

## Surface Mount Oscillator



The XOSM-533 series is an ultra miniature package clock oscillator with dimensions 5.0 mm x 3.2 mm x 1.3 mm. It is mainly used in portable PC and telecommunication devices and equipment.

### FEATURES

- Size: 5.0 x 3.2 x 1.3 (mm)
- Miniature package
- Tri-state enable/disable
- HCMOS compatible
- Tape and reel
- I<sub>R</sub> re-flow
- 3.3 V input voltage
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	SYMBOL	CONDITION	VALUE
Frequency range	F <sub>O</sub>	-	1.544 MHz to 100.000 MHz
Frequency stability <sup>(1)</sup>		All conditions	± 25 ppm, ± 50 ppm, ± 100 ppm
Operating temperature range	T <sub>OPR</sub>	-	0 °C to 70 °C
			-40 °C to +85 °C (option)
Storage temperature range	T <sub>STG</sub>	-	-55 °C to +125 °C
Power supply voltage	V <sub>DD</sub>	-	3.3 V ± 10 %
Aging (first year)		25 °C ± 3 °C	± 5 ppm
Supply current	I <sub>DD</sub>	1.544 MHz to 9.999 MHz	8 mA max.
		10.000 MHz to 34.999 MHz	10 mA max.
		35.000 MHz to 49.999 MHz	25 mA max.
		50.000 MHz to 100.000 MHz	35 mA max.
Output symmetry	Sym	at 1/2 V <sub>DD</sub>	40 %/60 % (45 %/55 % option)
Rise time	t <sub>r</sub>	10 % V <sub>DD</sub> to 90 % V <sub>DD</sub>	7 ns max.
Fall time	t <sub>f</sub>	90 % V <sub>DD</sub> to 10 % V <sub>DD</sub>	7 ns max.
Output voltage	V <sub>OH</sub>	-	90 % V <sub>DD</sub> min.
	V <sub>OL</sub>	-	10 % V <sub>DD</sub> max.
Output load	HCMOS load	-	30 pF max. (15 pF typ.)
Start-up time	t <sub>s</sub>	-	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

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

DIMENSIONS in inches [millimeters]											
<p>0.197 ± 0.008 [5.0 ± 0.2] 0.130 ± 0.008 [3.3 ± 0.2] 0.051 [1.3] max. 0.047 ± 0.003 [1.20 ± 0.1] 0.1 ± 0.003 [2.54 ± 0.1] 0.047 [1.2] 0.1 [2.54] 0.087 [2.2] 0.055 [1.4]</p>	<table border="1"> <thead> <tr> <th>PIN</th> <th>CONNECTION</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>TRI-STATE/NC</td> </tr> <tr> <td>#2</td> <td>GND</td> </tr> <tr> <td>#3</td> <td>OUTPUT</td> </tr> <tr> <td>#4</td> <td>V<sub>DD</sub></td> </tr> </tbody> </table>	PIN	CONNECTION	#1	TRI-STATE/NC	#2	GND	#3	OUTPUT	#4	V <sub>DD</sub>
PIN	CONNECTION										
#1	TRI-STATE/NC										
#2	GND										
#3	OUTPUT										
#4	V <sub>DD</sub>										

### Note

- A 0.01 µF bypass capacitor should be placed between V<sub>DD</sub> (pin 4) and GND (pin 2) to minimize power supply line noise



ORDERING INFORMATION					
<b>XOSM-533</b>	<b>B</b>	<b>R</b>	<b>E</b>	<b>50M</b>	<b>e4</b>
MODEL	FREQUENCY STABILITY	OTR	ENABLE/DISABLE	FREQUENCY/MHz	JEDEC® LEAD (Pb)-FREE
	AA = 0.0025 % (25 ppm) A = 0.005 % (50 ppm) B = 0.01 % (100 ppm) standard	Blank = standard R = -40 °C to +85 °C	E = disable to tri-state		Standard

GLOBAL PART NUMBER												
X	O	6	3	C	T	E	A	N	A	5	0	M
MODEL				FREQUENCY STABILITY	OTR	ENABLE/DISABLE	PACKAGE CODE	OPTIONS		FREQUENCY		

GLOBAL PART NUMBERING OPTIONS												
X	O	5	7	C	T	E	C	N	A	4	0	M
<b>MODEL NUMBER</b>	<b>FREQUENCY STABILITY</b>	<b>OPERATING TEMPERATURE (OTR)</b>		<b>ENABLE/DISABLE</b>	<b>PACKAGE CODE</b>	<b>OPTION</b>	<b>FREQUENCY</b>					
XO63 = XOSM-533 XO62 = XOSM-532 XO61 = XOSM-531 XO57 = XOSM-57 XO37 = XOSM-573 XO27 = XOSM-572 XO17 = XOSM-571	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		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)	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: XO57CTECNA40M												

PART MARKING	
Line 1:	M2807XXXXX (part number)
Line 2:	XX.XXXXM (frequency)
Line 3:	yywwvv (date/factory code)



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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