



Helping Customers Innovate, Improve & Grow



TX-502

Features

- High Precision TCXO
- OCXO Replacement
- OCXO Temperature Performance
- Low power consumption
- Tight Tolerances
- Frequency range ¹ of 6.4 - 26 MHz
- Standard Frequencies : 10, 12.8, 19.2, 20, 26 MHz
- up to 40MHz on request ¹

Applications

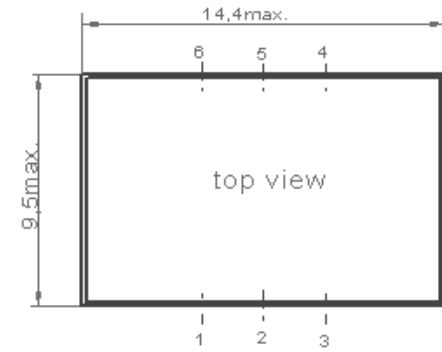
- Base Station
- Test Equipment
- Femto Base Station
- Communication Equipment
- Digital Switching

Performance Specifications

Frequency Stabilities ¹ (Standard - 6.4 to 26 MHz)						
Parameter	Min	Typical	Max	Units	Condition	
vs. operating temperature range (referenced to +25°C)	-280		+280	ppb	-40 to +85°C	Options ³
	-140		+140	ppb	-40 to +85°C	
	-100		+100	ppb	-40 to + 85°C for some frequencies ¹	
	-100		-100	ppb	-20 to +70°C	
	-70		+70	ppb	-20 to +70°C	
	-50		+50	ppb	-20 to + 70°C for some frequencies ¹	
Initial tolerance	-0.5		+0.5	ppm	at time of shipment, nominal EFC V _s ±5% static Load ±5% static after 30 days of operation after 30 days of operation after 30 days of operation	
vs. supply voltage change	-10		+10	ppb		
vs. load change	-10		+10	ppb		
vs. aging / day	-10		+10	ppb		
vs. aging / year	-1.0		+1.0	ppm		
vs. aging / 10 years	-3.0		+3.0	ppm		

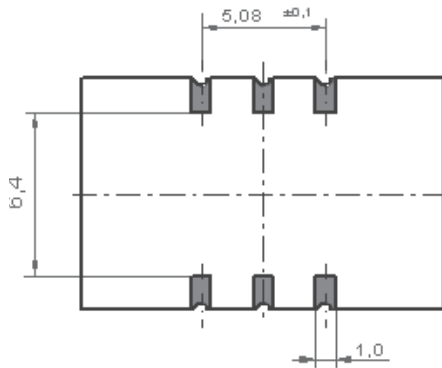
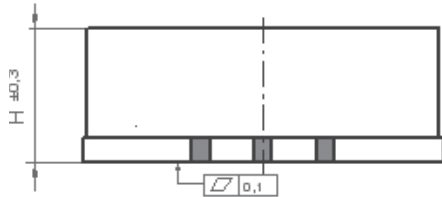
Performance Specifications

Supply Voltage (Vs)								
Parameter	Min	Typical	Max	Units	Condition			
Supply voltage (standard)	3.135	3.3	3.465	VDC	@HCMOS			
Current consumption			12	mA				
RF Output								
Signal [standard]	HCMOS							
Load	13.5	15	16.5	pF				
Signal Level (Vol)			0.3	VDC	with Vs=3.3V and 15pF Load			
Signal Level (Voh)	2.6				with Vs=3.3V and 15pF Load			
Duty Cycle	40		60	%	@ (Voh-Vol)/2			
Rise and Fall time			5	ns	@15 pF 10 to 90 %			
Frequency Tuning (EFC) 6.4 to 26 MHz								
Tuning Range	Fixed TCXO; No adjust					Opti- on ⁵		
Tuning Range	±5.0			ppm				
Linearity	<10%							
Tuning Slope	Positive							
Control Input Impedance	80	100	120	kOhm				
Control Voltage Range	0.3	1.65	3.0	VDC	with Vs=3.3V			
Additional Parameters								
Phase Noise ²		-90 -117 -137 -148 -151 -152		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz	@ 12.8 MHz HCMOS 3.3 V		
	Jitter		0.2		ps RMS		@ 12 kHz to 20 MHz	
	Weight			8.0	g			
	Processing & Packing	Handling & Processing Note						
	Absolute Maximum Ratings							
	supply voltage (Vs)			6.0	V		with Vs=3.3 VDC	
Output Load			50	pF				
Operable Temperature Range	-40		+85	°C				
Storage Temperature Range	-40		+90	°C				

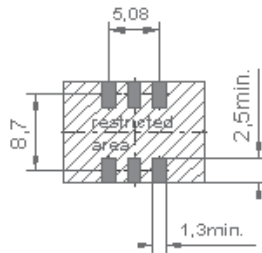


G 287

H = 9,9 : G 287 A
H = 5,9 : G 287 B
H = 6,4 : G 287 C



Dimensions in mm



Padvorschlag
land pattern
recommendation

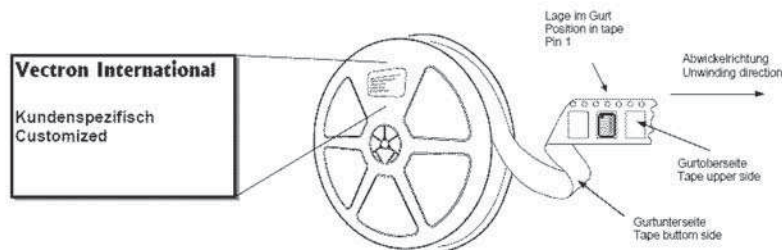
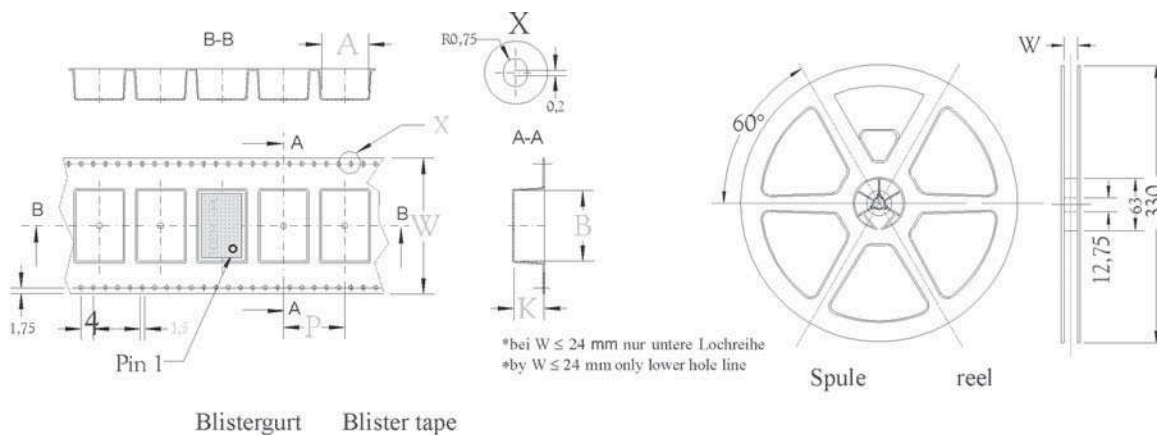
TX-502

Height "H"	Pin Length "L"
5.9	NA

Pin Connections

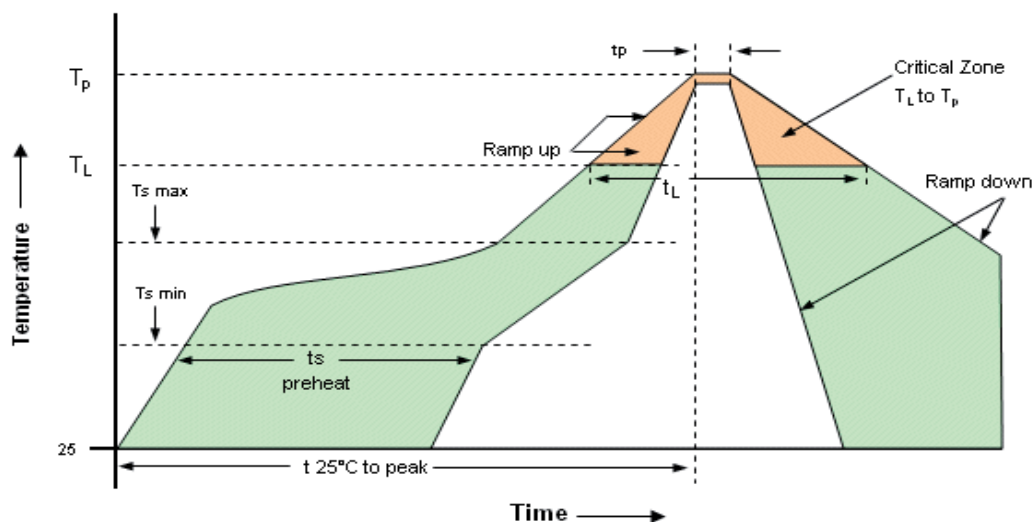
1	Control Voltage Input (Vc) / N.C.
2	N.C.
3	Ground (Case)
4	RF-Output
5	N.C.
6	Supply Voltage Input (Vs)

Standard Shipping Method (TX-502)



Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G287	24	83,3	850	12

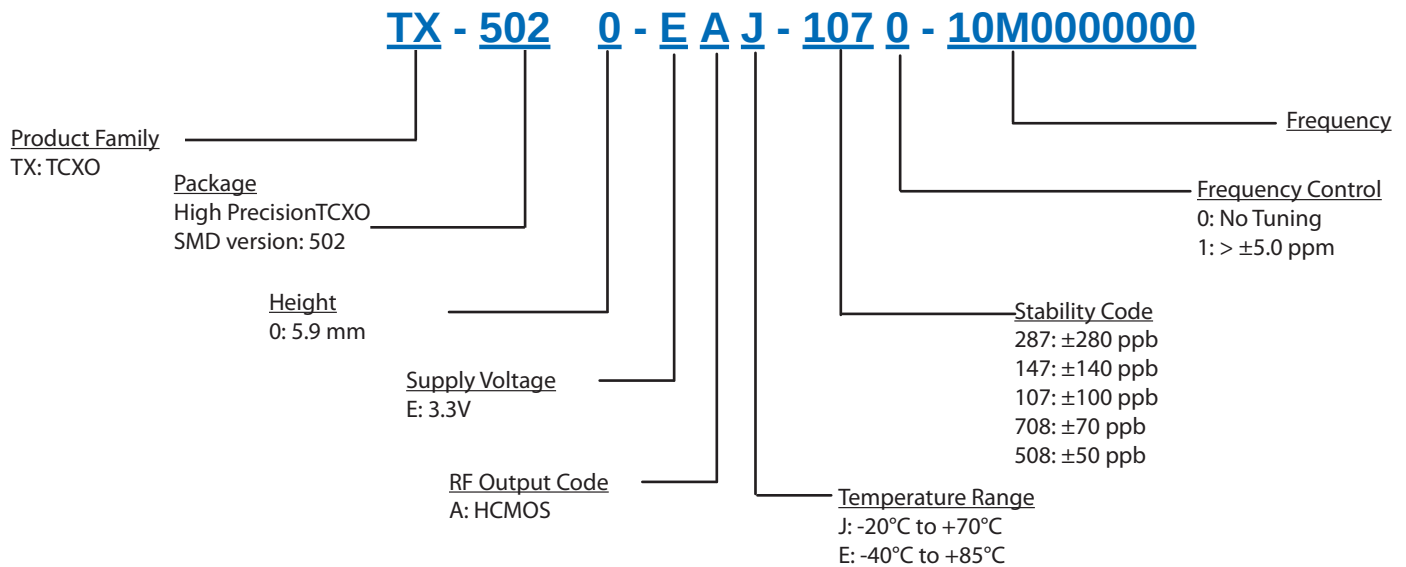
Recommended Reflow Profile



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) t_s	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.

Ordering Information



Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Phase noise degrades with increasing output frequency.
3. Contact factory for availability.

Unless other stated all values are valid at typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).

Subject to technical modification.

For Additional Information, Please Contact

USA:

Vectron International
267 Lowell Road
Hudson, NH 03051
Tel: 1.888.328.7661
Fax: 1.888.329.8328

Europe:

Vectron International
Landstrasse, D-74924
Neckarbischofsheim, Germany
Tel: +49 (0) 7268.801.100
Fax: +49 (0) 7268.801.282

Asia:

Vectron International
1589 Century Avenue, the 19th Floor
Chamtime International Financial Center
Shanghai, China
Tel: 86.21.6081.2888
Fax: 86.21.6163.3598

Disclaimer

Vectron International reserves the right to make changes to the product(s) and or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Rev: 11/2010