

The ECS-2520MV is a miniature SMD HCMOS Oscillator with MultiVolt™ capability of 1.6 ~ 3.6 V. The 2.5 x 2.0 x 0.8 mm ceramic package is ideal for LoRa WAN, Low Power/Portable, Industrial and IoT applications.

[Request a Sample](#)

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



- 2.5 x 2.0 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-2520MV | | | UNITS |
|-----------------------|--|------------|-----|--------|-------|
| | | MIN | TYP | MAX | |
| Frequency Range | | 0.750 | | 60.000 | MHz |
| * Frequency Stability | -40 ~ +85°C (BN Opt) | | | ±50 | ppm |
| Supply Voltage | | 1.6 | | 3.6 | V |
| Output Load | CMOS | | | 15 | pF |
| Output voltage Level | VOL: 10% Vdd max. / VOH: 90% Vdd min. V DC | | | | |
| Rise & Fall time | 10% Vdd – 90% Vdd | | | 7 | ns |
| Start Up Time | @ 90% Vdd | | | 5 | mS |
| Phase Jitter | 12 kHz to 5 MHz | | | 1 | pS |
| Duty Cycle | @ ½ Vdd | | | 45/55 | % |
| Standby Current | | | | 10 | µA |
| Operating Temp* | | -40 | | +85 | °C |
| Storage Temp | | -55 | | +125 | °C |

DIMENSIONS (mm)

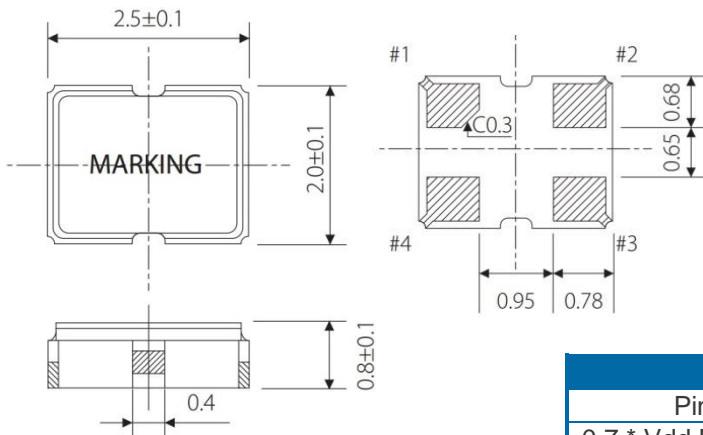


Figure 1) Top, Side, and Bottom views

CURRENT CONSUMPTION mA Max

| FREQ. | ~ 19 MHz | ~ 39.9 MHz | ~ 50 MHz | ~ 60 MHz |
|-------|----------|------------|----------|----------|
| +1.8V | 2.5 | 3.0 | 3.5 | 4.0 |
| +2.5V | 4.5 | 5.5 | 6.5 | 7.0 |
| +3.0V | 5.5 | 6.5 | 7.5 | 8.0 |
| +3.3V | 6.0 | 7.0 | 8.0 | 8.5 |

| PAD CONNECTIONS | |
|-----------------|-----------|
| 1 | Tri-state |
| 2 | Gnd |
| 3 | Output |
| 4 | Vdd |

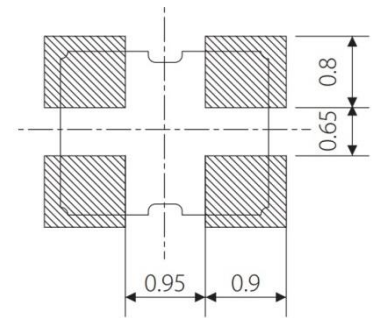


Figure 2) Suggested Land

| Tri State Function | |
|---------------------|----------------|
| Pin 1 | Output |
| 0.7 * Vdd Min or NC | Active |
| 0.3 * Vdd Max. | High Impedance |

PART NUMBERING GUIDE: Example ECS-2520MV-250-BN-TR

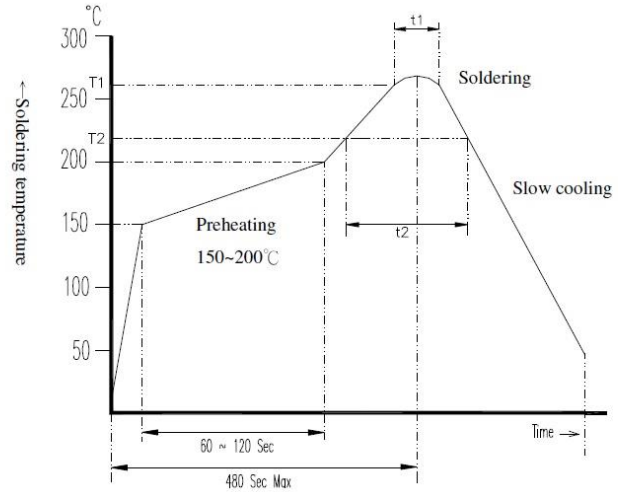
| ECS | SERIES | FREQUENCY ABBREVIATION | * STABILITY | TEMP RANGE | PACKAGING |
|-----|--------|------------------------|-------------|------------|-----------|
|-----|--------|------------------------|-------------|------------|-----------|

| | | | | | |
|-----|---|---|---|---|------------------------------|
| ECS | 2520MV 2.5 x 2.0 mm MultiVolt™ Oscillator | 250 = 25.000 MHz See Developed Frequencies Pg.2 | A = ±100 ppm B = ±50 ppm C = ±25 ppm D = ±20 ppm | L = -10 ~ +70°C 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

| FREQUENCY MHz | CODE |
|---------------|-------|
| 4.000 | 040 |
| 8.000 | 080 |
| 12.000 | 120 |
| 16.000 | 160 |
| 24.000 | 240 |
| 25.000 | 250 |
| 26.000 | 260 |
| 32.000 | 320 |
| 33.3333 | 333.3 |
| 48.000 | 480 |
| 50.000 | 500 |

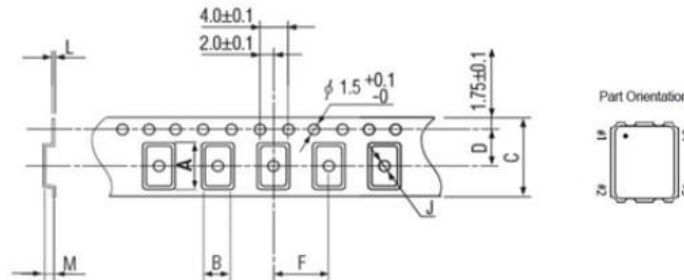


| Application / Temperature Time | T1 / t1 | T2 / t2 |
|--------------------------------|-----------------------------|--------------------------|
| Lead Free | 260 ± 5°C / 10 ± 5 Sec Max. | 217°C Min / 60 ~ 150 Sec |
| Non-Lead Free | 260 ± 5°C / 10 ± 5 Sec Max. | 183°C Min / 60 ~ 150 Sec |

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

Figure 3) Suggested Reflow Profile

POCKET TAPE DIMENSIONS (mm)



| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|-----|-----|-----|-----|-----|-----|------|-----|-----------|----------|
| 2.8 | 2.3 | 8.0 | 3.5 | 4.0 | 1.0 | 0.25 | 1.1 | 180 | 3000pcs |