

**Type TC smd VCTCXO**  
**(10 ~ 50)MHz, (3.3 ~ 5.0)Vd.c. supply**  
**(7.0 x 5.0)mm, height 2.0mm**  
**temperature tolerance from ±0.5ppm**

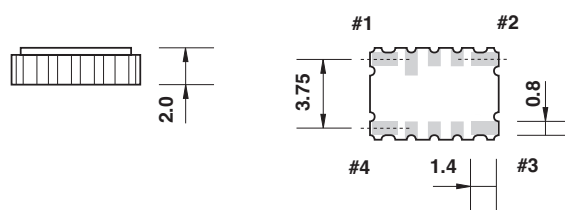
A precision, compact, smd voltage controlled TCXO, low ageing and low power consumption.

Supplied on tape and reel; 1000 or 3000 pieces per reel, RoHS compliant.

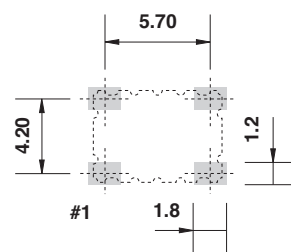
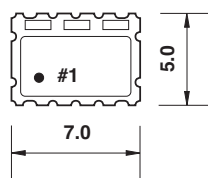
**Frequency stability -vs- temperature:**

TEMP. RANGE	TOLERANCE	
(0 +55)°C	±0.5ppm	±1.0ppm
(-10 +60)°C	±0.5ppm	±1.0ppm
(-20 +70)°C	±0.5ppm	±1.0ppm
(-30 +85)°C	±0.5ppm	±1.0ppm
(-40 +85)°C		±1.0ppm

**Dimensions(mm)**



Pads viewed from bottom



**Suggested land pattern**

pad connections

# 1 TCXO: ground or  $V_c$  trim

TCVCXO: ±5ppm min. for  $V_c = +1.5V \pm 1.0V$

# 2 ground  
 # 3 output  
 # 4  $V_{DD}$

pads are gold, 2.5µ min. over nickel, suitable for vapour phase or reflow soldering.

**Electrical specification:**

	5.0Vd.c.		3.3Vd.c.		Units
	min.	max.	min.	max.	
supply voltage $V_{DD} \pm 5\%$	4.75	5.25	2.97	3.63	Vd.c.
frequency range	(10 ~ 26)MHz		(10 ~ 40)MHz		MHz
frequency tolerance	±2.0				ppm
frequency stability vs supply ±5%	-	±0.2	-	±0.2	ppm
frequency stability vs load ±10%	-	±0.2	-	±0.2	ppm
frequency stability vs ageing		±1.0	-	±1.0	ppm per year
supply current: (10 ~ 15)MHz	-	1.5	-	1.5	mA
supply current: (15 ~ 26)MHz	-	2.0	-	2.0	mA
supply current: (26 ~ 50)MHz CMOS	-	6.0	-	6.0	mA
supply current: (26 ~ 50)MHz clipped sine	-	3.5	-	3.5	mA
output level clipped sine wave	0.8	-	0.8	-	Vp-p
load clipped sine wave	10KΩ//10pF				
load CMOS	15pF				
$V_c$ voltage control range (VCTCXO)	0.5	2.5	0.5	2.5	V
pulling range (VCTCXO)	±5	-	±5	-	ppm
$V_c$ input impedance (VCTCXO)	100	-	100	-	KΩ
phase noise @13.0MHz +100Hz	-115		-115		dBc/Hz
phase noise @13.0MHz +1kHz	-135		-135		dBc/Hz
phase noise @13.0MHz +10kHz	-148		-148		dBc/Hz
start up time	-	2	-	2	milli sec
storage temperature range	(-55 +125)°C				°C

**Ordering information**

<b>EXAMPLE</b>	<i>type TC smd VCTCXO, 20.0MHz, +3.3Vd.c., ±5ppm pulling range, ±1.0ppm(-20 +70)°C, clipped sine wave output</i>
<b>TFC PART NUMBER</b>	<b>TC 20.0M E A B C S</b>
<b>TC</b>	<i>type: TC = VCTCXO type TC</i>
<b>20.0M</b>	<i>frequency: 20.0MHz, frequency range (10 ~ 50)MHz</i>
<b>E</b>	<i>supply voltage: E = +3.3Vd.c.</i>
<b>A</b>	<i>pulling range: A = ±5ppm for VCTCXO</i>
<b>B</b>	<i>frequency stability: B = ±1ppm</i>
<b>C</b>	<i>temperature range: C = (-20 +70)°C</i>
<b>S</b>	<i>output: S = clipped sine wave</i>
<b>OPTIONS</b>	
<b>supply voltage</b>	<i>E: +3.3Vd.c., C: +5Vd.c.</i>
<b>pulling range</b>	<i>A: ±5ppm, B: ±8ppm, C: ±10ppm, T: TCXO</i>
<b>frequency stability</b>	<i>A: ±0.5ppm, B: ±1.0ppm</i>
<b>temperature range</b>	<i>B: (0 +55)°C, I: (-10 +60)°C, C: (-20 +70)°, D: (-30 +85)°C, L: (-40 +85)°C</i>
<b>output logic</b>	<i>J: CMOS 15pF, S: clipped sine wave 10K//10pF</i>