


Helping Customers Innovate, Improve & Grow



Description

The TX-801 TCXO provides fully compliant Stratum 3 levels of stability in a 5x3.2mm package. 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
- Extended Temperature Range -40°C to +105°C 
- Low Phase Noise
- Phase Noise Filter Option
- Small Size, Low Profile
- Improved Temperature Cycling through 10 Pin Mounting
- 100% RoHS Compliant
- Frequency Range: 6.4 - 52¹ MHz
- Standard Frequencies: 6.4, 9.6, 10, 12.8, 13, 16.384, 19.2, 20, 20.48, 22.1184, 24.576, 25, 26, 30.72, 32, 38.88MHz

Applications

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

Performance Specifications

Parameter	Frequency Stabilities ¹				Condition
	Min	Typ	Max	Units	
vs. operating temperature range (referenced to (dfmax+dfmin)/2)	-100		+100	ppb	-10 to +70°C
	-280		+280	ppb	-40 to +85°C
	-2 -500		+2 +500	ppm ppb	-40 to +105°C -20 to +85°C 
Holdover	-40		+40	ppb	In a 24h period at constant temperature
Initial tolerance	-1.0		+1.0	ppm	at time of shipment, @ V _c =V _s /2
vs. supply voltage change	-0.2		+0.2	ppm	V _s ±5% static @ HCMOS
	-0.1		+0.1	ppm	V _s ±5% static @ Clipped Sinewave
vs. load change	-0.2		+0.2	ppm	Load ±10% static @ HCMOS
	-0.1		+0.1	ppm	Load ±10% static @ Clipped Sinewave
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: <±0.37ppm over 24 hours

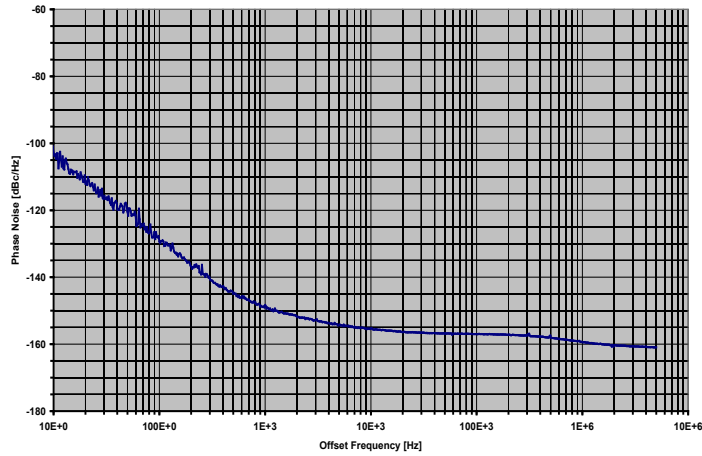
Performance Specifications

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	LVC MOS @ 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		±10.0	ppm		
Linearity	10%					
Tuning Slope	Positive					
Control Voltage Range	0.5	1.5	2.5	VDC	@ V _s = 2.8V	
	0.3	1.65	3.0	VDC	@ V _s = 3.3V	
	0.5	2.5	4.5	VDC	@ V _s = 5V	
Freq. Control input impedance	100			kΩ		
Additional Parameters						
Weight			1.0	g		
Processing & Packing	Handling & Processing Note					
Reflow Profile	IPC / JEDEC J-STD-020 (latest version)					
Absolute Maximum Ratings						
Supply voltage (Vs)			6.0	V		
Control voltage	0		Vs	V		
Operable Temperature Range	-40		+105	°C	Max. Temperature depending on Specification	
Storage Temperature Range	-55		+105	°C		
Phase Noise ³						
Phase Noise		-103		dBc/Hz	10 Hz	@ 10MHz
		-129		dBc/Hz	100 Hz	
		-148		dBc/Hz	1 kHz	
		-155		dBc/Hz	10 kHz	
		-157		dBc/Hz	100 kHz	
Phase Noise		-94		dBc/Hz	10 Hz	@ 20MHz
		-122		dBc/Hz	100 Hz	
		-144		dBc/Hz	1 kHz	
		-155		dBc/Hz	10 kHz	
		-157		dBc/Hz	100 kHz	
Additional Information	Bypass capacitor is recommended					

Typical Performance Data

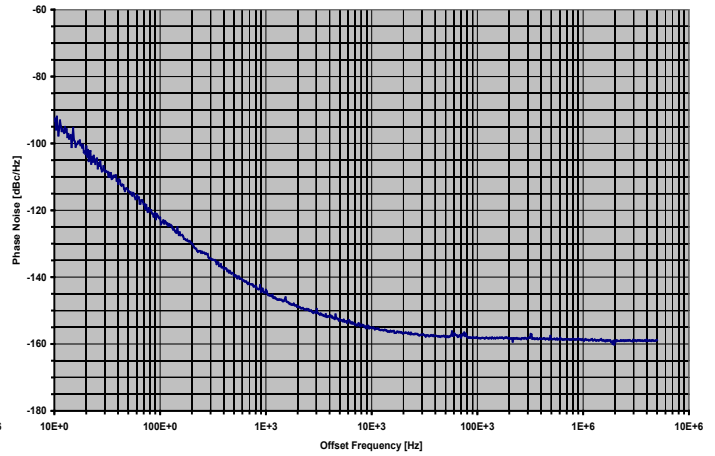
Phase Noise³

TX-801 @ 10MHz



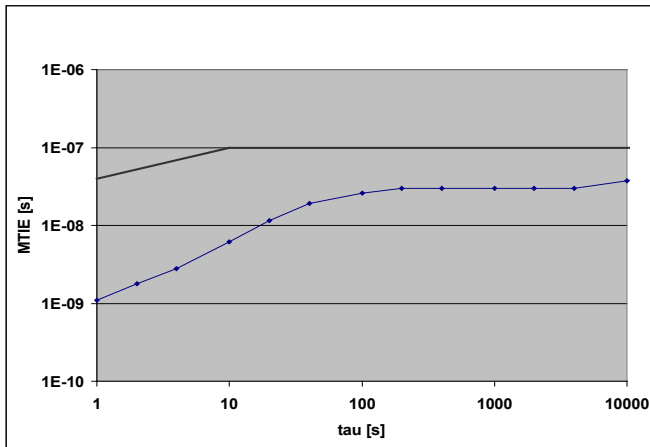
Phase Noise³

TX-801 @ 20MHz



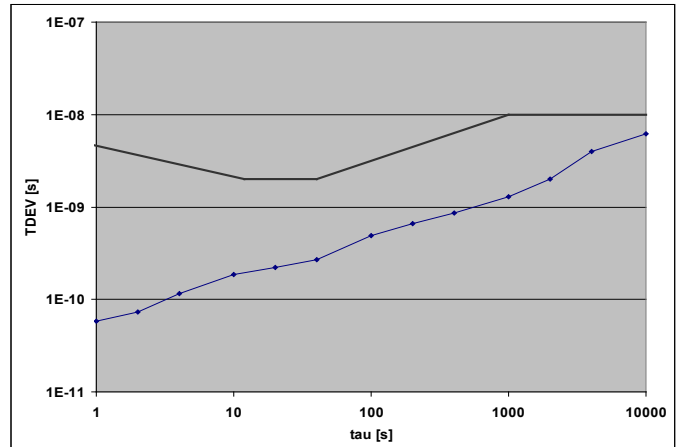
MTIE per GR1244 Wander

TX-801@ 20MHz; Temperature Ramp; 100mHz High Pass Filter



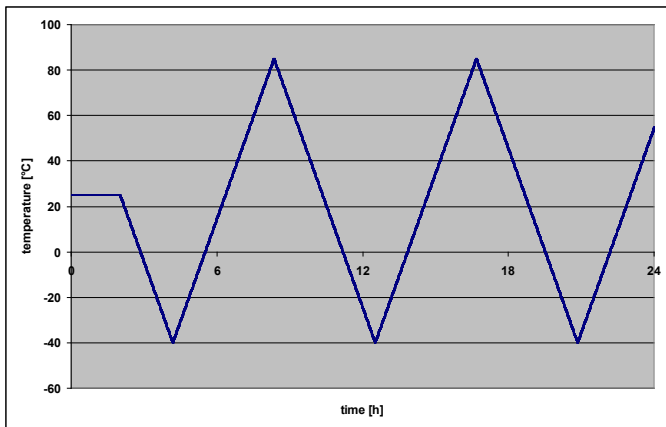
TDEV per GR1244 Wander

TX-801@ 20MHz; Temperature Ramp; 100mHz High Pass Filter



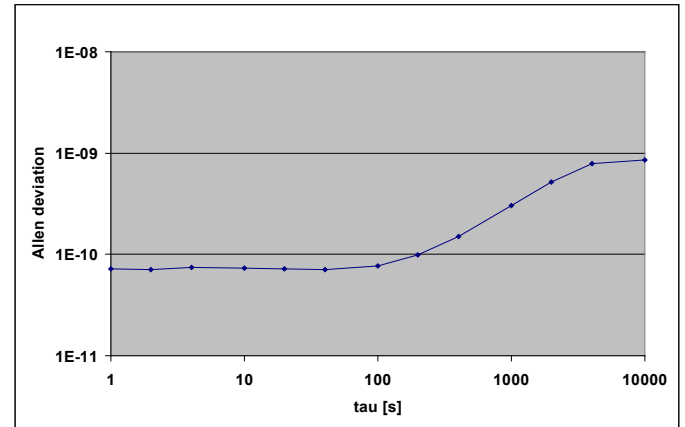
Temperature Ramp

0.5K/min Slope

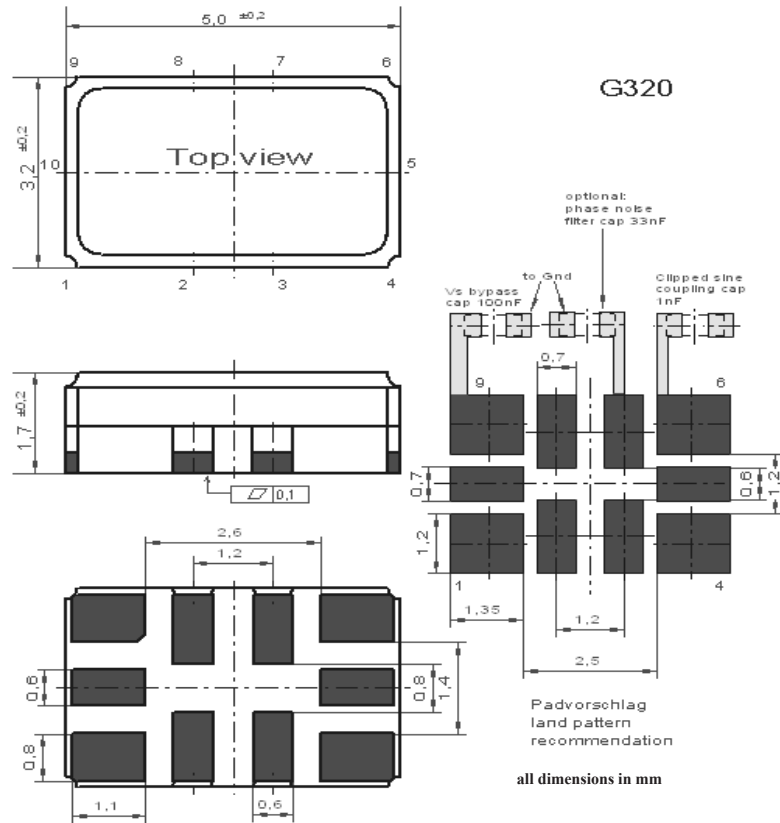


ADEV

TX-801@ 20MHz; @40°C



Outline Drawing / Enclosure



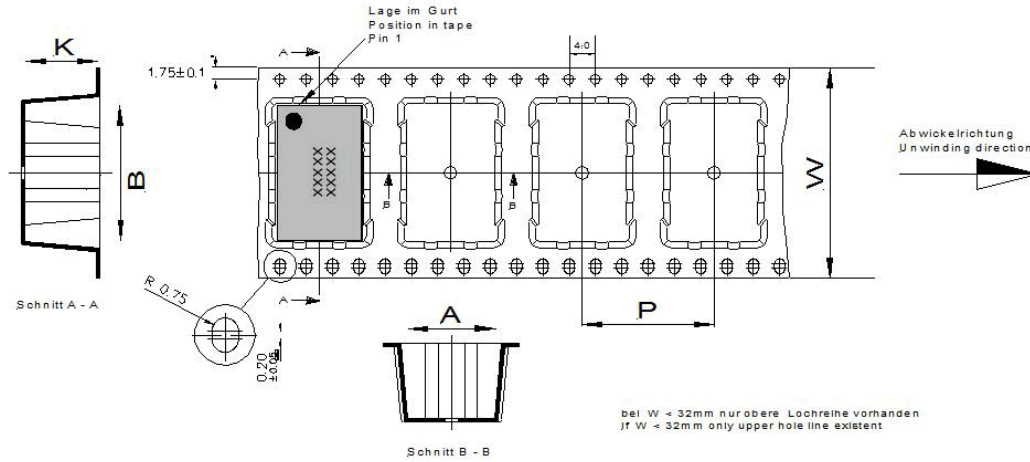
Enable pin function: TX-801	
Pin 8 state:	Pin 6 output:
High	Data
Open	Data
Low	High Tristate
Package Codes: 801	
Type	Height
G320	1.7mm
Marking: TX-801	
Specification	
Frequency	
·VI AYYWW	

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)

Environmental Conditions

Rapid Temperature Changes	MIL-883-1010 Cond B 1000 cycles -55/125C
Vibration	MIL-STD-883 Meth 2007 Cond A 20G 20-2000Hz 4x in each 3axis 4 min
Shock	MIL-STD-202 Meth 213B Cond. F; 1500g 0,5ms 6 shocks in each direction
Solderability	J_STD_002C Cond A, Through hole device/ Cond. B, SMD 255C (diving time 50,5sec.) Dip+Look with 8h damp pre-treatment: solder wetting >95%
Solvent Resistance	MIL-STD-883 Meth 2015 Solv. 1,3,4
ESD	JESD22-A114F Class 1B; 10* 1000V
Moisture Sensitivity	Level 1 JESD22-A113-B
RoHS Compliance	100% ROHS compliant

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 - 10M000000

Product Family
TX: TCXO

Package
SMD G320

Height
0: 1.7mm

Supply Voltage
D: 5V
E: 3.3V
G: 2.8V

RF Output Code
A: HCMOS
F: Clipped Sinewave

Temperature Range
P: 0°C to +50°C
W: -10°C to +70°C
J: -20°C to +70°C
H: -30°C to +85°C
E: -40°C to +85°C
F: -40°C to +105°C

Frequency

Frequency Control
0: No Tuning
1: EFC: ±5.0 to 10ppm

Stability Code
107: ±100ppb
207: ±200ppb
287: ±280ppb
507: ±500ppb
807: ±800ppb
106: ±1.0ppm
156: ±1.5ppm
206: ±2.0ppm

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 with optional Phase noise Filter Capacitor. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

For Additional Information, Please Contact

USA:

Vectron International
267 Lowell Road, Suite 102
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
68 Yin Cheng Road(C), 22nd Floor
One LuJiaZui
Pudong, Shanghai 200120, China
Tel: +86 21 6194 6886
Fax: +86 21 6194 6699

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.