

- ▶ LVDS
- ▶ 7 x 5 mm Footprint
- ▶ Low Jitter
- ▶ Pb Free/RoHS Compliant

# ECS-LVDS25/LVDS33

## SMD LVDS OSCILLATOR

ECS-LVDS25 (2.5V) and ECS-LVDS33 (3.3V) Low Voltage Differential Signaling SMD LVDS oscillators.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS                  | CONDITIONS            | ECS-LVDS25 (+2.5V) |       |        | ECS-LVDS33 (+3.3V) |       |        | UNITS |
|-----------------------------|-----------------------|--------------------|-------|--------|--------------------|-------|--------|-------|
|                             |                       | MIN                | TYP   | MAX    | MIN                | TYP   | MAX    |       |
| Frequency Range             |                       | 80.0               |       | 300.0  | 80.0               |       | 300.0  | MHz   |
| Operating Temperature       | Standard              | 0                  |       | +70    | 0                  |       | +70    | °C    |
|                             | Extended (N Option)   | -40                |       | +85    | -40                |       | +85    | °C    |
| Storage Temperature         |                       | -50                |       | +125   | -50                |       | +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   |
| Input Current               | Pin 1 open or VIH     |                    |       | 70     |                    |       | 70     | mA    |
| Stand-by Current            | Pin 1 = VIL           |                    |       | 30     |                    |       | 30     | µA    |
| Output Symmetry             | at Crossing point     |                    |       | 45/55  |                    |       | 45/55  | %     |
| Rise and Fall Times         | 20% VDD to 80% level  |                    |       | 1      |                    |       | 1      | ns    |
| "0" level                   | VOL                   |                    | +1.10 |        |                    | +1.10 |        | V     |
| "1" level                   | VOH                   |                    | +1.43 |        |                    | +1.43 |        | V     |
| Output Load                 | 100Ω (Out-Outn)       |                    |       |        |                    |       |        |       |
| Differential output voltage |                       |                    | 0.33  |        |                    | 0.33  |        | V     |
| Offset voltage              |                       |                    | 1.25  |        |                    | 1.25  |        | V     |
| Disable delay time          |                       |                    |       | 200    |                    |       | 200    | ns    |
| Enable/Startup time         |                       |                    |       | 10     |                    |       | 10     | ms    |
| RMS Jitter                  | 12 KHz to 20 MHz band |                    |       | 1      |                    |       | 1      | ps    |
| Aging (first year)          | at +25°C ±3°C         |                    |       | ± 5    |                    |       | ± 5    | ppm   |

### DIMENSIONS (mm)

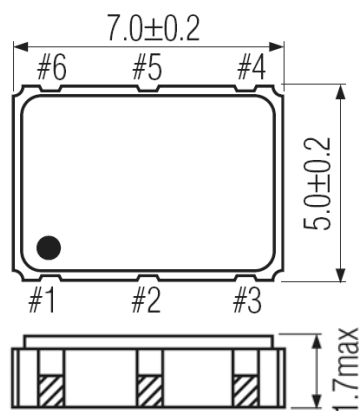


Figure 1) Top, Side and Bottom views

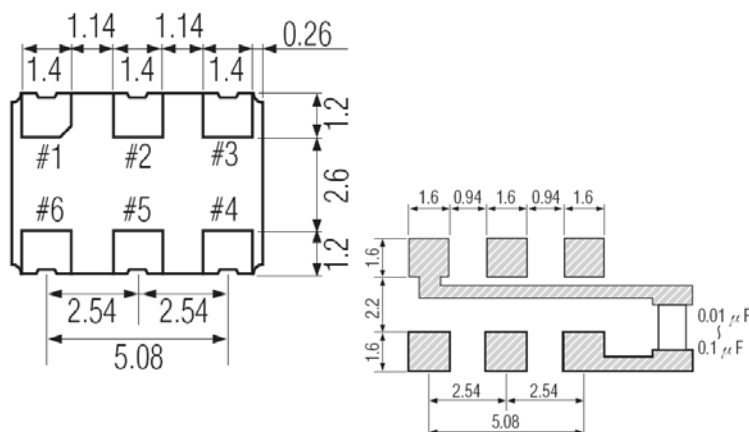


Figure 2) Suggested Land Pattern

### Pin Connections

|        |           |
|--------|-----------|
| Pin #1 | Tri-State |
| Pin #2 | N.C.      |
| Pin #3 | Ground    |
| Pin #4 | Output    |
| Pin #5 | C-Output  |
| Pin #6 | VDD       |

### Tri-State Control Voltage

|                 |                |
|-----------------|----------------|
| Pad 1           | Pad 4 & 5      |
| Open            | Oscillation    |
| VIH 70% VDD Min | Oscillation    |
| VIL 30% VDD Max | No Oscillation |

Note: Internal crystal oscillation to be halted (Pin #1=VIL)

### PART NUMBERING GUIDE: Example ECS-LVDS25-1000-A

ECS - Series - Frequency Abbreviation - Stability - Temperature

LVDS25 = +2.5V  
LVDS33 = +3.3V

1000 = 100.000 MHz  
See Frequency Abbreviations (Pg 2)

A = ± 100 ppm  
B = ± 50 ppm  
C = ± 25 ppm

Blank = 0 ~ +70°C  
M = -20 ~ +70°C  
N = -40 ~ +85°C



### Frequency Abbreviations

| FREQUENCY<br>MHz | CODE   |
|------------------|--------|
| 100.000          | 1000   |
| 106.250          | 1062.5 |
| 125.000          | 1250   |
| 156.250          | 1562.5 |
| 200.000          | 2000   |

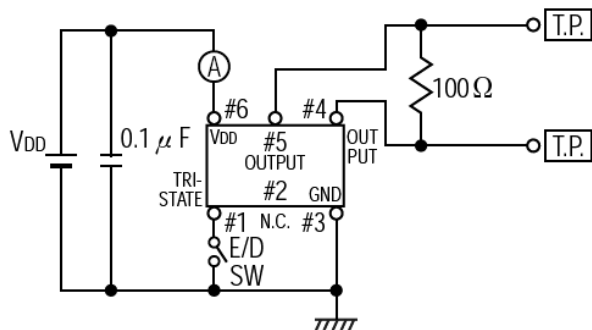


Figure 1) Test Circuit

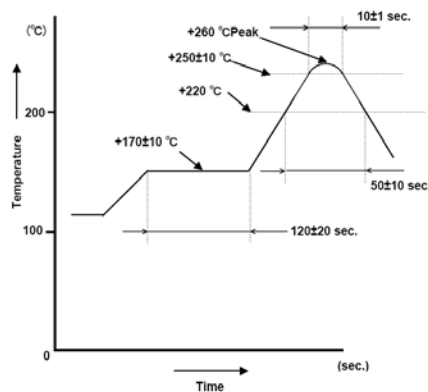


Figure 3) Suggested Reflow Profile

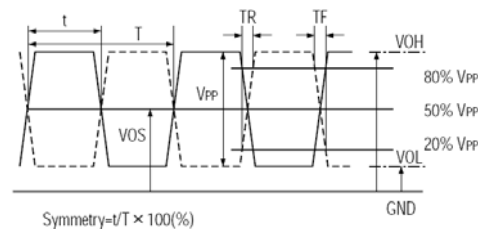
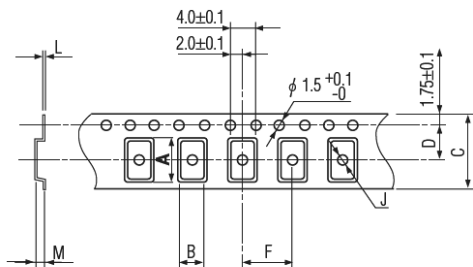


Figure 4) Output Waveform

### TAPE DIMENSIONS (mm)



| A   | B   | C    | D   | F   | J   | L   | M   | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|-----|-----|-----------|----------|
| 7.5 | 5.5 | 16.0 | 7.5 | 8.0 | 2.0 | 0.3 | 2.2 | 245       | 1000pcs  |

Figure 2) Pocket Tape Dimensions

| Package Data |                               |
|--------------|-------------------------------|
| Item         | Description                   |
| Lid          | Metal                         |
| Base         | Ceramic                       |
| Sealing      | Seam                          |
| Terminal     | Tungsten (metalized)          |
| Plating      | Gold/Nickel (Surface)/(Under) |
| RoHS         | Compliant (Pb Free)           |