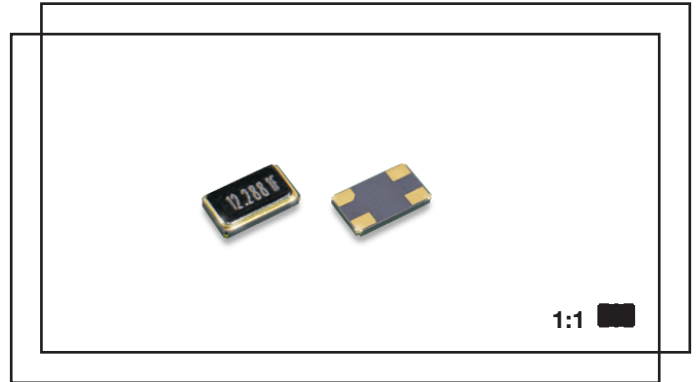


## Type OE clock oscillator smd ceramic package (1.5 ~ 55)MHz

- #  $\pm 10\text{ppm}$  or  $\pm 20\text{ppm}$
- # accuracy includes 10 year's ageing
- # +(2.8 ~ 3.3)Vd.c., +5.0Vd.c. supply
- # RoHS compliant



### Electrical specification

Case style	E: (5.0 x 3.2)mm, height 1.2mm		
Frequency range	(1.5 ~ 55)MHz		
Stability *	$\pm(10 \sim 20)\text{ppm}$ , temperature range dependent		
Supply voltage $V_{CC}$		<b>+3.3Vd.c.</b>	<b>+5.0Vd.c.</b>
Supply current max.	(1.5 ~ 20)MHz	10mA	15mA
	(20 ~ 40)MHz	15mA	20mA
	(40 ~ 55)MHz	22mA	30mA
Rise and fall time max. **	6ns		
Start time	8msec		
Absolute clock period jitter	40picoSec		
Standby current	50 $\mu$ A		
Operating temperature	(0 +50) $^{\circ}$ C ~ (-40 +85) $^{\circ}$ C		
Storage temperature	(-55 +125) $^{\circ}$ C		
Output	CMOS		
Symmetry	(45 ~ 55)%		
Tri-state	fixed frequency or tri-state		

\* inclusive of calibration tolerance at +25 $^{\circ}$ C, temperature tolerance, supply voltage variation, load variation, 10 year's ageing, shock and vibration.

\*\* measured, with an output load of 15pF, between (10 ~ 90)%  $V_{CC}$

### Ordering information

**Example .... type OE smd clock oscillator, 20.00MHz, +(2.8 ~ 3.3)Vd.c., fixed frequency with tri-state,  $\pm 20\text{ppm}$ (-40 +85) $^{\circ}$ C, including 10 years ageing output CMOS 15pF, symmetry (45 ~ 55)%**

**TFC PART NUMBER .... OE 20.0M E T C L J**

'OE' .... type number: OE = smd clock oscillator type OE

'20.0M' .... frequency: 20.0M = 20.00MHz, frequency range from (1.5 ~ 55)MHz

'E' .... supply voltage: E = +(2.8 ~ 3.3)Vd.c.

'T' .... tri state: T = tri-state function on pin #1

'C' .... frequency stability: C =  $\pm 20\text{ppm}$  includes 10 year's ageing

'L' .... temperature range: L = (-40 +85) $^{\circ}$ C

'J' .... output logic and symmetry: J = CMOS 15pF, (45 ~ 55)%

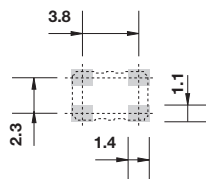
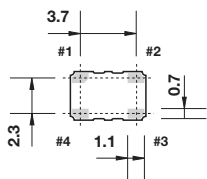
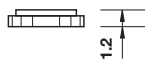
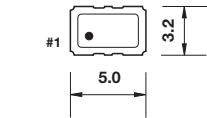
**Frequency stability .... B:  $\pm 10\text{ppm}$ , C:  $\pm 20\text{ppm}$ . Stability includes 10 year's ageing**

**Temperature range .... B: (0 +50) $^{\circ}$ C, I: (-10 +60) $^{\circ}$ C, C: (-20 +70) $^{\circ}$ C, L: (-40 +85) $^{\circ}$ C**

**Output .... J: CMOS 15pF(45 ~ 55)%**

## Type OE clock oscillator

### OE dimensions(mm) shown twice full size



#### Suggested land pattern

Pads are gold, 2.5µ min., over nickel, suitable for vapour phase or reflow soldering, preheat +150°C for 2 minutes, peak temperature +250°C for 30 seconds max.

Connect 0.1µF capacitor between Vcc and ground

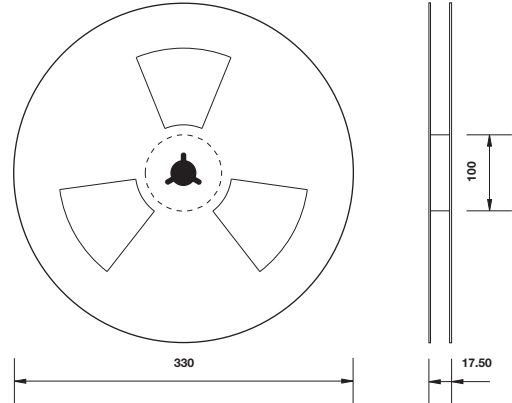
#### Pads viewed from bottom

- #1 Tri-State
- #2 ground
- #3 output
- #4 Vcc

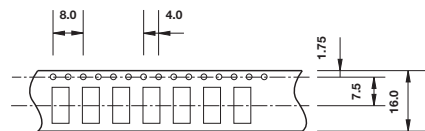
#### Output inhibit:

- #1 high: output oscillation
- #1 low: output high impedance

### Tape and reel dimensions(mm)



Centre hole diameter 13.0mm, slot width 2mm spaced at 120°  
Reel quantity 5000 pieces, leader tape 400mm minimum  
Trailer tape: 10 empty compartments minimum



Tape transport hole diameter 1.5mm  
Compartment size 3.60mm x 5.40mm, depth 1.40mm  
Component spacing 8.0mm

### Environmental test conditions

<b>Mechanical shock</b>	1500g, half sine wave, 0.5ms, 3 directions	MIL STD 883D 2002.3, condition A
<b>Thermal shock</b>	(-55 ~ +125)°C, 20 cycles	MIL STD 883D 1011.9, condition B
<b>Vibration</b>	(10 ~ 2000)Hz, 1.25mm, sine wave, 20g, each of three planes, duration 4 hours	MIL STD 883D 2005.2, condition B
<b>Solderability</b>	+245°C ±5°C, 5 seconds ±0.5 seconds	MIL STD 883D 2003.7
<b>Fine leak</b>	Mass spectrometer leak rate less than 2 <sup>10-8</sup> atm.cc/sec. helium	MIL STD 883D 1014.9, condition A
<b>Gross leak</b>	Leak test in de-ionised water, vacuum 70cm/Hg	
<b>Humidity</b>	85% relative humidity, +85°C, 500 hours	JIS-C 7022 B-5, condition C