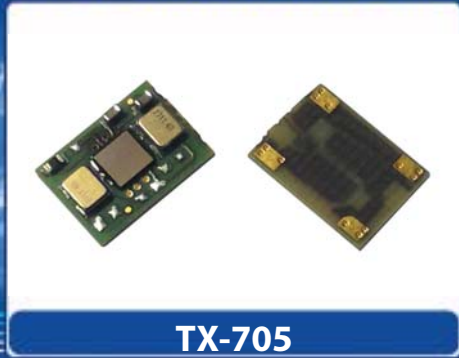


Helping Customers Innovate, Improve & Grow



## Description

The TX-705 is a TCXO family designed for applications where superior g-sensitivity and good phase noise together with small package size is required.

## Features

- Superior g-Sensitivity
- Withstands 1000 Temperature Cycles -55/125°C
- Good Phase Noise Behaviour
- Small Size, Low Profile
- 100% RoHS Compliant
- Frequency Range<sup>1</sup>: 16 - 50 MHz
- Standard Frequencies<sup>1</sup> 19.2; 20; 25; 38.4; 40 and 50MHz



## Applications

- Vibration Environment
- Portable Equipment
- Land Mobile Radio
- Test & Measurement
- Global Navigation Satellite Systems (GNSS)
- Wireless Communication

## Performance Specifications

Parameter	Frequency Stabilities <sup>1</sup>				Condition	
	Min	Typ	Max	Units		
vs. operating temperature range (referenced to (dfmax+dfmin)/2)	-0.8 -1.0		+0.8 +1.0	ppm	-20 to +70°C -40 to +85°C	Options <sup>2</sup>
Initial tolerance	-1.0		+1.0	ppm	at time of shipment, nominal EFC	
vs. supply voltage change	-0.2		+0.2	ppm	V <sub>s</sub> ±5% static	
vs. load change	-0.2		+0.2	ppm	Load ±10% static	
vs. aging / 10 Years	-5.0		+5.0	ppm		
Phase Noise <sup>3</sup>						
Phase Noise <sup>3</sup>		-90 -122 -143 -151 -155 -156		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz	@ 20MHz

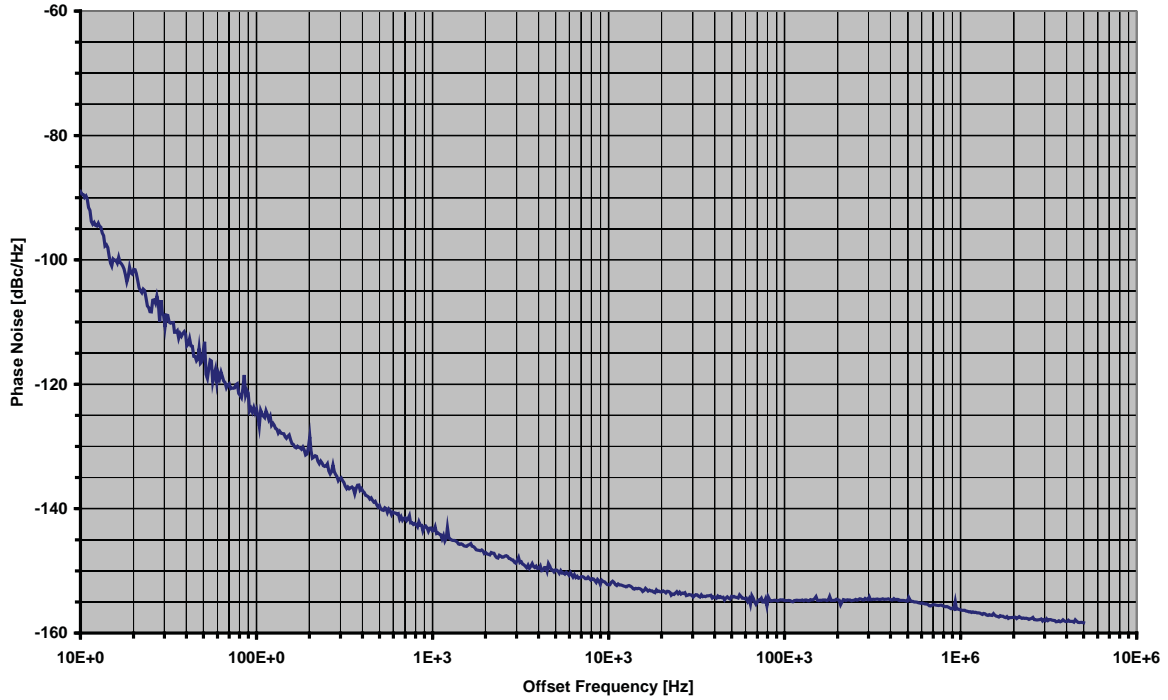
## Performance Specifications

Supply Voltage (Vs)					
Parameter	Min	Typical	Max	Units	Condition
Supply voltage (Vs)	3.135	3.3	3.465	VDC	Options <sup>2</sup>
Supply voltage (Vs)	4.75	5	5.25	VDC	
Current consumption			4	mA	steady state @ +25°C; V <sub>s</sub> =3,3V; HCMOS; 40MHz
RF Output (Clipped Sinewave)					
Load R	9	10	11	kΩ	
Load    C	9	10	11	pF	
Output Power	0.7			V <sub>pp</sub>	@ 10kΩ    10pF
RF Output (HCMOS)					
Load	13.5	15	16.5	pF	
Signal Level (Vol)			10% Vs	VDC	15pF Load
Signal Level (Voh)	90% Vs				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 <sup>2</sup>
Tuning Range	±5.0		±12.0	ppm	
Linearity	10%				
Tuning Slope	Positive				
Control Voltage (V <sub>c</sub> ) Range	10% Vs	50% Vs	90% Vs	VDC	
Freq. Control input impedance	100			kΩ	
Additional Parameters					
Weight			1.0	g	
Reflow Profile	IPC / JEDEC J-STD-020 (latest version)				
Environmental Conditions					
Acceleration	Steady State (centrifuge test): IEC 60068-2-7 test Ga, 5000g, 10s (at peak acceleration)				
Vibration	MIL-STD-883 Meth 2007 Cond A, 20G, 20-2000Hz, 4 x in each axis, 4 min				
Shock	Standard: MIL-STD-883G Meth 2002.4 Cond F, 20000g, 0.2ms, half sinewave, z-axis only				
	for 20 MHz and 40MHz proven: MIL-STD-883G Meth 2002.4 Cond G, 30000g, 0.2ms, half sinewave, z-axis only				
Random Vibration	MIL-STD-202G Meth214A Cond II-K, 53.79grms, 15min per axis				
Solderability	J_STD_002 Cond A, SMD 255°C (dipping time 5 ± 0.5sec), Dip+Look with 8h damp pre-treatment: solder wetting >95%				
Absolute Maximum Ratings					
Supply voltage (Vs)			6.0	V	
Control voltage	0		Vs	V	
Operable Temperature Range	-40		+85	°C	
Storage Temperature Range	-55		+90	°C	

# Typical Performance Data

## Phase Noise<sup>3</sup>

TX-705 @ 20MHz

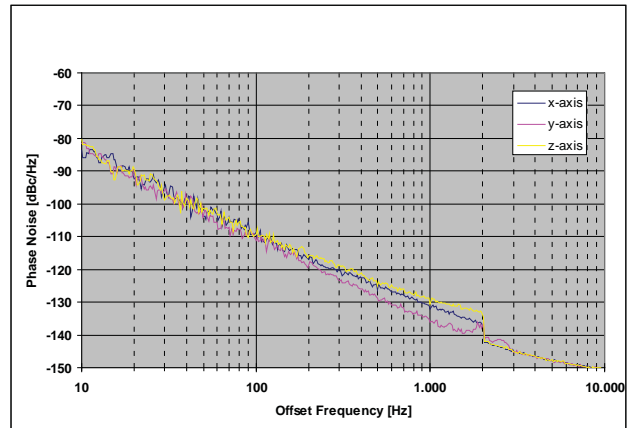
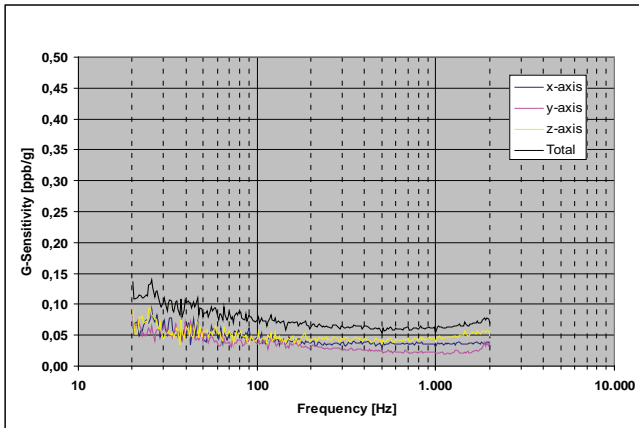


## G-Sensitivity

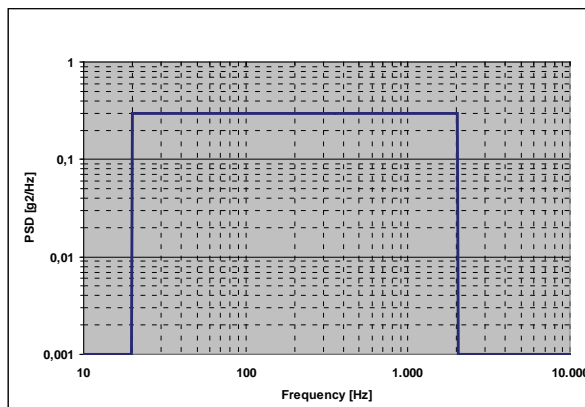
TX-705 @ 20MHz; 0.3g<sup>2</sup>/Hz

## Phase Noise<sup>3</sup>

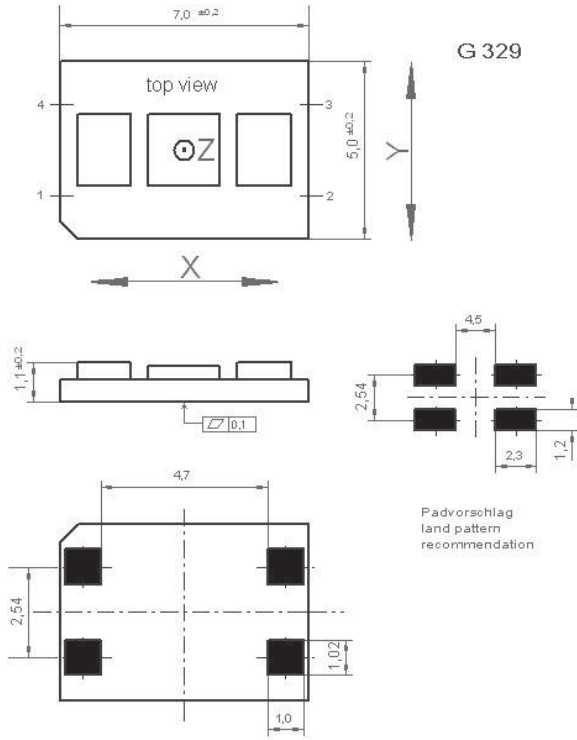
TX-705 @ 20MHz; 0.3g<sup>2</sup>/Hz



## Vibration Spectrum

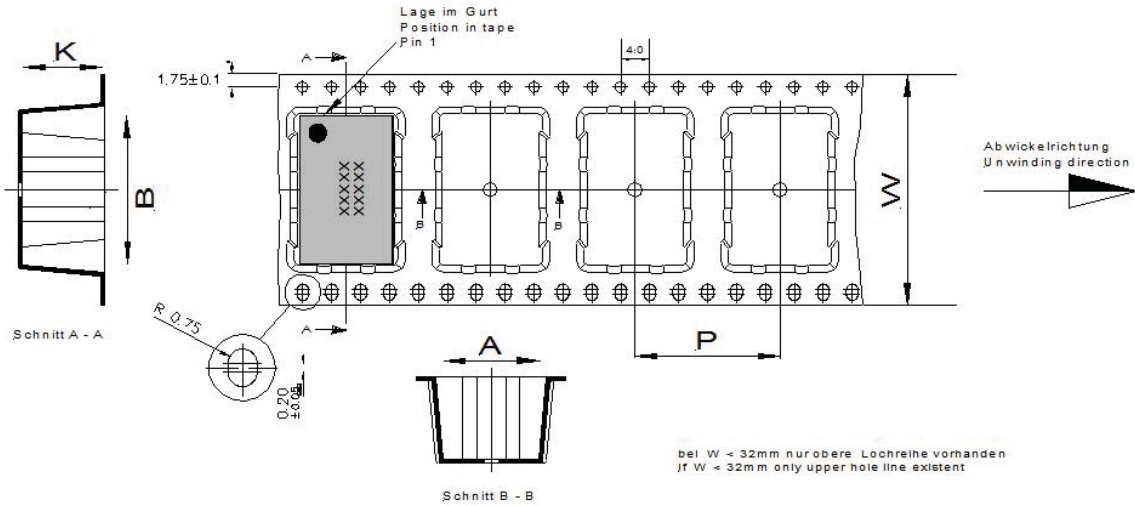


# Outline Drawing / Enclosure



Pin Connections	
1	V <sub>c</sub> (Voltage Control) / N.C. (Not connected) / Enable
2	Ground (GND)
3	RF-Output
4	V <sub>s</sub> (Supply Voltage)
Enable (Option <sup>2</sup> ):	
Pin 1	Pin 3
High	Data
Low	High Tristate
Open	Data
Package Codes: 705	
Type	Height
G329	1.1mm
Marking:	
WWYY F (DC Crystal + Frequency)	
AYYWW (Vectron Oscillator DC)	

# Standard Shipping Method



Tape Width W (mm)	Quantity per meter	Quantity per reel	P [mm]	A [mm]	B [mm]	K [mm]
16	125	750	8	5.4	7.4	2.7

## Ordering Information

**TX - 705 0 - E A E - 807 0 - 20M0000000**

Product Family  
TX: TCXO

Package  
SMD G329

Height  
0: 1.1mm

Supply Voltage  
D: 5V  
E: 3.3V

RF Output Code  
A: HCMOS  
F: Clipped Sinewave

Temperature Range  
E: -40°C to +85°C  
J: -20°C to +70°C

Stability Code  
807: ± 0.8 ppm  
106: ±1.0 ppm  
156: ±1.5 ppm

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

### Notes:

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

Subject to technical modification

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