Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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## Contact us

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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

- Very low RMS Jitter
- Short Lead time
- Pb Free/RoHS2 Compliant
- MSL 1
- Peak solder temp +260°C (10 sec)

# ECSpressCON™
# ECX-L LVDS OSCILLATOR

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

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | ECX-L2 (+2.5V) | | | ECX-L3 (+3.3V) | | | UNITS |
|---|---|---|---|---|---|---|---|---|
| | | MIN | TYP | MAX | MIN | TYP | MAX | |
| Frequency Range | | 10.0 | | 1500.0 | 10.0 | | 1500.0 | MHz |
| Operating Temperature | Standard | 0 | | +70 | 0 | | +70 | °C |
| | Extended (N Option) | -40 | | +85 | -40 | | +85 | °C |
| Storage Temperature | | -55 | | +125 | -55 | | +125 | °C |
| Supply Voltage | VDD | +2.375 | +2.5 | +2.625 | +3.135 | +3.3 | +3.465 | VDC |
| 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 to 100.0 | | | 16 | | | 18 | mA |
| | 100.1 to 250.0 | | | 18 | | | 20 | mA |
| | 250.1 to 500.0 | | | 21 | | | 22 | mA |
| | 500.1 to 1500.0 | | | 26 | | | 28 | mA |
| Output Symmetry | @ 50% VDD level | | | 45/55 | | | 45/55 | % |
| Output Load | Load between each Output | | | 100 | | | 100 | Ω |
| Output Enable | Pin 1 ** | 0.7% | | | 0.7% | | | Vdd |
| Output Disable | Pin 1 | | | 0.3% | | | 0.3% | Vdd |
| Disable Current | | | 16 | | | 16 | | mA |
| Output Enable Time | | | | 200 | | | 200 | ns |
| Output Disable Time | Pin 1 = VIL | | | 50 | | | 50 | ns |
| Differential Output Voltage | | 175 | 350 | | 175 | 350 | | mV |
| Offset Voltage | | | 1.25 | | | 1.25 | | V |
| Rise and Fall Times | 10% VDD to 90% level | 150 | 350 | 500 | 150 | 350 | 500 | pS |
| Aging | @ +25°C (first year) | | | ±2 | | | ±2 | ppm |
| Start-up Time | @ +25°C (first year) | | | 10 | | | 10 | ms |
| Phase Jitter, rms | 12 KHz to 20 MHz band | | 1.0 | | | 1.0 | | pS |
| Absolute Voltage Range | | | | +3.63 | | | +3.63 | VDC |
| Moisture Sensitivity Level | | 1 | | | | | | |
| Termination Finish | | Au | | | | | | |
| ESD Sensitivity | Human Body Model | 3 kV Max. | | | | | | |

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

****Note: Internal pull-up resistor allows active output in pin 1 is left open.**

| Part Number Guide | | | | | | |
|---|---|---|---|---|---|---|
| Series | Voltage | Package | Stability | Operating Temperature | - | Frequency (MHz) |
| ECX-L<br>(LVDS Output) | 2 = +2.5V<br>3 = +3.3V | 2 = 2.5 x 2 mm<br>3 = 3.2 x 2.5 mm<br>5 = 5 x 3.2 mm<br>7 = 7 x 5 mm | A = ±100 ppm<br>B = ±50 ppm<br>C = ±25 ppm<br>D = ±20 ppm | L = -10 ~ +70°C<br>M = -20 ~ +70°C<br>N = -40 ~ +85°C<br>P = -40 ~ +105°C | - | Customer Specified |

**Example ECX-L35BN-156.250**

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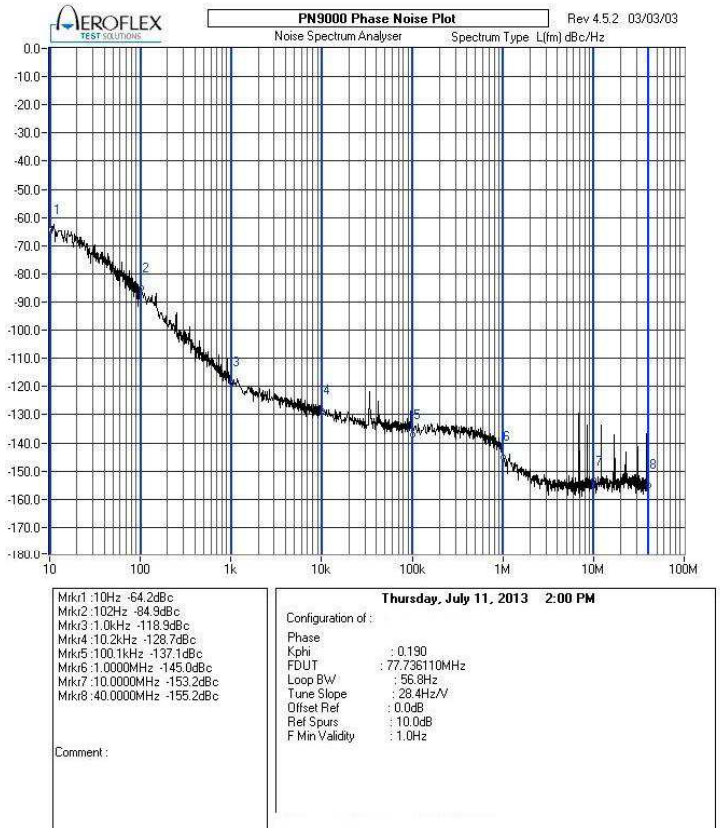
## Phase Noise and Jitter Data (typical)

| | Frequency (offset) | 77.760 | 122.880 | 125.000 | 156.250 | 212.5 | 491.520 | 622.080 | 1000 | 1250 |
|---|---|---|---|---|---|---|---|---|---|---|
| SSB Phase Noise Data (dBc/Hz typical) | 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 |



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## Dimensions (mm)

### 7 = 7x5 Package

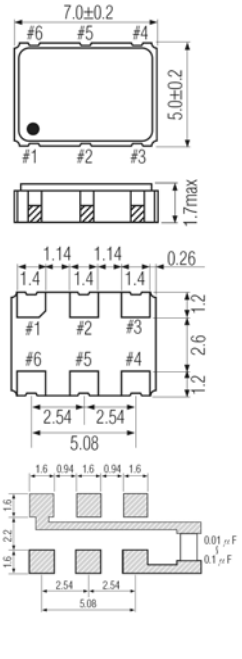



*Figure 1) Top, Side, Bottom & Land*

### 5 = 5x3.2 Package

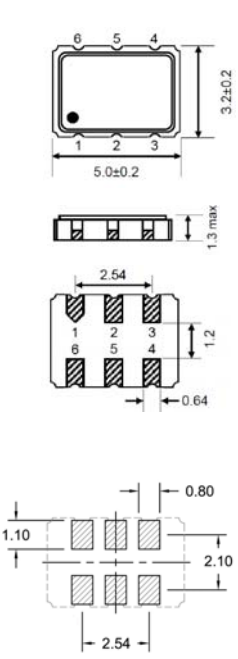



*Figure 2) Top, Side, Bottom & Land*

### 3 = 3.2x2.5 Package

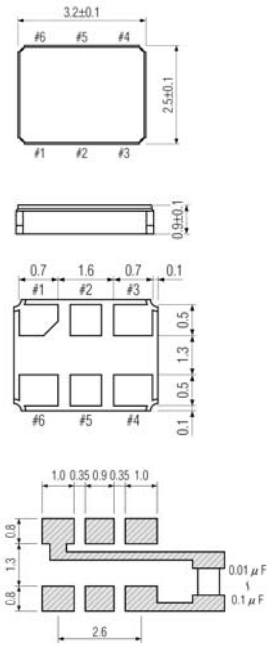



*Figure 3) Top, Side, Bottom & Land*

### 2 = 2.5x2 Package

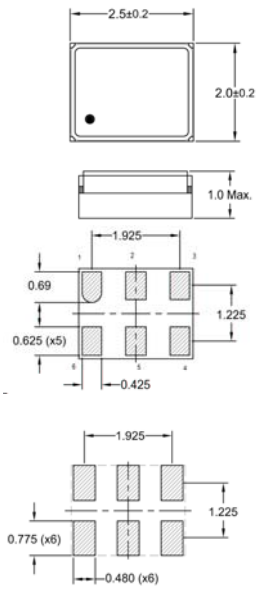
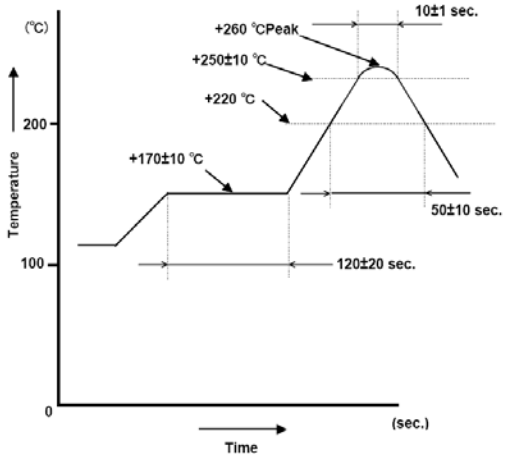



*Figure 4) Top, Side, Bottom & Land*

## 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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