



**THE DATASHEET OF
ECS-1612MV-080-CN-TR**



The ECS-1612MV is a miniature SMD HCMOS Oscillator with MultiVolt™ capability of 1.6 ~ 3.6 V. The 1.6 x 1.2 x 0.7 mm ceramic package is ideal for LoRa WAN, Low Power/Portable, Industrial, and IoT applications.

[Request a Sample](#)

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



- 1.6 x 1.2 mm Footprint
- Extended Temp Range
- RoHS Compliant
- Wide Supply Voltage
- Low Jitter
- Compatible with 1.8V, 2.5V or 3.3V Power Supply

| PARAMETERS | CONDITIONS | ECS-1612MV | | | UNITS |
|-----------------------|---------------------------------------|------------|-----|--------|-------|
| | | MIN | TYP | MAX | |
| Frequency Range | | 3.000 | | 80.000 | MHz |
| * Frequency Stability | -40 ~ +85°C (CN Opt) | | | ±25 | ppm |
| Supply Voltage | | 1.6 | | 3.63 | V |
| Output Load | CMOS | | | 15 | pF |
| Output voltage Level | VOL: 0.4 Max. / VOH: Vdd-0.4 Min.V DC | | | | |
| Rise & Fall time | 10% Vdd – 90% Vdd | | | 4.5 | ns |
| Start Up Time | VDD 1.8V | | | 5 | mS |
| Phase Jitter | 12 kHz to 5 MHz | | | 1 | pS |
| Duty Cycle | @ ½ Vdd | | | 45/55 | % |
| Standby Current | | | | 10 | µA |
| Operating Temp* | N Option | -40 | | +85 | °C |
| Storage Temp | | -40 | | +105 | °C |

DIMENSIONS (mm)

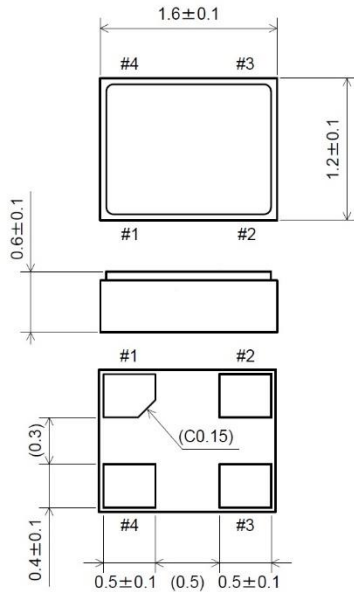


Figure 1) Top, Side, and Bottom views

CURRENT CONSUMPTION mA

| FREQ. | ~ 20 MHz | ~ 50 MHz | ~ 80 MHz |
|-------|-------------------|-------------------|-----------------|
| +1.8V | 2 Typ. / 2.5 Max. | 2.5 Typ. / 3 Max. | 3 Typ. / 4 Max. |
| +2.5V | 2 Typ. / 3 Max. | 2.5 Typ. / 4 Max. | 3 Typ. / 5 Max. |
| +3.3V | 3 Typ. / 4 Max. | 4 Typ. / 5 Max. | 5 Typ. / 7 Max. |

PAD CONNECTIONS

| | |
|---|----------|
| 1 | Stand-by |
| 2 | Gnd |
| 3 | Output |
| 4 | Vdd |

Tri State Function

| | |
|----------------|--------|
| Pin 1 | Output |
| Open | Active |
| 0.7 * Vdd Min | Active |
| 0.3 * Vdd Max. | High-Z |

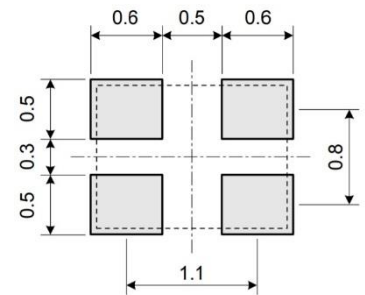


Figure 2) Suggested Land Pattern

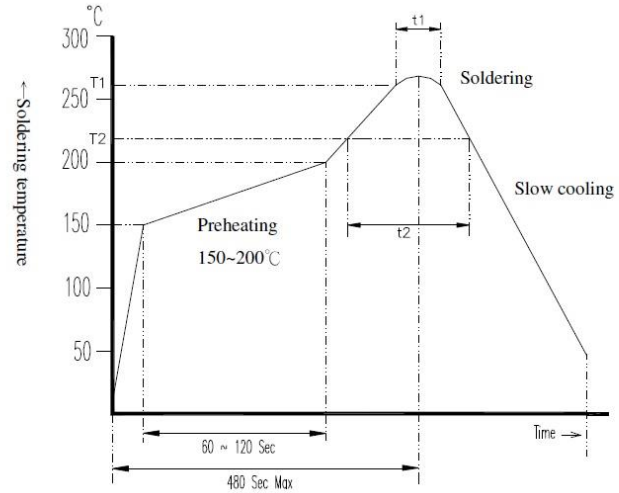
PART NUMBERING GUIDE: Example ECS-1612MV-250-CN-TR

| ECS | SERIES | FREQUENCY ABBREVIATION | * STABILITY | TEMP RANGE - | PACKAGING |
|-----|---|---|--|------------------------------------|------------------------------|
| ECS | 1612MV 1.6 x 1.2 mm MultiVolt™ Oscillator | 250 = 25.000 MHz See Developed Frequencies Pg.2 | A = ±100 ppm B = ±50 ppm G = ±30 ppm C = ±25 ppm D = ±20 ppm | M = -20 ~ +70°C N = -40 ~ +85°C | -TR = Tape & Reel 3K/Reel |

* Frequency Stability includes initial tolerance, temperature, supply voltage and load change reflow frequency shift, and aging.

DEVELOPED FREQUENCIES

| CODE | FREQUENCY MHz |
|-------|---------------|
| 80 | 8.000 |
| 120 | 12.000 |
| 122.8 | 12.288 |
| 192 | 19.200 |
| 240 | 24.000 |
| 250 | 25.000 |
| 260 | 26.000 |
| 270 | 27.000 |
| 500 | 50.000 |

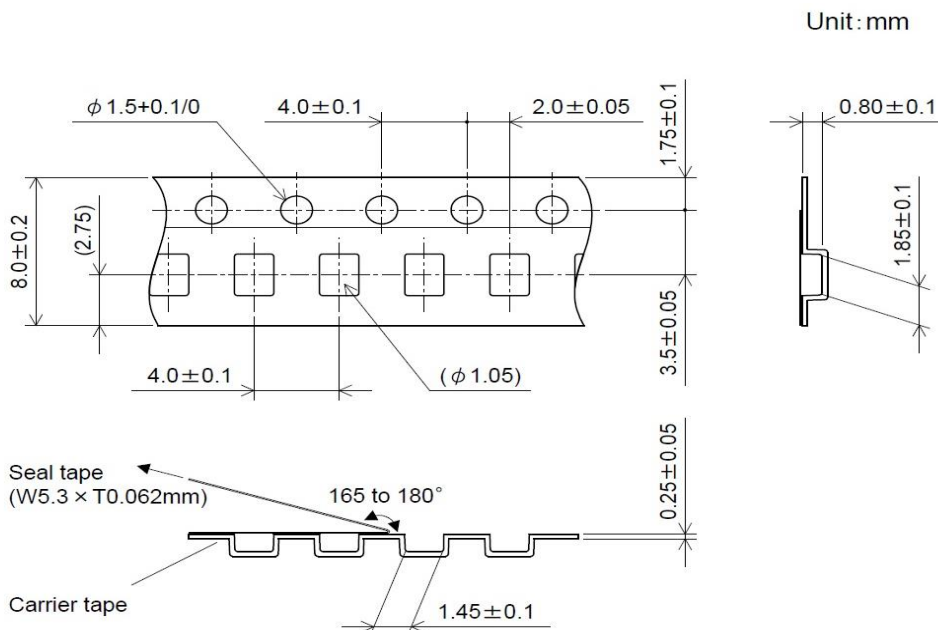


| Application / Temperature Time | T1 / t1 | T2 / t2 |
|--------------------------------|-----------------------------|--------------------------|
| Lead Free | 260 ± 5°C / 10 ± 5 Sec Max. | 217°C Min / 60 ~ 150 Sec |
| Non-Lead Free | 260 ± 5°C / 10 ± 5 Sec Max. | 183°C Min / 60 ~ 150 Sec |

Figure 3) Suggested Reflow Profile



| SOLDER PROFILE |
|---|
| Peak solder Temp +260°C ±5°C 10 ±5 Sec Max. |
| 2 Cycles Max. |
| MSL 1, Lead Finish Au |

POCKET TAPE DIMENSIONS (mm)



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