

# SPECIFICATION FOR APPROVAL

CUSTOMER : Terasic Technologies

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PRODUCT TYPE : Oven-Controlled Crystal Oscillator (OCXO)

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NOMINAL FREQ. : 30.72MHz

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TXC P/N : OG30700003

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REVISION : S1

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CUSTOMER P/N :

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PM / SALES : Tim Wang

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DATE : 5-May-17

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CUSTOMER CONFIRMATION :  
(Signature)

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(Date)

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- (1) TXC requires one copy returned with signature and title of authorized individual that signifies acceptance of the attached specifications.
- (2) Orders received and accepted by TXC after return of signed copy of specification will be produced per these specifications.
- (3) Any changes to these specifications must be agreed upon by both parties and new revision of the Product Specification Sheet will be issued.
- (4) Any issuance of purchase order prior to consigning back the Approval page of "Specification Sheets" from customers will be regarded as the agreement on the contents of these specifications.

**RoHS Compliant**

(for glass crystal only : Pb used in sealing glass material is exempt from EU directive)

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PE/RD	QA	MFG
 Che-Lung Hsu <hr style="border-top: 1px dotted black;"/> 5-May-17		

**NOTE:**

- (1) The green product standard set by TXC is based upon the international standards. Related information is publicly described on the TXC's Website, and updated regularly. The document is compliant with the latest green product quality system directives at the time.
- (2) Revision "Sx" is for engineering samples only. PE/RD's approval required.
- (3) Revision "Ax" is production ready. PE, QA and MFG's approval required.

**RoHS Compliant**

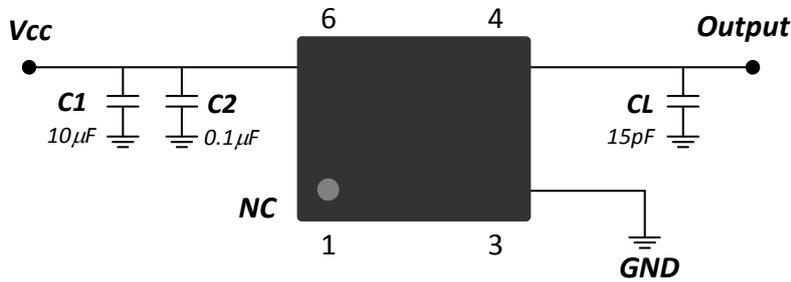
(for glass crystal only : Pb used in sealing glass material is exempt from EU directive)



**ELECTRICAL SPECIFICATIONS**

Item	Parameters		Measurement Condition	Electrical Specifications			
				MIN	TYP	MAX	UNITS
1	Nominal frequency				30.72		MHz
2	Supply voltage (Vcc)		±5%	3.135	3.3	3.465	V
3	Current consumption	During warm up	Ambient temperature at 25 °C			650	mA
4		At steady state				200	mA
5	Warm-up time				3		minute
6	Initial frequency accuracy		At time of shipment, reference to nominal frequency, at 25°C±2°C	-500		500	ppb
7	Operating temperature range			-40		85	°C
8	Frequency stability	vs. temperature	Within operating temperature range, reference to (Fmax+Fmin)/2	-10		10	ppb
9		vs. Vcc variation	Vcc variation ±5%, reference to frequency at Vcc=3.3V	-10		10	ppb
10		vs. load variation	Load variation ±5%, reference to frequency at load= 15pF	-10		10	ppb
11	Output load				15		pF
12	Output waveform	Output type		LVCMOS			NA
13		High level (VOH)		2.7			V
14		Low level (VOL)				0.3	V
15		Duty cycle		45	50	55	%
16		Rise time				5	ns
17		Fall time				5	ns
18	phase noise	At 1Hz offset	Ambient temperature at 25°C			-60	dBc/Hz
19		At 10Hz offset				-90	dBc/Hz
20		At 100Hz offset				-115	dBc/Hz
21		At 1kHz offset				-130	dBc/Hz
22		At 10kHz offset				-145	dBc/Hz
23		At 100kHz offset				-150	dBc/Hz
24		At 1MHz offset				-155	dBc/Hz
25	Allan deviation	Tau=1.0s	After 1hr of operation		7.0		e-11
29	Aging	1st year	After 60 days of operation	-0.3		0.3	ppm
30		10 years		-1.5		1.5	ppm

**TESTING CIRCUIT**

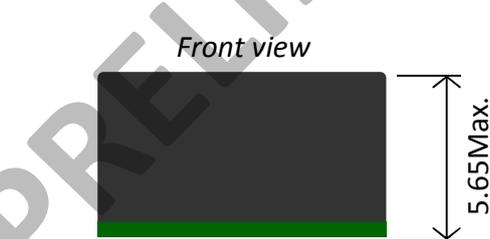
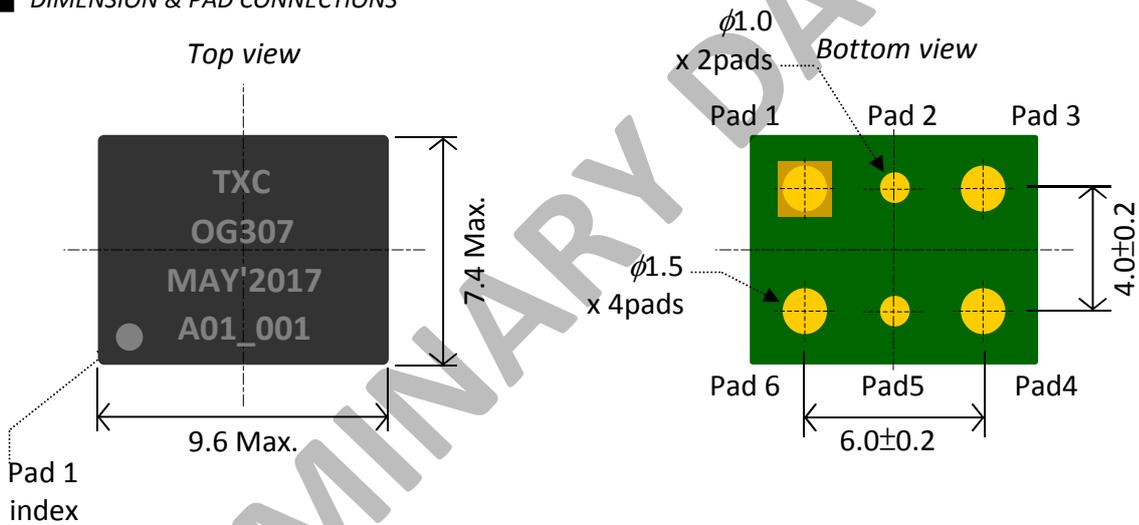


External components:

Name	Function
C1	AC Noise Bypass for Vcc
C2	AC Noise Bypass for Vcc
CL	Load Capacitance

Note: Bypass capacitor should be placed.

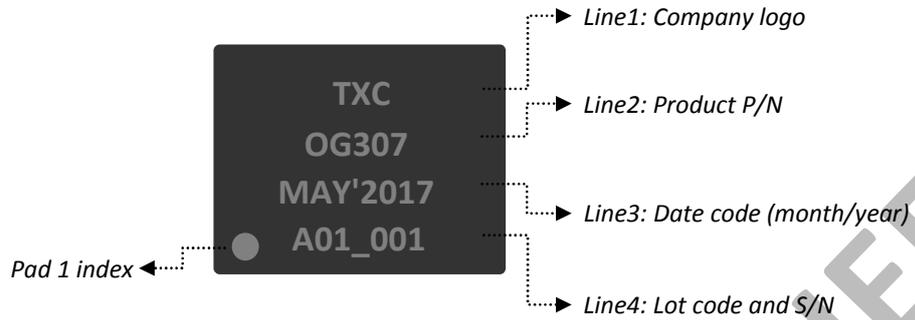
**DIMENSION & PAD CONNECTIONS**



(Dimension unit : mm)

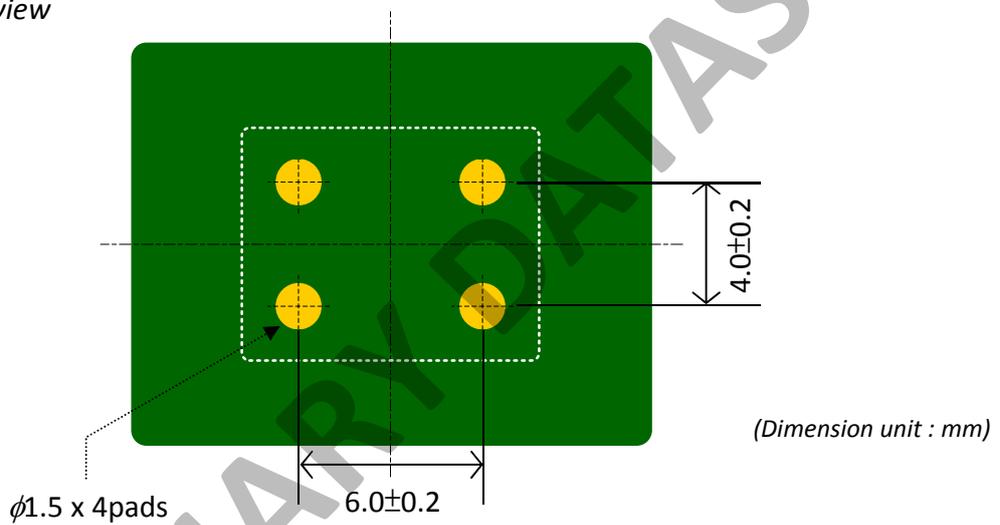
Pin No.	Function
1	N.C.
2	N.C.
3	GND
4	Output
5	N.C.
6	Vcc

■ MARKING



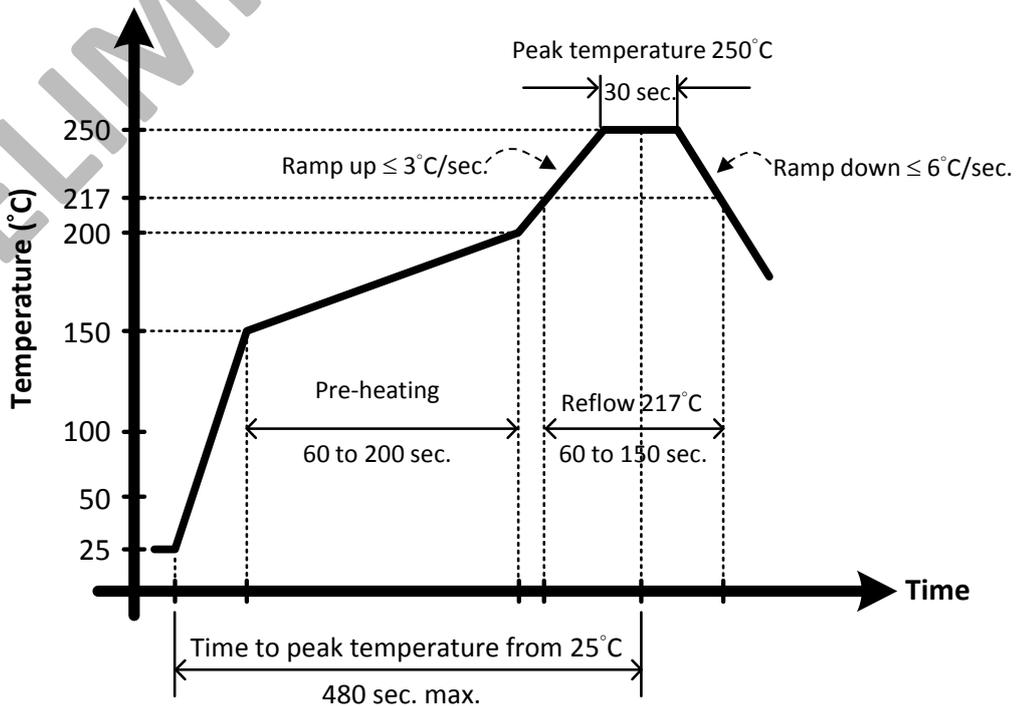
■ RECOMMENDED PAD LAYOUT

Top view

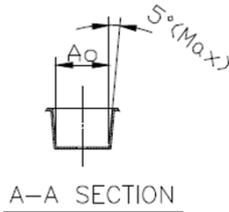
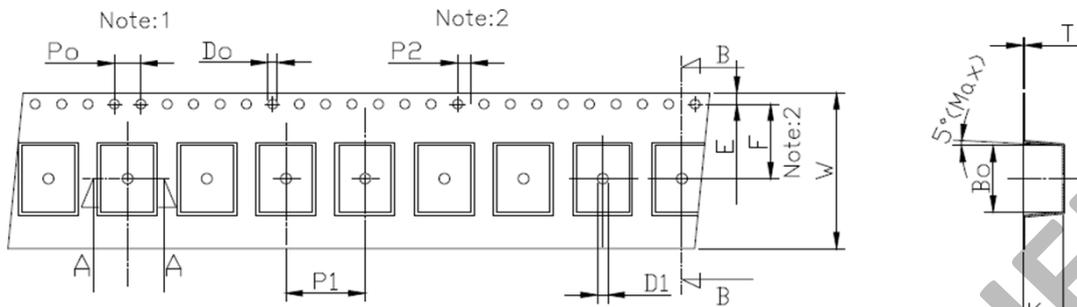


■ RECOMMENDED REFLOW SOLDERING PROFILE

Pb-free reflow soldering profile

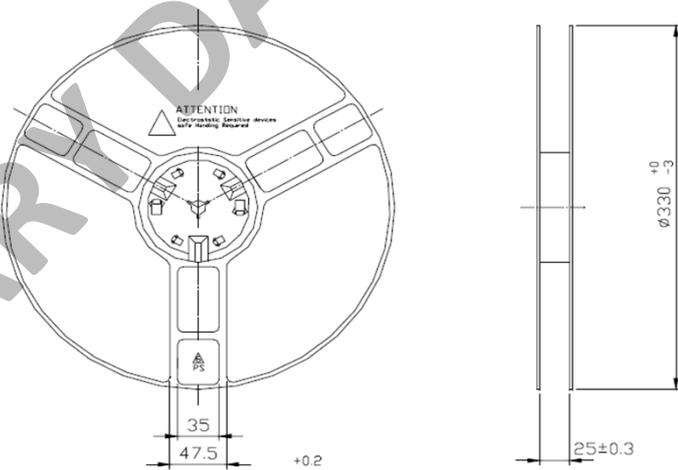


■ PACKING



$A_o = \frac{8.00 \pm 0.10}{\text{mm}}$   
 $B_o = \frac{10.20 \pm 0.10}{\text{mm}}$   
 $K_o = \frac{6.00 \pm 0.10}{\text{mm}}$

Symbol	Spec.
Po	4.0±0.10
P1	12.0±0.10
P2	2.0±0.10
Do	1.50 <sup>+0.1</sup> / <sub>-0</sub>
D1	1.50(MIN)
E	1.75±0.10
F	11.50±0.10
10Po	40.0±0.10
W	24.0 <sup>+0.3</sup> / <sub>-0.1</sub>
T	0.40±0.05



Notice:

1. 10 Sprocket hole pitch cumulative tolerance is ±0.1mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. Ao & Bo measured on a place 0.3mm above the bottom of the pocket to top surface of the carrier.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

Standard Reel Quantity is 800 pcs per reel