



# C2410

# TCXO

### Typical Applications

PCS Base Stations  
Land Mobile Radio  
Cellular Telephony  
Radio in the Local Loop

### Features

EFC Standard  
Non hermetic  
Wide Frequency Range



### Previous Vectron Model Numbers

TQDILTC; 979; 979W, 959; 959W, TC-400

### Frequency range

10 MHz – 200 MHz

### Standard frequencies

10, 19.44, 20.48, 38.88, 77.76MHz

### Frequency stabilities<sup>1</sup>

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code <sup>5</sup>
vs. operating temperature range (Referenced to +25°C)	-2.0		+2.0	ppm	-40 ... +85°C	F206
	-1.0		+1.0	ppm	-40 ... +85°C	F106
	-2.0		+2.0	ppm	-20 ... +70°C	D206
	-1.0		+1.0	ppm	-20 ... +70°C	D106
	-1.0		+1.0	ppm	0 ... +50°C	B106
	-0.5		+0.5	ppm	0 ... +50°C	B507
Parameter	Min	Typ	Max.	Units	Condition	
Initial tolerance	- 1.0		+1.0	ppm	at time of shipment, nominal EFC V <sub>S</sub> ± 5% Load ± 10%	
vs. supply voltage change	- 0.2		+0.2	ppm		
vs. load change	- 0.2		+0.2	ppm		
vs. aging		1		ppm/yr		

### Supply voltage (Vs)

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code <sup>5</sup>
Supply voltage [Standard]	3.135	3.3	3.465	VDC		SV033
Supply voltage [Option]	4.75	5	5.25	VDC		SV050
Current consumption			15 50 18 50	mA mA mA mA	@ +25°C & 3.3VDC & clipped sinewave @ +25°C & 3.3VDC & CMOS @ +25°C & 5.0VDC & clipped sinewave @ +25°C & 5.0VDC & CMOS	

### RF output

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code <sup>5</sup>
Signal [Standard]	HCMOS					RFH
Load	13.5	15	16.5	pF	with Vs= 5.0V and 15pF load with Vs=3.3V and 15pF load with Vs= 5.0V and 15pF load with Vs=3.3V and 15pF load	
Signal Level (Vol)			0.5	VDC		
Signal Level (Voh)	4.5		0.3	VDC		
Rise and Fall time	3.0		5	VDC		
Duty cycle	40	50	60	ns %		
Signal [Option]	clipped Sinewave					RFC
Load R	9	10	11	kΩ	@ 10kΩ   10pF	
C	9	10	11	pF		
Output power	0.7			V <sub>pp</sub>		

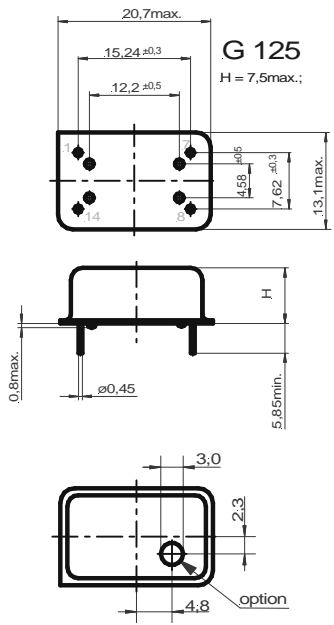
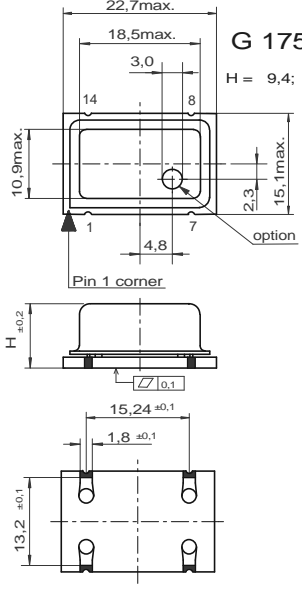
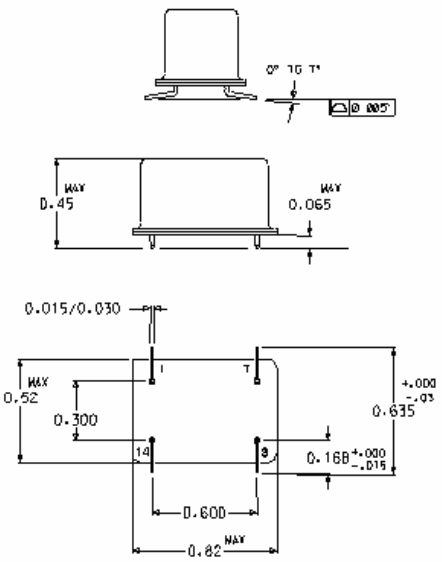
### Frequency Tuning (EFC)

Parameter	Min	Typ	Max.	Units	Condition
Mechanical (No EFC)	± 3.0				
Tuning Range	± 8.0	±12.0	± 20.0	ppm	Standard Version
Linearity			10	%	
Tuning Slope	Positive				
Control Voltage Range	0.3	1.65	3.0	VDC	with Vs=3.3VDC
	0.5	2.5	4.5	VDC	with Vs=5.0VDC
Freq. control input impedance	10			kΩ	

### Additional parameters

Parameter	Min	Typ	Max.	Units	Condition
Phase Noise <sup>3</sup>		-90		dBc/Hz	10 Hz @40 MHz
		-120		dBc/Hz	100 Hz
		-140		dBc/Hz	1 kHz
		-150		dBc/Hz	10 kHz
Weight			6	g	
Processing & Packing	Handling & processing note				

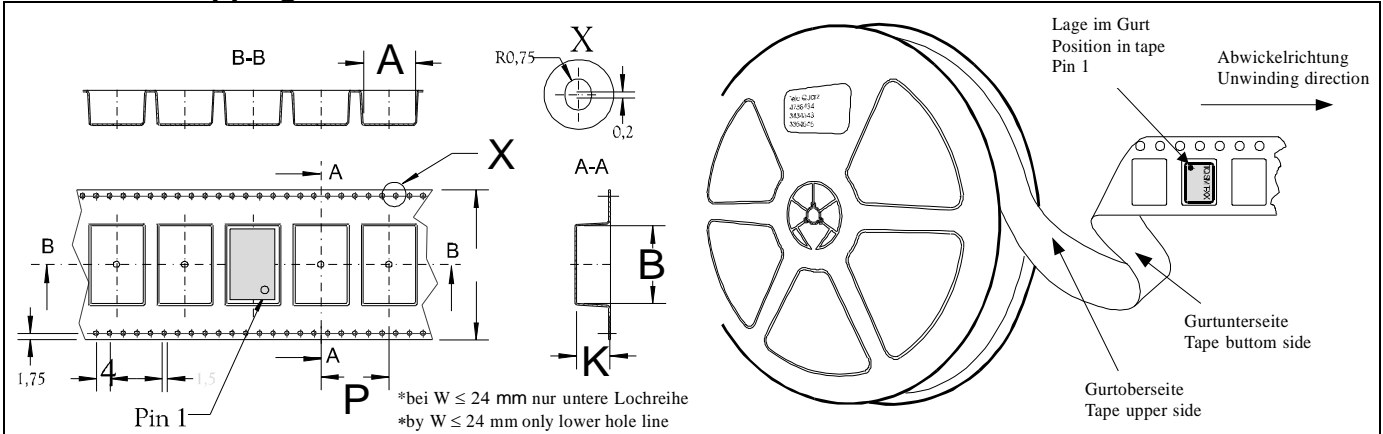
## Enclosures

Type G125			Type G175			Type C		
Package Codes:								
Code A1 A2	Height "H" 7.5 8.0	Pin Length "L" 5.85 5.85	Code B1	Height "H" 9.4	Pin Length "L" NA	Code C1	Height "H" 0.45	Pin Length "L" NA
 <p><b>G 125</b> H = 7,5max.;</p> <p>Dimensions: mm</p>			 <p><b>G 175</b> H = 9,4; G175 Standard</p> <p>Dimensions: mm</p>			 <p>Dimensions: inches</p>		
<p><b>Pin Connections</b></p> <ul style="list-style-type: none"> <li>1 Electronic Frequency Control Input (EFC)</li> <li>7 Ground (Case)</li> <li>8 RF Output</li> <li>14 Supply Voltage Input (Vs)</li> </ul> <p>Outline Drawing: G125</p>			<p><b>Pin Connections</b></p> <ul style="list-style-type: none"> <li>1 Electronic Frequency Control Input (EFC)</li> <li>7 Ground (Case)</li> <li>8 RF Output</li> <li>14 Supply Voltage Input (Vs)</li> </ul> <p>Outline Drawing: G175</p>			<p><b>Pin Connections</b></p> <ul style="list-style-type: none"> <li>1 Electronic Frequency Control Input (EFC)</li> <li>7 Ground (Case)</li> <li>8 RF Output</li> <li>14 Supply Voltage Input (Vs)</li> </ul> <p>Outline Drawing: VD-XXXXX</p>		
<p><b>Marking</b></p> <p>C2410xx-xxxx            Frequency            * C AYYWW</p>								

## Absolute Maximum Ratings

Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			6.0	V	
Control Voltage	0		Vs	V	
Maximum output load @ CMOS			50	pF	
Operable temperature range	-40		+85	°C	
Storage temperature range	-55		+125	°C	

## Standard Shipping Method



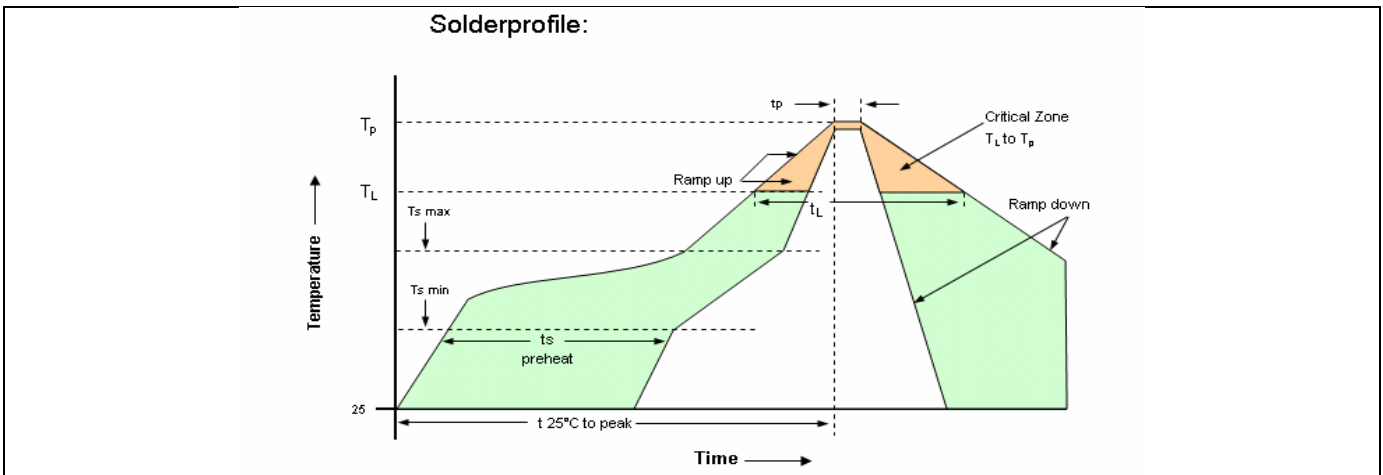
B-B  
 A  
 R0,75  
 X  
 0,2  
 A-A  
 B  
 K  
 P  
 Pin 1  
 \*bei W ≤ 24 mm nur untere Lochreihe  
 \*by W ≤ 24 mm only lower hole line  
 Lage im Gurt  
 Position in tape  
 Pin 1  
 Abwickelrichtung  
 Unwinding direction  
 Gurtunterseite  
 Tape bottom side  
 Gurtoberseite  
 Tape upper side

Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
G175	44	50	300	20

## Recommended Reflow Profile

Solderprofile:



Profile Feature	Pb-Free Assembly /Sn-Pb Assembly	Profile Feature	Pb-Free Assembly /Sn-Pb Assembly
Average ramp-up rate ( $T_L$ to $T_p$ )	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min $T_{smin}$ -Temperature Min $T_{smax}$ -Time (min to max) (ts)	150°C 200°C 60-180 seconds	Time maintained above - Temperature ( $T_L$ ) - Time ( $t_L$ )	217°C 60-150 seconds
$T_{smax}$ to $T_L$ - Ramp-up Rate	3°C/second max.		
Time maintained above - Temperature ( $T_L$ ) - Time ( $t_L$ )	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature ( $t_p$ )	20-40 seconds
Peak Temperature ( $T_p$ )	max 260°C	Ramp-down Rate	6°C/second max.

Note: All temperatures refer to topside of the package, measured on the package body surface.

## How to Order this Product:

<b>Step 1</b>	<b>Use this worksheet to forward the following information to your factory representative:</b>					
	<b>Model</b>	<b>Stability Code</b>	<b>Supply Voltage Code</b>	<b>RF Output Code</b>	<b>Package Code</b>	<b>Frequency</b>
	C2410					
<i>Example:</i>	C2410	D256	SV033	RFC	A1	20.48 MHz

<b>Step 2</b>	<b>The factory representative will then respond with a Vectron Model Number in the following Configuration:</b>			
	<b>Model</b>	<b>Package Code</b>	<b>Dash</b>	<b>Dash Number</b>
	C2410	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]

Typical P/N = C2410A1-0001

### Notes:

- 1 Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- 2 Unless otherwise stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C)
- 3 Phase noise degrades with increasing output frequency.
- 4 Subject to technical modification.
- 5 Contact factory for availability.