

# ECS-2532HS

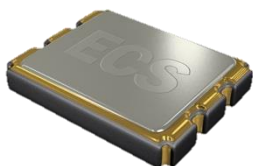
## SMD Clock Oscillator

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

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### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

#### ECS-2532HS



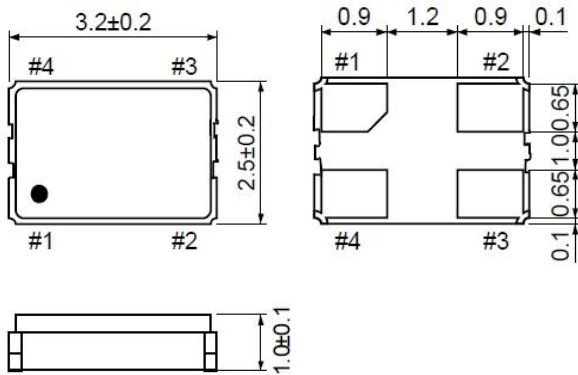
- High Stability Oscillator
- 2.5 x 3.2 mm Footprint
- Low Current Consumption
- RoHS Compliant

| 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   |

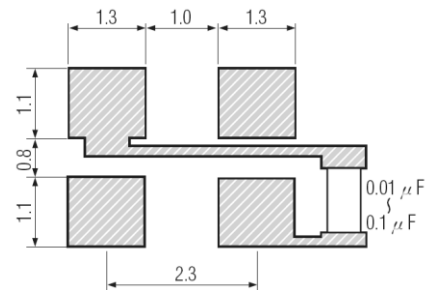
### Part Numbering Guide: Example ECS-2532HS-200-3-G-TR

| ECS | - | Series | - | Frequency Abbreviations | - | Voltage                        | - | Stability                                          | - | Packaging                    |
|-----|---|--------|---|-------------------------|---|--------------------------------|---|----------------------------------------------------|---|------------------------------|
| ECS |   | 2532HS |   | 200 = 20 MHz            |   | 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 |

## Package Dimensions (mm)



**Figure 1)** Top, Side, and Bottom views



**Figure 2)** Land Pattern

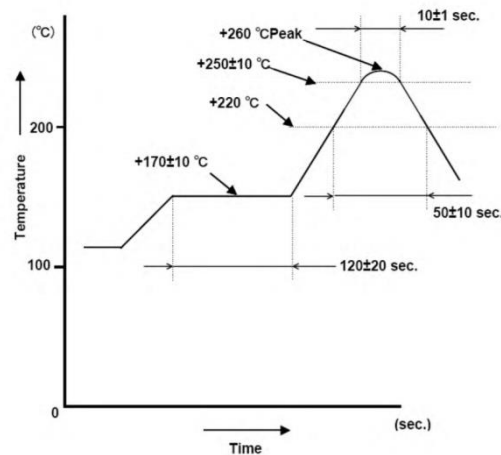
| Pin Connections |           |
|-----------------|-----------|
| #1              | Tri-State |
| #2              | Ground    |
| #3              | Output    |
| #4              | VDD       |

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

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

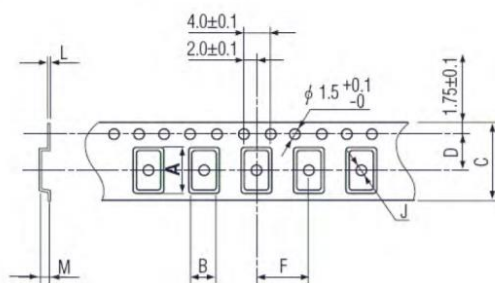
## Frequency Abbreviations

| FREQUENCY<br>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 3)** 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 4)** Pocket Tape Dimensions

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## ECS:

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