

## QEA95 / QEA95V

9.6 x 11.4 mm, 4-pin SMD package



### Frequency and Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test condition / Description
Nominal frequency (Fn)	9.6		50	MHz	
Operating temperature range	-40		85	°C	See 'Order Part Example'
Storage temperature range	-55		125	°C	
Power supply voltage (V <sub>CC</sub> )		3.0 to 5.0		V	±5%. See 'Order Part Example'
Frequency adjustment					
Type QEA95	±3			ppm	Mechanical Trimmer
Type QE95V	±3				
Type QE95V1	Trimmerless				
Preset frequency					
Type QEA95	±0.5			ppm	At 25±2°C
Type QE95V	±0.5				
Type QE95V1	±2				
Frequency stability vs temperature			±2.5	ppm	See 'Order Part Example'
Frequency stability vs voltage variation (±5%)			±0.3	ppm	For frequency <28MHz <sup>1</sup>
Frequency stability vs load variation (±10%)			±0.3	ppm	
Long-term stability (Ageing)			±1	ppm	Frequency drift over 1 year at 25°C. For frequency <28MHz <sup>2</sup>
Supply current					
9.6MHz ≤ Fn ≤ 16MHz			1.5	mA	With load 10KΩ//10pF
16MHz ≤ Fn ≤ 40MHz			2.0		
Output voltage					
9.6MHz ≤ Fn ≤ 16MHz			0.8	Vp-p	Clipped sine DC-cut
16MHz ≤ Fn ≤ 40MHz			0.7		
Pulling range					
Type QEA95	-		-	ppm	5.0V: V <sub>c</sub> = 2.50 ±2.00V 3.3V: V <sub>c</sub> = 1.65 ±1.35V 3.0V: V <sub>c</sub> = 1.50 ±1.00V
Type QE95V	5		10		
Type QE95V1	8		14		
Phase noise					
Offset: 10Hz			-110	dBc/Hz	Typical value for 10MHz TCXO
Offset: 100Hz			-130		
Offset: 1kHz			-148		
Offset: 10kHz			-155		
Offset: 100kHz			-160		

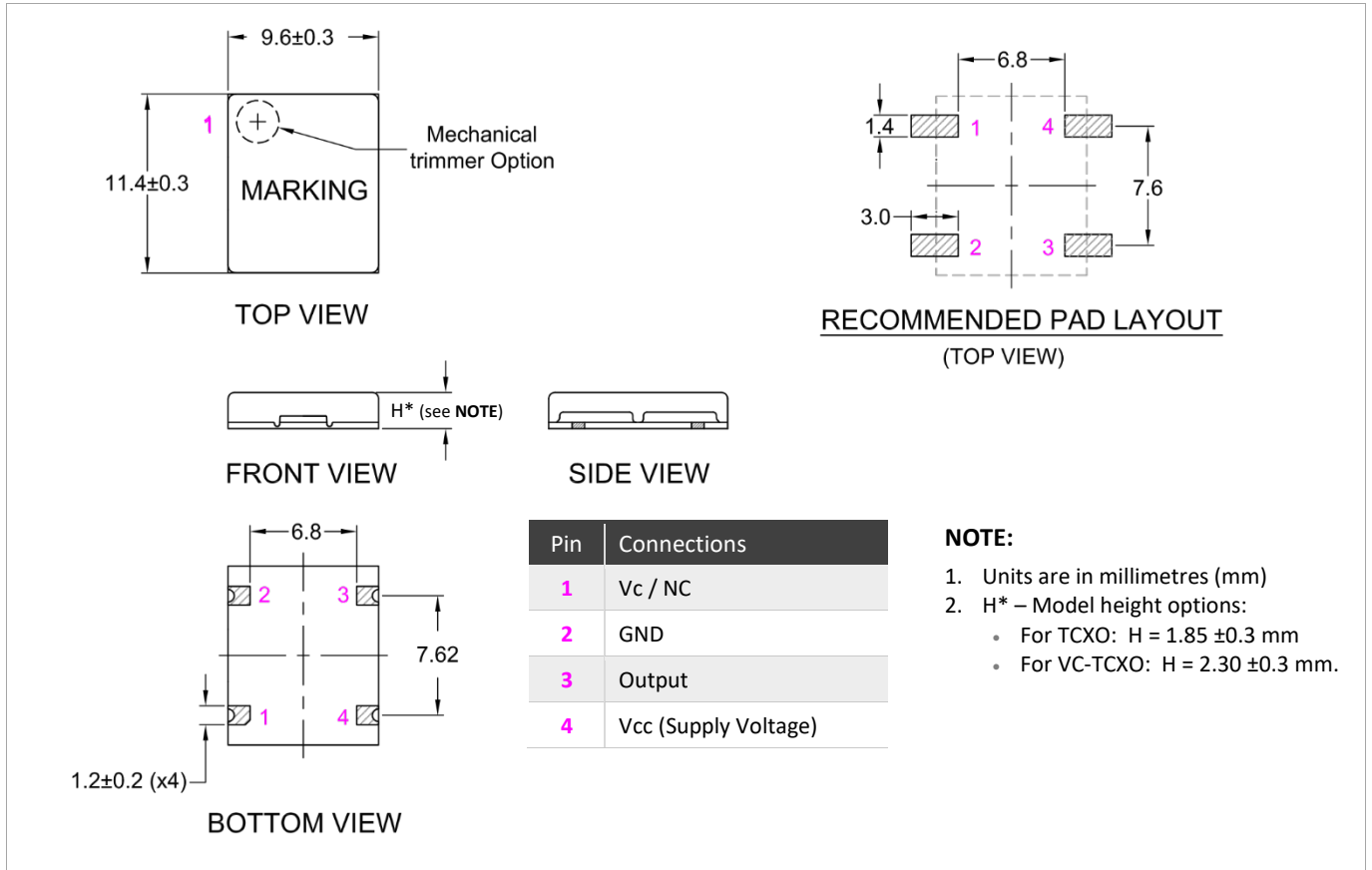
### Order Part Example – QEA95 AA0 / 10.000MHz

Parameter	Product and package	Control Voltage (V <sub>c</sub> )	Frequency Stability (FvT)	Supply Voltage (V <sub>CC</sub> )	Output	Nominal Frequency (Fn)
Code	QEA = TCXO 95 = SMD, 9.6 x 11.4 mm	= TCXO with trimmer V = VC-TCXO with trimmer V1 = VC-TCXO trimmerless	A = ±2.5ppm vs -30 to 75°C B = ±1.5ppm vs -20 to 70°C C = ±3.5ppm vs -40 to 85°C D = ±5ppm vs -40 to 85°C E = ±2.0ppm vs -20 to 70°C	A = +5.0V D = +3.3V E = +3.0V	0 = Clipped sine wave	Please enter Fn in MHz

<sup>1</sup> For frequency ≥28MHz, stability vs voltage variation (±5%) is ±1ppm max.

<sup>2</sup> For frequency ≥28MHz, ageing first year ±2ppm max.

**Model Outline, Recommended Pad Layout, Marking and Packaging**



**Marking and Example**

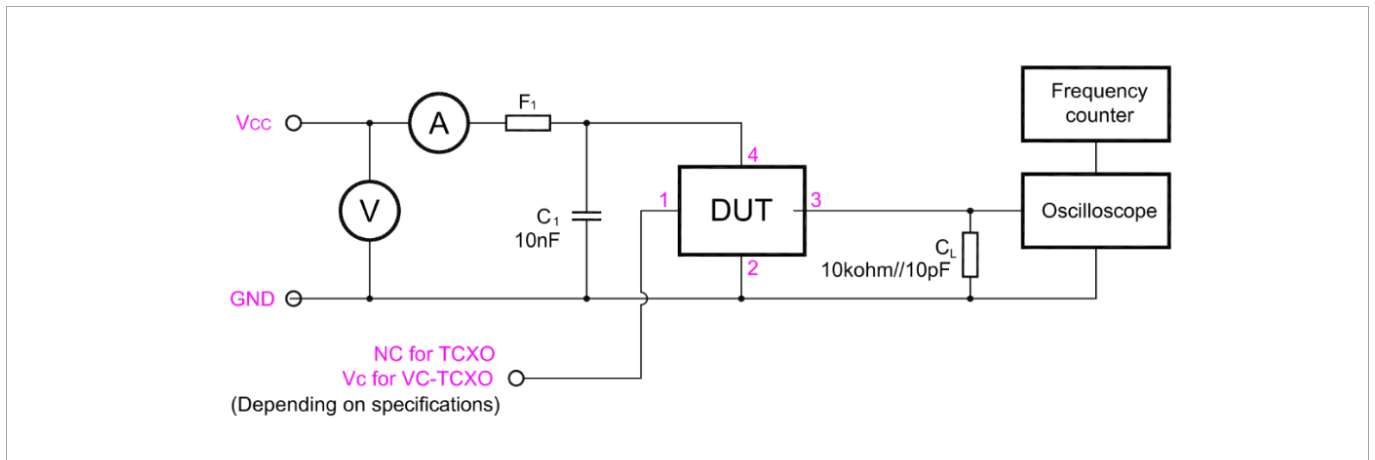
Marking	Code and Description	Marking Example								
Line 1	<p><b>X2 X X 0</b></p> <table border="1"> <tr> <td><b>X2</b> Product ID</td> <td><b>X</b> Temperature Stability (FvT)</td> <td><b>X</b> Supply Voltage (V<sub>cc</sub>)</td> <td><b>0</b> Output</td> </tr> <tr> <td>E2 = QEA95 G2 = QEA95V H2 = QEA95V1</td> <td>A = ±2.5ppm vs -30 to 75°C B = ±1.5ppm vs -20 to 70°C C = ±3.5ppm vs -40 to 85°C D = ±5ppm vs -40 to 85°C E = ±2.0ppm vs -20 to 70°C</td> <td>A = +5.0V D = +3.5V E = +3.0V</td> <td>0 = Clipped sine wave</td> </tr> </table>	<b>X2</b> Product ID	<b>X</b> Temperature Stability (FvT)	<b>X</b> Supply Voltage (V <sub>cc</sub> )	<b>0</b> Output	E2 = QEA95 G2 = QEA95V H2 = QEA95V1	A = ±2.5ppm vs -30 to 75°C B = ±1.5ppm vs -20 to 70°C C = ±3.5ppm vs -40 to 85°C D = ±5ppm vs -40 to 85°C E = ±2.0ppm vs -20 to 70°C	A = +5.0V D = +3.5V E = +3.0V	0 = Clipped sine wave	<p><b>E2 A A 0</b></p> <ul style="list-style-type: none"> <li>E2 = QEA95</li> <li>A = ±2.5 ppm over -30 to 75°C</li> <li>A = +5.0 V</li> <li>0 = Clipped sinewave</li> </ul>
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Line 2	<p><b>#####</b></p> <ul style="list-style-type: none"> <li>6-character format: five numerals and one decimal point.</li> </ul>	<p><b>10.000</b></p> <ul style="list-style-type: none"> <li>10.000 = 10.000MHz</li> </ul>								
Line 3	<p><b>YYWW-M</b></p> <ul style="list-style-type: none"> <li>YY: Year code (last two digits of the year)</li> <li>WW: Week code (2-digit calendar week number)</li> <li>-M: Manufacturing code (hyphen followed by a capital letter)</li> </ul>	<p><b>2523-R</b></p> <ul style="list-style-type: none"> <li>25 = Year 2025</li> <li>23 = Week 23</li> <li>-R = Rakon</li> </ul>								



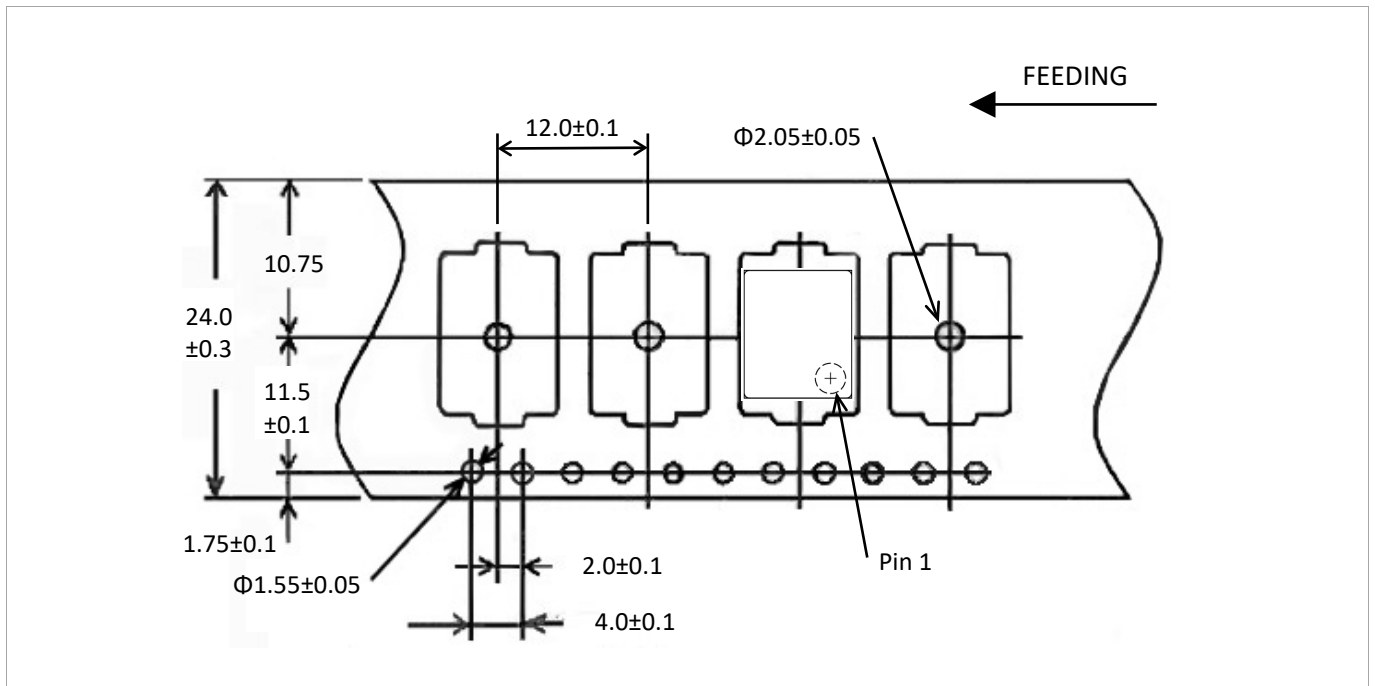
### Environmental Specifications

Parameter	Test Condition / Description
Shock	Random drop onto concrete 10 times from a height of 75 cm
Moisture resistance	RH: 90% at 40°C for 200 hours
Vibration	Frequency: 10 – 55 Hz Cycle: 2.00 mm. 3-direction time: 2 hours for each X, Y, Z axis

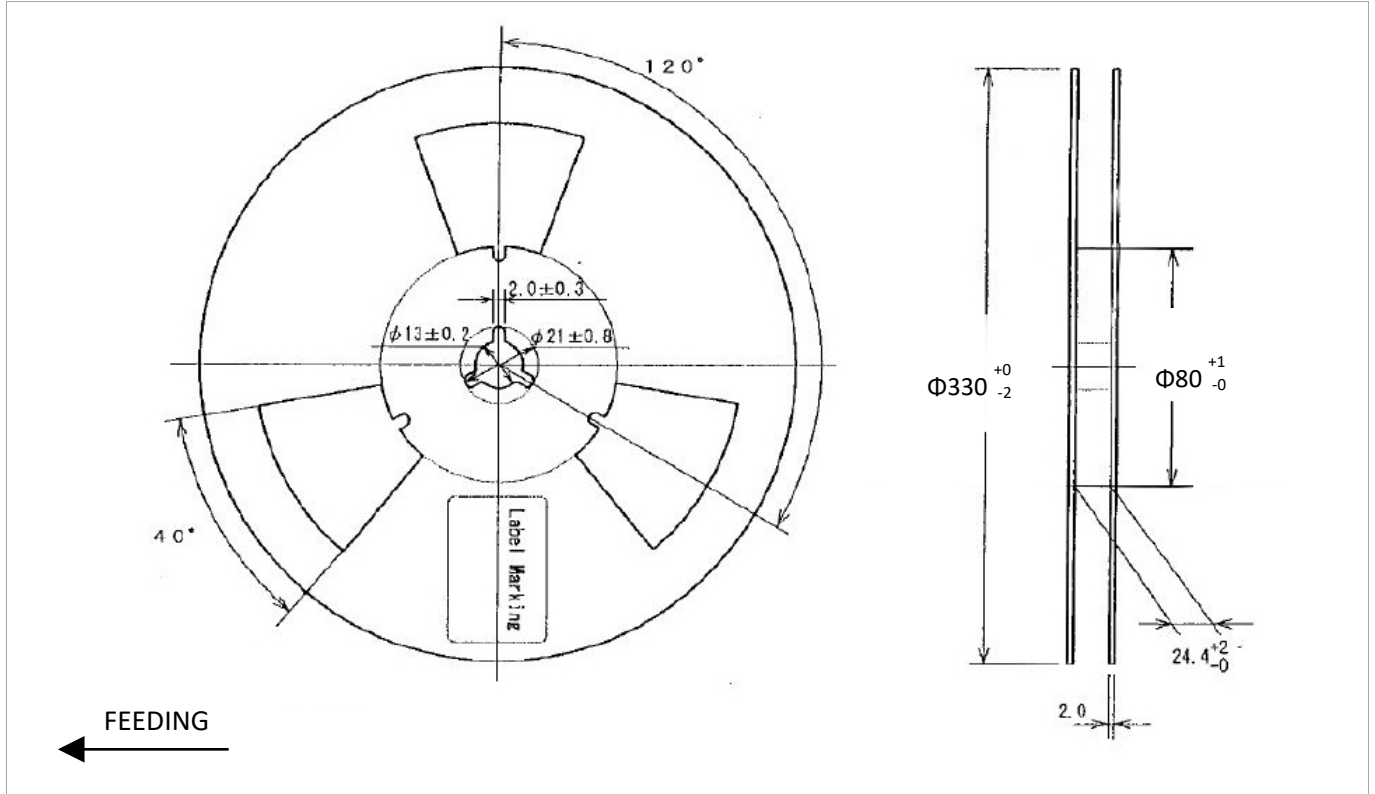
### Test Circuit



### Tape Details



**Reel Details**



**Reflow Soldering Profile**

