



ECXV-P2 (2.5V) and ECXV-P3 (3.3V) low jitter, low current  
Frequency Configurable SMD Voltage Controlled Crystal  
Oscillators (VCXO).

# ECSpresS<sup>CON</sup><sup>TM</sup>

## ECXV-P LVPECL VCXO

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### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

Parameters	Conditions	ECXV-P2 (+2.5V)			ECXV-P3 (+3.3V)			Units
		MIN	TYP	MAX	MIN	TYP	MAX	
Frequency Range		10.000		1500.00	10.000		1500.00	MHz
Supply Voltage		+2.375	+2.5	+2.625	+2.97	+3.3	+3.63	VDC
Voltage Control		+0.2	+1.25	+2.3	+0.3	+1.6 5	+3.0	VDC
Frequency Pulling Range (Positive Transfer)	7 x 5 & 5 x 3.2 pkg.	±100			±100			PPM
	3.2 x 2.5 & 2.5 x 2 pkg.	±50			±50			PPM
Frequency Stability *	Option A			±100			±100	ppm
	Option B			±50			±50	ppm
	Option C			±25			±25	ppm
	Option D			±20			±20	ppm
Input Current	10.0 ~ 250.0 MHz			48			50	mA
	250.1 ~ 500.0 MHz			53			55	mA
	500.1 ~ 1500 MHz			65			68	mA
Output Symmetry	@ 50% V <sub>CC</sub> level			48/52			48/52	%
Aging	@ +25°C (first year)			±2			±2	PPM
Rise and Fall Times	10% V <sub>dd</sub> to 90% Level	150		250	150		250	pS
"0" Level	VOL	V <sub>dd</sub> -1.85V		V <sub>dd</sub> -1.6V	V <sub>dd</sub> -1.85V		V <sub>dd</sub> -1.6V	VDC
"1" Level	VOH	V <sub>dd</sub> -1.03V		V <sub>dd</sub> -0.6V	V <sub>dd</sub> -1.03V		V <sub>dd</sub> -0.6V	VDC
Output Load	Differential							
Output Enable	Pin 2 **	0.7%			0.7%			V <sub>dd</sub>
Output Disable	Pin 2			0.3%			0.3%	V <sub>dd</sub>
Output Enable Time				200			200	ns
Output Disable Time				50			50	ns
Phase Jitter, rms	12 KHz to 20 MHz		1.0			1.0		pS
Operating Temperature (Specified in P/N)	Standard	-10		+70	-10		+70	°C
	Extended (P Option)	-40		+105	-40		+105	°C
Storage Temperature		-55		+125	-55		+125	°C
Moisture Sensitivity Level		1						
Termination Finish		Au						
ESD Sensitivity	Human Body Model	3kV Max.						

\*Note: Inclusive of 25 °C tolerance, operating temperature, input voltage change, load change, shock and vibration.

\*\*Note: Internal pull-up resistor active output if pin 2 is left open.

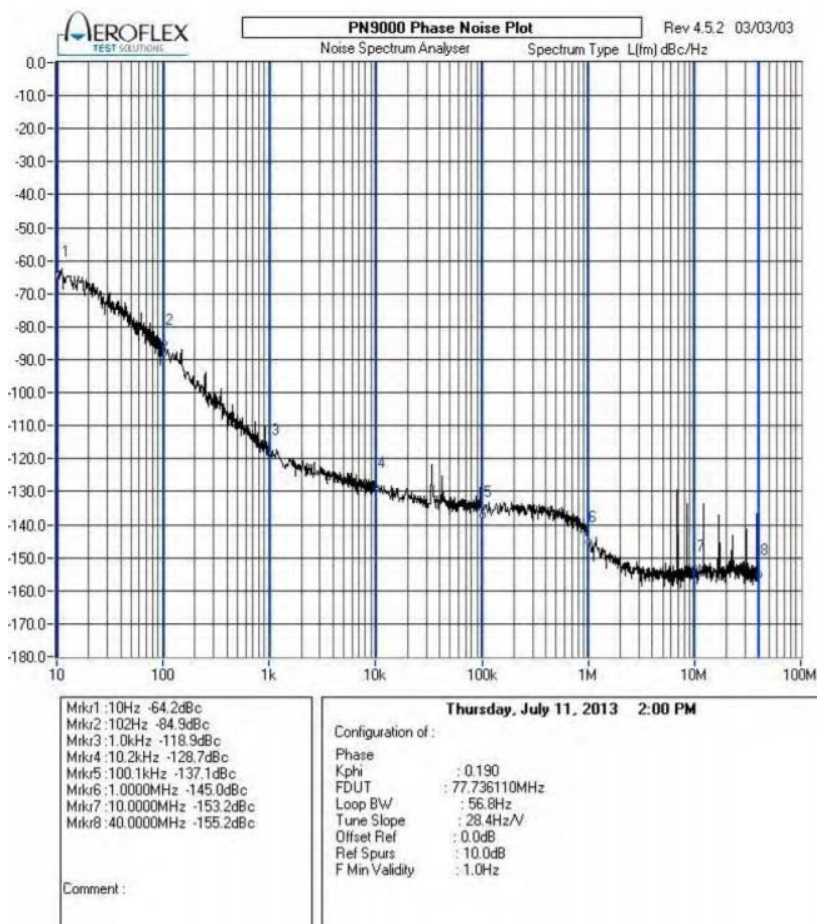
\*\*\* Pull Range is package dependent

Part Numbering Guide: Example ECXV-P35BN-156.250						
Series	Voltage	Package Size (mm)	Stability	Pull Range(***)	Operating Temperature	Frequency
ECXV-P (LVPECL Output)	2 = +2.5V 3 = +3.3V	2 = 2.5 x 2 3 = 3.2 x 2.5 5 = 5 x 3.25 7 = 7 x 5	A = ± 100 ppm B = ± 50 ppm C = ± 25 ppm D = ± 20 ppm	1 = ±50 PPM 2 = ±90 PPM 3 = ±100 PPM	L = -10 ~ +70°C M = -20 ~ +70°C N = -40 ~ +85°C P = -40 ~ +105°C	Customer Specified

### Phase Noise and Jitter Data (typical)

SSB Phase Noise Data (dBc/Hz typical)	Frequency (offset)	77.760	122.880	125.00	156.250	212.5	491.520	622.080	1000	1250
	10 Hz	-64	-68	-63	-55	-62	-61	-48	-58	-45
	100 Hz	-84	-99	-94	-85	-93	-86	-85	-82	-81
	1 KHz	-118	-113	-113	-109	-105	-100	-101	-93	-81
	10 KHz	-128	-119	-118	-116	-113	-105	-102	-97	-96
	100 KHz	-137	-120	-119	-118	-115	-105	-103	-97	-97
	1 MHz	-145	-140	-137	-139	-135	-126	-124	-116	-119
	5 MHz	-152	-142	-146	-146	-143	-137	-133	-127	-129
Phase Jitter pS 12 KHz ~ 20 MHz, RMS		0.9	0.8	1.1	0.9	1.0	1.1	1.2	1.5	1.1

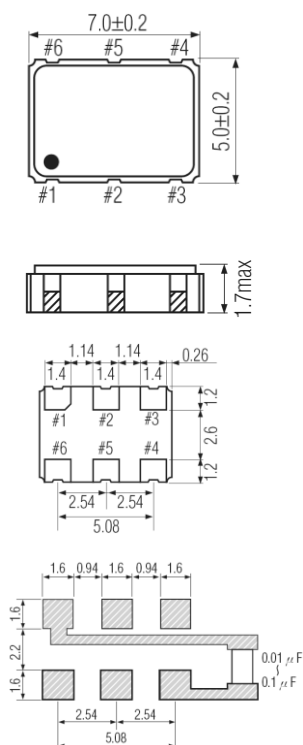
### Phase Noise Plot of ECXV-H35B3B-77.760 (typical)



Package Data	
Item	Description
Lid	Metal
Base	Ceramic
Plating	Gold/Nickel Surface/Under

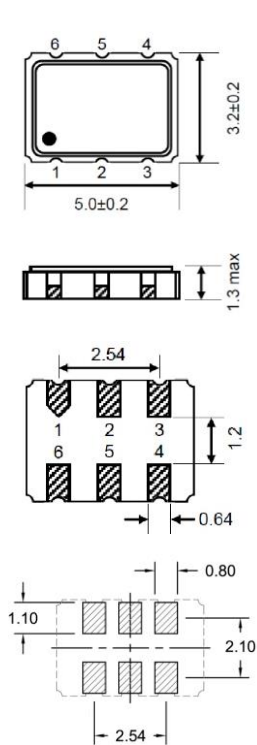
**Dimensions (mm)**

**7 = 7x5 Package**



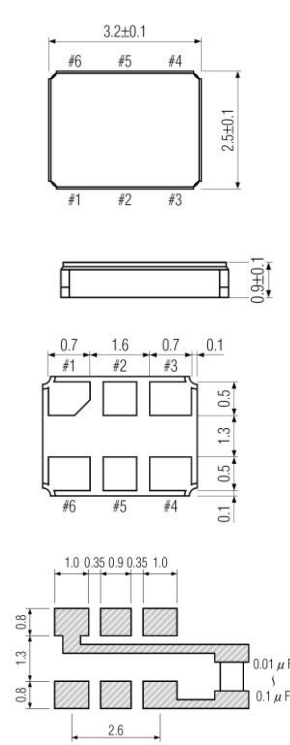
*Figure 1) Top, Side, Bottom & Land*

**5 = 5x3.2 Package**



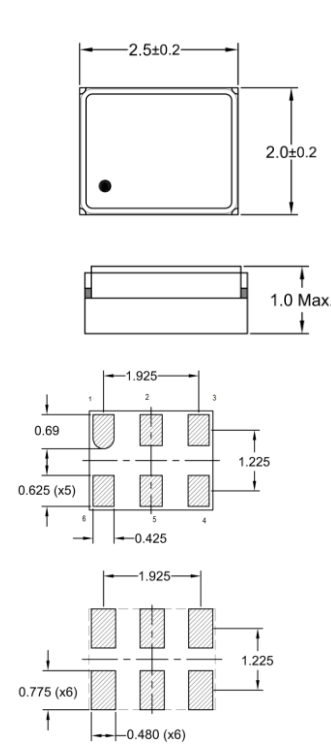
*Figure 2) Top, Side, Bottom & Land*

**3 = 3.2x2.5 Package**



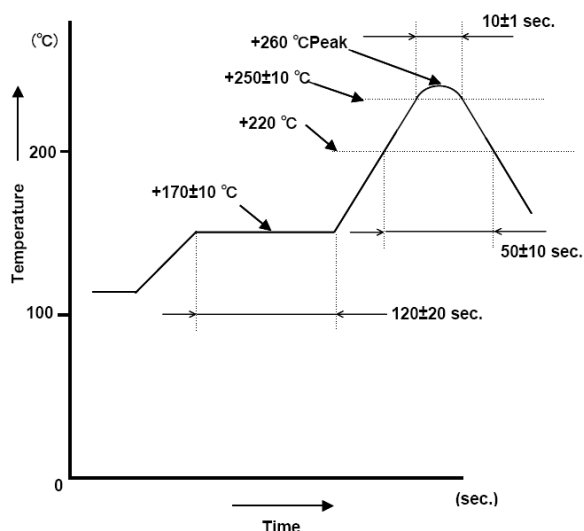
*Figure 3) Top, Side, Bottom & Land*

**2 = 2.5x2 Package**



*Figure 4) Top, Side, Bottom & Land*

**Suggested Reflow Profile**



**Pin Connections**

Pin #	Function
1	Control Voltage
2	OE: High Enable
3	Ground
4	LVPECL Output
5	Complementary Output
6	Supply Voltage

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## ECS:

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