Preliminary Specification	TITLE	SPEC NO. ISD4-2A-7224
DATE Jul./14/2005	CRYSTAL OSCILLATOR	P. 1/5
APP. Y.AOYAGI		DRAW K.MORITA

1. MODEL NAME

TCO-2131 Type(VCXO)

2. ABSOLUTE MAXIMUM RATINGS

2.1 Supply Voltage (Vcc) :0V～+5.0V

2.2 Frequency Control Voltage :0V～+5.0V

2.3 Enable / Disable :0V～+5.0V

3. ELECTRICAL SPECIFICATIONS

(Tamb=25℃ unless otherwise noted)

3.1 Output frequency	: 184.32MHz
3.2 Supply voltage(Vcc)	: DC+3.3V±5%
3.3 Supply Current	: 90mA max.
3.4 Output level	: LVPECL(differential out) Voh≧Vcc-1.1V Vol≦Vcc-1.5V
3.5 Duty cycle	: 45%～55%(at Vcc-1.3V)
3.6 Rise/Fall time	: 5ns max.(20%～80%)
3.7 Load	: 50Ω to Vcc-2.0V See Measurement Circuit
3.8 Operating temperature range	: -10℃～+70℃
3.9 Storage temperature range	: -40℃～+90℃
3.10 Frequency stability	
3.10.1 vs. Temperature	: ±20ppm max./-10℃～+70℃ (Referenced to 25℃)
3.10.2 vs. Supply voltage	: ±3ppm max./DC+3.3V±5%
3.10.3 vs. Load	: ±1ppm max./±10%
3.10.4 vs. Aging	: ±5ppm max./year
3.11 Frequency Tolerance	: ±10ppm max. /Temperature +25℃±2℃ /Supply Voltage +3.3V /Frequency Control Voltage +1.65V

3.12 Frequency control

3.12.1 Frequency control range :±80ppm～±140ppm
/ Frequency Control Voltage 1.65±1.65V

3.12.2 Slope :Positive

3.12.3 Linearity :±10%max.

3.12.4 Input impedance :100kΩ min

3.13 Phase noise : -60dBc/Hz max.(-72dBc/Hz typ.) at 10Hz
-90dBc/Hz max.(-100dBc/Hz typ.) at 100Hz
-110dBc/Hz max.(-120dBc/Hz typ.) at 1kHz
-135dBc/Hz max.(-145dBc/Hz typ) at 10kHz
-142dBc/Hz max.(-145dBc/Hz typ)
at noise floor(100kHz～10MHz)

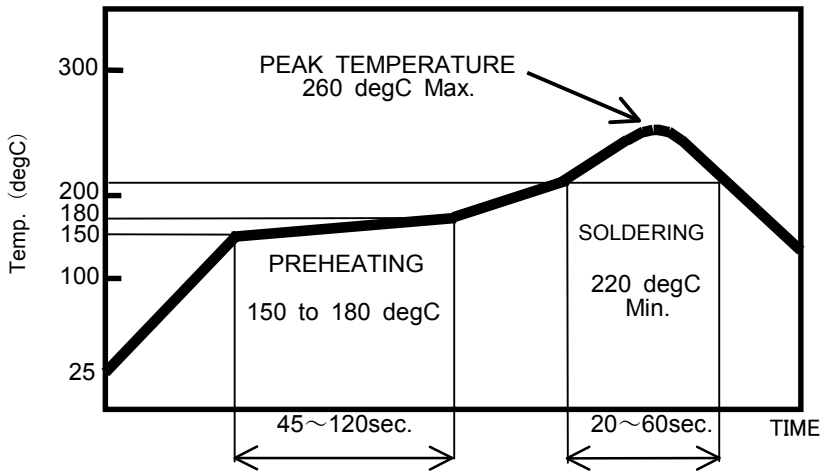
3.14 RMS Jitter from Phase noise : 2.5ps max. 10Hz～50MHz

4.Enable / Disable

Input Level : Vih ≧ Vcc-1.1V
Vil ≦ Vcc-1.5V

E/D	OUT1	OUT2
Low Level,Open	Data	Data
High Level	Logic low	Logic high

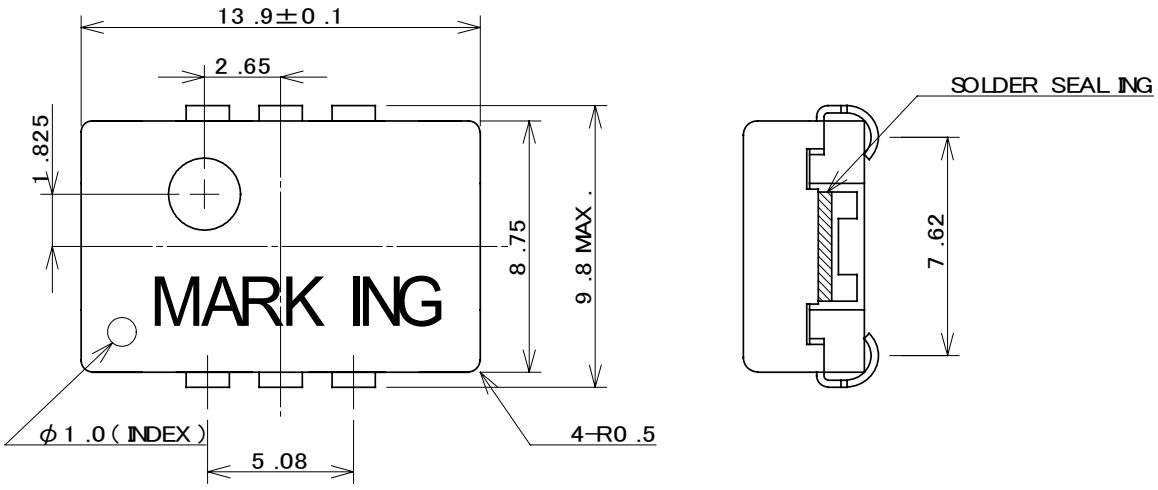
5. REFLOW SOLDERING PROFILE

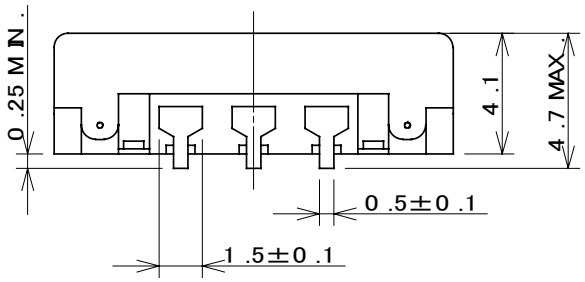


NOTE : Frequency drift (after 1 reflow soldering) is included in 3.11 Frequency Tolerance.

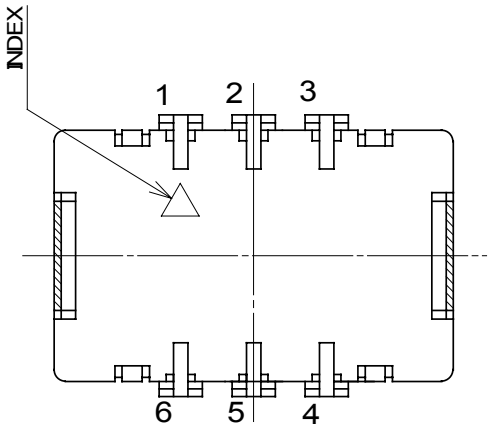
: In case of frequency readjustment after reflow soldering, it should be made after elapsed 12 hours of soldering , because of frequency relaxation for the thermalstress.

6. OUTLINE DRAWING & PIN CONNECTINOS





[MARKING]
MODEL NAME
FREQUENCY [MHz]
TOYOCOM JPN.
PRODUCT No.

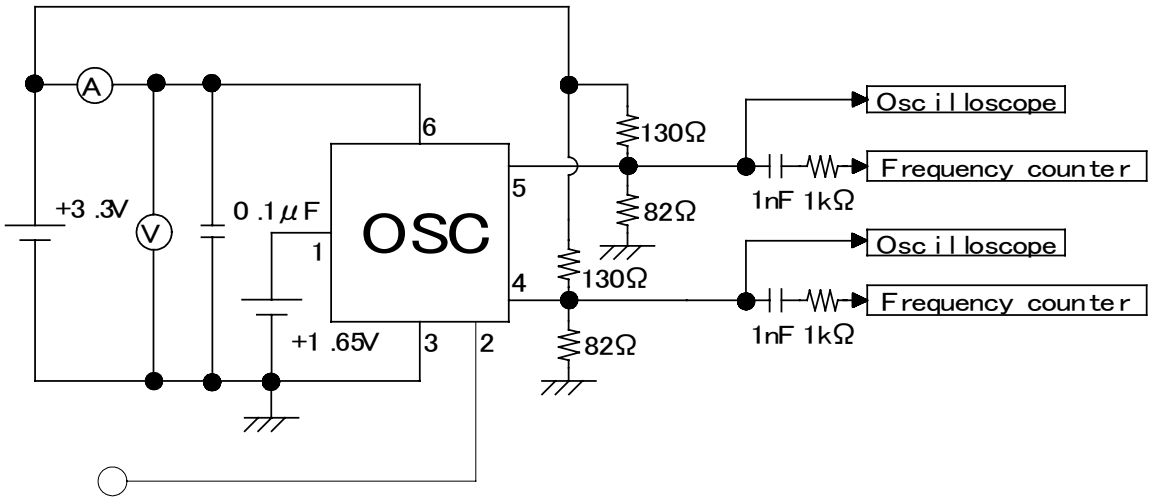


[PIN CONNECTION]
1.Frequency Control Voltage
2.E/D Control
3.Common and case
4.OUT1
5.OUT2
6.Supply Voltage

Unit [mm]

Tolerance for all measurements are ±0.2mm unless otherwise stated

7. MESDUREMENT CIRCUIT



Pin Connection

1. Frequency Control Voltage
2. E/D Control.
3. Common and case
4. OUT1
5. OUT2
6. Supply Voltage