Temperature Compensated Crystal Oscillator (TCXO)

TG-5035CE 16.369 MHz

- TG-5005CE-01G 16.369MHz upper compatible.
- Reflowable and high density mounting type ultra small size SMD (3.2×2.5×0.9 mm).
- Using the heat-resisting type AT cut quartz crystal
  allows almost the same temperature soldering as universal SMD IC.
- Operating supply voltage : Vcc = 2.85 V

■ Specifications

1. Absolute maximum ratings

Parameter	Symbol	Value	Unit	Note
Supply voltage	V_{CC}-GND	-0.3 to 4.5	V	
Storage temperature range	$T_{\_STG}$	-40 to +85	°C	

2. Operating range

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power voltage		V_{CC}	2.65	2.85	3.05	V	Vcc=2.65 V to 3.05 V
Power voltage		GND	0.0	0.0	0.0	V	
Operating temperature range		T_use	-30	+25	+85	°C	
Output load		Load_R	9	10	11	kΩ	
		Load_C	9	10	11	pF	
	DC-cut capacitor	C_C	0.01			µF	

DC-cut capacitor is not included in our TCXO. Please insert DC-cut capacitor in output line.

3.Frequency characteristics

1) Output frequency 16.369 000 MHz

2) Frequency characteristics

(Condition : V_{CC}=2.85 V, GND=0.0 V, Load 10kΩ//10pF(DC cut), T_use =+25°C)

Parameter	Symbol	Value	Unit	Note
Frequency tolerance	F_tol	+/- 0.5×10^{-6} Max.	-	T_use =+25 °C +/-2 °C Before reflow soldering
Reflow soldering tolerance	-	+/- 1.0×10^{-6} Max.	-	T_use =+25 °C +/-2 °C Reflow cycles : 2 times.*1
Frequency / temperature coefficient	Fo-Tc	+/- 0.5×10^{-6} Max.	-	T_use=-30°C to +85°C Based on frequency at +25°C
Frequency slope vs. Temp.	-	+/- 0.1×10^{-6} Max.	/℃	- 20 °C to + 70 °C
		+/- 0.2×10^{-6} Max.	/℃	- 30 °C to + 85 °C
Frequency / Load coefficient	Fo-Load	+/- 0.1×10^{-6} Max.	-	Load :10kΩ//10 pF +/-10 % each
Frequency / voltage coefficient	Fo-Vcc	+/- 0.1×10^{-6} Max.	-	Vcc: 2.65 V to 3.05 V (2.85V center)
Frequency aging	F_aging	+/- 1.0×10^{-6} Max.	-	T_use =+25°C First year

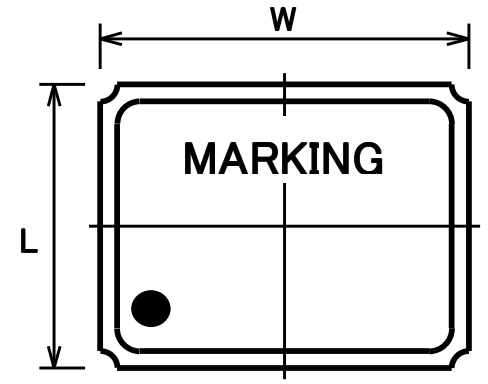
*1 Measurement of frequency deviation is made 1h after reflow soldering.

4.Electrical characteristics

(Condition : V_{CC}=2.85 V, GND=0.0 V, Load 10kΩ//10pF(DC cut), T_use =+25°C)

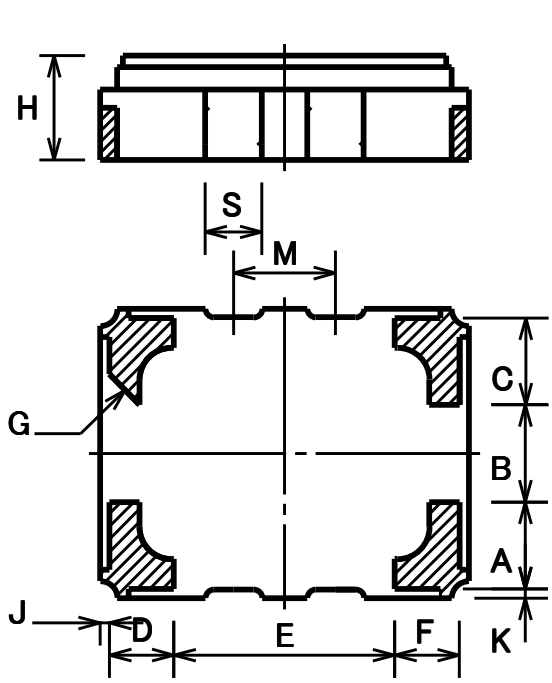
Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Current consumption	Icc			1.5	mA	
Output level	Vpp	0.3		1.2	V	Peak to peak voltage
Start-up time	-			2.0	ms	within ±0.5ppm of final frequency
				1.5	ms	to 90% of final amplitude
Drift rate	-			+/- 5×10^{-9}	/sec	- 10 °C to + 60 °C
				+/-10×10^{-9}	/sec	- 30 °C to + 85 °C
G sensitivity				3.0×10^{-9}	/g	Vibration frequency : 500Hz max.
SSB Phase noise	L(f)			-23	dBc/Hz	Offset:0.1 Hz
				-53		Offset:1 Hz
				-78		Offset:10Hz
				-106		Offset:100Hz
				-128		Offset:1 kHz
				-148		Offset:10 kHz

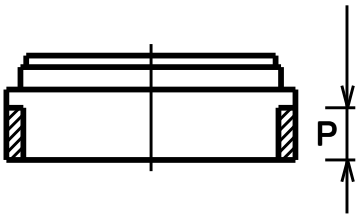
5. OUTLINE DRAWING

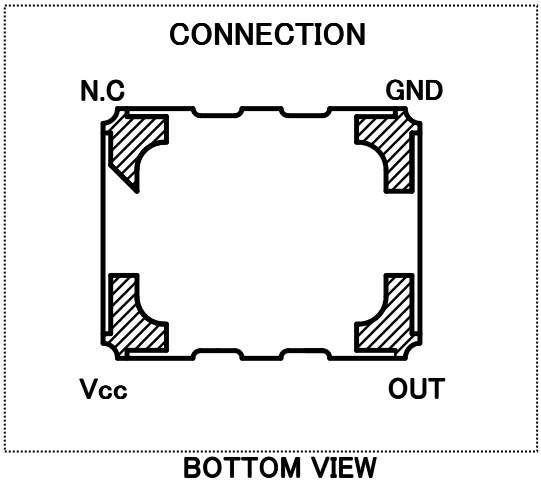


Marking
TBD

Material
Ceramics(base)
Au coated nickel(terminal)
Fe-Ni-Co(lid)



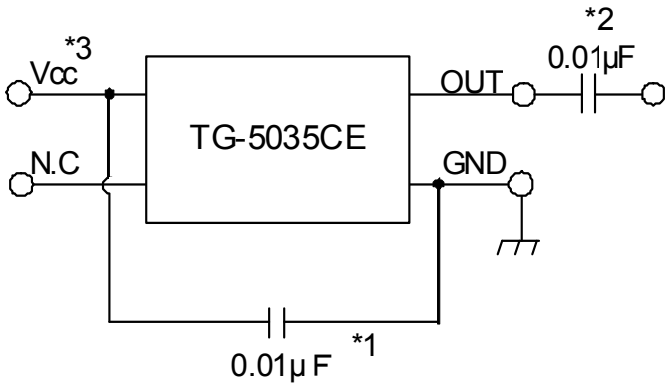




(unit : mm)

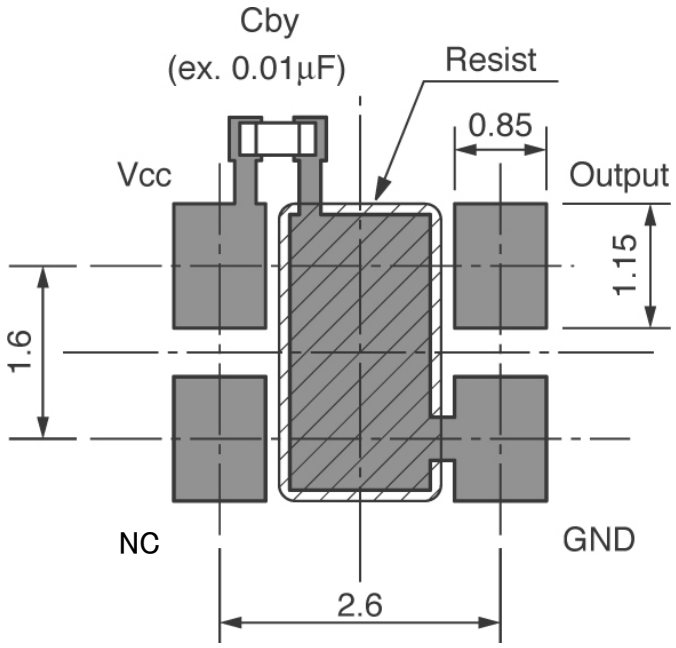
DIM.	MIN.	TYP.	MAX.	DIM.	MIN.	TYP.	MAX.
W	3.00	3.20	3.40	F	—	0.57	—
L	2.30	2.50	2.70	G	—	C 0.27	—
H	0.80	0.90	1.00	J	—	0.08	—
A	—	0.765	—	K	—	0.08	—
B	0.76	0.86	0.96	M	0.80	0.90	1.00
C	—	0.765	—	P	0.41	0.46	0.51
D	—	0.57	—	S	0.40	0.50	0.60
E	1.85	1.95	2.05				

6. CONNECTION



*1 Please connect capacitor(recommendation:0.01µF) between “Vcc” and “GND” terminal.
*2 Please connect capacitor(recommendation:0.01µF) between “OUT” terminal and load.
*3 This product has one chip LSI. Do not supply over +4.5V or negative voltage under -0.3V to ”Vcc” terminal. Do not supply over Vcc+0.3V or negative voltage under -0.3V to ”Vc” terminal. Do not open “Vc” terminal. Do not supply any voltages to ”OUT” terminal.
*4 Do not supply any voltages in any way which differs from the above connection figure.

7. Recommended soldering pattern



Except for this recommended soldering pattern, please contact us for inquiries.

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- ● In this new crystal master for Epson toyocom, product code and marking will still remain as previously identified prior to the merger. Due to the on going strategy of gradual unification of part numbers, please review product code and marking as they will change during the course of the coming months.

We apologize for the inconvenience, but we will eventually have a unified part numbering system for Epson toyocom which will be user friendly.

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