

## Half Size Clock Oscillator Enable/Disable



The XO-52 series oscillator is half size, has tri-state enable/disable controlled function. The metal package with pin 4 case ground acts as shielding to minimize EMI radiation.

### FEATURES

- Size: 8 pin half size
- Industry standard
- Tri-state enable/disable
- Wide frequency range
- Low cost
- Resistance weld package
- 5 V
- Compliant to RoHS Directive 2002/95/EC



STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	SYMBOL	CONDITION	VALUE
Frequency range	$F_O$	-	1.000 MHz to 100.000 MHz
Frequency stability <sup>(1)</sup>		all conditions	$\pm 25$ ppm, $\pm 50$ ppm, $\pm 100$ ppm
Operating temperature range	$T_{OPR}$	-	0 °C to 70 °C
			- 40 °C to + 85 °C (option)
Storage temperature range	$T_{STG}$	-	- 55 °C to + 125 °C
Power supply voltage	$V_{DD}$	-	5.0 V $\pm$ 10 %
Aging (first year)		25 °C $\pm$ 3 °C	$\pm 5$ ppm
Supply current	$I_{DD}$	1.000 MHz to 23.999 MHz	20 mA max.
		24.000 MHz to 49.999 MHz	30 mA max.
		50.000 MHz to 69.999 MHz	40 mA max.
		70.000 MHz to 100.000 MHz	60 mA max.
Output symmetry	Sym	at $1/2 V_{DD}$	40 %/60 % (45 %/55 % option)
Rise time	$t_r$	20 % $V_{DD}$ to 80 % $V_{DD}$	10 ns max.
Fall time	$t_f$	80 % $V_{DD}$ to 20 % $V_{DD}$	10 ns max.
Output voltage	$V_{OH}$	-	90 % $V_{DD}$ min.
	$V_{OL}$	-	10 % $V_{DD}$ max.
Output load	TTL load	-	1 TTL to 10 TTL
	HCMOS load	-	to 50M: 50 pF
		-	to 70M: 30 pF
		-	to 100M: 15 pF
Start-up time	$t_s$	-	10 ms max.
Pin 1, tri-state function		-	pin 1 = H or open (output active at pin 5) pin 1 = L (high impedance at pin 5)

### Note

<sup>(1)</sup> Include: 25 °C tolerance, operating temperature range, input voltage change, aging, load change, shock vibration

### DIMENSIONS in inches [millimeters]

MARKING AREA

0.508 [12.9] max.

0.300  $\pm$  0.005 [7.62  $\pm$  0.13]

0.300  $\pm$  0.005 [7.62  $\pm$  0.13]

0.580 [12.9] max.

0.220 [5.6] max.

0.031  $\pm$  0.003 [0.8  $\pm$  0.1]

0.268 [6.80] max.

0.018  $\pm$  0.003 [0.45  $\pm$  0.1]

ENABLE/DISABLE FUNCTION	
INPUT (PIN 1)	OUTPUT (PIN 5)
OPEN	ENABLE
$V_{IN} \geq 2.2 V_{DC}$	ENABLE

PIN CONNECTION	
#1	N.C.
#4	GND
#5	OUTPUT
#8	$V_{DD}$

#### HCMOS TEST CIRCUIT

Note <sup>(1)</sup> Includes Stray and Probe Capacitance

#### HCMOS OUTPUT WAVEFORM

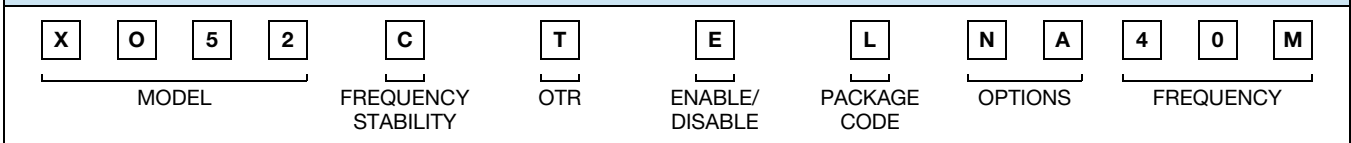
$T_0 = 1/F_0$       SYMMETRY =  $\frac{T_1}{T_0} \times 100 \%$



## ORDERING INFORMATION

XO-52	B	R	E	40M	e2
MODEL	FREQUENCY STABILITY AA = 0.0025 % (25 ppm) A = 0.005 % (50 ppm) B = 0.01 % (100 ppm)	OTR blank = 0 °C to + 70 °C R = - 40 °C to + 85 °C	ENABLE/DISABLE blank = pin 1 open E = disable to tri-state	FREQUENCY/MHz	JEDEC LEAD (Pb)-FREE standard

## GLOBAL PART NUMBER



## GLOBAL PART NUMBERING

MODEL NUMBER	FREQUENCY STABILITY	OPERATING TEMPERATURE (OTR)	ENABLE/DISABLE	PACKAGE CODE	OPTION	FREQUENCY
XO53 = XO-53 XO54 = XO-54 XO34 = XO-543 XO52 = XO-52 XO32 = XO-523 XO5M = XOSM-52 XO63 = XOSM-533 XO62 = XOSM-532 XO61 = XOSM-531 XO57 = XOSM-57 XO37 = XOSM-573 XO27 = XOSM-572 XO17 = XOSM-571 XO55 = XOSM-55 XO35 = XOSM-553	C = 0.01 % (100 ppm) D = 0.005 % (50 ppm) E = 0.0025 % (25 ppm)	T = 0 °C to + 70 °C R = - 40 °C to + 85 °C	F = pin 1 open E = disable to tristate	<b>Tape and reel</b> H = RF7  <b>Bulk</b> A = B04 (XO63, XO62, XO61) C = D06 (XO57, XO37, XO27, XO17) D = D07 (XO53, XO54, XO34, XO55, XO35) L = D08 (XO52, XO32, XO5M)	NA = no additional options 60 = 45/55 symmetry Contact factory for all other options	4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz  M is used as decimal place holder in frequency

Example: XO52CTELNA40M

## PART MARKING

Line 1:	M2802XXXXX (part number)
Line 2:	XX.XXXXM (frequency)
Line 3:	yywwvv (date/factory code)



## Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.