


TX-504

Description

The TX-504 series TCXO offers high frequency combined with low g-sensitivity, available with CMOS output. The low phase noise oscillator is using a direct crystal frequency to avoid subharmonics. The analog TCXO IC offers the latest compensation technology to achieve tight stabilities form -40° to 105°C.

Features

- Frequency range ¹ of 50 - 160 MHz
- Low g-Sensitivity
- Low Phase Noise
- Low power consumption
- Shock Survival 5k g
- Standard Frequencies : 50, 80, 100 MHz

Applications

- Harsh Environment
- Military
- Industrial Application

Performance Specifications

Frequency Stabilities ¹						
Parameter	Min	Typical	Max	Units	Condition	Options ³
vs. operating temperature range (referenced to +25°C)	-0.28		+0.28	ppm	-40 to +85°C	
	-1		+1	ppm	-40 to +105°C	
Initial tolerance	-1		+1	ppm	at time of shipment, nominal EFC V _s ±5% static Load ±10% static after 30 days of operation	
vs. supply voltage change	-0.1		+0.1	ppm		
vs. load change	-0.1		+0.1	ppm		
vs. aging / year	-1		+1	ppm		
vs. aging /10 years	-3		+3	ppm		
Supply Voltage (Vs)						
Supply voltage (standard)	3.135	3.3	3.465	VDC		
Current consumption			35	mA	steady state @25°C, HCMOS	
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			VDC	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 %	

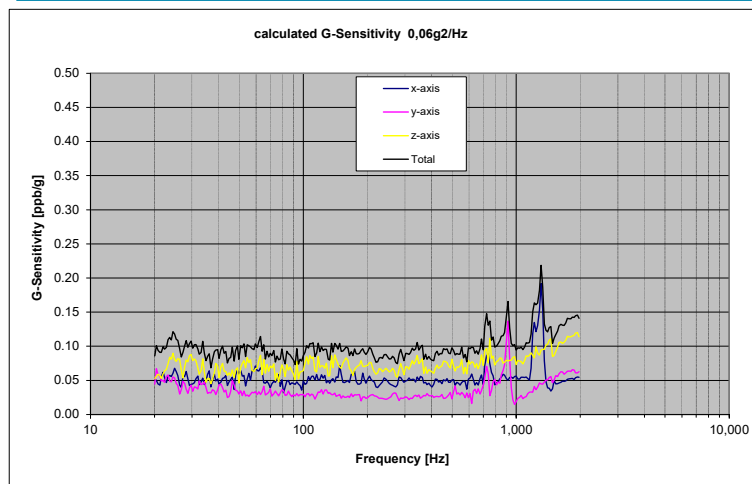
Performance Specifications

Frequency Tuning (EFC)						
Parameter	Min	Typical	Max	Units	Condition	
Tuning Range	Fixed TCXO; No adjust					Option
Tuning Range	±6			ppm	Standard Version	
Linearity	<10%					
Tuning Slope	Positive					
Control Input Impedance	10			kOhm		
Control Voltage Range	0.3	1.65	3.0	VDC	with Vs=3.3V	
Additional Parameters						
Phase Noise ²		-82 -116 -141 -156 -160		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	@ 50MHz HCMOS 3.3V
Jitter		0.1		ps RMS	@ 12 kHz to 20 MHz	
G-sensitivity		0.2		ppb/g		
Weight			2.0	g		
Processing & Packing	Handling & Processing Note					
Additional Environmental Conditions						
Random Vibration	MIL-STD-202G; Method 214A; Condition II-J, 3hrs at 43.92 grms					
Sine Vibration	MIL-STD-883 Meth 2007 Cond A - 20g 20-2000Hz					
Shock	MIL-STD-883G; Method 2002.4; Condition D, 5000 g / 0.3 ms					
Temperature cycling	MIL-STD-883G Meth.1010.8 Cond.B, 1000cycles -55 to +125°C; cycle time 30min.					
High Temperature Operating Life (HTOL)	1000h @ 105°C power on					
ESD HBM	JESD22A114F Class B					
RoHS compliance	100% RoHS 6 compliant					
Moisture Sensitivity Level	MSL 1					

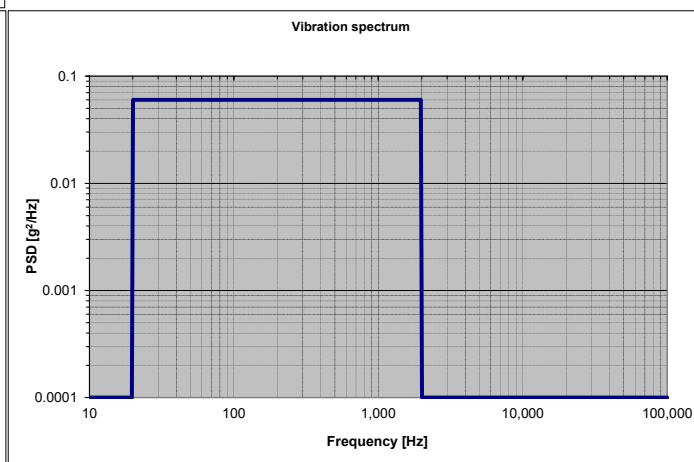
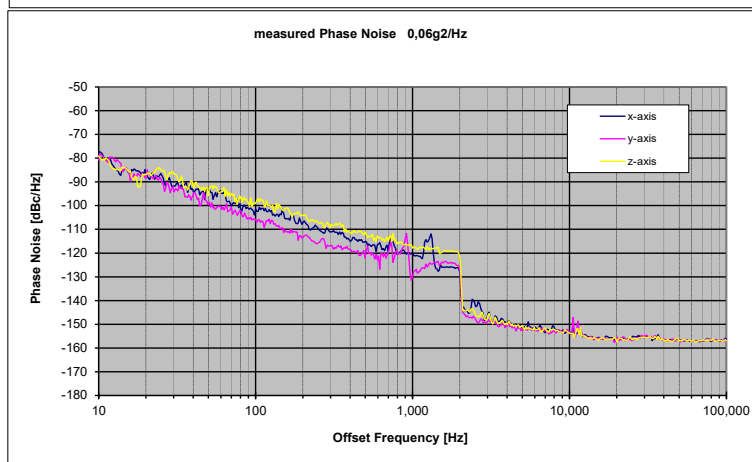
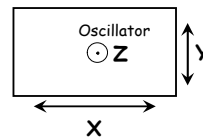
Absolute Maximum Ratings					
supply voltage (Vs)			6.0	V	with Vs=3.3 VDC
Output Load			50	pF	
Operable Temperature Range	-40		+105	°C	
Storage Temperature Range	-55		+125	°C	

Typical Performance ²

Typical G-Sensitivity @100 MHz; HCMOS

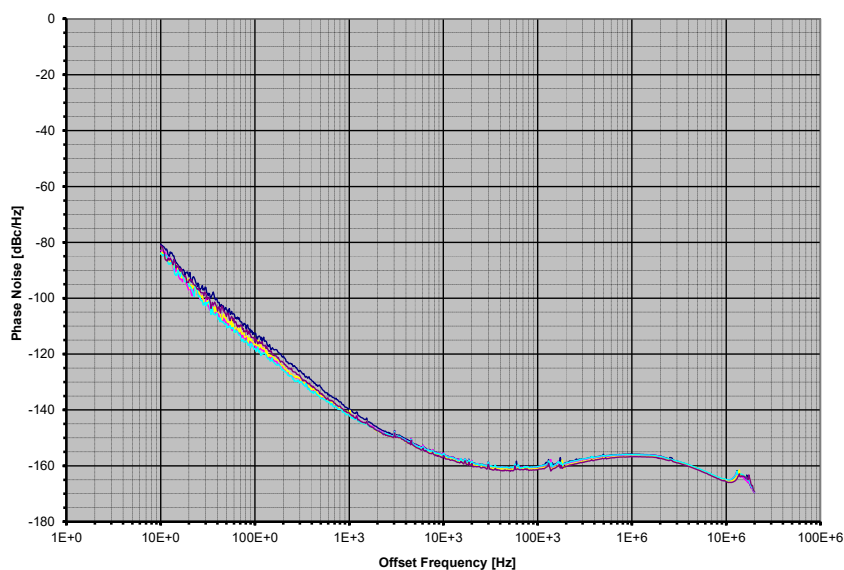


number	g-Sens @500Hz [ppb/g]			
	X-axis	Y-axis	Z-axis	total
5	0.05	0.03	0.07	0.09



Phase Noise

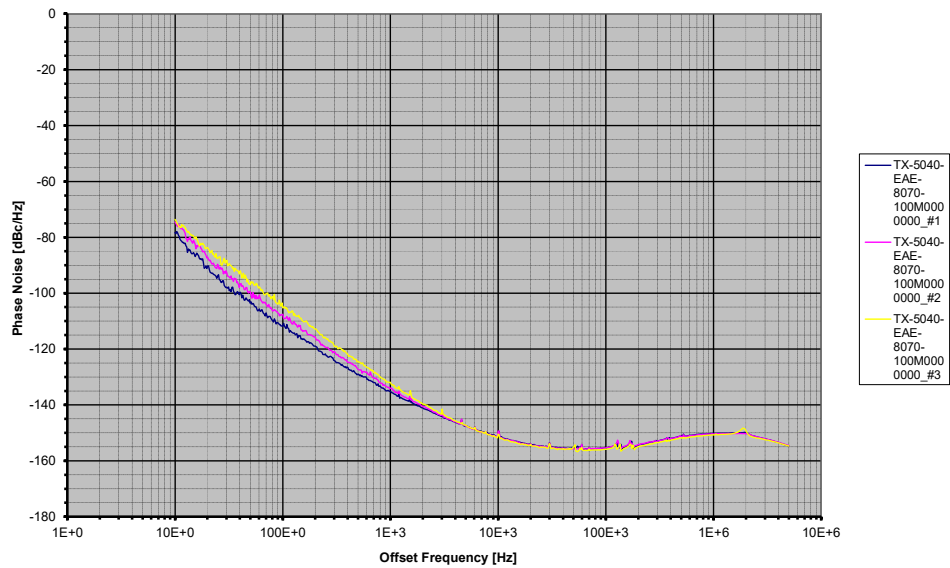
TX-504 @ 50MHz HCMOS



Typical Performance ²

Phase Noise

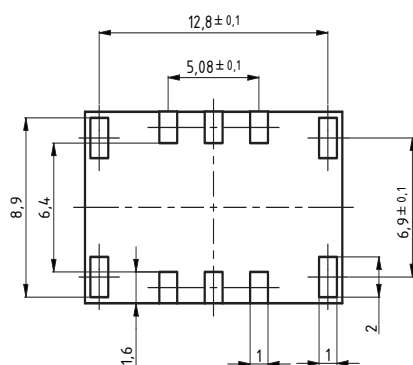
TX-504 @ 100MHz HCMOS



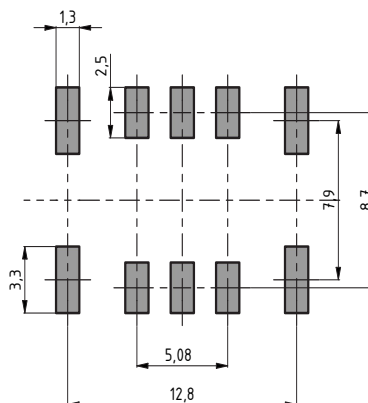
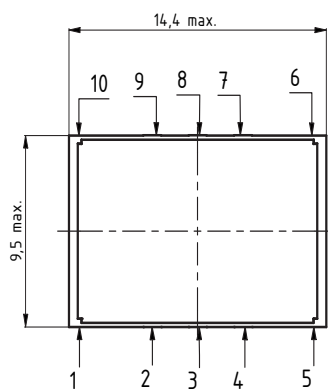
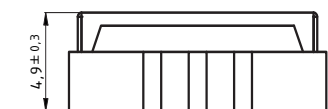
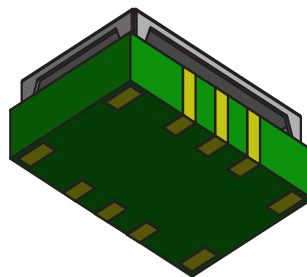
Outline Drawing / Enclosure

TX-504	
Type	Height "H" in mm
G347	4.9 (metal cap)

Pin Connections (CMOS)	
1; 3; 5; 6; 8; 10	Not Connected (N.C.)
2	Control Voltage / N.C.
4	Ground (Case)
7	RF-Output
9	Supply Voltage Input (Vs)

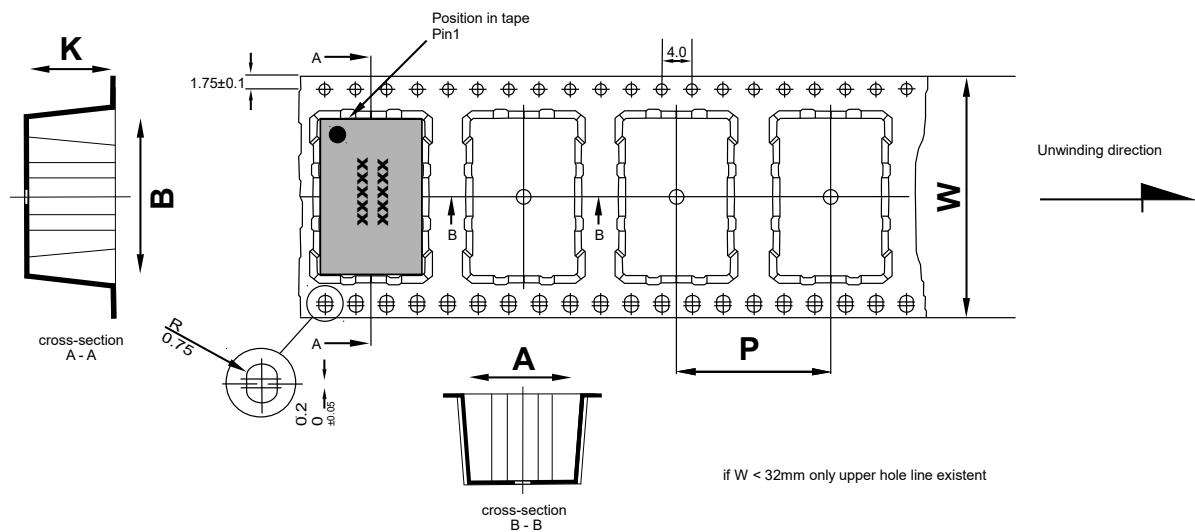


G347 Dimensions in mm



Padvorschlag
land pattern
recommendation

Standard Shipping Method (TX-504)



Dimension in mm:
 A, B and K are dependent upon component dimensions
 production tolerance complying DIN IEC 286-3

All dimensions in millimeters unless otherwise stated

Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G347	24	83.3	850	12

Recommended Reflow Profile

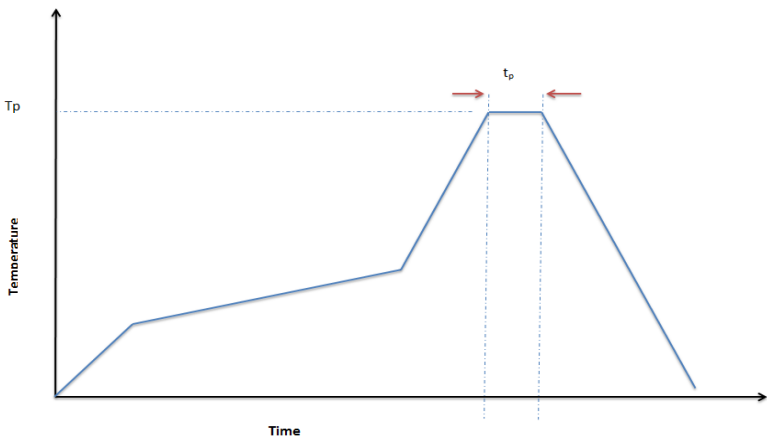
TP: max 250°C (@ solder joint, customer board level)

T_p: max: 10...30 sec

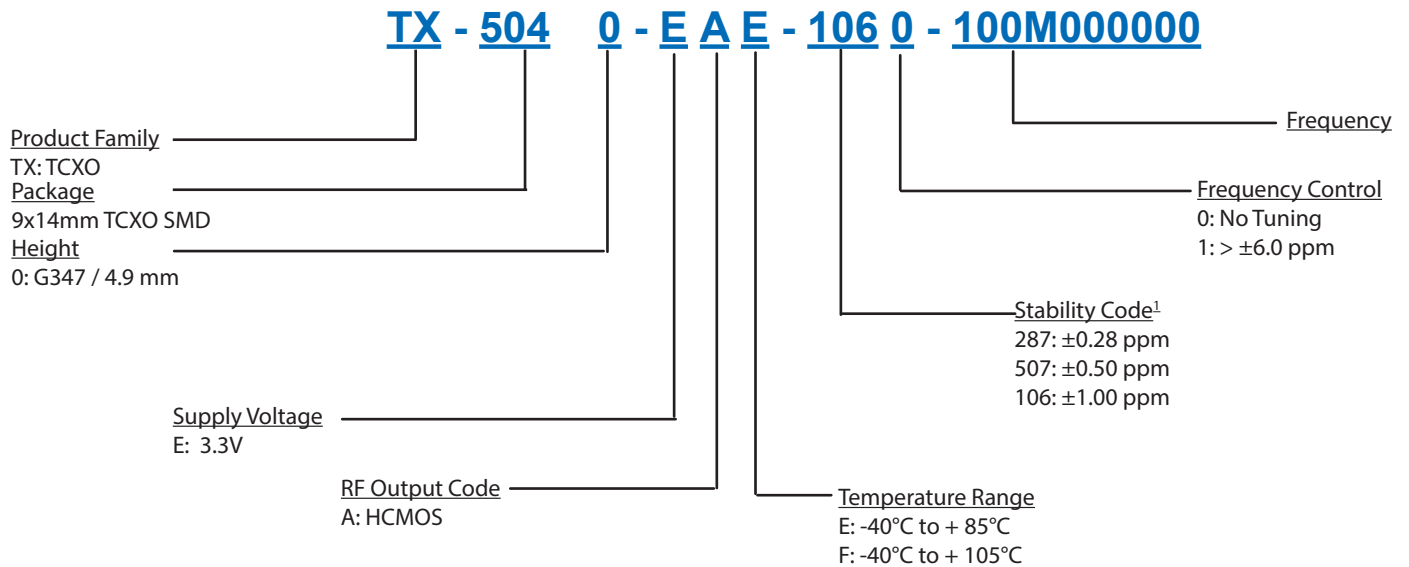
Additional Information:

This SMD oscillator has been designed for pick and place reflow soldering

SMD oscillators must be on the top side of the PCB during the reflow process.



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.

Contact Information

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