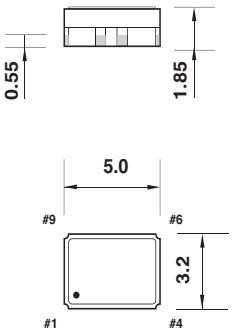
Type TL smd precision TCVCXO
High temperature, (10.0 ~ 52)MHz, CMOS or clipped sine wave
(5.0 x 3.2)mm, height 1.85mm

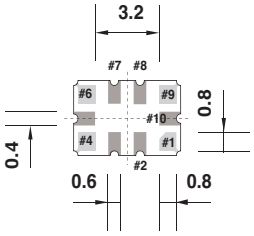
A high quality, smd, TCVCXO manufactured over the frequency range of 10.0MHz to 52.0MHz
±0.1ppm(-40 +85)°C, ±0.2ppm(-40 +105)°C
+2.5Vd.c. or +3.3Vd.c. supply
Tri-state enable disable, RoHS compliant

A standard package providing an excellent combination of parameters within a small enclosure. Supplied on tape and reel with 1000 and 3000 pieces per reel.

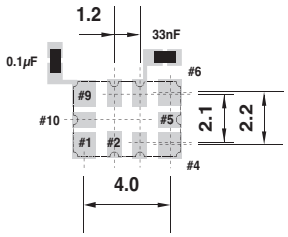
Dimensions(mm)



top view



pads viewed from bottom



suggested land pattern
connect 0.1µF capacitor between V_{DD} and ground

pad connections:

#1 V_{CON}: VCTCXO
NC: TCXO
#2 NC
#3 NC
#4 ground
#5 tri-state
#6 F output
#7 VC filter
#8 NC
#9 V_{DD}
#10 ground

Frequency stability -vs- temperature:

TEMP. RANGE	COMBINED TOLERANCE - ppm					
(-10 +60)°C	±0.05	±0.1	±0.2	±0.28	±0.5	±2.0
(-20 +70)°C	±0.05	±0.1	±0.2	±0.28	±0.5	±2.0
(-40 +85)°C	-	±0.1	±0.2	±0.28	±0.5	±2.0
(-40 +95)°C	-	-	±0.2	±0.28	±0.5	±2.0
(-40 +105)°C	-	-	±0.2	±0.28	±0.5	±2.0
Tolerance inclusive of calibration tolerance at +25°C, temperature tolerance, load variation and supply voltage variation, first year ageing, vibration and shock						

Electrical specification:

Parameter		2.5Vd.c.		3.3Vd.c.		Unit
		min.	max.	min.	max.	
supply voltage(V_{DD}) variation		V_{DD} -5%	V_{DD} +5%	V_{DD} -5%	V_{DD} +5%	Vd.c.
frequency range		10	52	10	52	MHz
frequency tolerance @25°C		-	1.0	-	1.0	ppm
frequency stability						
V_s supply voltage ±5%		-	±0.1	-	±0.1	ppm
V_s load ±10%		-	±0.05		±0.05	ppm
V_s aging first year		-	1.0		1.0	ppm
OUTPUT WAVEFORM		CMOS				
supply current	10MHz ~ 38MHz	-	6.5	-	6.5	mA
	38MHz ~ 52MHz	-	7.5	-	7.5	mA
output level	output high	90%V_{DD}	-	90%V_{DD}	-	V
	output low	-	10%V_{DD}	-	10%V_{DD}	
transition time 10% ~ 90%	rise time	-	6.5	-	6.5	nano sec
	fall time		6.5	-	6.5	nano sec
duty cycle		45	55	45	55	%
load		-	15	-	15	pF
OUTPUT WAVEFORM		CLIPPED SINE WAVE				
supply current	10MHz ~ 38MHz	-	4.5	-	4.5	mA
	38MHz ~ 52MHz	-	5.0	-	5.0	mA
output level		0.8	-	0.8	-	Vp-p
load		10KΩ//10pF		10KΩ//10pF		

Telephone: +44 (0)1903 740000, e-mail: sales@tfc.co.uk

Electrical specification:

Parameter		2.5Vd.c.		3.3Vd.c.		Unit
		min.	max.	min.	max.	
tri-state control	enable	80% V_{DD}	-	80% V_{DD}	-	V
	disable	-	20% V_{DD}	-	20% V_{DD}	
start up time		-	5	-	5	msec
control voltage range		0.5	2.5	0.5	2.5	V
pulling range		±5	-	±5	-	ppm
V_c input impedance (VCTCXO)		100	-	100	-	kΩ
phase noise for TCXO V_{DD} 3.3V f_{out} 20MHz	100Hz offset	-122		-122		dBc/Hz
	1kHz offset	-142		-142		dBc/Hz
	10kHz offset	-154		-154		dBc/Hz
	100kHz offset	-157		-157		dBc/Hz
	1MHz offset	-159		-159		dBc/Hz

Ordering information:

EXAMPLE	**type TL smd TCVCXO**, 20.0MHz, ±5ppm trim range, +3.3Vd.c. supply, ±0.5ppm(-40 +85)°C, CMOS output
TFC PART NUMBER	**TLA - 20.0M E A L J**
TLA	type: TLA = TCVCXO type TL; (5.0 x 3.2)mm package, ±5ppm trim range
20.0M	frequency: 20.0MHz, frequency range (10.0 ~ 52.0)MHz
E	supply voltage: E = +3.3Vd.c.
A	frequency stability: A = ±0.5ppm
L	temperature range: L = (-40 +85)°C
J	output: J = CMOS/15pF
OPTIONS	
type	type: TLA = TCXO, TLT = TCXO
supply voltage	supply voltage: E = +3.3Vd.c., J = +2.5Vd.c.
frequency stability	frequency stability: Q = ±0.05ppm, B = ±0.1ppm, R = ±0.2ppm, K = ±0.28ppm, A = ±0.5ppm, C = ±2.0ppm
temperature range	temperature range: I = (-10 +60)°C, C = (-20 +70)°C, L = (-40 +85)°C, M = (-40 +95)°C, K = (-40 +105)°C
output	output: J = CMOS/15pF, S = clipped sine wave 10kΩ//10pF

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