

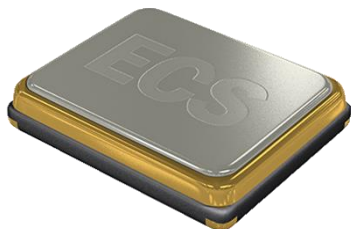
The ECS-2520MVQ is a miniature SMD HCMOS Oscillator with MultiVolt™ capability of 1.6 ~ 3.6 V. The 2.5 x 2.0 x 0.8 mm ceramic package is ideal for LoRa WAN, Low Power/Portable, Industrial and Automotive applications.

Request a Sample

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

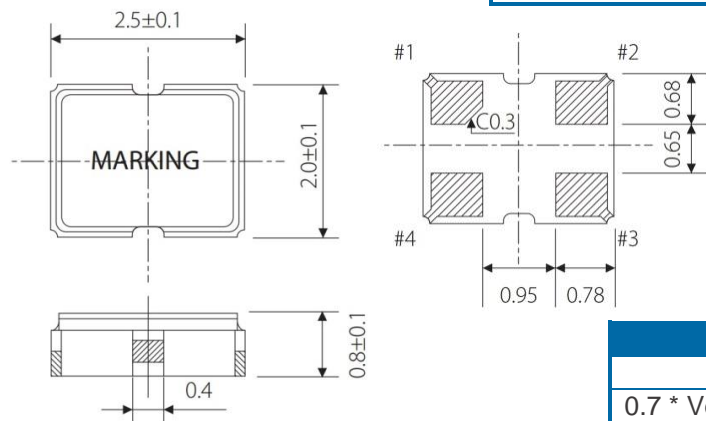
| PARAMETERS              | CONDITIONS                                 | ECS-2520MVQ |       |         | UNITS |
|-------------------------|--|-------------|-------|---------|-------|
|                         |  | MIN         | TYP   | MAX     |       |
| Frequency Range         |  | 1.000       |       | 160.000 | MHz   |
| * Frequency Stability   | -40 ~ +85°C (BN Opt)                       |             |       | ±50     | ppm   |
| Supply Voltage          |  | 1.7         |       | 3.6     | V     |
| Output Load             | CMOS                                       |             |       | 15      | pF    |
| Output voltage Level    | VOL: 0.2 Vdd max. / VOH: 0.8 Vdd min. V DC |             |       |         |       |
| Rise & Fall time        | 20% Vdd – 80% Vdd                          |             |       | 7       | ns    |
| Start Up Time           |  |             |       | 10      | mS    |
| Phase Jitter            | 12 kHz to 20 MHz                           |             |       | 1       | pS    |
| Duty Cycle              | @ ½ Vdd                                    |             | 45/55 |         | %     |
| Input Current (No Load) | 1.000 ~ 9.999 MHz                          |             |       | 8       | mA    |
|                         | 10.000 ~ 39.999 MHz                        |             |       | 10      | mA    |
|                         | 40.000 ~ 50.000 MHz                        |             |       | 12      | mA    |
|                         | 50.100 ~ 160.000 MHz                       |             |       | 20      | mA    |
| Aging                   | Per year                                   |             |       | ±3      | ppm   |
| Standby Current         |  |             |       | 10      | µA    |
| Operating Temp*         |  | -40         |       | +85     | °C    |
| Storage Temp            |  | -55         |       | +125    | °C    |

### ECS-2520MVQ SMD XO



- 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
- AEC-Q200 Qualified

### DIMENSIONS (mm)



### PAD CONNECTIONS

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

### Tri State Function

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

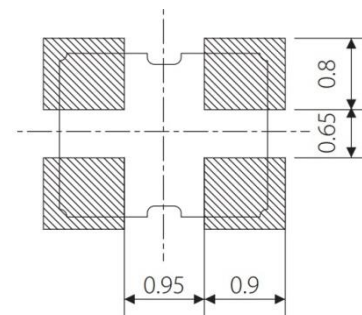


Figure 1) Top, Side, and Bottom views

Figure 2) Suggested Land

### PART NUMBERING GUIDE: Example ECS-2520MVQ-250-BN-TR

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

ECS

2520MVQ  
2.5 x 2.0 mm  
MultiVolt™ Oscillator

250 = 25.000 MHz  
See Developed  
Frequencies Pg.2

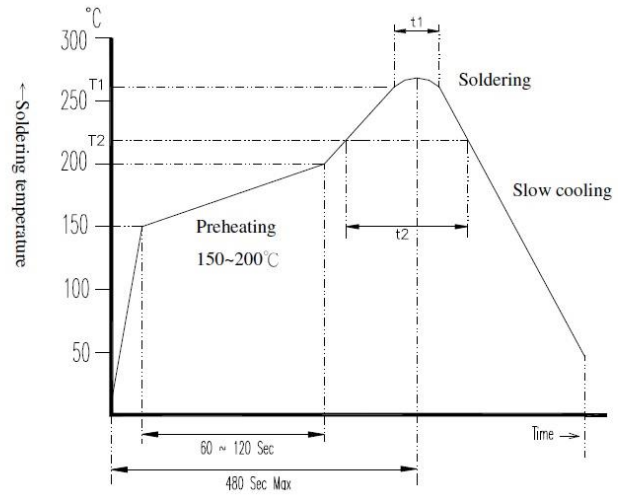
A = ±100 ppm  
B = ±50 ppm  
C = ±25 ppm  
D = ±20 ppm

M = -20 ~ +70°C  
N = -40 ~ +85°C  
P = -40 ~ +105°C  
S = -40 ~ +125°C

-TR = Tape & Reel  
1K/Reel

## DEVELOPED FREQUENCIES

| FREQUENCY MHz | CODE  |
|---------------|-------|
| 12.000        | 120   |
| 24.000        | 240   |
| 25.000        | 250   |
| 26.000        | 260   |
| 33.3333       | 333.3 |
| 48.000        | 480   |
| 50.000        | 500   |
| 125.000       | 1250  |



| 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

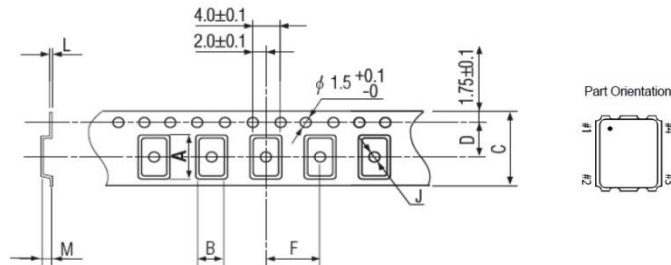
### SOLDER PROFILE

Peak solder Temp +260°C ±5°C 10 ±5 Sec Max.

2 Cycles Max.

MSL 1, Lead Finish Au

## POCKET TAPE DIMENSIONS (mm)



| 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       | 1000pcs  |