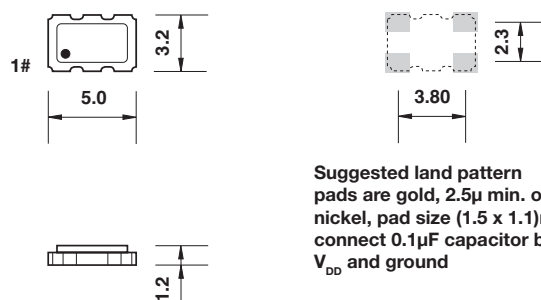


**Type TV smd TCXO**  
**(10 ~ 40)MHz, (3.3 ~ 5.0)Vd.c. supply**  
**(5.0 x 3.2)mm, height 1.2mm**  
**temperature tolerance from ±0.5ppm**

A miniature, low profile, smd voltage controlled TCXO, low ageing and low power consumption.

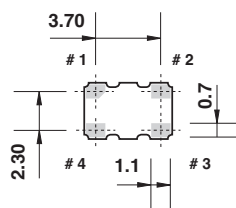
Supplied on tape and reel; 1000 pieces per reel, RoHS compliant.

**Dimensions(mm)**


Suggested land pattern pads are gold, 2.5µ min. over nickel, pad size (1.5 x 1.1)mm connect 0.1µF capacitor between V<sub>DD</sub> and ground

**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



pads viewed from bottom

**Connections:**

- # 1 TCXO: ground or N/C  
VCTCXO: V<sub>C</sub>
- # 2 ground
- # 3 output
- # 4 V<sub>DD</sub>

**Electrical specification:**

	5.0Vd.c.		3.3Vd.c.		Units
	min.	max.	min.	max.	
supply voltage V <sub>DD</sub> ±5%	4.75	5.25	2.97	3.63	Vd.c.
frequency range	(10 ~ 26)MHz		(10 ~ 40)MHz		MHz
standard frequencies	13.0, 14.40, 16.368, 16.369, 16.80, 19.20, 19.68, 20.0, 26.0				MHz
standard frequency tolerance	±2.0 at +25°C one hour after reflow				ppm
frequency stability vs supply ±5% clipped sine	-	±0.2	-	±0.2	ppm
frequency stability vs supply ±5% CMOS	-	-	-	±0.4	
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 clipped sine	-	1.5	-	1.5	mA
supply current: (15 ~ 26)MHz clipped sine	-	2.0	-	2.0	mA
supply current: (26 ~ 40)MHz clipped sine	-	-	-	2.5	mA
supply current: (10 ~ 40)MHz CMOS	-	-	-	6.0	mA
output level clipped sine wave	0.8	-	0.8	-	V <sub>p-p</sub>
output level CMOS output high logic 1	-	-	90%	-	V
output level CMOS output low logic 0	-	-	-	10%	V
duty	-	-	45	55	%
load clipped sine wave	10KΩ//10pF				
load CMOS	-		15pF		
V <sub>C</sub> voltage control range	0.5	2.5	0.5	2.5	V
pulling range VCTCXO	±5 ~ ±10		±5 ~ ±10		ppm
V <sub>C</sub> 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 TV smd TCXO, 19.20MHz, +3.3Vd.c., ±1.0ppm(-20 +70)°C, CMOS 15pF load</i>
<b>TFC PART NUMBER</b>	<b>TV 19.20M E T B C J</b>
<b>TV</b>	<i>type: TV = TCXO type TV</i>
<b>19.20M</b>	<i>frequency: 19.20MHz, frequency range (10 ~ 40)MHz</i>
<b>E</b>	<i>supply voltage: E = +3.3Vd.c.</i>
<b>T</b>	<i>pulling range; T = TCXO</i>
<b>B</b>	<i>frequency stability: B = ±1ppm</i>
<b>C</b>	<i>temperature range: C = (-20 +70)°C</i>
<b>J</b>	<i>output: J = CMOS 15pF</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, P ±1.5ppm, C: ±2.0ppm, D: ±2.5ppm, E: ±3ppm, G: ±5ppm</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(45 ~55)%, S: clipped sine wave 10K//10pF</i>