

- ▶ High Stability Oscillator
- ▶ 2.5 x 3.2 mm Footprint
- ▶ Low Current Consumption
- ▶ RoHS Compliant



# ECS-2532HS

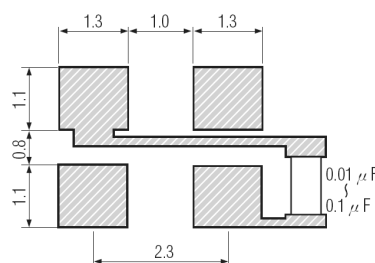
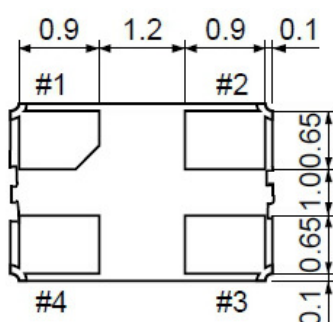
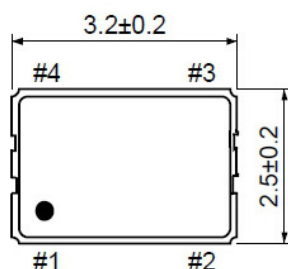
## SMD CLOCK OSCILLATOR

ECS-2532HS-2 (2.8V) and ECS-2532HS-3 (3.3V) subminiature High Stability SMD oscillators. Ideal for today's tight tolerance applications.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS            | CONDITIONS              | ECS-2532HS-2 (+2.8V) |      |         | ECS-2532HS-3 (+3.3V) |      |         | UNITS |
|-----------------------|-------------------------|----------------------|------|---------|----------------------|------|---------|-------|
|                       |                         | MIN                  | TYP  | MAX     | MIN                  | TYP  | MAX     |       |
| Frequency Range       |                         | 1.000                |      | 55.000  | 1.000                |      | 55.000  | MHz   |
| Operating Temperature | Standard                | -40                  |      | +85     | -40                  |      | +85     | °C    |
| Supply Voltage        | VDD                     | +2.66                | +2.8 | +2.94   | +3.135               | +3.3 | +3.465  | VDC   |
| Frequency Stability   | Option E                |                      |      | ± 20    |                      |      | ± 20    | ppm   |
|                       | Option F                |                      |      | ± 15    |                      |      | ± 15    | ppm   |
|                       | Option G                |                      |      | ± 10    |                      |      | ± 10    | ppm   |
| Input Current         | Pin 1 Open or ViH       |                      |      | 10      |                      |      | 10      | mA    |
| Stand-by Current      | Pin 1 = VIL             |                      |      | 10      |                      |      | 10      | μA    |
| Output Symmetry       | @ 50% VDD level         |                      |      | 45/55   |                      |      | 45/55   | %     |
| Rise and Fall Times   | 10% VDD to 90% level    |                      |      | 5       |                      |      | 5       | ns    |
| "0" level             | VOL                     |                      |      | 10% VDD |                      |      | 10% VDD | VDC   |
| "1" level             | VOH                     | 90% VDD              |      |         | 90% VDD              |      |         | VDC   |
| Output Load           | CMOS                    |                      |      | 15      |                      |      | 15      | pF    |
| Disable delay time    |                         |                      |      | 100     |                      |      | 100     | ns    |
| Startup time          |                         |                      |      | 10      |                      |      | 10      | ms    |
| Aging                 | @ +25°C ±3°C first year |                      |      | 2       |                      |      | 2       | ppm   |

### TOP, BOTTOM, SIDE VIEWS & LAND PATTERN



#### Pin Connections

|        |           |
|--------|-----------|
| Pin #1 | Tri-State |
| Pin #2 | Ground    |
| Pin #3 | Output    |
| Pin #4 | VDD       |

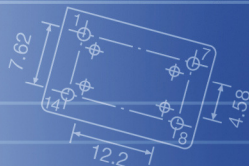
#### Tri-State Control Voltage

|                    |                |
|--------------------|----------------|
| Pad 1              | Pad 3          |
| Open               | Output         |
| VDD-0.5V Min.      | Output         |
| 0.5V Max. (Note 1) | High Impedance |

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

### PART NUMBERING GUIDE: Example ECS - 2532HS - 200 - 3 - G - TR

| ECS | Series | Frequency Abbreviation                                 | Voltage                        | Stability                                          | Packaging                    |
|-----|--------|--------------------------------------------------------|--------------------------------|----------------------------------------------------|------------------------------|
|     | 2532HS | 200 = 20.000 MHz<br>See Frequency Abbreviations (Pg 2) | 2 = +2.8V ±5%<br>3 = +3.3V ±5% | E = +/- 20 ppm<br>F = +/- 15 ppm<br>G = +/- 10 ppm | TR = Tape & Reel<br>500/Reel |



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### Frequency Abbreviations

| FREQUENCY MHz | CODE |
|---------------|------|
| 20.000        | 200  |
| 22.1184       | 221  |
| 24.000        | 240  |
| 26.000        | 260  |
| 27.000        | 270  |
| 32.000        | 320  |
| 40.000        | 400  |
| 44.000        | 440  |
| 50.000        | 500  |
| 54.000        | 540  |

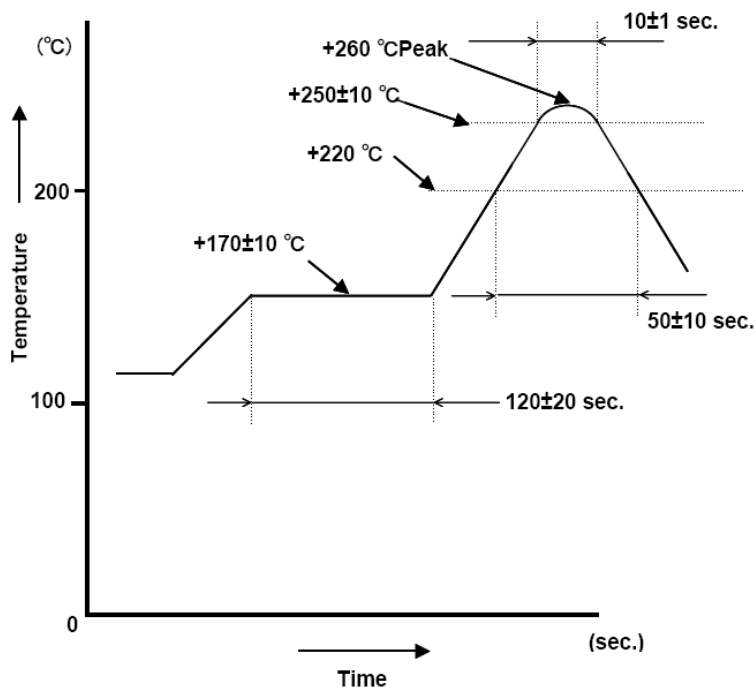
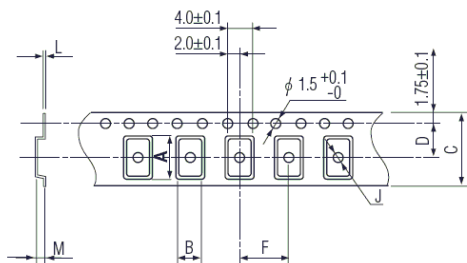


Figure 1) Suggested Reflow Profile

### TAPE DIMENSIONS (mm)



| A   | B   | C   | D   | F   | J   | L    | M   | Reel Dia. | Qty/Reel |
|-----|-----|-----|-----|-----|-----|------|-----|-----------|----------|
| 3.5 | 2.8 | 8.0 | 3.5 | 4.0 | 1.1 | 0.25 | 1.0 | 180       | 500      |

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

Figure 2) Pocket Tape Dimensions