

## 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
- $I_R$  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**

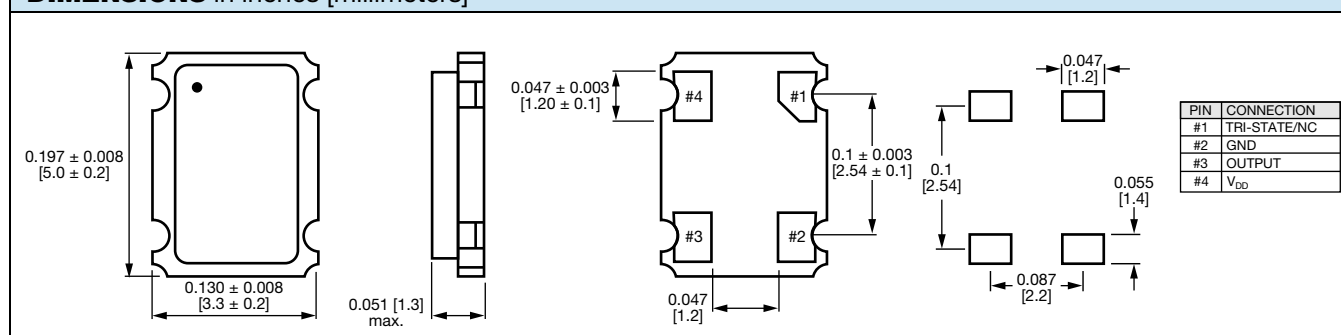
### STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER                          | SYMBOL     | CONDITION                      | VALUE                                                                                  |
|------------------------------------|------------|--------------------------------|----------------------------------------------------------------------------------------|
| Frequency range                    | $F_O$      | -                              | 1.544 MHz to 100.000 MHz                                                               |
| Frequency stability <sup>(1)</sup> |            | All conditions                 | $\pm 20$ ppm, $\pm 25$ ppm, $\pm 30$ ppm,<br>$\pm 35$ ppm, $\pm 50$ ppm, $\pm 100$ ppm |
| Operating temperature range        | $T_{OPR}$  | -                              | 0 °C to 70 °C<br>-40 °C to +85 °C (option)                                             |
| Storage temperature range          | $T_{STG}$  | -                              | -55 °C to +125 °C                                                                      |
| Power supply voltage               | $V_{DD}$   | -                              | 3.3 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         | 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 $\frac{1}{2} V_{DD}$        | 40 %/60 % (45 %/55 % option)                                                           |
| Rise time                          | $t_r$      | 10 % $V_{DD}$ to 90 % $V_{DD}$ | 7 ns max.                                                                              |
| Fall time                          | $t_f$      | 90 % $V_{DD}$ to 10 % $V_{DD}$ | 7 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)<br>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]



#### 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

**PART NUMBER CONFIGURATIONS** (to be used on all New Designs)

| X          | O              | 5        | 3         | C                                                                                                                                    | 3                                            | D                               | R                 | E                                                                    | H                                                                                                  | T | 1 | 6 | M | 1 | 2 | 8 |
|------------|----------------|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------|-------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| Oscillator | Package / Size | Logic    | Voltage   | Stability                                                                                                                            | Temp.                                        | Tri-State                       | Package           | Options                                                              | Frequency                                                                                          |   |   |   |   |   |   |   |
|            | 5 3            | C = CMOS | 3 = 3.3 V | C = $\pm 100$ ppm<br>D = $\pm 50$ ppm<br>F = $\pm 35$ ppm<br>G = $\pm 30$ ppm<br>E = $\pm 25$ ppm<br>H = $\pm 20$ ppm <sup>(1)</sup> | S = -10 °C to +70 °C<br>R = -40 °C to +85 °C | N = no connect<br>E = Tri-State | H = tape and reel | X = no options<br>T = 45/55<br>Contact factory for available options | Use "M" as decimal place holder<br><br>Frequency must be six digits - complete with "0" at the end |   |   |   |   |   |   |   |

**Note**<sup>(1)</sup> Contact factory for availability

Previous / legacy part number information: still valid for existing designs;

**all New Designs should use the new part configuration above****PREVIOUS / LEGACY GLOBAL PART NUMBERING**

| X                                                                                                                                | O | 6 | 3 | C                                                                     | T                                          | E                       | A                                                                                                                    | N                                                                                              | A                                                                                                                           | 5 | 0 | M |
|----------------------------------------------------------------------------------------------------------------------------------|---|---|---|-----------------------------------------------------------------------|--------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---|---|---|
| MODEL NUMBER                                                                                                                     |   |   |   | FREQUENCY STABILITY                                                   | OPERATING TEMPERATURE (OTR)                | ENABLE/DISABLE          | PACKAGE CODE                                                                                                         | OPTION                                                                                         | FREQUENCY                                                                                                                   |   |   |   |
| XO63 = XOSM-533<br>XO62 = XOSM-532<br>XO61 = XOSM-531<br>XO57 = XOSM-57<br>XO37 = XOSM-573<br>XO27 = XOSM-572<br>XO17 = XOSM-571 |   |   |   | C = 0.01 % (100 ppm)<br>D = 0.005 % (50 ppm)<br>E = 0.0025 % (25 ppm) | T = 0 °C to +70 °C<br>R = -40 °C to +85 °C | E = disable to tristate | <b>Tape and reel</b><br>H = RF7<br><br><b>Bulk</b><br>A = B04 (XO63, XO62, XO61)<br>C = D06 (XO57, XO37, XO27, XO17) | NA = no additional options<br>60 = 45/55 symmetry<br><br>Contact factory for all other options | 4M = 4 MHz<br>40M = 40 MHz<br>100M = 100 MHz<br>12M288 = 12 288 MHz<br><br>"M" is used as decimal place holder in frequency |   |   |   |

Example: XO63CTEANA50M

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

**PART MARKING**

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



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