



**THE DATASHEET OF
ECS-TXO-2016-33-100-TR**



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

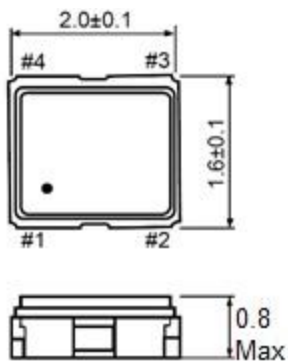


Figure 1) Top, Side, and Bottom views

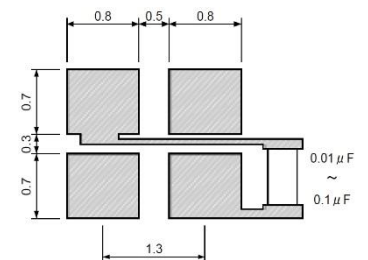
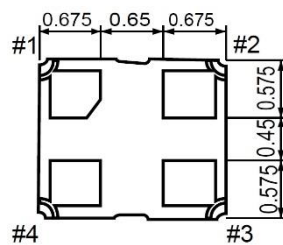


Figure 2) Suggested Land Pattern

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

* Standard specification, contact ECS for custom Options

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

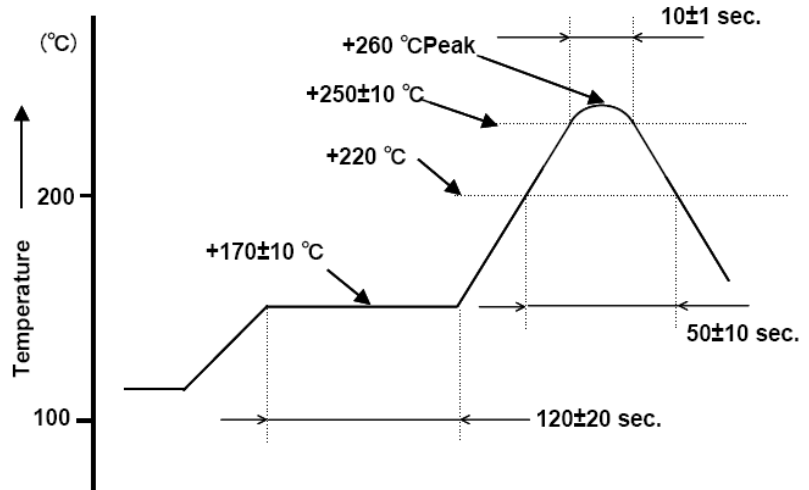
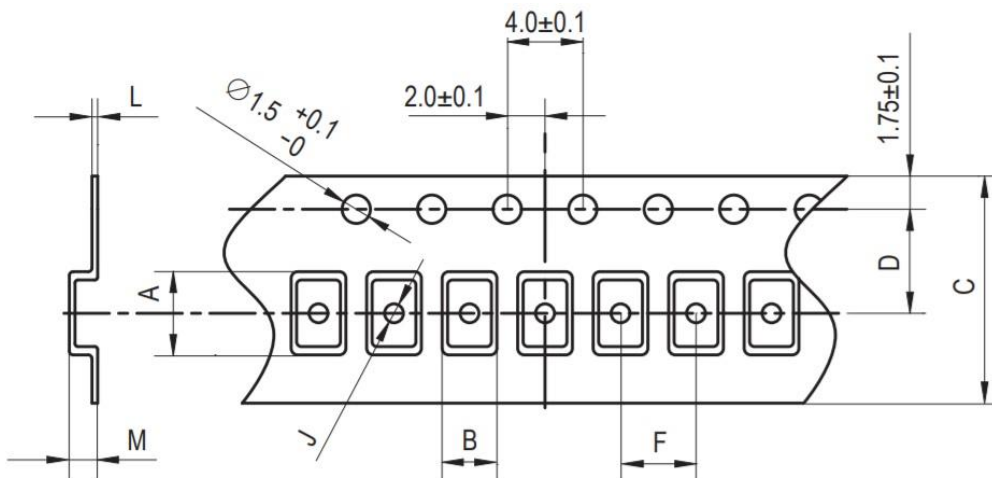


Figure 1) Suggested Reflow Profile

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

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