

The sub miniature ECS-TXO-2016 is a miniature SMD CMOS TCXO. The 2.0 x 1.6 x 0.8 mm ceramic package is ideal for LoRa WAN, and wireless IoT applications where stability is critical.

ECS-TXO-2016

SMD HCMOS TCXO

Request a Sample

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



- Low Profile
- 2.0 x 1.6 mm Footprint
- Extended Temp Range
- RoHS Compliant

DIMENSIONS (mm)

| PARAMETERS | CONDITIONS | ECS-TXO-2016 | | | UNITS |
|----------------------|-------------------------------------|-----------------------------|------|--------|--------|
| | | MIN | TYP | MAX | |
| Frequency Range | | 9.500 | | 60.000 | MHz |
| Frequency Stability | Tolerance at +25°C | | | ± 2.0 | ppm |
| | Vs. Temp (-30 ~ +85°C) | | | ±2.0 | ppm |
| | Vs. Temp (-40 ~ +85°C) | | | ± 2.5 | ppm |
| | Voltage Change Vdd ±5% | | | ±0.2 | ppm |
| | Load Change (±10%) | | | ±0.2 | ppm |
| Aging | Per year @ +25°C | | | ±1.0 | ppm |
| Supply Voltage (Vdd) | Specify in P/N | +1.8, +2.5, +2.8, +3.3 ±10% | | | V DC |
| Standby Current | | | | 10 | µA |
| Output | CMOS | | 15 | | pF |
| Output voltage Level | VOL:10%Vdd max./VOH:90%Vdd min.V DC | | | | |
| Rise & Fall time | 10%Vdd – 90%Vdd | | | 5 | ns |
| Duty Cycle | @ ½ Vdd | | | 45/55 | % |
| Phase Noise | @ 10 KHz offset | | -145 | | dBc/Hz |

CURRENT CONSUMPTION , mA Max.

| FREQ. | 9.5~ 10 MHz | 10.1~ 20 MHz | 20.1~ 30 MHz | 30.1~ 40 MHz | 40.1 ~60 MHz |
|---------------|-------------|--------------|--------------|--------------|--------------|
| +1.8V & +2.5V | 3.1 | 3.7 | 4.2 | 4.6 | 5.5 |
| +2.8V & +3.3V | 4.0 | 4.8 | 5.5 | 6.0 | 7.0 |

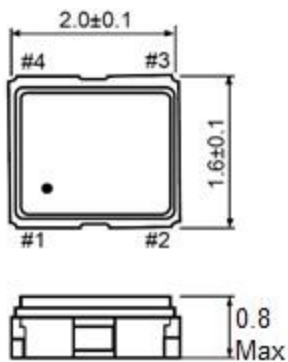


Figure 1) Top, Side, and Bottom views

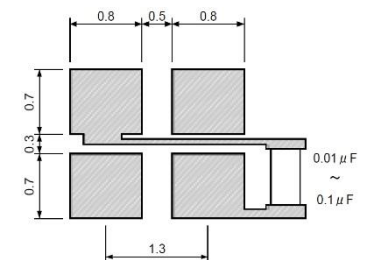
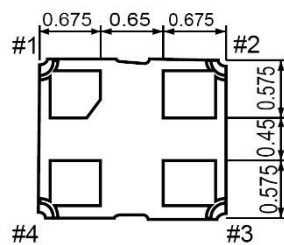


Figure 2) Suggested Land Pattern

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

| Tri State Function | |
|--------------------|--------------|
| Pin 1 | Output |
| High or NC | Active |
| Low | Disable Hi-Z |

PART NUMBERING GUIDE: Example ECS-TXO-2016-33-160-TR

| ECS - SERIES | Voltage | FREQUENCY ABBREVIATION | PACKAGING |
|--------------------------------|--|---|--------------------------------|
| TXO-2016 2.0 x 1.60 mm TCXO | 18 = +1.8V 25 = +2.5V 28 = +2.8V 33 = +3.3V | 160 = 16.000 MHz See Developed Frequencies Pg.2 | TR = Tape & Reel 1K/Reel |

FREQUENCY ABBREVIATIONS

| FREQUENCY MHz | CODE |
|---------------|------|
| 10.000 | 100 |
| 12.000 | 120 |
| 16.000 | 160 |
| 20.000 | 200 |
| 25.000 | 250 |
| 32.000 | 320 |
| 40.000 | 400 |
| 50.000 | 500 |

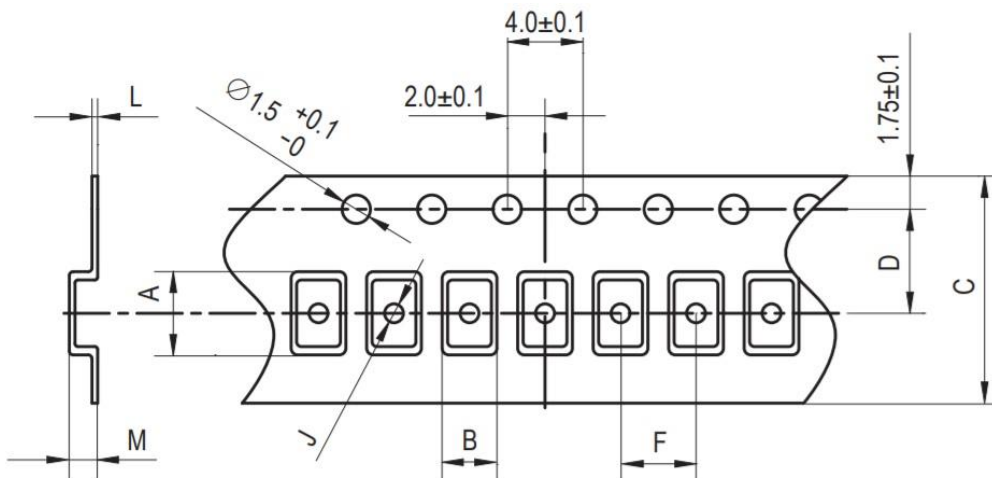


Figure 1) Suggested Reflow Profile

SOLDER PROFILE

Peak solder Temp +260°C Max 10 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 |
|-----|-----|-----|-----|-----|-----|------|-----|-----------|----------|
| 2.2 | 1.8 | 8.0 | 3.5 | 4.0 | 1.0 | 0.25 | 1.0 | 180 | 1000pcs |