VECTRON INTERNATIONAL
A DOVER COMPANY

TX-801

Temperature Compensated Crystal Oscillator

Description

The TX-801 TCXO provides a temperature stability of ±100ppb in a 5x3.2mm package and is fully compliant with Stratum 3 requirements. It is ideal for timing over IP applications such as 1588 PTP and Synchronous Ethernet.

Features

- Excellent temperature stability, Stratum 3 compliant
- CMOS and clipped sinewave output
- Low phase noise
- Small size, low profile
- 100% RoHS compliant
- Frequency range: 8 - 26 MHz
- Standard frequencies: 9.6, 10, 12.8, 13, 19.2, 20, 26MHz
- Up to 52MHz on request for reduced stabilities

Applications

- 1588 applications
- Wireline Stratum 3 applications
- Test & Measurement
- Wireless Communications
- Small Cells

Performance Specifications

Frequency Stabilities[1]						
Parameter	Min	Typ	Max	Units	Condition	
vs. operating temperature range (referenced to (dfmax+dfmin)/2)	-100		+100	ppb	-10 to +70°C	
	-280		+280	ppb	-40 to +85°C	
Holdover	-40		+40	ppb	In a 24 hour period at constant temperature	
Initial tolerance	-1.0		+1.0	ppm	at time of shipment, @ Vc=Vs/2	
vs. supply voltage change	-0.2		+0.2	ppm	V_S ±5% static	
vs. load change	-0.2		+0.2	ppm	Load ±10% static	
vs. aging / 1st year	-1.0		+1.0	ppm		
vs. aging / 10 Years	-3.0		+3.0	ppm		
Overall tolerance	-4.6		+4.6	ppm	Note:*Stratum 3 per GR-1244-CORE: <±4.6ppm for all causes and 20 years aging, holdover: <±0.32ppm over 24 hours	
Phase Noise						
Phase Noise[3]		-93 -118 -140 -154 -156		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	@ 20MHz

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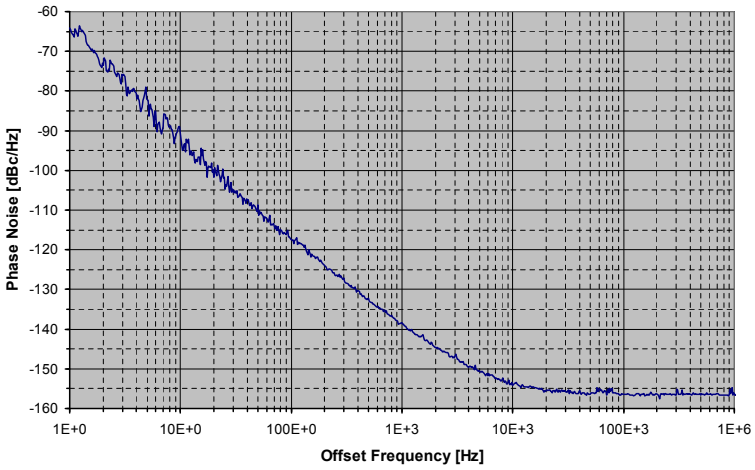
Performance Specifications

Supply Voltage (Vs)					
Parameter	Min	Typical	Max	Units	Condition
Supply voltage (standard)	3.135	3.3	3.465	VDC	
Current consumption		3.3	5	mA	LVCMOS @ 26MHz, steady state @ +25°C
Current consumption		1.8	2.7	mA	Clipped Sine @ 26MHz, steady state @ +25°C
RF Output (Clipped Sinewave)					
Load R	9	10	11	kΩ	
Load || C	9	10	11	pF	
Output Power	1.0	1.2		V_{pp}	@ 10kΩ || 10pF
RF Output (HCMOS)					
Load	13.5	15	16.5	pF	
Signal Level (Vol)			0.3	VDC	with Vs=3.3V and 15pF Load
Signal Level (Voh)	3.0				with Vs=3.3V and 15pF Load
Rise and Fall time			6.5	ns	
Duty Cycle	40	50	60	%	@ (Voh-Vol)/2
Frequency Tuning (EFC)					
Tuning Range	Fixed TCXO; No adjustment				Options
Tuning Range	±5.0		±12.0	ppm	
Linearity	10%				
Tuning Slope	Positive				
Control Voltage Range	0	1.65	3.3	VDC	
Freq. Control input impedance	10			kΩ	
Additional Parameters					
Weight			1.0	g	
Processing & Packing	Handling & Processing Note				
Absolute Maximum Ratings					
Supply voltage (Vs)			6.0	V	
Control voltage	0		Vs	V	
Operable Temperature Range	-40		+85	°C	
Storage Temperature Range	-55		+105	°C	

Typical Performance Data

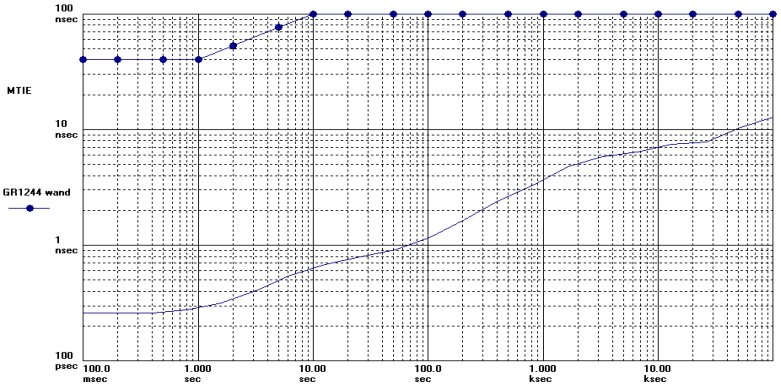
Phase Noise[3]

TX-801 @ 20MHz, typical phase noise plot



MTIE per GR1244 CORE

TX-801 @ 10MHz, 100mHz Loop BW



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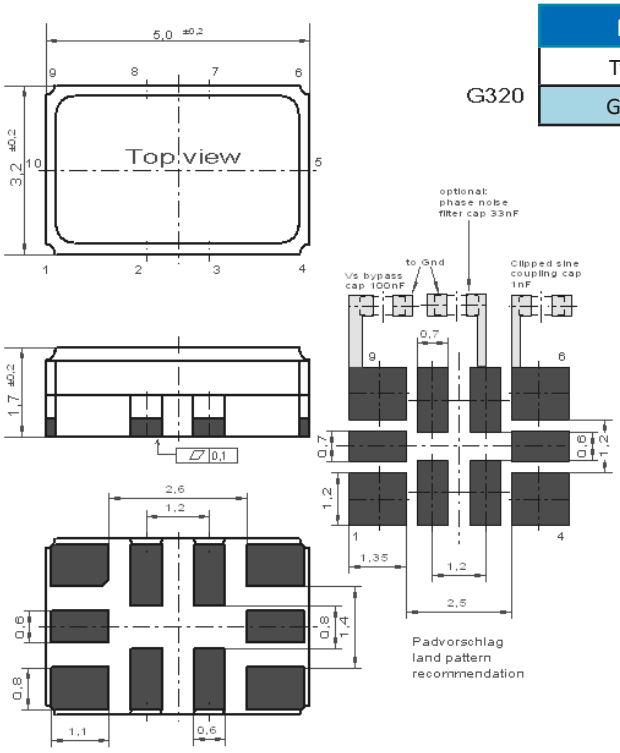
Outline Drawing / Enclosure

Pin Connections	
1	Voltage Control (V_C) or No Connect (option)
2	Do not connect
3	Do not connect
4	Ground (GND)
5	Ground (GND)
6	RF Output
7	Phase Noise Filter Capacitor (optional)
8	Enable Control
9	Supply Voltage Input (V_S)
10	Ground (GND)



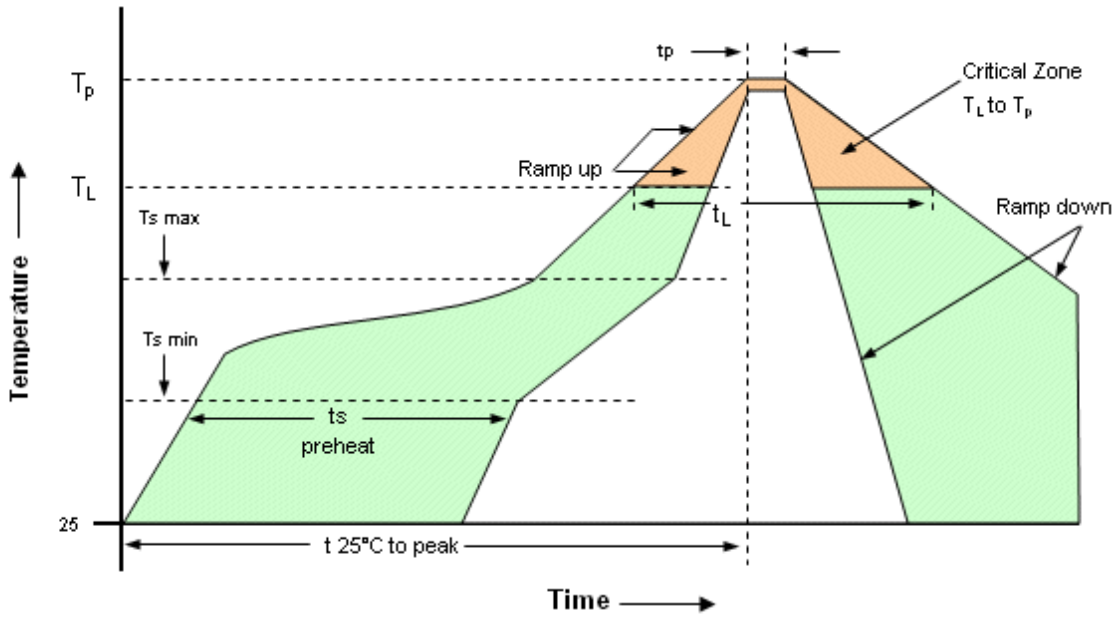
G320

Package Codes: 801	
Type	Height
G320	1.7mm

Enable pin function: TX-801	
Pin 8 state:	Pin 6 output:
High	Data
Open	Data
Low	No Data

Marking: TX-801
TX-801
Frequency
·VI AYYWW

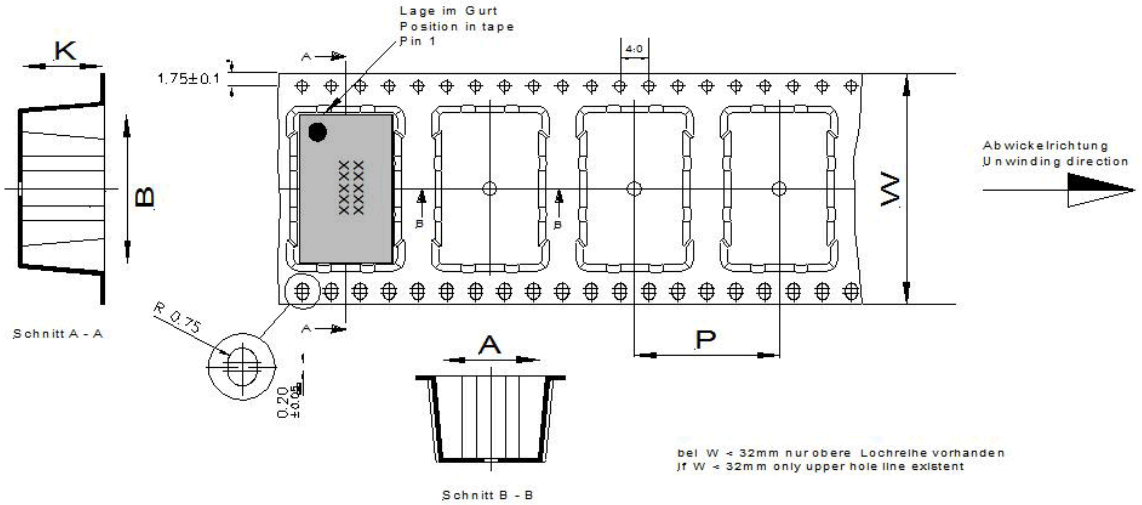
Recommended Reflow Profile



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
TSmax to TL -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.

Standard Shipping Method



Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G320	12	150	750	8

Ordering Information

TX - 801 0 - E A J - 107 0 - 10M0000000

Product Family
TX: TCXO

Package
SMD G320

Height
0: 1.7mm

Supply Voltage
E: 3.3V

RF Output Code
A: HCMOS
F: Clipped Sinewave

Temperature Range & Stability Code
E-287: -40°C to +85°C, ±280ppb
J-107: -10°C to +70°C, ±100ppb

Frequency Control
0: No Tuning
1: EFC: ±5.0 to 12ppm

Frequency

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 is measured with the optional phase noise filter capacitor in place. Phase noise depends on the carrier frequency.
4. Subject to technical modification.
5. Contact factory for availability.

For Additional Information, Please Contact

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