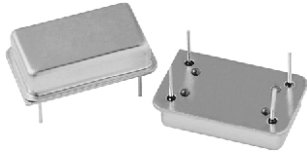


Full Size Clock Oscillators TTL/HCMOS Compatible



The XO-54 series oscillator is full size tri-state enable/disable control. The metal package with pin 7 case ground acts as shielding to minimize EMI radiation.

FEATURES

- Size: 14 pin full size
- Industry standard
- Wide frequency range
- Low cost
- Tri-state enable/disable
- Resistance weld package
- 5 V
- Compliant to RoHS Directive 2002/95/EC



STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	SYMBOL	CONDITION	VALUE
Frequency range	F_0	-	1.000 MHz to 100.000 MHz
Frequency stability ⁽¹⁾		all conditions	± 25 ppm, ± 50 ppm, ± 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	± 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 $\frac{1}{2} V_{DD}$	40 %/60 % (45 %/55 % option)
Rise time	t_r	10 % V_{DD} to 90 % V_{DD}	10 ns max.
Fall time	t_f	90 % V_{DD} to 10 % 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
Start-up time	t_s	-	10 ms max.
Pin 1, tri-state function		-	pin 1 = H or open (output active at pin 3) pin 1 = L (high impedance at pin 3)

Note

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

DIMENSIONS in inches [millimeters]

MARKING AREA

0.508 [12.9] max.

0.300 \pm 0.005 [7.62 \pm 0.13]

0.600 \pm 0.005 [15.24 \pm 0.13]

0.803 [20.4] max.

0.200 [5.08] max.

0.031 \pm 0.003 [0.8 \pm 0.1]

0.018 \pm 0.003 [0.45 \pm 0.1]

0.268 [6.80] max.

ENABLE/DISABLE FUNCTION	
INPUT (PIN 1)	OUTPUT (PIN 8)
OPEN	ENABLE
$V_{IH} \geq 2.2 V_{DC}$	ENABLE

PIN	CONNECTION
#1	TRI-STATE NC
#7	GND
#8	OUTPUT
#14	V_{DD}

HCMOS TEST CIRCUIT

TEST POINT

CMOS LOAD ⁽¹⁾

CL = 15 pF or 50 pF (see individual spec sheet)

Enable/Disable function

HCMOS OUTPUT WAVEFORM

90 % V_{DD}

50 % V_{DD}

10 % V_{DD}

GND

T_1

$T_0 = 1/F_0$

SYMMETRY $\frac{T_1}{T_0} \times 100\%$

Note ⁽¹⁾ Includes Stray and Probe Capacitance

ORDERING INFORMATION

XO-54	B	R	E	40M	e2
MODEL	FREQUENCY STABILITY AA = 0.0025 % (25 ppm) A = 0.005 % (50 ppm) B = 0.01 % (100 ppm) standard	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

X	O	5	4	C	T	E	D	N	A	4	0	M
MODEL				FREQUENCY STABILITY	OTR	ENABLE/DISABLE	PACKAGE CODE	OPTIONS		FREQUENCY		

GLOBAL PART NUMBERING

X	O	5	2	C	T	E	L	N	A	4	0	M
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	Tape and reel H = RF7 Bulk 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:	M2803XXXXX (part number)
Line 2:	XX.XXXXM (frequency)
Line 3:	yywwwv (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.