



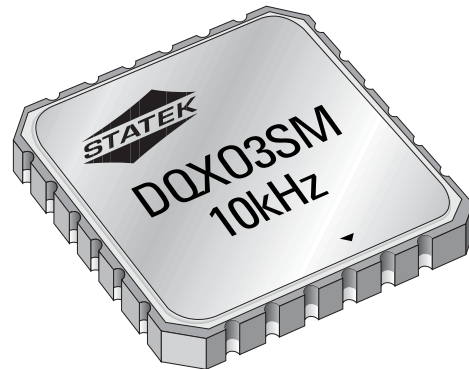
DQXO3SM OSCILLATOR

1 Hz to 10 kHz*

Surface Mount Low Frequency Crystal Oscillator

DESCRIPTION

The DQXO3SM oscillator consists of a CMOS-compatible hybrid circuit hermetically sealed in a standard 24-pin ceramic leadless chip carrier. Precision tuning of the oscillator allows for very tight calibration tolerances and eliminates the need for a trimming capacitor, a major source of long-term frequency drift. The specifications and characteristics of the DXQ03SM vary with frequency. The characteristics of the 400 Hz model are presented in this data sheet.



* Contact factory for frequencies below 1 Hz or multiple frequency outputs.

FEATURES

- Standard 24-pin ceramic LCC
- CMOS compatible
- Low power consumption
- Low aging
- Full military testing available
- Various voltage options available
- High shock resistance
- Multiple frequency outputs available

APPLICATIONS

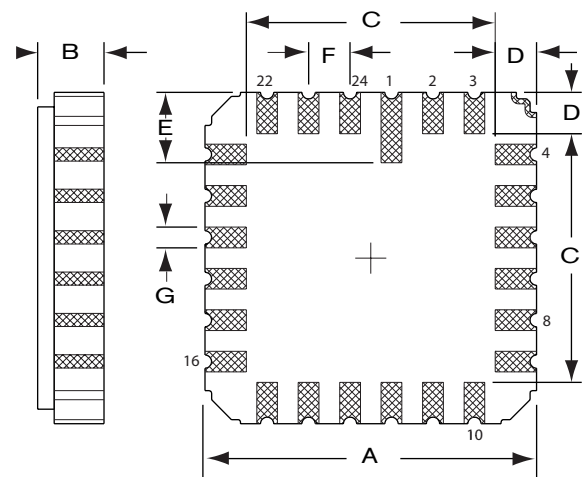
Industrial, Computer & Communications

- General purpose clock oscillator
- Data Logger
- Remote sensor
- Liquid level sensing
- Medical test and diagnostics

Military

- Portable field communication
- Military high speed modem
- Flight recorder

PACKAGE DIMENSIONS



DIM	INCHES	mm
A	0.410 MAX	10.16 MAX
B	0.080 MAX	2.03 MAX
C	0.300 MAX	7.62 MAX
D	0.050 TYP	1.27 TYP
E	0.085 TYP	2.16 TYP
F	0.050 TYP	1.27 TYP
G	0.025 TYP	0.64 TYP

PIN CONNECTIONS

Pin	Connection
23,24	Ground
5,6	V _{DD}
13,14	Output
All Others	NC

10144 - Rev C



SPECIFICATIONS: DQXO3SM at 400 Hz

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

Supply Voltage (V_{DD})	5 V $\pm$ 10% (3.3 V available)
Calibration Tolerance ¹	A: $\pm$ 0.01% ($\pm$ 100 ppm) B: $\pm$ 0.1% C: $\pm$ 1.0%
Frequency Stability ²	-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	10 ppm/year MAX
Shock, survival	1000 g peak, 1 ms, $\frac{1}{2}$ sine 3 ppm MAX
Vibration, survival	10 g peak rms, 10-2000 Hz 3 ppm MAX
Frequency Change vs. 10% Output Load Change	1 ppm MAX
Operating Temp. Range	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)

1. Tighter tolerances available

2. Does not include calibration tolerance.

Positive variations small compared to negative variations.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD}	-0.3 V to 7V
Storage Temperature	-55°C to +125°C

Max Process Temperature 260°C for 20 sec

ELECTRICAL CHARACTERISTICS

DQXO3SM 400 kHz

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

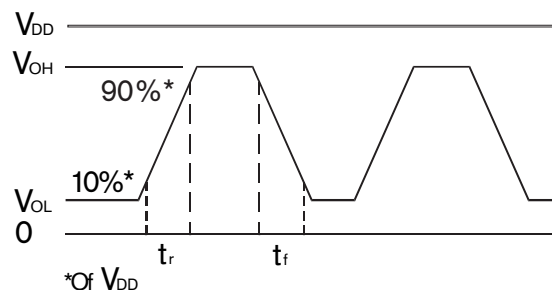
SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
V_{OH}	Output Voltage High	4.8	4.95		V
V_{OL}	Output Voltage Low		0.05	0.4	V
t_r	Rise Time (10%-90%)		60	150	ns.
t_f	Fall Time (10%-90%)		60	150	ns.
	Duty Cycle	40	50	60	%
I_{DD}	Supply Current				
5V	$f_o = 32.768$ kHz, $C_L = 10$ pF	150	250		μ A

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

PACKAGING

DQXO3SM -Tray Pack (Standard)

OUTPUT WAVEFORM



HOW TO ORDER DQXO3SM CRYSTAL OSCILLATORS

DQXO3SM	S	SM3	400H	,	100	/	I
	"S" if special or custom design Blank if standard	Blank = SM1 = Gold Plated (Lead Free) SM3 = Solder Dipped SM5 = Solder Dipped (Lead Free)	Frequency H = Hz K = kHz		Calibration Tolerance @ 25°C (in ppm)		Operating Temp. Range: C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C S = Customer Specified