



ECS-L2 (2.5V) and ECS-L3 (3.3V) low jitter, low current Frequency Configurable SMD crystal controlled oscillators.

# ECSpresCON™

## ECX-L LVDS Oscillator

Request a Sample



### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

Parameters	Conditions	ECS-L2 (+2.5V)			ECS-L3 (+3.3V)			Units
		MIN	TYP	MAX	MIN	TYP	MAX	
<b>Frequency Range</b>		10.000		1500.0	10.000		1500.0	MHz
<b>Operating Temperature</b>	Standard	0		+70	0		+70	°C
	Extended (N Option)	-40		+85	-40		+85	°C
<b>Storage Temperature</b>		-55		+125	-55		+125	°C
<b>Supply Voltage</b>	V <sub>DD</sub>	+2.375	+2.5	+2.625	+3.135	+3.3	+3.465	VDC
<b>Frequency Stability *</b>	Option A			±100			±100	ppm
	Option B			±50			±50	ppm
	Option C			±25			±25	ppm
	Option D			±20			±20	ppm
<b>Input Current</b>	10.0 ~ 100.0 MHz			16			18	mA
	100.1 ~ 250.0 MHz			18			20	mA
	250.1 ~ 500 MHz			21			22	mA
	500.1 ~ 1500.0 MHz			26			28	mA
<b>Output Symmetry</b>	@ 50% V <sub>DD</sub> level			45/55			45/55	%
<b>Output Load</b>	Load between each Output			100			100	Ω
<b>Output Enable</b>	Pin 1 **	0.7%			0.7%			Vdd
<b>Output Disable</b>	Pin 1			0.3%			0.3%	Vdd
<b>Disable Current</b>			16		16			mA
<b>Output Enable Time</b>				200			200	ns
<b>Output Disable Time</b>	Pin 1 = VIL			50			50	ns
<b>Differential Output Voltage</b>		175	350		175	350		mV
<b>Offset Voltage</b>			1.25			1.25		V
<b>Rise and Fall Times</b>	10% V <sub>DD</sub> to 90% Level	150	350	500	150	350	500	pS
<b>Aging</b>	@ +25°C (first year)			±2			±2	PPM
<b>Start-up Time</b>	@ +25°C (first year)			10			10	ms
<b>Absolute Voltage Range</b>				+3.63			+3.63	VDC
<b>Moisture Sensitivity Level</b>				1				
<b>Termination Finish</b>				Au				
<b>ESD Sensitivity</b>	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 1 is left open.

#### Part Numbering Guide: Example ECX-L35BN-156.250

Series	Voltage	Package Size (mm)	Stability	Operating Temperature	Frequency
ECX-L (LVDS 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	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	125.000	156.250	212.5	491.520	622.080	1000	1250
	10 Hz	-64	-68	-63	-55	-62	-61	-48	-52	-42
	100 Hz	-84	-99	-94	-85	-93	-86	-85	-82	-81
	1 KHz	-118	-113	-113	-109	-105	-100	-101	-93	-93
	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 ECX-L35BN-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	O/E or No Connect
2	No Connect
3	Ground
4	Differential Output
5	Complementary Output
6	Supply Voltage

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