

## Surface Mount Oscillator



The XOSM-531 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
- $I_R$  re-flow
- 1.8 V input voltage
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition



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

STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	SYMBOL	CONDITION	VALUE
Frequency range	$F_O$	-	1.544 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	$V_{DD}$	-	1.8 V $\pm$ 10 %
Aging (first year)		25 °C $\pm$ 3 °C	$\pm 5$ ppm
Supply current	$I_{DD}$	1.544 MHz to 9.999 MHz	6 mA max.
		10.000 MHz to 34.999 MHz	7 mA max.
		35.000 MHz to 49.999 MHz	15 mA max.
		50.000 MHz to 100.000 MHz	25 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 % $V_{DD}$	5 ns max.
Fall time	$t_f$	90 % $V_{DD}$ to 10 % $V_{DD}$	5 ns max.
Output voltage	$V_{OH}$	-	90 % $V_{DD}$ min.
	$V_{OL}$	-	10 % $V_{DD}$ max.
Output load	HCMOS load	-	30 pF max. (15 pF typ.)
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

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

DIMENSIONS in inches [millimeters]											
	<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><math>V_{DD}</math></td> </tr> </tbody> </table>	PIN	CONNECTION	#1	TRI-STATE/NC	#2	GND	#3	OUTPUT	#4	$V_{DD}$
PIN	CONNECTION										
#1	TRI-STATE/NC										
#2	GND										
#3	OUTPUT										
#4	$V_{DD}$										

### Note

- A 0.01  $\mu$ F bypass capacitor should be placed between  $V_{DD}$  (pin 4) and GND (pin 2) to minimize power supply line noise



## ORDERING INFORMATION

XOSM-531	B	R	E	50M	e4
MODEL	FREQUENCY STABILITY AA = 0.0025 % (25 ppm) A = 0.005 % (50 ppm) B = 0.01 % (100 ppm)	OTR blank = standard R = - 40 °C to + 85 °C	ENABLE/DISABLE E = disable to tri-state	FREQUENCY/MHz	JEDEC LEAD (Pb)-FREE standard

## GLOBAL PART NUMBER

X	O	6	1	C	T	E	A	N	A	5	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
<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>		
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:	M28_XXXXX (part number)
Line 2:	XX.XXXM (frequency)
Line 3:	yywwvv (date/factory code)



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