

Helping Customers Innovate, Improve & Grow



Features

- Ultra low Phase Noise
- Ultra low G-Sensitivity
- Vibration hardened
- Tight Tolerances

Applications

- Vibration Environment
- Airborne and Military Equipment
- Portable Equipment
- Radar

Frequency Range
Standard Frequencies

60 MHz – 120 MHz
120 MHz

Performance Specifications

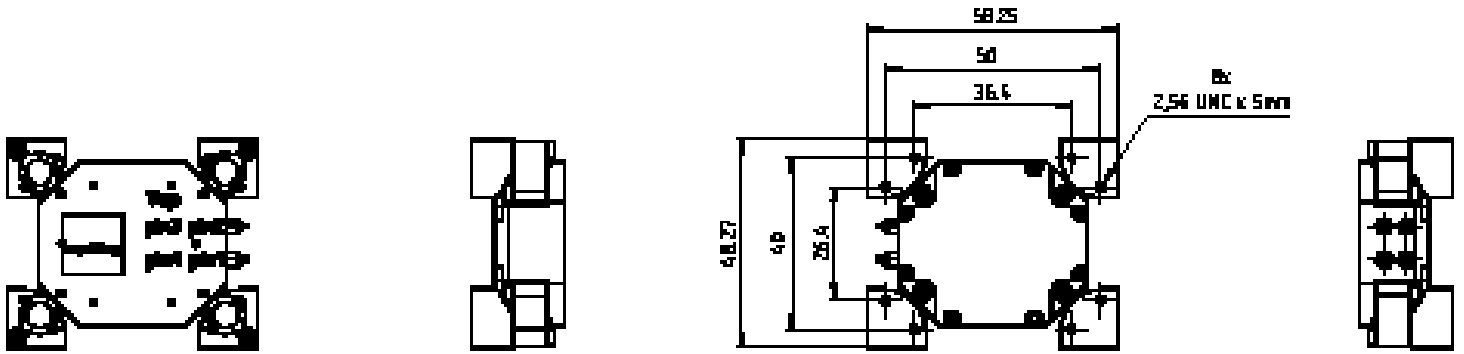
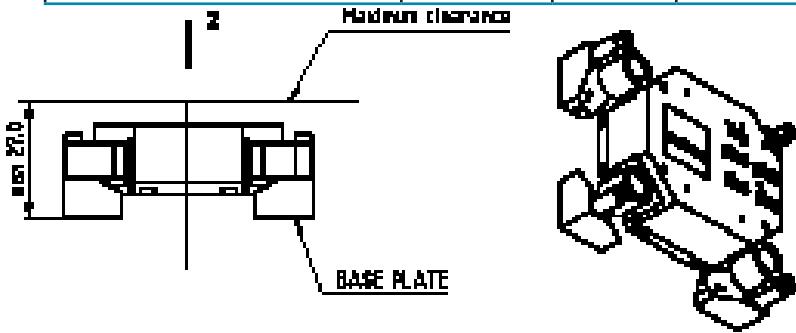
Parameter	Frequency Stabilities ¹				Units	Condition	Options ³
	Min	Typical	Max				
vs. operating temperature range (referenced to nominal frequency)	-15.0		+15.0		ppm	-20 to +70°C	
	-25.0		+25.0		ppm	-40 to +85°C	
Initial tolerance	-15.0		+15.0		ppm	25°C	
vs. supply voltage change	-0.1		+0.1		ppm	$V_s \pm 5\%$ static	
vs. load change	-0.1		+0.1		ppm	Load $\pm 10\%$ static	
vs. aging / 1 year	-1.0		+1.0		ppm	after 30 days of operation	
vs. aging / 10 years	-3.0		+3.0		ppm	after 30 days of operation	

Performance Specifications

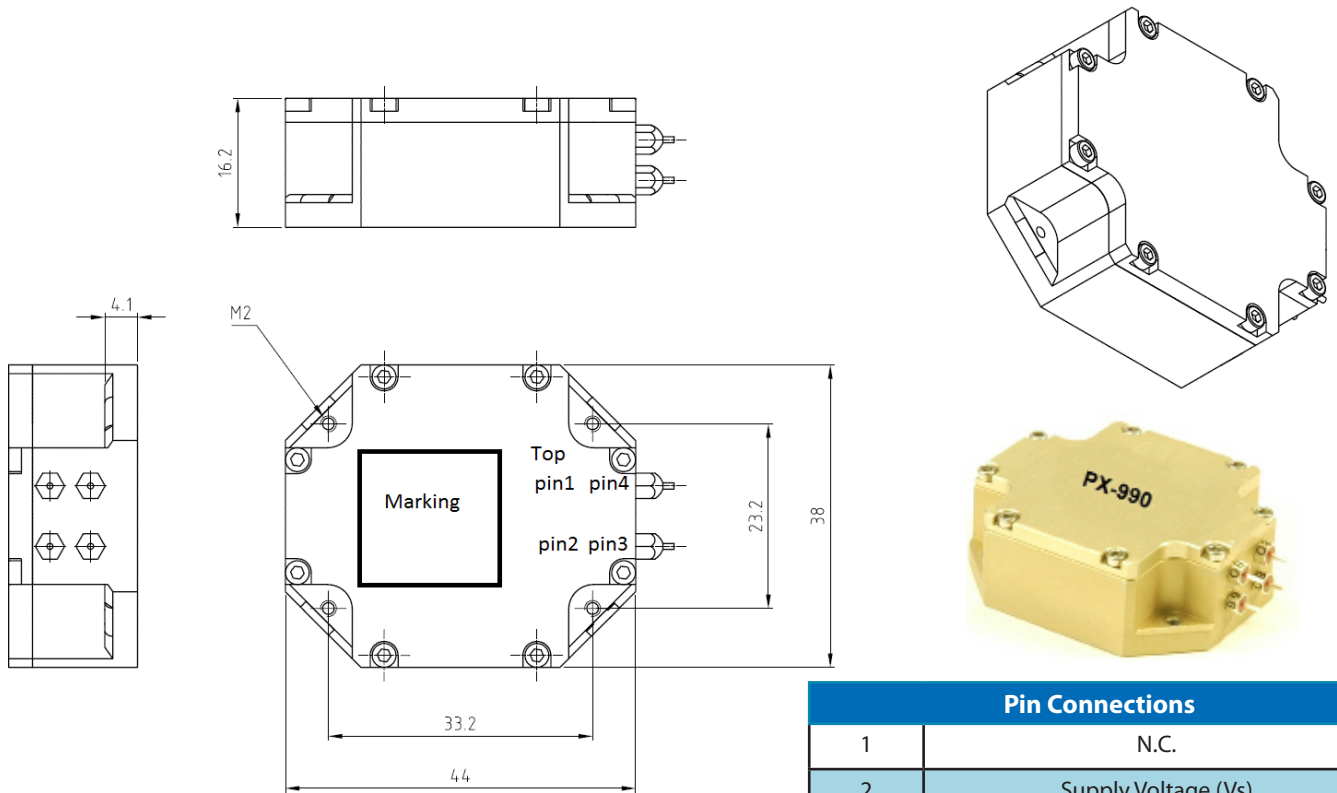
Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition	
Supply voltage (standard)	14.25	15	15.75	VDC		
Current consumption			100	mA		
RF Output						
Signal [standard]	Sinewave				50 Ω load	
Load	45	50	55	Ohm		
Output Power	10	13	16	dBm	50 Ω load	
Harmonics			-30	dBc	50 Ω load	
Spurious			-80	dBc	50 Ω load	
Additional Parameters						
Phase Noise ²		-90		dBc/Hz	10 Hz	@ 120 MHz 13 dBm sinewave no vibration
		-125		dBc/Hz	100 Hz	
		-153		dBc/Hz	1 kHz	
		-167		dBc/Hz	10 kHz	
		-173		dBc/Hz	100 kHz	
		-175		dBc/Hz	1 MHz	
G-Sensitivity		0.5		ppb/g	without shock absorbers ³	
G-Sensitivity			1	ppb/g	optional without shock absorbers ³	
G-Sensitivity			0.5	ppb/g	optional without shock absorbers ³	
Weight		55	75	g		
Processing & Packing	Handling & Processing Note					
Additional Environmental Conditions						
Random Vibration	RTCA/DO-160 D, Section 8, Category R or R2 curve C and C1					
Shock	MIL-STD-202G; Method 213B; 15 g / 20 ms					
Solderability	JEDEC J-STD-002 non RoHS compliant					
Solvent Resistance	non-washable device					
Absolute Maximum Ratings						
Supply voltage (Vs)			16.0	V		
Output Load	45		55	Ω		
Operable Temperature Range	-40		+85	°C		
Storage Temperature Range	-55		+105	°C		

Outline Drawing / Enclosure

Parameter	Min	Typical	Max	Units	Condition
G295 including vibration isolators. Mechanical resonance frequency	35		110	Hz	Please specify vibration profile and phase noise max values under vibration



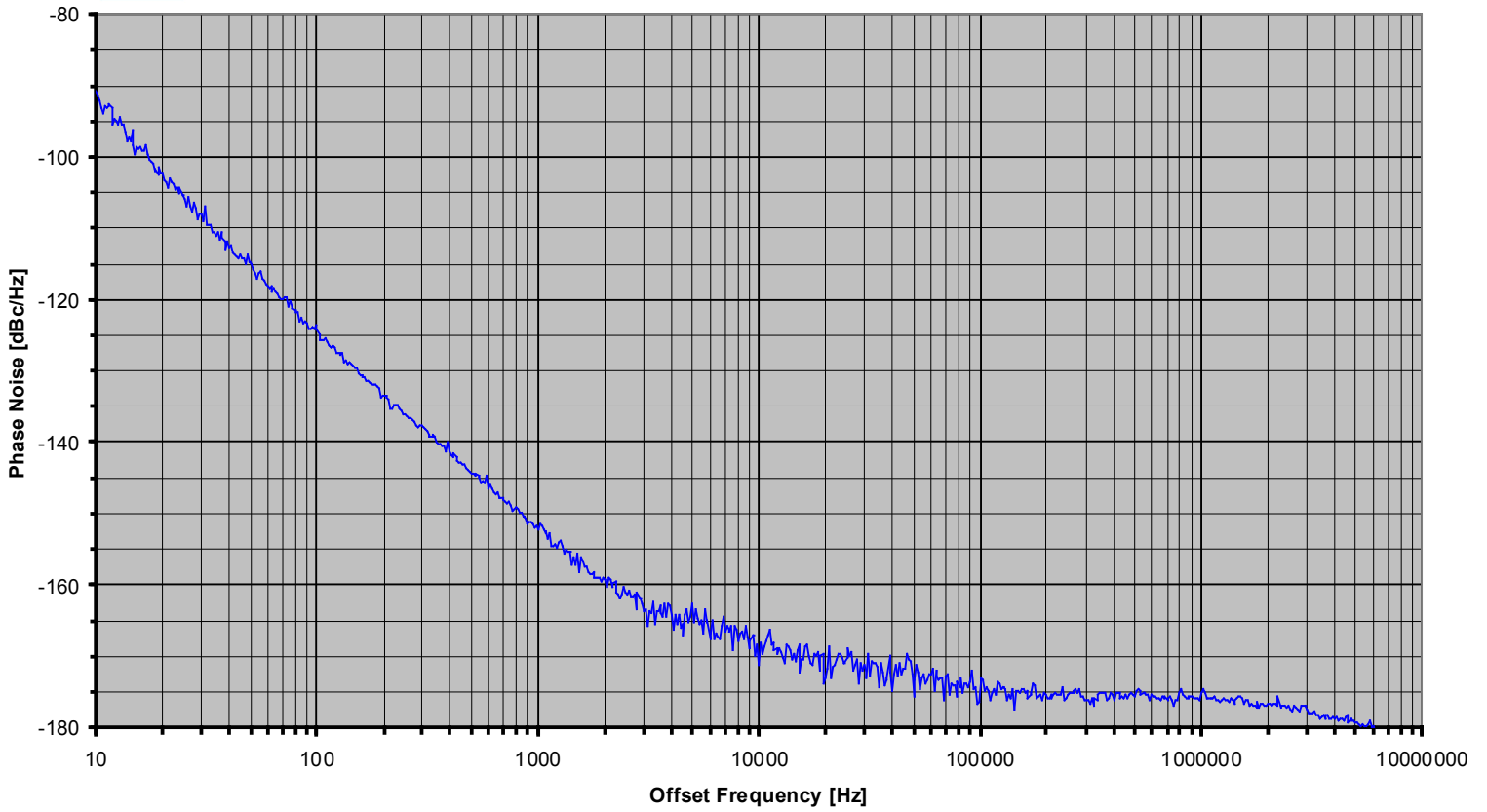
Parameter	Min	Typical	Max	Units	Condition
G313 without vibration isolators.					Option please specify vibration profile and phase noise max values under vibration



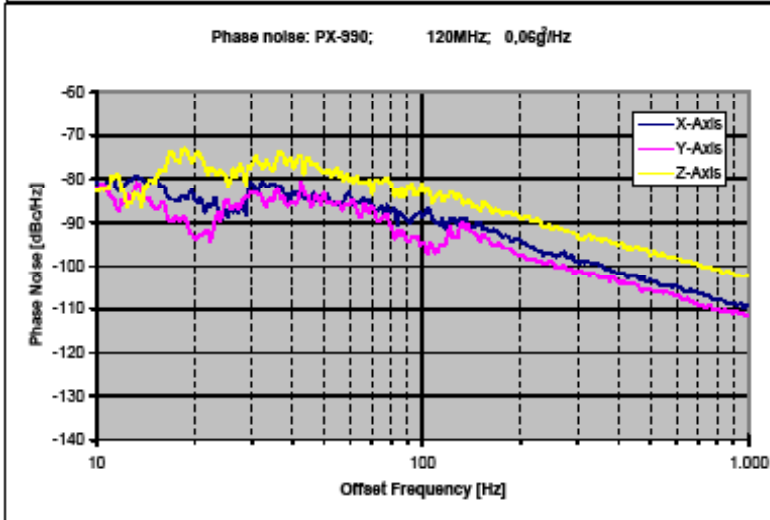
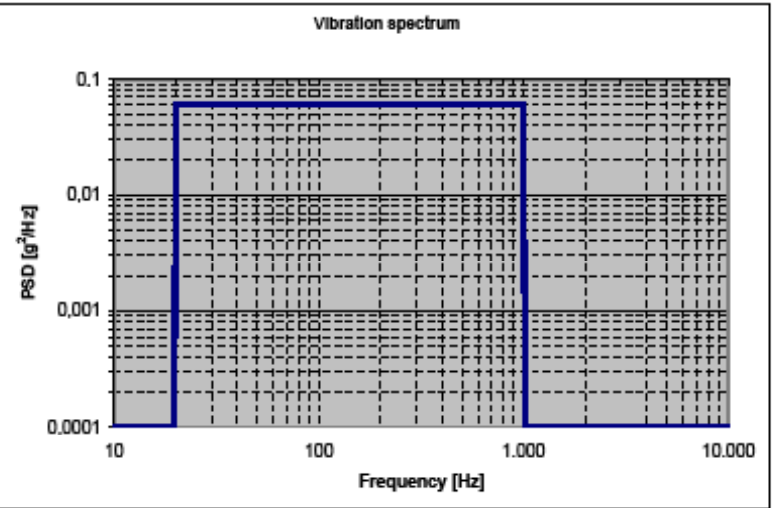
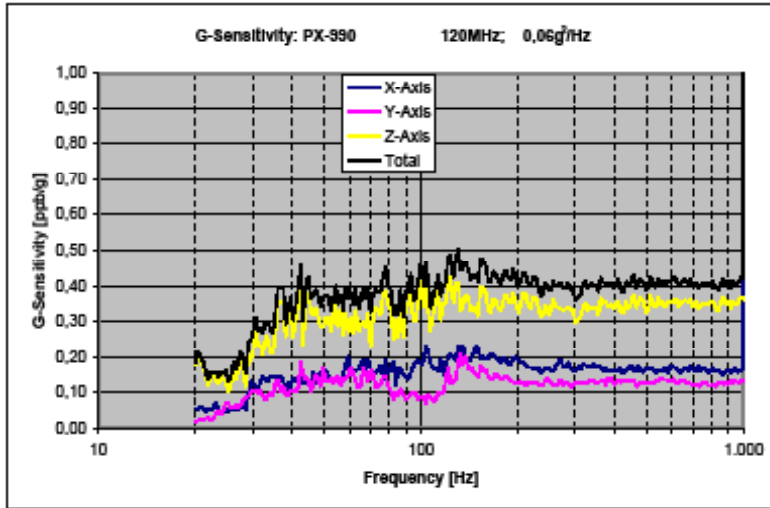
Dimensions in mm

Pin Connections	
1	N.C.
2	Supply Voltage (Vs)
3	RF-Output
4	Ground (Case)

Typical Phase Noise @ 120 MHz without vibration



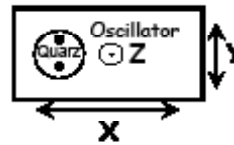
Typical G-Sensitivity @120 MHz without shock absorber



Calculation equation according to Vig-Tutorial

$$G = \frac{2 \cdot f_v}{A_{peak} \cdot f_0} \cdot 10^{\frac{L(f)}{20}}$$

$$A_{peak} = \sqrt{PSD \cdot 2}$$

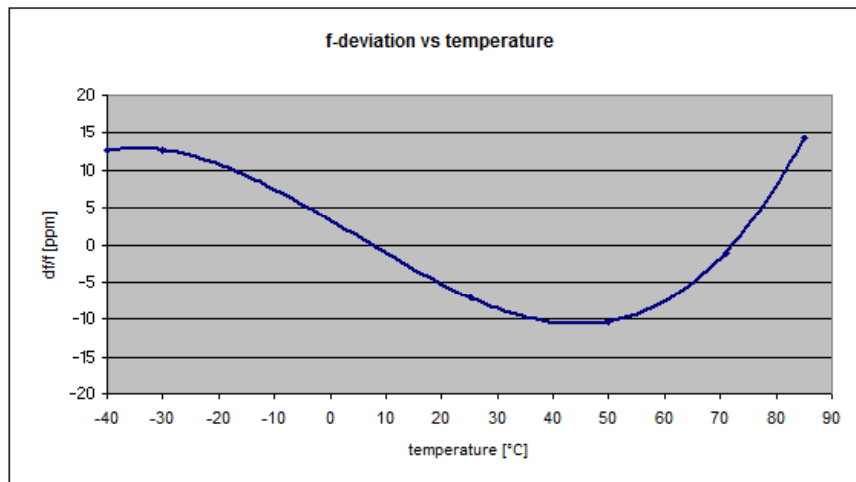


Typical Frequency Stability vs Temperature



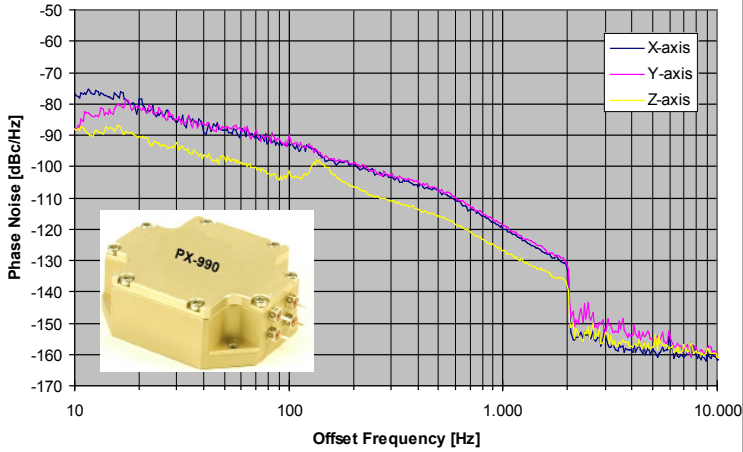
Frequency and Pout vs. Temperature

Specification:	PX-990-0001	29.11.2010
Frequency:	120,000 MHz	
Osc.-No.:	SN1	

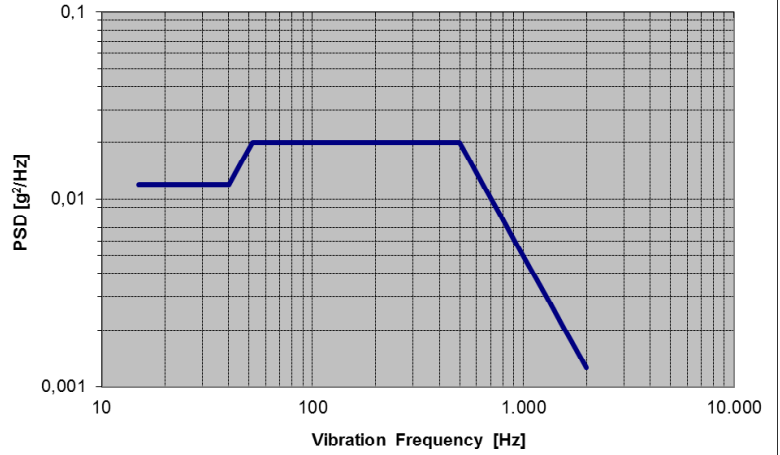


Typical Phase Noise @ 120 MHz with vibration

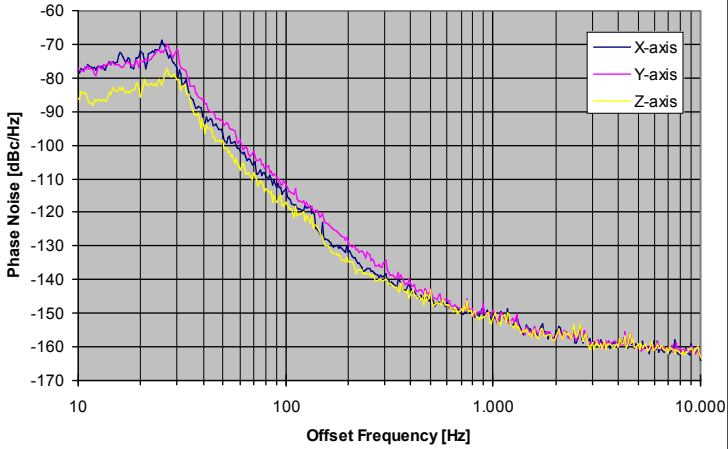
PX-990 without shock absorber
vibration spectrum DO-160 curve C



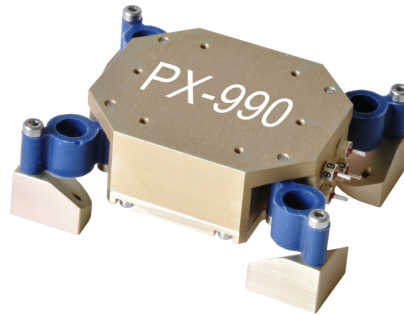
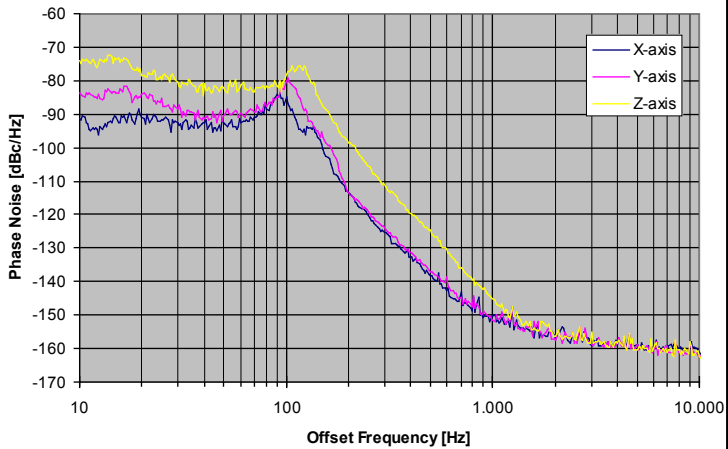
Vibration spectrum
RTCA / DO160-E; Curve C



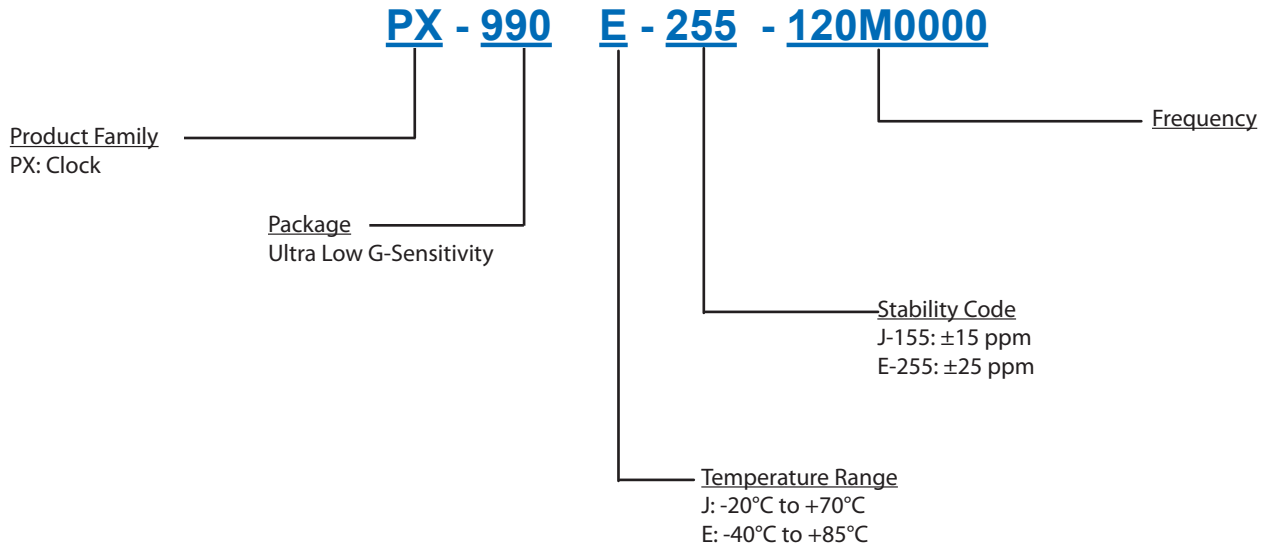
Typical Phase noise: PX-990
vibration spectrum DO-160 curve C



Typical Phase Noise: PX-990
vibration spectrum DO-160 curve C



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 after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).

Subject to technical modification.

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Rev: 02/2014