

# (V)TCSW53 Series

TCXO/VC-TCXO, 5.0 x 3.2mm, Clipped sine wave



REACH and RoHS compliant  
From ±0.5ppm stability over 0°C to 50°C



Parameters		Specification		Remarks
Frequency range	F_nom	10.0MHz ~ 52.0MHz		
Supply voltage	Vcc	2.5V, 3.0V, 3.3V, 5.0V		
Initial frequency tolerance	F_tol	<±1.0ppm		At +25°C±2°C
Frequency stability	vs Temperature	F_stb	±0.5ppm ~ ±3.0ppm	Table 1
	vs Load	F_load	±0.2ppm max	±10% load condition change
	vs Voltage	F_Vcc	±0.2ppm max	±5% input voltage change
	vs Aging	F_age	±1.0ppm/year max	At +25°C
	vs Reflow		±1.0ppm/year max	1 reflow and measured after 24hrs
Operating temperature range (°C)	Topr	0°C ~ +50°C to -40°C ~ +85°C		Table 1
Storage temperature (°C)	Tstg	-55°C ~ +125°C		
Output wave form		Clipped sine wave		
Output voltage level		0.8V p-p min		
Output load		10KΩ//10pF		
Output format		Require external DC block capacitor		
Current consumption	Icc	10.0~15MHz: 1.5mA, 15.01~26.0MHz: 2.0mA 26.01~40.0MHz: 2.5mA		
Start-up time	T_str	2.0m sec (typical), 5.0m sec. (Max)		Reach 90% amplitude at +25°C±2°C
<b>VC-TCXO option only</b>				
Control voltage	Vc	2.5V : 1.4V ± 1.0V ; 3.3V : 1.5V ± 1.0V 3.0V : 1.5V ± 1.0V ; 5.0V : 1.5V ± 1.0V		
Frequency tuning (ppm)		±5.0ppm		
Linearity/Slope polarity		±10.0% max/Positive slope		Positive voltage for positive frequency shift
Input impedance		1.0MΩ min		
Modulation bandwidth		3.0kHz min		

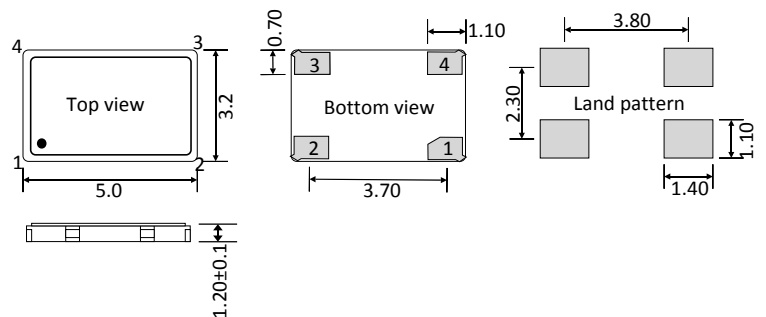
ESD sensitive device, moisture sensitive level (MSL) - 1

Table 1. Frequency stability vs Temperature

Temp. (°C)	Stability in ppm					
	±0.5	±1.0	±1.5	±2.0	±2.5	±3.0
0°C to 50°C	✓	✓	✓	✓	✓	✓
-10°C to 60°C	Enq.	✓	✓	✓	✓	✓
-20°C to 70°C	X	✓	✓	✓	✓	✓
-30°C to 75°C	X	✓	✓	✓	✓	✓
-30°C to 85°C	X	✓	✓	✓	✓	✓
-40°C to 85°C	X	Enq.	✓	✓	✓	✓

Phase noise (13.0MHz example)		dBc/Hz typical
10Hz		-80
100Hz		-115
1kHz		-135
10kHz		-148
100kHz		-148

Dimensions (Unit : mm)



- Pad 1 : Control voltage (VCTCXO). No connection(TCXO)
- Pad 2 : Ground
- Pad 3 : Output
- Pad 4 : Supply Voltage

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TCXO part number generation											
TC53	2600	M	B	X	N	B	N	X	Z	L	-PF
ACT series Code	Frequency (MHz) Ex. 26.00MHz	Temp. stability (±ppm)	Supply voltage (V)	Operating temp. range (°C)	Frequency tuning (±ppm)	Output wave	Mechanical tuning (±ppm)	Polarity	Duty cycle	Tape & Reel	RoHS Code
TC53	26MHz = 2600 8MHz = 0800  < 100MHz First 4 digit of frequency  > 100MHz First 5 digit of frequency	0.5 = R 1.0 = P 1.5 = O 2.0 = N 2.5 = M 3.0 = L	1.8V = D 2.5V = C 3.3V = B 5.0V = A	0 ~ 50 = D -10 ~ +60 = F -20 ~ +70 = B -30 ~ +75 = W -30 ~ +85 = X -40 ~ +85 = K	None = N	CSW = B	None = X	None = X	Not specified = Z	Loose = L 1000 = C 3000 = D	-PF
Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below. Full Example Part Number : <b>TC532600MBXNBXXZL-PF [26MHz]</b> , <b>TC531474MBXNBXXZL-PF [14.7456MHz]</b>											

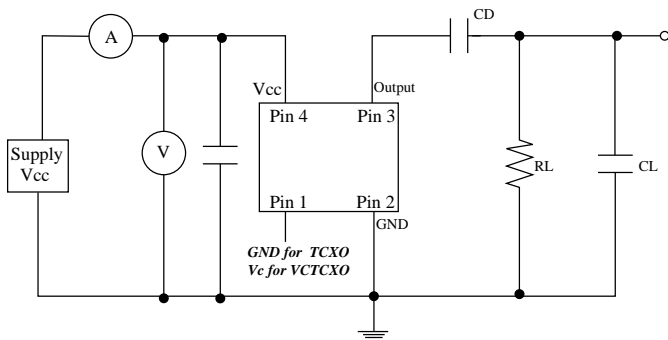
VC-TCXO part number generation													
VTC53	1474	M	B	X	N	B	X	D	P	E	Z	L	-PF
ACT series Code	Frequency (MHz) Ex. 14.7456MHz	Temp. stability (±ppm)	Supply voltage (V)	Operating temp. Range (°C)	Frequency tuning (±ppm)	Output wave Form	Mechanical tuning (±ppm)	Electrical tuning (±ppm)	Polarity	Linearity	Duty cycle	Tape & Reel	RoHS code
VTC53	26MHz = 2600 8MHz = 0800  < 100MHz First 4 digit of frequency  > 100MHz First 5 digit of frequency	0.5 = R 1.0 = P 1.5 = O 2.0 = N 2.5 = M 3.0 = L	1.8V = D 2.5V = C 3.3V = B 5.0V = A	0 ~ 50 = D -10 ~ +60 = F -20 ~ +70 = B -30 ~ +75 = W -30 ~ +85 = X -40 ~ +85 = K	Voltage control only = E	CSW = B	None = X	±5.0 = D	Positive = P	±10% = E	Not specified = Z	Loose = L 1000 = C 3000 = D	-PF
Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below. Full Example Part Number : <b>VTC531474MBXBXDPEZL-PF (14.7456MHz)</b>													

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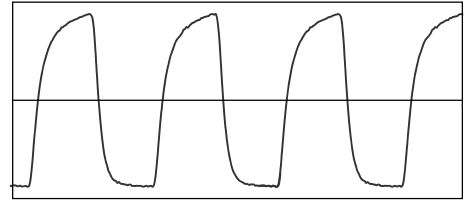
TCXO/VC-TCXO, 5.0 x 3.2mm, Clipped sine wave



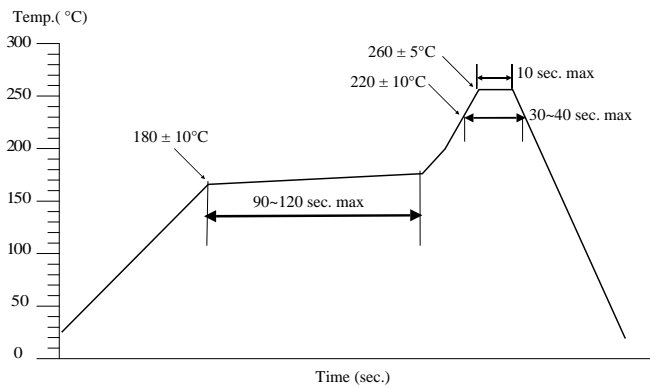
## Test circuit



## Clipped sine waveform



## Solder reflow profile



Drawing control: (Internal use only)  
Commodity code : 854370 90 99  
Issue number : 1  
Date : 01/02/2017  
Internal reference : M6