

- ▶ 1.8V or 2.5V Versions
- ▶ 3.2 x 5 mm Footprint
- ▶ Extended Temp Range Option
- ▶ Pb Free/RoHS Compliant

# ECS-3518/3525

## SMD CLOCK OSCILLATOR

ECS-3518 (1.8V) and ECS-3525 (2.5V) subminiature SMD oscillators, ideal for today's high density applications.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS            | CONDITIONS                 | ECS-3518 (+1.8V) |      |          | ECS-3525 (+2.5V) |      |          | UNITS |
|-----------------------|----------------------------|------------------|------|----------|------------------|------|----------|-------|
|                       |                            | MIN              | TYP  | MAX      | MIN              | TYP  | MAX      |       |
| Frequency Range       |                            | 1.544            |      | 125.0    | 1.544            |      | 125.0    | MHz   |
| Operating Temperature | Standard                   | 0                |      | +70      |                  |      | +70      | °C    |
|                       | Extended (N Option)        | -40              |      | +85      | -40              |      | +85      | °C    |
| Storage Temperature   |                            | -55              |      | +125     | -55              |      | +125     | °C    |
| Supply Voltage        | VDD                        | +1.62            | +1.8 | +1.98    | +2.25            | +2.5 | +2.75    | VDC   |
| Frequency Stability * | Option A                   |                  |      | ± 100    |                  |      | ± 100    | ppm   |
|                       | Option B                   |                  |      | ± 50     |                  |      | ± 50     | ppm   |
|                       | Option C                   |                  |      | ± 25     |                  |      | ± 25     | ppm   |
| Input Current         | 1.544 to 9.999 MHz         |                  |      | 6        |                  |      | 7        | mA    |
|                       | 10.000 to 34.999 MHz       |                  |      | 7        |                  |      | 8        | mA    |
|                       | 35.000 to 49.999 MHz       |                  |      | 15       |                  |      | 20       | mA    |
|                       | 50.000 to 125.000 MHz      |                  |      | 25       |                  |      | 30       | mA    |
| Output Symmetry       | @ 50% Vcc level            |                  |      | 40/60    |                  |      | 40/60    | %     |
|                       | @ 50% Vcc level (T Option) |                  |      | 45/55    |                  |      | 45/55    | %     |
| Rise and Fall Times   | 10% VDD to 90% level       |                  |      | 5        |                  |      | 6        | ns    |
| "0" level             | VOL                        |                  |      | Vcc *10% |                  |      | Vcc *10% | VDC   |
| "1" level             | VOH                        | Vcc *90%         |      |          | Vcc *90%         |      |          | VDC   |
| Output Load           | HCMOS                      |                  |      | 30       |                  |      | 30       | pF    |
| Startup time          |                            |                  |      | 10       |                  |      | 10       | ms    |

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

### DIMENSIONS (mm)

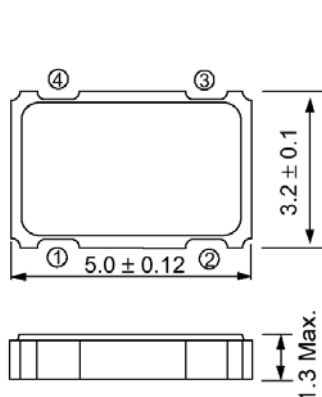


Figure 1) Top, Side and Bottom views

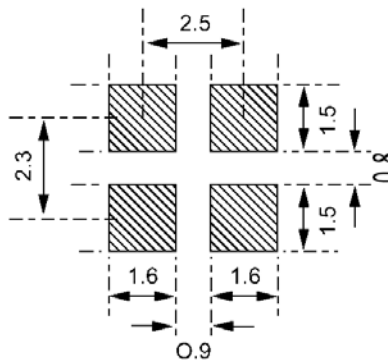


Figure 2) Suggested Land Pattern

#### Pad Connections

|        |           |
|--------|-----------|
| Pad #1 | Tri-State |
| Pad #2 | Ground    |
| Pad #3 | Output    |
| Pad #4 | Vcc       |

#### Tri-State Control Voltage

|         |                |
|---------|----------------|
| Pad 1   | Pad 3          |
| Open    | Oscillation    |
| 1 Level | Oscillation    |
| 0 Level | High Impedance |

### PART NUMBERING GUIDE: Example ECS-3525-200-AN

| ECS | - Series                     | - Frequency Abbreviation                               | - Stability                                   | Temperature                                             |
|-----|------------------------------|--------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------|
|     | 3518 = +1.8V<br>3525 = +2.5V | 200 = 20.000 MHz<br>See Frequency Abbreviations (Pg 2) | A = ± 100 ppm<br>B = ± 50 ppm<br>C = ± 25 ppm | Blank = 0 ~ +70°C<br>M = -20 ~ +70°C<br>N = -40 ~ +85°C |



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### Frequency Abbreviations

| FREQUENCY<br>MHz | CODE |
|------------------|------|
| 4.000            | 040  |
| 8.000            | 080  |
| 10.000           | 100  |
| 12.000           | 120  |
| 14.31818         | 143  |
| 24.000           | 240  |
| 32.000           | 320  |
| 33.333           | 333  |
| 40.000           | 400  |
| 48.000           | 480  |
| 50.000           | 500  |
| 60.000           | 600  |
| 64.000           | 640  |
| 66.666           | 666  |
| 80.000           | 800  |
| 100.000          | 1000 |
| 125.000          | 1250 |

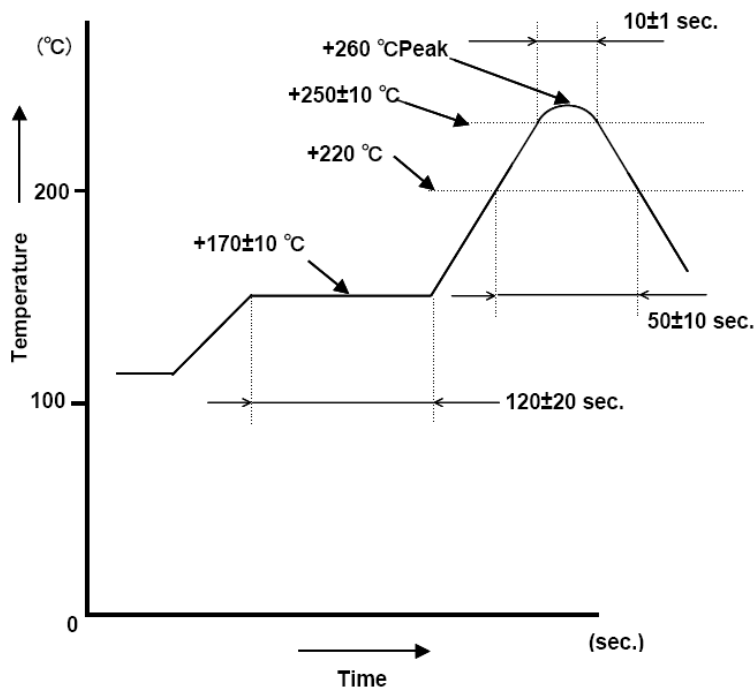
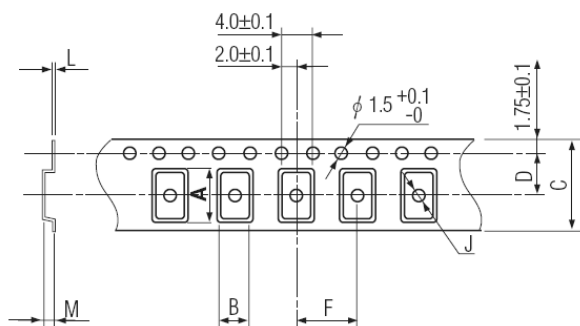


Figure 1) Suggested Reflow Profile

### TAPE DIMENSIONS (mm)



| A    | B    | C    | D   | F   | J   | L   | M   | Reel Dia. | Qty/Reel |
|------|------|------|-----|-----|-----|-----|-----|-----------|----------|
| 5.25 | 3.45 | 12.0 | 5.5 | 8.0 | 2.0 | 0.3 | 1.8 | 178       | 1000pcs  |

| Package Data |                               |
|--------------|-------------------------------|
| Item         | Description                   |
| Lid          | Metal                         |
| Base         | Ceramic                       |
| Sealing      | Seam Weld                     |
| Terminal     | Tungsten (metalized)          |
| Plating      | Gold/Nickel (Surface)/(Under) |
| RoHS         | Compliant (Pb Free)           |
| MSL          | 1                             |

Figure 2) Pocket Tape Dimensions