

# (V)TPL75 Series



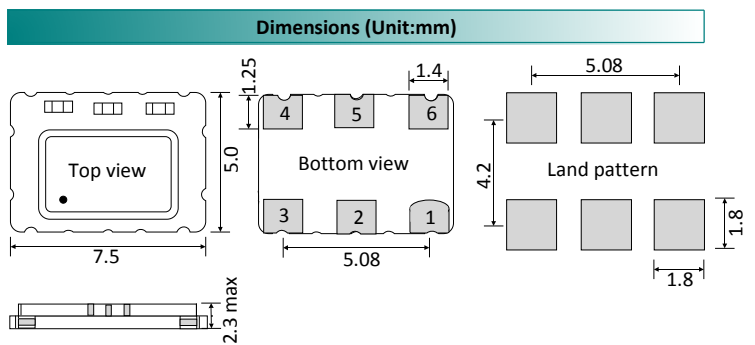
TCXO/VC-TCXO, 7.0 x 5.0mm, LVPECL output

From ±2.0ppm stability over -30°C to 85°C  
 Low jitter specification  
 ESD sensitive device, Moisture sensitive level - 1



| Parameters                          |                | Specification  |                   | Remarks   |
|-------------------------------------|----------------|--|-------------------|---|
| Frequency range                     | F_nom          | 12.0MHz ~ 800.0MHz   |                   |   |
| Supply voltage                      | Vcc            | 3.3V   |                   |   |
| Initial frequency tolerance         | F_tol          | <±2.0ppm   |                   | at +25°C±2°C                                      |
| Frequency stability                 | vs Temperature | F_stb  | ±1.0ppm ~ ±5.0ppm | Table 1   |
|                                     | vs Load        | F_load   | ±0.3ppm max.      | ±10% load condition change                        |
|                                     | vs Voltage     | F_Vcc  | ±0.3ppm 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 / Output load      |                | LVPECL   |                   |   |
| Output voltage high                 | Voh            | Vcc - 1.025V (min)   |                   | Output load condition: 50Ω to Vcc - 2V            |
| Output voltage low                  | Vol            | Vcc - 1.620V (max)   |                   | Output load condition: 50Ω to Vcc - 2V            |
| Output load                         | Vod            | 50Ω to Vcc - 2V  |                   |   |
| Current Consumption                 | Icc            | 10~25MHz : 65mA max ; 25~100MHz : 85mA<br>100~800MHz : 115mA |                   | Max ; measured with PECL thevenin equivalent load |
| Rise and fall time                  | Tr, Tf         | 1.5ns max.   |                   | 20% to 80% of wave form.                          |
| Duty cycle                          | SYM            | 45%/55%  |                   | Measured at Vcc - 1.3V                            |
| Start-up time                       | T_str          | 5.0m sec (typ.), 10.0m sec. (Max.)                           |                   | Reach 90% amplitude at +25°C±2°C                  |
| Phase jitter (RMS) (12kHz to 20MHz) |                | 2.6ps (typical) , 4.0ps (max)                                |                   | For frequency 155.520MHz                          |
| Tristate                            |                | Yes, Pin 2   |                   |   |
| <b>VC-TCXO Option Only</b>          |                |  |                   |   |
| Control voltage                     | Vc             | 1.5V ± 1.0V  |                   |   |
| Frequency tuning (ppm)              |                | ±5.0ppm min.   |                   |   |
| Linearity/Slope polarity            |                | 6.0% typical;10%max/Positive slope                           |                   | Positive voltage for positive frequency shift     |

| Temp. (°C)    | Stability in ppm |      |      |      |      |      |
|---------------|------------------|------|------|------|------|------|
|               | ±1.0             | ±2.0 | ±2.5 | ±3.0 | ±4.0 | ±5.0 |
| 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                | X    | X    | Enq. | Enq. | √    |



| Phase noise at 25°C (dBc/Hz) | 155.52MHz | 622.08MHz |
|------------------------------|-----------|-----------|
| 10Hz                         | -65       | -55       |
| 100Hz                        | -95       | -85       |
| 1kHz                         | -120      | -109      |
| 10kHz                        | -125      | -115      |
| 100kHz                       | -121      | -110      |

- Pad 1: Control voltage for VCTCXO  
No connection for TCXO
- Pad 2: Tristate
- Pad 3: GND
- Pad 4: LVPECL output
- Pad 5: Complimentary output
- Pad 6: Supply voltage

| Pad 2 (Tristate)    | Pad 4/Pad 5 (Output) |
|---------------------|----------------------|
| No connection       | Active               |
| Enable (>Vcc*0.45)  | Active               |
| Disable (<Vcc*0.45) | High impedance       |

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Specifications subject to change without notification

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TCXO/VC-TCXO, 7.0 x 5.0mm, LVPECL output

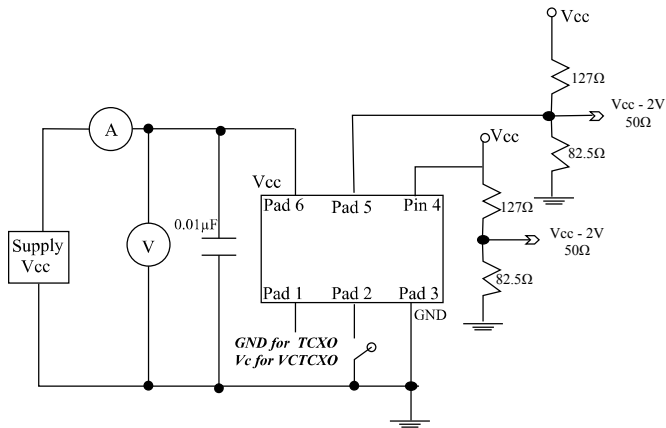
| TCXO part number generation   |  |  |                    |  |                         |                 |                          |          |                  |                                   |      |
|---|--|--|--------------------|--|-------------------------|-----------------|--------------------------|----------|------------------|-----------------------------------|------|
| TPL75   | 2600   | M  | B                  | X  | N                       | M               | X                        | X        | H                | L                                 | -PF  |
| ACT series Code   | Frequency (MHz)<br>Eg. 26.00MHz  | Temp. stability (±ppm)   | Supply voltage (V) | Operating temp. range (°C)   | Frequency tuning (±ppm) | Output waveform | Mechanical tuning (±ppm) | Polarity | Duty cycle (%/%) | Tape & Reel                       | RoHS |
| TPL75   | < 100MHz<br>First 4 digit of frequency<br><br>> 100MHz<br>First 5 digit of frequency | 1.0 = P<br>2.0 = N<br>2.5 = M<br>3.0 = L<br>4.0 = J<br>5.0 = F | 3.3V = B           | 0 ~ +50 = D<br>-10 ~ +60 = F<br>-20 ~ +70 = B<br>-30 ~ +75 = W<br>-30 ~ +85 = X<br>-40 ~ +85 = K | None = N                | LVPECL = M      | None = X                 | None = X | 45/55 = H        | Loose = L<br>1000 = C<br>2000 = E | -PF  |
| <p>Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below.<br/>                     Full Example Part Number : <a href="#">TPL752600MBXNMXXHL-PF [26MHz]</a>, <a href="#">TPL751474MBXNMXXHL-PF [14.7456MHz]</a></p> |  |  |                    |  |                         |                 |                          |          |                  |                                   |      |

| VC-TCXO part number generation   |  |  |                    |   |                                |                 |                          |                          |                    |                |            |                                   |           |
|--|--|--|--------------------|---|--------------------------------|-----------------|--------------------------|--------------------------|--------------------|----------------|------------|-----------------------------------|-----------|
| VTP75  | 1474   | M  | B                  | X   | E                              | M               | X                        | D                        | P                  | E              | H          | L                                 | -PF       |
| ACT series Code  | Frequency (MHz)<br>Eg. 14.7456MHz  | Temp. stability (±ppm)   | Supply voltage (V) | Operating temp. range (°C)  | Frequency tuning (±ppm)        | Output waveForm | Mechanical tuning (±ppm) | Electrical tuning (±ppm) | Polarity           | Linearity      | Duty cycle | Tape & Reel                       | RoHS code |
| VTP75  | < 100MHz<br>First 4 digit of frequency<br><br>> 100MHz<br>First 5 digit of frequency | 1.0 = P<br>2.0 = N<br>2.5 = M<br>3.0 = L<br>4.0 = J<br>5.0 = F | 3.3V = B           | 0 ~ 50 = D<br>-10 ~ +60 = F<br>-20 ~ +70 = B<br>-30 ~ +75 = W<br>-30 ~ +85 = X<br>-40 ~ +85 = K | Voltage Control Only<br>=<br>E | LVPECL = M      | None<br>=<br>X           | ±5.0<br>=<br>D           | Positive<br>=<br>P | ±10%<br>=<br>E | 45/55 = H  | Loose = L<br>1000 = C<br>2000 = D | -PF       |
| <p>Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below.<br/>                     Full Example Part Number : <a href="#">VTP751474MBXEMXDPEHL-PF [14.7456MHz]</a></p> |  |  |                    |   |                                |                 |                          |                          |                    |                |            |                                   |           |

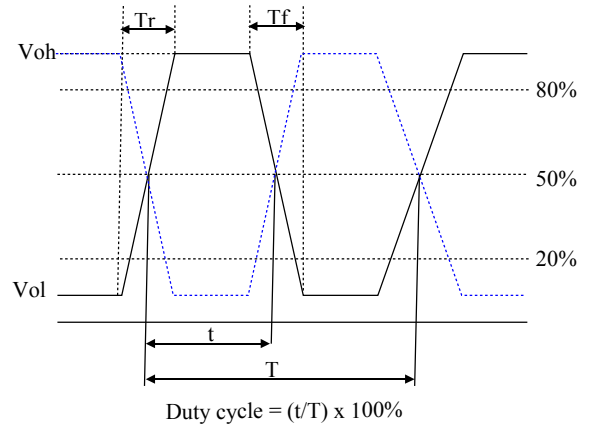
# (V)TPL75 Series

TCXO/VC-TCXO, 7.0 x 5.0mm, LVPECL output

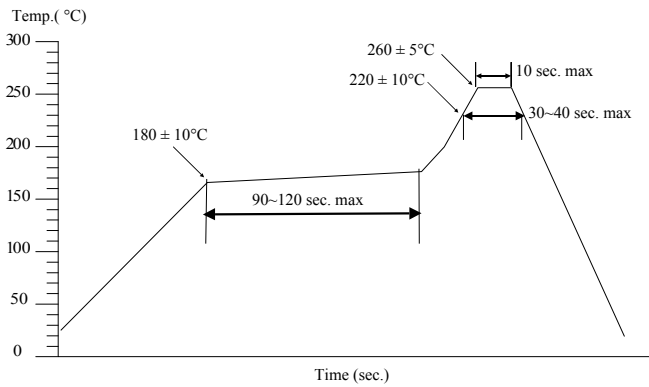
## Test circuit



## Test waveform



## Solder reflow profile



Drawing control: (Internal use only)  
 Commodity code: 854370 90 99  
 Issue number : 1  
 Date : 25042016  
 Internal reference : M6