

Helping Customers Innovate, Improve & Grow



### Description

Vectron International has introduced a series of surface mount, Temperature Compensated Crystal Oscillators (TCXO) available in The TX-191 surface mount TCXO's can be mounted using the standard convection reflow process. The units can meet the  $\pm 0.37$  holdover requirement of GR-1244-CORE table 3-1 from 0 °C to +70 °C temperature range and operate from 3.3V or 5.0V supply.

### Features

- Stratum 3 Compliant
- Tight Stability
- Low Aging
- Frequency Range: 10 MHZ to 622 MHZ
- Previous Model: MC1200, TC-210

### Applications

- SONET/SDH
- Synthesizers
- Optimized for Semtech SONET / SDH
- Synchronization Sets

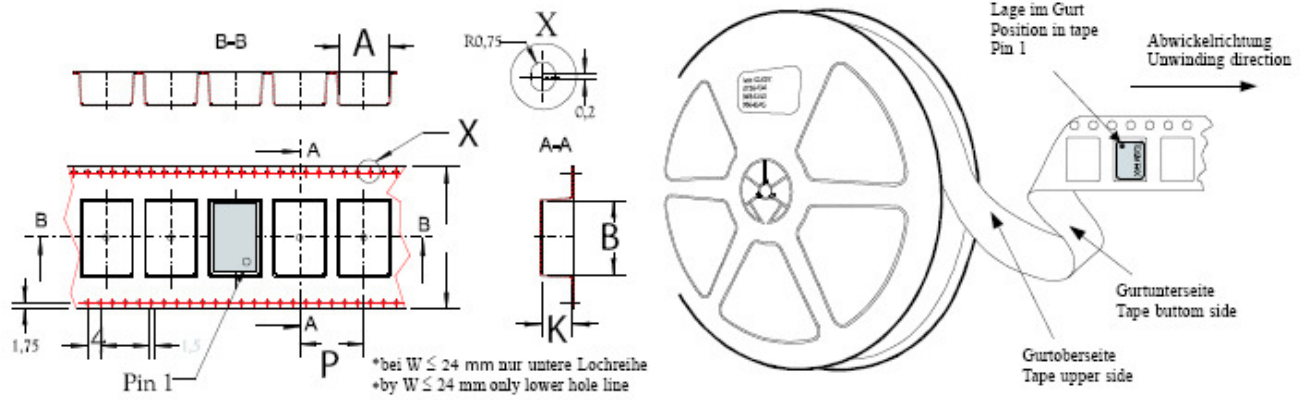
### Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
<b>Frequency Stabilities<sup>1</sup></b>					
vs. operating temperature range (referenced to +25°C)	-0.8		+0.8	ppm	-40... +85°C
	-0.28		+0.28	ppm	-30... +85°C
	-0.8		+0.8	ppm	-20... +70°C
	-0.28		+0.28	ppm	-20... +70°C
	-0.28		+0.28	ppm	0... +50°C
Initial Tolerance (w\fixed frequency)	-1.5		+1.5	ppm	at time of shipment, No EFC
vs. supply voltage change	-0.1		+0.1	ppm	Vs $\pm 5\%$
vs. load change	-0.1		+0.1	ppm	Load $\pm 10\%$
vs. aging / 15 years	-2.5		+2.5	ppm	*Stratum 3 per GR-1244-CORE: < $\pm 4.6$ ppm for all causes and 15 years aging, Holdover: < $\pm 0.37$ ppm over 24 hours
Overall Tolerance	-4.6		+4.6	ppm	
<b>Supply Voltage (Vs)</b>					
Supply voltage (Standard)	3.135	3.3	3.465	VDC	
Supply voltage (Option)	4.75	5.0	5.25	VDC	

## Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Current consumption (depends on frequency and output type)			15 15 70	mA mA mA	steady state @ +25°C & 3.3VDC steady state @ +25°C & 5.0VDC PECL
<b>RF Output</b>					
Signal	HCMOS				
Load	13.5	15	16.5	pF	
Rise/Fall Time			5	ns	10% - 90%
Duty cycle	40		60	%	@ (Voh-Vol)/2
Signal	Sinewave				3.0 to 100 MHz
Load		50		ohm	
Output Power (Standard)	0.0	+3.0	+6.0	dBm	
Harmonics			-30	dBc	
Spurious			-30	dBc	If applicable
Signal (custom number required)	PECL				
Load			50	ohm	Into Vcc-2V or there in equivalent
Signal Level (Vol)			Vs -1.62	V	-40...+85°C operating temp
Signal Level (Voh)	Vs -1.025			V	-40...+85°C operating temp
Rise & Fall Times (measured @ 20%)			1000 600	ps ps	<100 MHz >= 100 MHz
Duty cycle	45		55	%	@ 50 % Vcc
<b>Frequency Tuning (EFC)</b>					
Tuning Range	Fixed; No adjust				
Tuning Range	±8.0	±12.0	±20.0	ppm	
Linearity			20	%	
Tuning Slope	Positive				
Control Voltage Range (nominal frequency to occur at Typ ± 0.5V)	0.3 0.5	1.65 2.5	3.0 4.5	VDC VDC	with Vs=3.3VDC with Vs=5.0VDC
Freq. control input impedance	10			kohm	
<b>Additional Parameters<sup>1</sup></b>					
Phase Noise <sup>3</sup> (Stratum 3 TCXO @12.8 MHz)			-115 -130 -140	dBc/Hz dBc/Hz dBc/Hz	100 Hz 1 kHz 10 kHz
Allan Variance		1		ppb	Tau= 1 sec
Weight			9.0	g	
Processing & Packing	Handling & processing note				
<b>Absolute Maximum Ratings</b>					
Supply voltage (Vs)			6	V	
Control Voltage			6	V	
Maximum output load @ CMOS			40	pF	
Operable temperature range	-40		+85	°C	
Storage temperature range	-55		+125	°C	

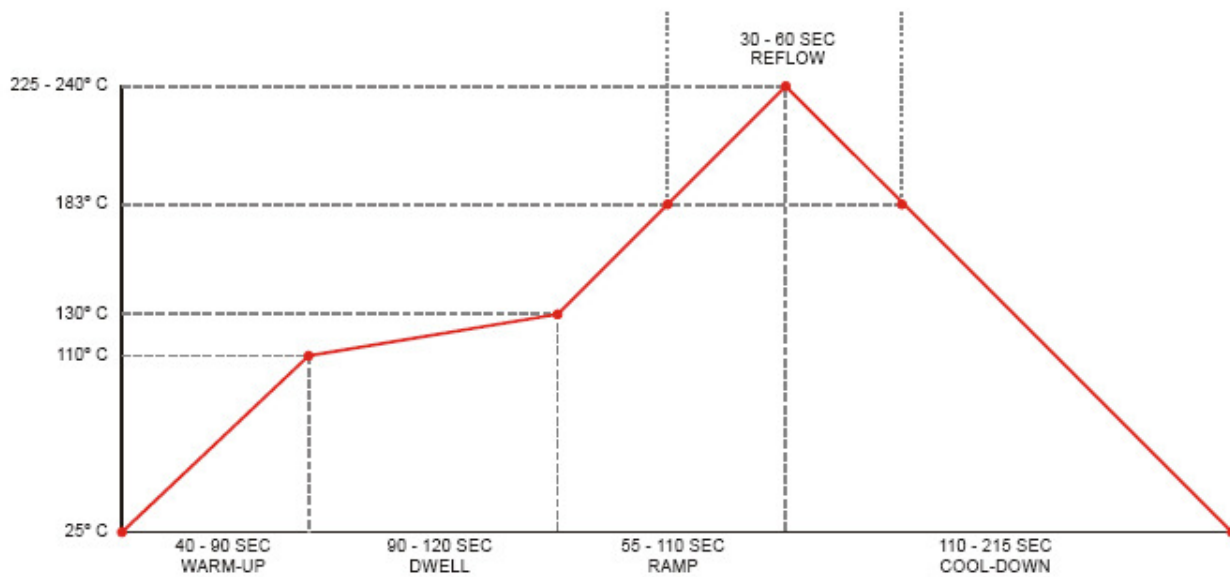
## Standard Shipping Method



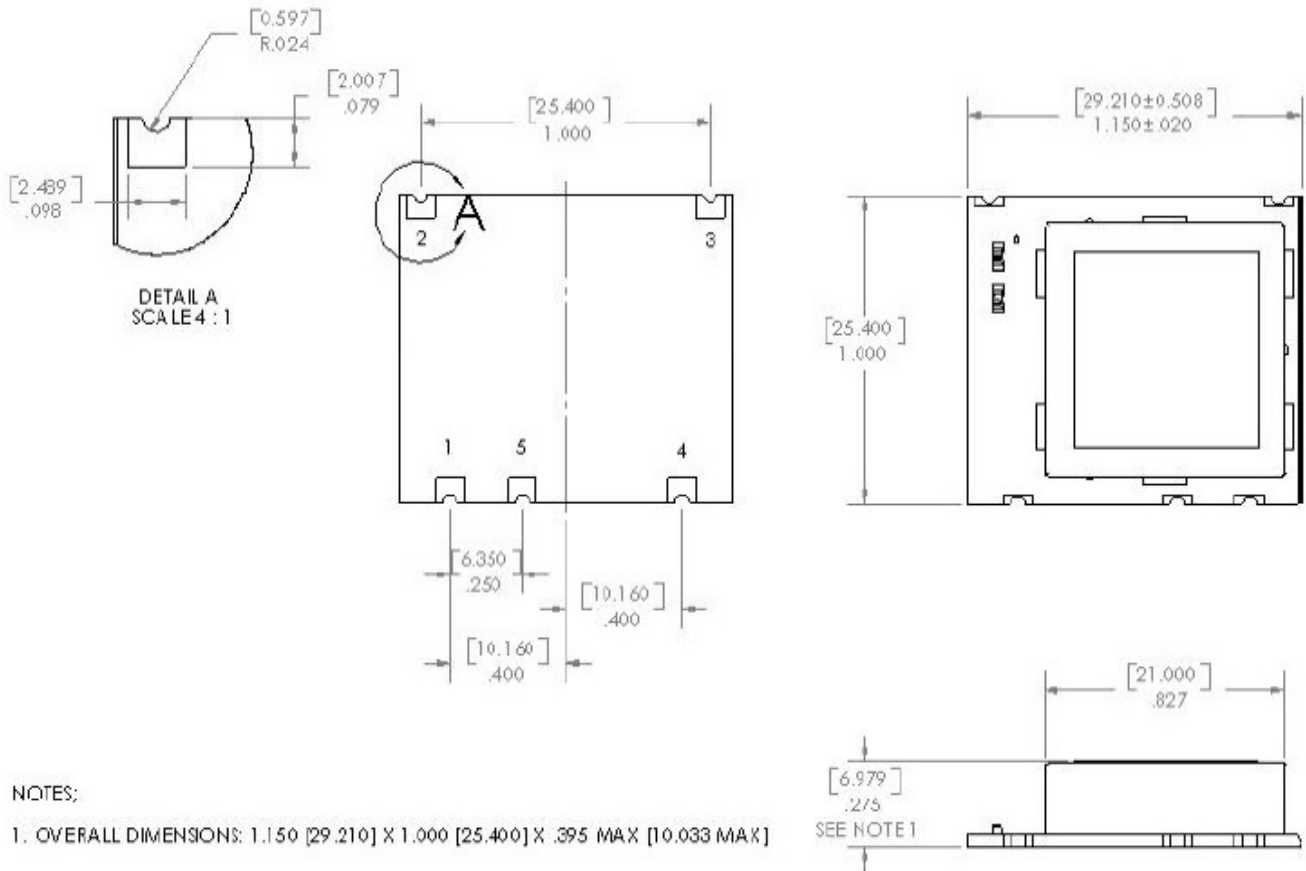
Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P

## Recommended Reflow Profile



# Outline Drawing / Enclosure

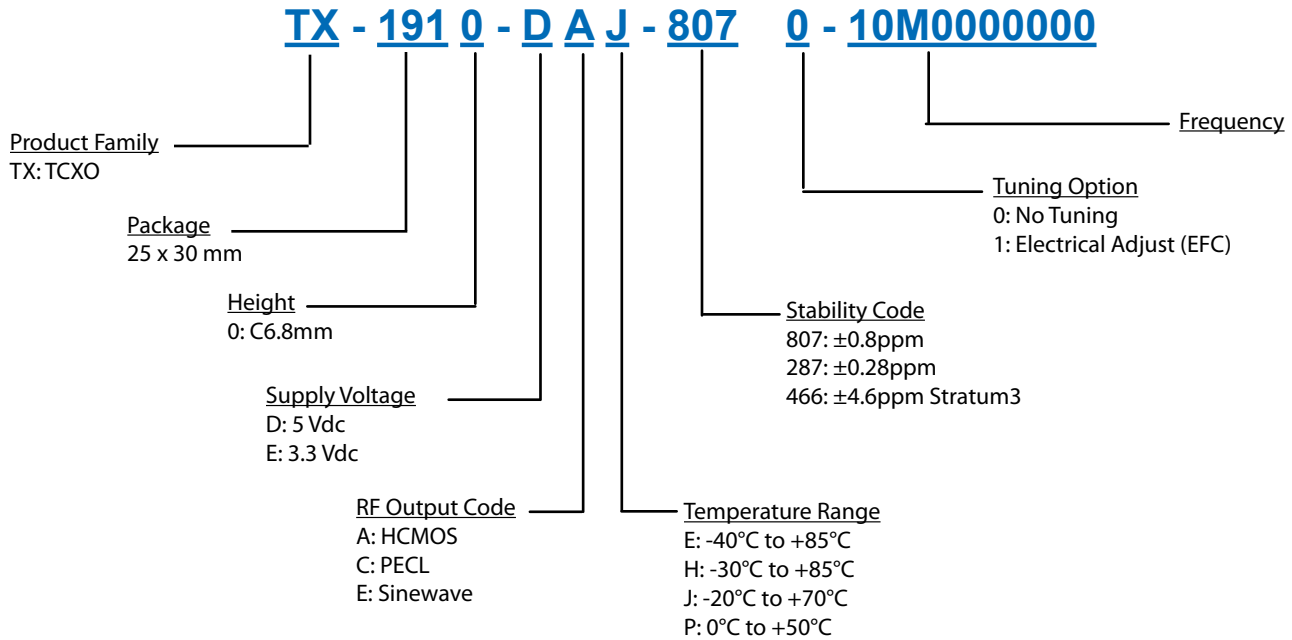


Dimensions in mm (inches)

Type C		
Code	Height "H"	Pin Length "L"
0	6.8	NA

Pin Connections	
1	Output
2	Supply
3	Ground (Case)
4	Freq. Adjust / No Connect
5	Ground

## Ordering Information



### Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other 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.

## For Additional Information, Please Contact

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