



 actual size

## SMO • 5.0 Volt

### surface mount CMOS oscillator

#### features

-  CMOS-TTL compatible
-  full ceramic package

type	low power series		heavy load series	
	VX3A VX3B VX3BS	VX3E VX3F VX3FS	VX3S VX3T VX3TS	VX3X VX3Y VX3YS
$\pm 100$ ppm*				
$\pm 50$ ppm*				
$\pm 30$ ppm*				
tristate function	no	yes	no	yes
frequency range	1.5 ~ 80.0 MHz		1.5 ~ 80.0 MHz	
current consumption max.	1.5 ~ 29.9 MHz : 10 mA 30.0 ~ 34.9 MHz : 15 mA 35.0 ~ 65.9 MHz : 30 mA 66.0 ~ 80.0 MHz : 50 mA		1.5 ~ 19.9 MHz : 20 mA 20.0 ~ 49.9 MHz : 35 mA 50.0 ~ 80.0 MHz : 60 mA	
	note: typical current consumption data on request		note: typical current consumption data on request	
output load	15 pF (2TTL)		50 pF (10TTL)	
rise and fall time	< 6 ns (depending on frequency)		< 6 ns (depending on frequency)	
standard operating temperature	0 °C ~ +70 °C		0 °C ~ +70 °C	
supply voltage	5.0 V $\pm$ 10%		5.0 V $\pm$ 10%	
output level "low" max.	$V_{DC} \times 0.1$		$V_{DC} \times 0.1$	
output level "high" min.	$V_{DC} \times 0.9$		$V_{DC} \times 0.9$	
symmetry at 1/2 $V_{DC}$	40/60% max (45/55 % typical)		40/60% max (45/55 % typical)	

\* frequency stability: inclusive of calibration tolerance at 25 °C, operating temperature range, input voltage change, aging, shock and vibration

#### order information example:

**0 - 10.0 - VX3E - T1**

1.    2.    3.    4.

- |                         |                                    |
|-------------------------|------------------------------------|
| 1. oscillator:          | 0                                  |
| 2. frequency:           | 10.0 MHz                           |
| 3. type:                | VX3E                               |
| 4. special requirement: | -40 °C ~ +85 °C (see option table) |

#### marking:

1. line = type / frequency in MHz
2. line = company code / date code

date code: year/month      example: 0A = 2000 January

Jan.	Febr.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
A	B	C	D	E	F	G	H	I	J	K	L

#### option table:

- T1 - -40 °C ~ +85 °C ( $\pm 100$  ppm,  $\pm 50$  ppm type only)

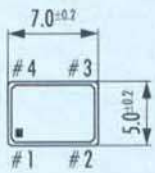
#### enable / disable function (e/d)

e/d delay time: 100 ns max.

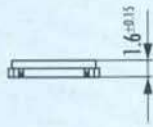
<b>control input # 1</b>	<b>output # 3</b>
open or high	active
low or ground	high impedance

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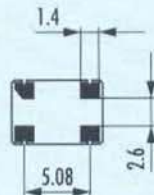
## dimensions



top view

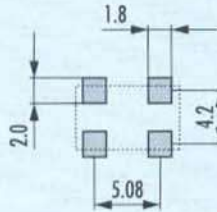


side view



bottom view

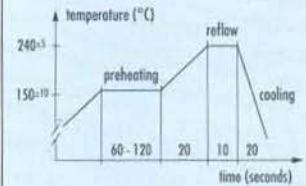
## pad layout



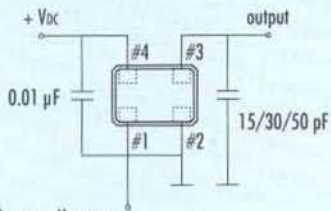
Terminals  
 # 1: e/d or nc  
 # 2: ground  
 # 3: output  
 # 4: V<sub>cc</sub>

in mm

## reflow soldering profile



## test circuit



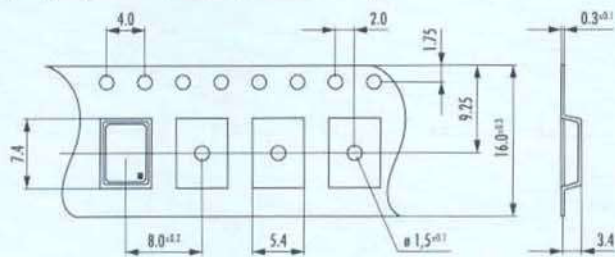
Terminals  
 # 1: e/d or nc  
 # 2: ground  
 # 3: output  
 # 4: V<sub>cc</sub>

pin 1:  
 high level = oscillation  
 low level = high impedance

## test conditions:

- a) temperature cycle:  
 0 °C to 25 °C to 120 °C to 25 °C (each temperature 20 minutes, 3 cycle)
- b) shock test:  
 1000 g, 0.5 ms, 1/2 sine wave, each plane
- c) vibration:  
 10 Hz ~ 82 Hz, 1.52 mm amplitude  
 82 Hz ~ 2000 Hz, 20 g each plane

## taping specification (JIS-C0806)



Direction of feed →

500 pcs per reel  
 Note: Reel diameter 180 mm  
 Reel marking: type - OH

in mm

## developed frequencies in MHz (issue 01.2000)

1.843200	12.288000	20.250000	29.500000	39.398400	53.125000
2.048000	12.352000	20.284000	30.000000	39.460000	53.203425
2.457600	12.441600	20.736000	30.159000	39.960000	53.693175
3.579545	12.500000	22.000000	30.720000	40.000000	54.000000
3.686400	13.248000	22.118400	31.500000	40.500000	55.000000
4.000000	13.330000	22.220000	32.000000	40.550400	55.296000
4.096000	13.500000	22.222200	32.727270	40.608000	56.250000
4.354500	13.600000	22.500000	32.768000	41.472000	57.600000
4.433619	14.318180	23.040000	33.000000	42.000000	60.000000
4.915200	14.745600	23.587000	33.330000	43.180000	62.196000
5.000000	15.000000	24.000000	33.333300	43.243200	62.500000
5.068800	15.360000	24.192000	33.333330	44.236800	63.566400
6.000000	16.000000	24.576000	33.868800	44.736000	64.000000
6.144000	16.384000	25.000000	34.200000	44.900000	64.375000
6.250000	16.500000	25.175000	34.574400	45.000000	65.000000
6.758400	16.666000	25.426500	34.476000	46.000000	65.536000
7.108000	16.666700	25.750000	34.576000	46.647000	66.000000
7.200000	17.734476	26.660000	35.251200	48.000000	66.660000
7.372800	18.432000	27.000000	35.328000	48.384000	66.666000
7.680000	18.937500	27.500000	36.000000	48.933000	66.666670
8.000000	19.069928	28.224000	36.864000	49.152000	66.667000
8.064000	19.200000	28.322000	37.000000	49.800000	67.500000
8.192000	19.312500	28.375000	37.056000	50.000000	67.737600
9.830400	19.440000	28.636360	37.632000	50.113630	71.500000
10.000000	19.660800	29.491200	38.912000	52.000000	75.000000
11.059200	20.000000	29.498900	39.000000	52.900000	80.000000
12.000000	20.160000	29.498920	39.321600	53.000000	

available frequencies for ± 30 ppm types