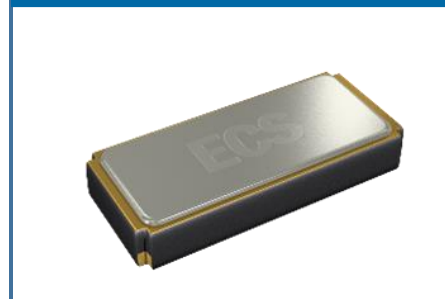


The ECS-2012MV-327KE miniature 32.768 kHz low current consumption MultiVolt™ CMOS Oscillator. The 2.0 x 1.2 x 0.85 mm ceramic package is ideal for Smart Meter, Wearable device, Industrial, and IoT applications.

[Request a Sample](#)

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

#### ECS-2012MV-327KE SMD XO



- 2.0 x 1.2 mm Footprint
- Low current consumption
- MultiVolt™ Compatible with 1.5V, 1.8V, 2.5V or 3.3V Power Supply

#### DIMENSIONS (mm)

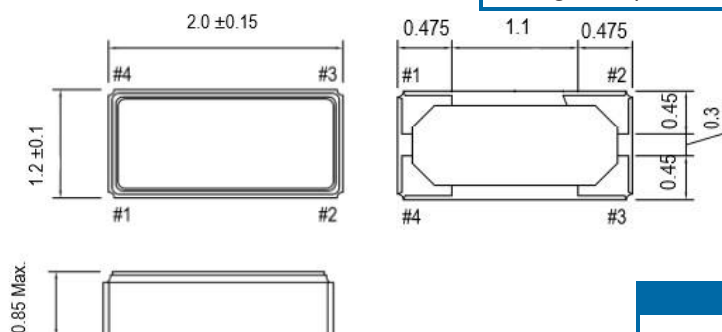


Figure 1) Top, Side, and Bottom views

| PARAMETERS                    | CONDITIONS                           | ECS-2012MV-327KE |        |       | UNITS |
|-------------------------------|--------------------------------------|------------------|--------|-------|-------|
|                               |                                      | MIN              | TYP    | MAX   |       |
| Frequency                     |                                      |                  | 32.768 |       | kHz   |
| Frequency Tolerance           | +25°C Vdd = +3.3V                    |                  |        | ±20   | ppm   |
| * Frequency Stability         | -20 ~ +70°C                          | -120             |        | +10   | ppm   |
|                               | -40 ~ +85°C                          | -150             |        | +10   | ppm   |
| Frequency Voltage Coefficient | Per Volt Max.                        |                  |        | ±1    | ppm   |
| Supply Voltage                |                                      | 1.2              | 3.3    | 5.5   | V     |
| Output Load                   | CMOS                                 |                  |        | 15    | pF    |
| Output voltage Level          | VOL: 0.4V max. / VOH Vdd - 0.4V min. |                  |        |       |       |
| Current Consumption           | +3.3V, No Load                       |                  | 0.5    | 0.8   | µA    |
| Standby Current               | +1.2V ~ 5.5V No Load                 |                  | 0.25   | 0.6   | µA    |
| Rise & Fall time              | 10% Vdd – 90% Vdd                    |                  |        | 130   | ns    |
| Start Up Time                 | +25°C, +3.3V                         |                  | 0.15   | 0.5   | sec   |
| Duty Cycle                    | @ ½ Vdd                              |                  |        | 40/60 | %     |
| Aging (1 <sup>st</sup> year)  | +25°C, 3.3V                          |                  |        | ±3    | ppm   |
| Operating Temp*               |                                      | -40              |        | +85   | °C    |
| Storage Temp                  |                                      | -55              |        | +125  | °C    |

#### PAD CONNECTIONS

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

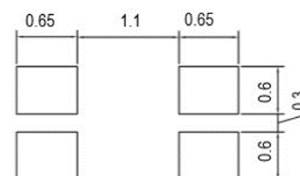


Figure 2) Suggested Land Pattern

#### Tri State Function

|              |                |
|--------------|----------------|
| Pin 1        | Output         |
| VDD-0.4 Min. | Active         |
| 0.4V Max.    | High Impedance |
| Open         | Not Allowed    |

### PART NUMBERING GUIDE: Example ECS-2012MV-327KE-TR

ECS

SERIES

PACKAGING

ECS

2012MV-327KE  
2.0 x 1.2 mm  
32.768 KHz  
Low current  
MultiVolt™ Oscillator

TR = Tape & Reel  
4K/Reel

\* Frequency Stability referred to +25°C, includes temperature, and reflow frequency shift.

**SOLDER PROFILE**

Peak solder Temp  $+260^{\circ}\text{C} \pm 5^{\circ}\text{C}$  10  $\pm$  5 Sec Max.

2 Cycles Max.

MSL 1, Lead Finish Au

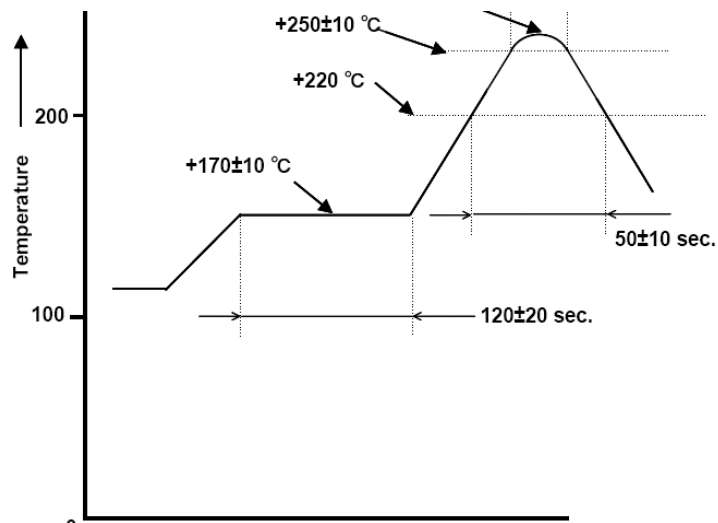
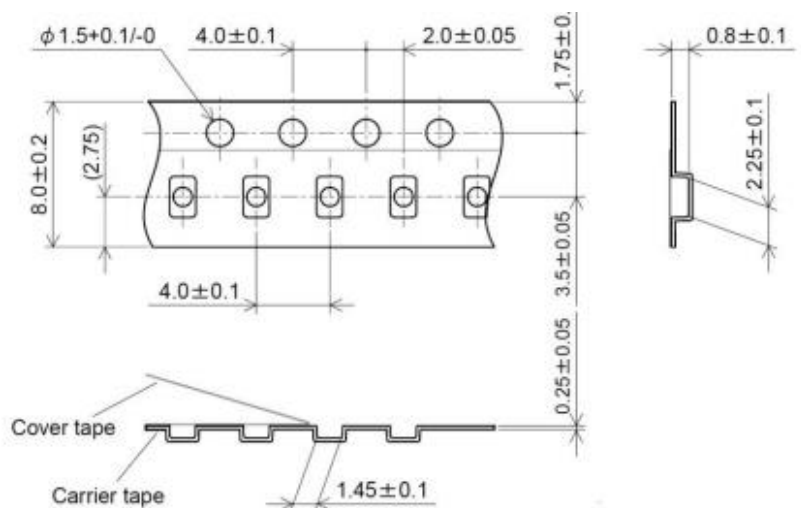


Figure 3) Suggested Reflow Profile

**POCKET TAPE DIMENSIONS (mm)**



# Mouser Electronics

Authorized Distributor

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[ECS-2012MV-327KE-TR](#)