

### PIN CONNECTIONS

- 1  $V_{DD}$
- 2 Output
- 3 Ground

### PACKAGE DIMENSIONS



DIM	INCHES	mm
A	0.380 MAX.	9.65 MAX.
B	0.185 MAX.	4.70 MAX.
C	0.500 Min.	12.70 Min.
D	0.029	0.74
E	0.326 MAX.	8.28 MAX.
F	0.200 Ref.	5.08 Ref.
G	45°	45°

Note:

1. All metal parts gold plated
2. Leads are 0.019 in. [0.48mm] MAX.

## SPECIFICATIONS-DQXO-3 400Hz

Specifications are typical at 25°C unless otherwise noted.  
Specifications are subject to change without notice.

Supply Voltage ( $V_{DD}$ )	5V $\pm$ 10% (3.3V available)
Calibration	A: $\pm$ 0.01% (100ppm)
Tolerance*	B: $\pm$ 0.1%
	C : $\pm$ 1.0%
Frequency Stability**	-55°C to +125°C -350 ppm TYP. -600 ppm MAX. -40°C to +85°C -150 ppm TYP. -300 ppm MAX.
Voltage Coefficient	3 ppm/V TYP. 10 ppm/V MAX.
Aging, first year	10 ppm/year MAX.
Shock	1,000g, 1 msec., 1/2 sine 3 ppm MAX.
Vibration	10g rms 10-2000 Hz 3 ppm MAX.
Frequency change vs. 10% Output Load Change	1 ppm MAX.
Operating Temperature	-10°C to +70°C Commercial -40°C to +85°C Industrial -55°C to +125°C Military

\* Tighter tolerances available.

\*\* Does not include calibration tolerance. Positive variations small compared to negative variations.

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage $V_{DD}$	-0.3V to 7.0V
Storage Temperature	-55°C to +125°C
Maximum Process Temp.	260°C, 10 seconds

## ELECTRICAL CHARACTERISTICS

### DQXO-400Hz

All parameters are measured at ambient temperature with a 10M $\Omega$  and 10pF load at 5V.

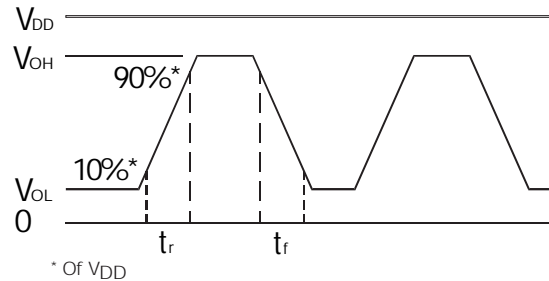
SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V	Output Voltage Hi	4.8	4.95		V
V	Output Voltage Lo		0.05	0.4	V
* $t_r$	Rise Time (10%-90%)		60	150	nsec.
* $t_f$	Fall Time (10%-90%)		60	150	nsec.
SYM	Duty Cycle	40	50	60	%
$I_{DD}$	Supply Current				
	$V_{DD} = 5V$		150	250	$\mu A$

\* Models with faster rise and fall time available, consult factory.

## PACKAGING

DQXO-3 - Tray Pack (Standard)

## OUTPUT WAVE FORM



## HOW TO ORDER DQXO-3 CRYSTAL OSCILLATORS

DQXO-3	S	400Hz	(	A	/	I	)
	"S" if special or custom design. Blank if Std.	Frequency		*Calibration Tolerance @25°C (A) (B) (C)		Temp. Range: C = Commercial I = Industrial M = Military S = Specify	

\* Other calibration fill in ppm

10142 - Rev C