RoHS Compliant
Directive 2011/65/EU

REFERENCE SPECIFICATION

Customer: Common

Item	Crystal Clock Oscillators
Type	2725T
Nominal Frequency	125 MHz
Customer's Spec. No.	------
NDK Spec. No.	NKG3190A

For your reference we submit this specification.
Please study and keep in your related document file.

Charge

Sales	NDK-I	Tel. +39-02-96702920
Engineer	Engineering dept.2 Y.Oishi	Tel. +81-4-2900-6662

Approved	C.Ishimaru
Checked	------
Drawn	Y.Oishi

Revision Record

Rev.	Revision date	Item	Contents	Remarks
-----	28.Dec.2012	Issue		

1. Type
   2725T

2. NDK Spec. No.
NKG3190A
3. Maximum Ratings
   3.1 Supply Voltage(V_{CC})
      -0.5 ~ +7.0V DC
   3.2 Storage Temp.
      -55 ~ +125 °C

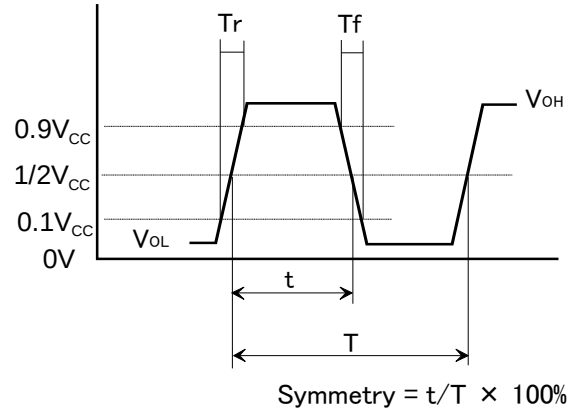
4. Performance & Electrical characteristics

Item	Unit	Spec
Output Level		CMOS
Nominal Frequency	MHz	125MHz
Operating Temp. Range	℃	-40 to +85
Overall Frequency Tolerance *1	$x10^{-6}$	±50 max
Supply Voltage(V_{CC})	V	+3.3 ± 0.1
Current Consumption (Operating) (at 3.3V, 25°C)	mA	25 max
Current Consumption (Stand-by) (at 3.3V, 25°C)	μA	10 max
V_{OL} max / V_{OH} min	V	$0.1V_{CC}$ / $0.9V_{CC}$
Tr max / Tf max	ns	5 / 5 (at $0.1V_{CC}$~$0.9V_{CC}$)
Symmetry	%	45 ~ 55 (at $1/2V_{CC}$)
Load	pF	15
Start-up Time	ms	10 max
Stand-by Function		Available (Tri-state)

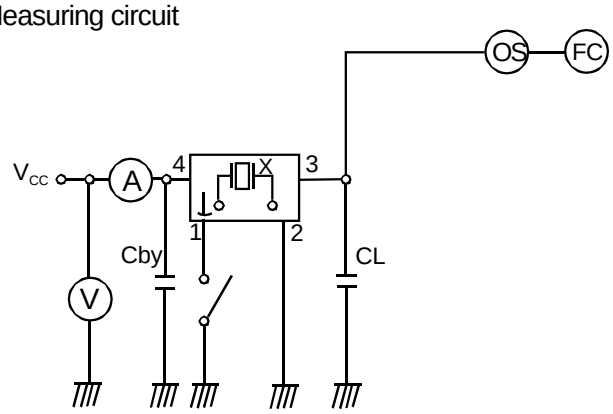
*1 Inclusive of 25°C tolerance, temp. characteristics, and supply voltage change.

Stand-by function

#1 PAD input	#3 PAD output
H level ($0.7V_{CC}$~V_{CC}) or open	Operating
L level ($0.3V_{CC}$ max)	High impedance



5. Measuring circuit



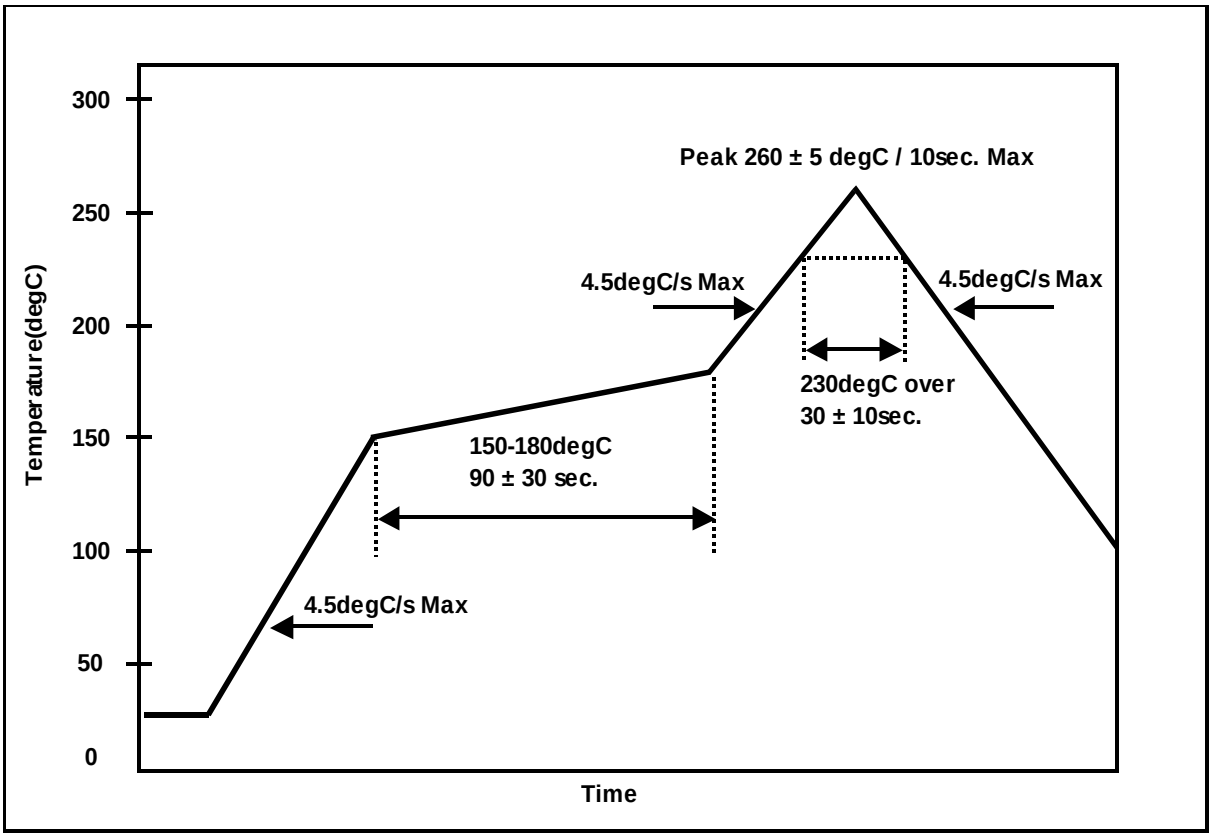
CL ; 15pF MAX including input capacity of osilloscope
Cby ; Bypass capacitor (0.01uF)

6. Test data will not be submitted.

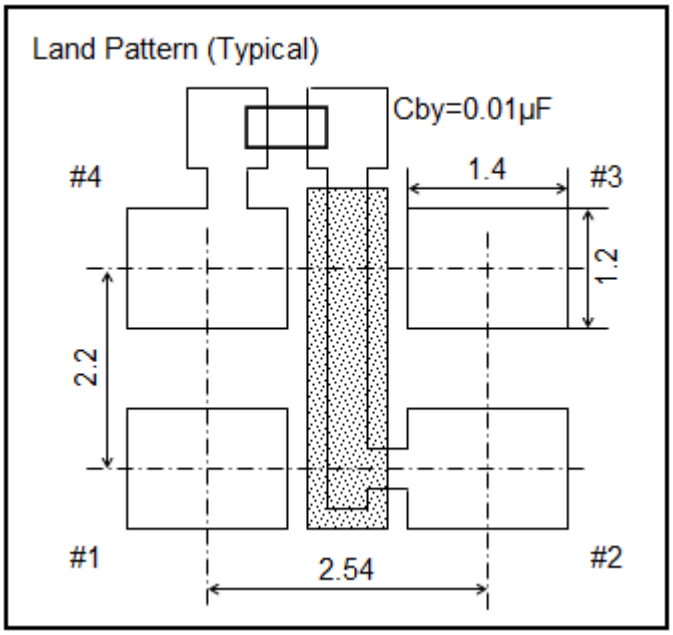
7. Application drawing
   7.1 Dimension drawing
      EKD14B-00026
   7.2 Marking drawing
      EKH11B-00051
   7.3 Reliability assurance Item
      EKS30B-00025
   7.4 Taping & Reel drawing
      EKK17B-00002

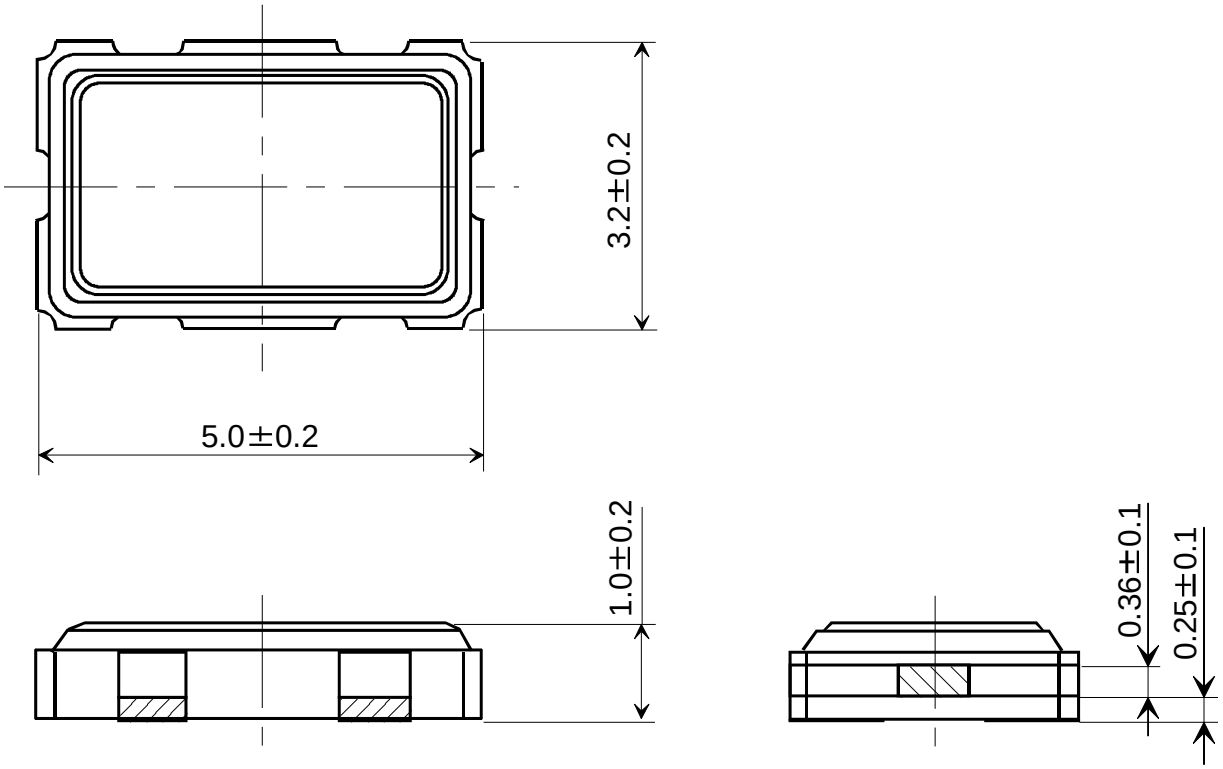
8. Instruction Notice
   8.1 Noise
      When the 2700 series are used, the 0.01μF capacitor should be connected between V_{CC} and GND line. (Closer to the product terminal is desirable.)
   8.2 Resistance to dropping
      The 2700 series is designed to be impactproof so that no damage occurs. However, if dropped from a desk etc., it is advisable to check their performance or contact us to check it.
   8.3 Electrostatic protection
      The 2700 series employ C-MOS ICs for the active element. Please use them in static-free environments.
   8.4 High temperature
      Normal operation cannot be guaranteed for the 2700 series at +125°C(for 24 hours).Be sure that the units are kept within the specified temperature range.
   8.5 Cleaning
      Basically, the 2700 series are applicable for ultrasonic wave cleaning. However, in some case, during ultrasonic wave cleanings, internal design may get damage. Please check condition carefully beforehand.
   8.6 Other
      The 2700 series are C-MOS applied products. And careful handling(same as with C-MOS IC) are needed to avoid electrostatic problems.
      Incorrect PAD connection is cause of trouble. Please make sure to connect correctly as below.
         #2 terminal → GND
         #4 terminal → V_{CC}

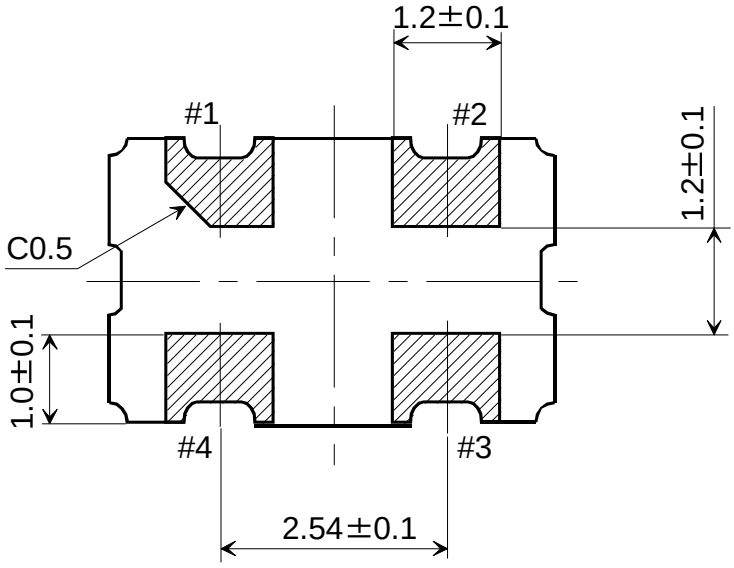
*Example For Soldering Conditions (The below graph corresponds to Pb free solder)



*Recommended footprint [mm]







2700

Terminal land connections

#1	STAND-BY
#2	GND
#3	OUTPUT
#4	V_{CC}

The coplanarity of PAD #1,#2,#3,#4 : 0.1mm MAX.

	Date of Revise	Charge	Approved	Reason
D	2.Aug.2012	Y.Oishi	C.Ishimaru	Change V_{DD}→V_{CC}, PAD CONNECTIONS→Terminal land connections

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	9.Sep.2003	A.Yokota	Dimension:mm	--------	-------
Designed	9.Sep.2003	M.Yamaguchi	Title	Drawing No.	Rev.
Checked	---------	-------	**2700 Dimension of External**	**EKD14B-00026**	D
Approved	9.Sep.2003	H.Omata			

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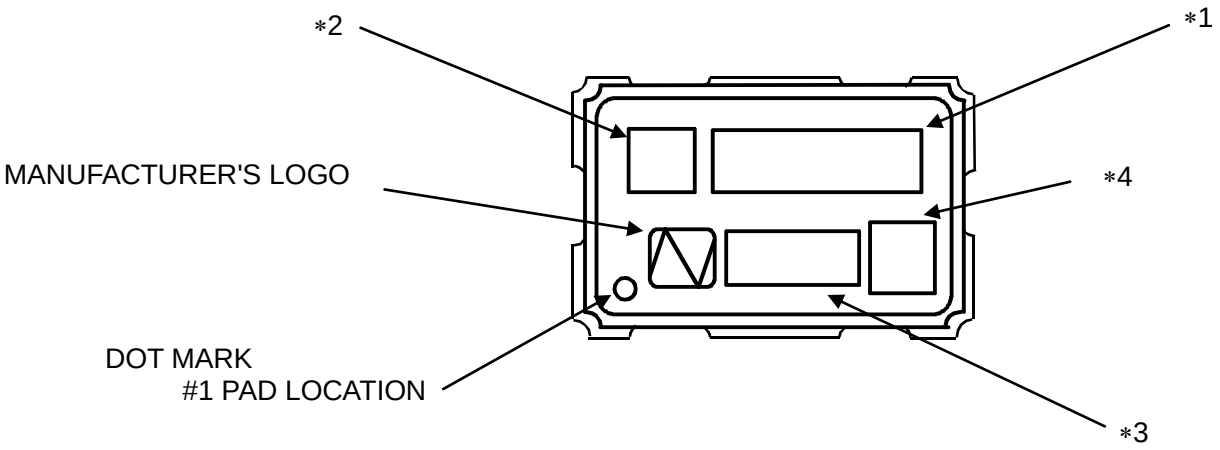

∗1 [FREQUENCY]
Digits are five and 6TH digit will be omitted.
MHz unit sign is not marked.
ex,) 28.63636MHz → 28.636 [Unit sign not marked]

∗2 [MODEL MARK]
A last digit of model is marked. ⟶

[MODEL MARK]		
2700N	→	Space
2700T	→	T
2700Z	→	Z
2700Q	→	Q
2700E	→	E

∗3 [WEEK CODE (Digit are three)]
ex1,) In case of 7TH week of 1999

9 0 7

Week No. (Digit are two)
Lower one digit of year

ex2,) In case of 7TH week of 2000

0 0 7

∗4 [Trace code]
Trace code consists of four digits number or letter.
This code indicates production date and production line number.

[THE KEY MODEL] 2700

	Date of Revise	Charge	Approved	Reason
A	23.May.2012	Y.Oishi	C.Ishimaru	*2 MODEL MARK: Add 2700E

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	27.Jan.2006	Y.Oishi	mm	-------	-------
Designed	27.Jan.2006	Y.Oishi	Title	Drawing No.	Rev.
Checked	27.Jan.2006	C.Ishimaru	2700 Marking	**EKH11B-00051**	A
Approved	27.Jan.2006	H.Omata			

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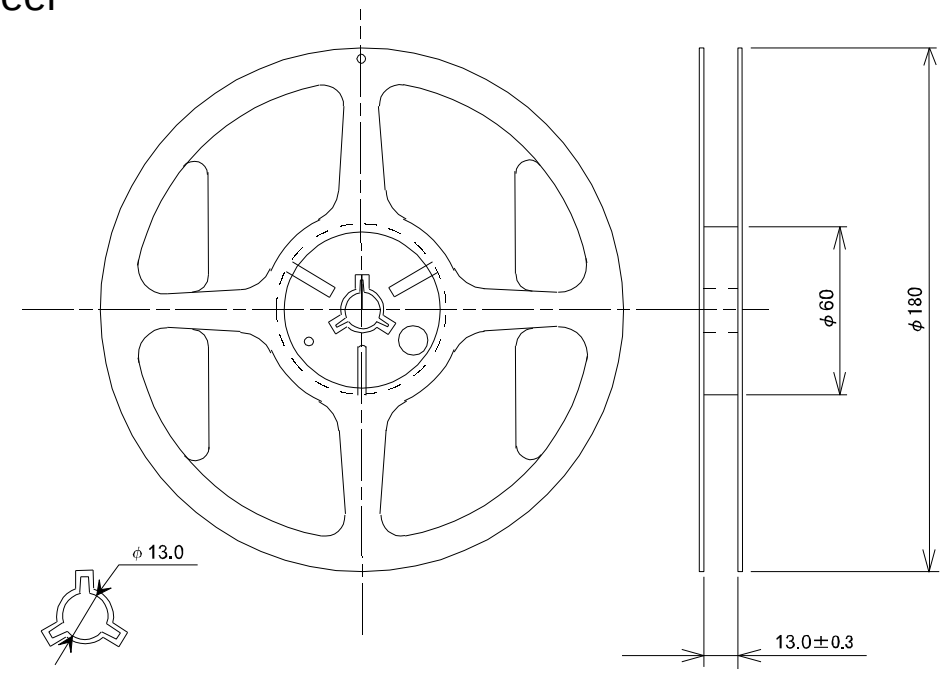
Environmental Test Conditions	Specification
1.Thermal Shock Test 1 cycle: -40°C (30 minutes) ~ +85°C(30 minutes) Number of cycle: 100 cycle.	∗1
2.High Temperature High Humidity Test Temperature : +85°C, Humidity : 80 ~ 85%, Time : 500 hours.	∗1
3.+85°C Aging (Non Operating) Temperature : +85°C, Time : 720 Hours.	∗1
4.Vibration Test MIL-STD-202F test method:204D Test condition : D 10 ~ 2000Hz, 1.52mmp-p, or 196m/s^2 20 minutes/cycle, Sweep Time 4 Hours(3 directions,12H each)	∗1
5.Shock Test MIL-STD-202F test method : 213B Test condition : Half sinusoidal wave 29400m/s^2, 0.3ms, 3 directions, 3 times each.	∗1
6.Free Drop Test Fall height:75cm, 3 drop onto hard wooden board.	∗1
7.Soldering Test Soaking in the soldering bath at +230 ± 5°C for 3.5 ± 1 seconds.	More than 95% of should be covered by solder.
8.Soldering Resistance Preheat : 150~180°C, 60~120 sec, Peak 260± 5°C For 10sec max (230°C min 20~40 sec), 3 times.	∗1

∗1 After the test mentioned above, the electrical specifications are satisfied.
Also frequency deviation before and after test should be

$$\Delta F/F \leqq \pm 10 \times 10^{-6}$$

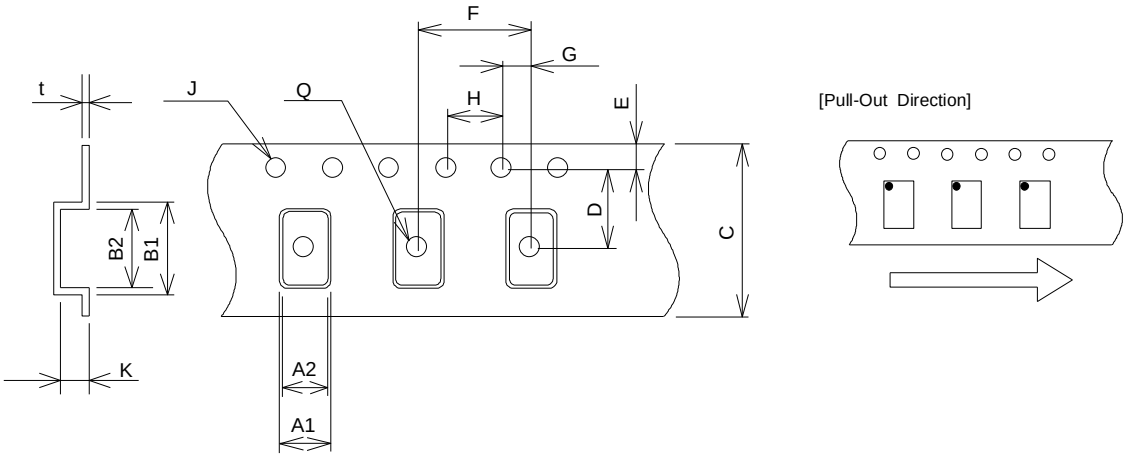
The electrical specifications are I_{CC}, Tr/Tf, V_{OL}/V_{OH}, duty cycle, stand-by function, stand-by current consumption.

Reel



[Detail of Hollowed Part]

Tape



	A1	A2	B1	B2	C	D	E
Size	3.70±0.10	3.50±0.10	5.60±0.10	5.40±0.10	12.0±0.20	5.50±0.10	1.75±0.10

	F	G	H	J	K	Q	t
Size	8.00±0.10	2.00±0.10	4.00±0.10	$1.50^{+0.1}_{-0}$	1.40±0.10	$1.50^{+0.1}_{-0}$	0.30±0.05

10 pitch : 40.0±0.15mm

D and G are taken as the value between a pocket center

	Date of Revise	Charge	Approved	Reason
A	15.Feb.2001	S.Murakami	H.Omata	Remake with the new form by a form change.

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	25.May.1999	N.Saito	Dimension:mm	-------	-------
Designed	25.May.1999	N.Saito	Title	Drawing No.	Rev.
Checked	25.May.1999	C.Ishimaru	**2700 Packing**	**EKK17B-00002**	A
Approved	25.May.1999	H.Omata			

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