High precision Type

2725T

RoHS Compliant
Directive 2002/95/EC

■ Features

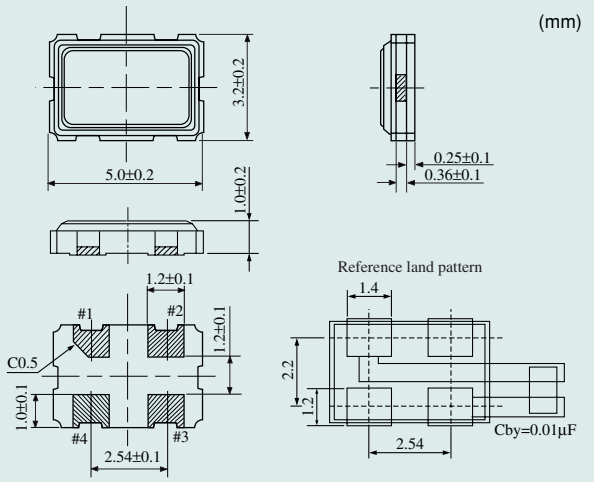
- High precision Type (±30×10⁻⁶ frequency stability).
- The best choice for video equipment miniaturization.
- Embossed carrier tape and IR reflow are possible.
- Products are lead-free.
- Compact and light weight : 5.0×3.2×1.0mm, 0.06g.

■ Absolute Maximum Rating
Supply Voltage (V_{DD}) –0.5~+7.0V DC
Storage Temperature Range -55~+125°C

Item \ Model		2725T			
Output Level		C-MOS			
Frequency Range	(MHz)	2.5 ≦F< 20	20 ≦F< 40	40 ≦F< 60	60 ≦F≦ 75*
Frequency Stability	(×10⁻⁶)	±30			
Operating Temp. Range	(°C)	–10~+60			
Supply Voltage (V_{DD})	(V)	+3.3±0.1			
Current Consumption (+3.3V, at 25°C)		8mA (max)	15mA (max)	22mA (max)	25mA (max)
	stand-by	10µA (max)			
V_{OL} max / V_{OH} min	(V)	0.1V_{DD}/0.9V_{DD} I_{OL}=4mA, I_{OH}=–4mA			
Tr max/Tf max	(ns)	5/5 (0.1V_{DD}~0.9V_{DD})			
Duty Cycle	(%)	45~55 (at 1/2V_{DD})			
Fanout (gate)	C_L (pF)	15			
Start-up Time	(ms)	10 (max)			
Stand-by Function	Tri-state	Yes			

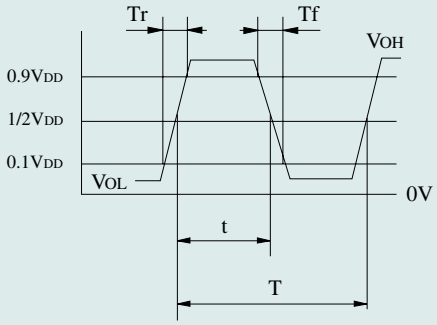
* Please contact us for the high accuracy type at 75MHz and up.

■ 2725T Outline



PAD No.	Connection
# 1	STAND-BY
# 2	GND
# 3	OUTPUT
# 4	V_{DD}

■ Output Wave <C-MOS>



Duty Cycle = t/T×100 [%]

■ Stand-by Function <Tri-state>

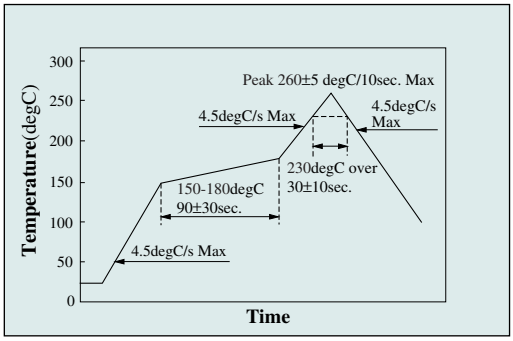
# 1 input	# 3 output
H level (0.7V_{DD} ≦ V_{IH} ≦V_{DD}) or open	Operating
L level (+0.3 V_{DD}max)	High impedance

Please access NDK web site (http://www.ndk.com/) for the latest information.

Handling Cautions (2700 series)

■ Examples for soldering conditions

(Infra-red ray reflow soldering)



- **Soldering**

  To avoid product damage during soldering: please follow either below reflow conditions (a) or (b).

  (a) Temperature : 260°C (max)
  Duration : 10 seconds (max)

  (b) Temperature : 230°C (max)
  Duration : 60 seconds (max)

- **Shock**

  Basically, the 2700 series have height resistance to shock (guaranteed 3 times drops from 75 cm height on to hard wooden board, or half sinusoidal waves at 29,400m/s^2 G, 3 times on to X, Y, Z directions).
  In case of unexpected drop, please remeasure the product characteristics.

- **Cleaning**

  Basically, the 2700 series can be cleaned by ultrasonic wave. However, in some cases, during ultrasonic wave cleanings, internal design may be damaged. Please check conditions carefully beforehand.

- **Others**

  The 2700 series are C-MOS products. Careful handling (same as with C-MOS IC) is needed to avoid electrostatic problems.

  Incorrect pin connection can cause problems.
  Please make sure to connect correctly as below.
  #2 terminal → GND
  #4 terminal → V_{DD}

[Additional Notes for 2775W/Y and 2785V]

■ PLL cascade connection

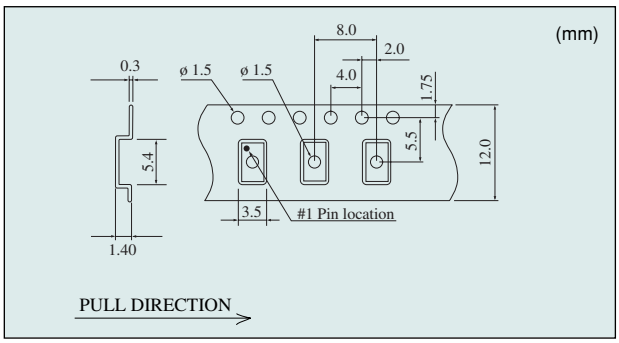
Crystal units of this series output required frequencies by PLL (Phase Locked Loop) circuit using quartz oscillation as a reference. Jitters may increase if the output of this oscillator is connected to a PLL in cascade where the oscillator is operated using an existing PLL circuit in the castomer's system as a reference. Check your system carefully before applying to image processing, synchronous process of communication, etc.

■ Output state during standby

Because the output of the clock oscillators of the 2775W, 2775Y and 2785V are pulled down to GND (weak pull-down) with a high impedance (typically 500kΩ) during standby, no pull-down resistor for the input section of GATE IC of the next stage is necessary. When pulling up the input section of the GATE IC of the next stage, a resistor of 10 kΩ ~ 50 kΩ or less should be used.

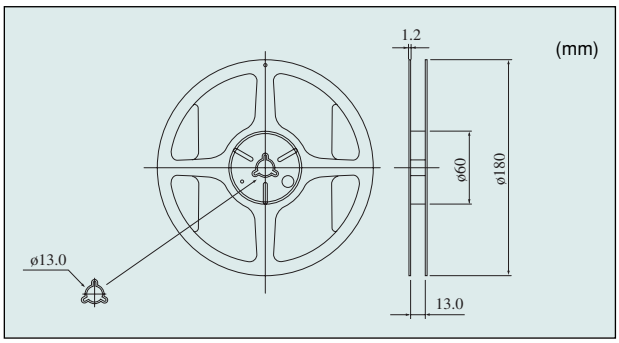
Taping Dimensions (2700 series)

■ Tape



1000 pieces/reel are boxed and shipped with the taping method as shown above

■ Reel



*Note The Packaging method shown above is only for large orders. For small orders, or for samples, the packaging form is different according to the requested quantity .

Please access NDK web site (http://www.ndk.com/) for the latest information.

2700 SERIES WARRANTY CLAUSE

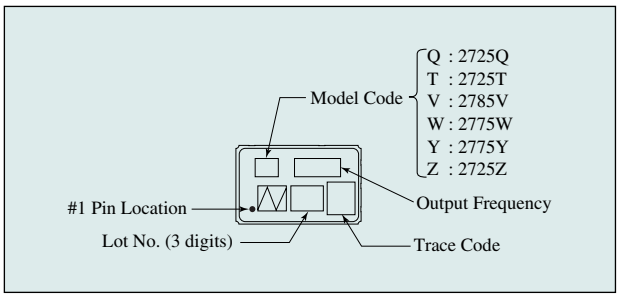
No.	Item	Condition	Specification
1	Thermal Shock Test	1 Cycle: –40˚C (30minutes)~+85˚C (30minutes) Number of Cycle : 100	(1)
2	High Temperature High Humidity Test	Temperature: +85˚C, Humidity: 80~85% Time: 500 Hours (not operating)	(1)
3	+85˚C Aging (not operating)	Temperature: +85˚C, Time: 720 Hours	(1)
4	Vibration Test	10~2000Hz, 1.52mm (Peak to Peak) or 196m/s² 20minutes/cycle Sweep time 12 Hours (3 directions, 4H each)	(1)
5	Shock Test	Test Condition: Half sinusoidal wave 29,400m/s² 0.3ms 3 directions 3 times each	(1)
6	Drop Test	Drop Height: 75 cm, 3 drops on to hard wooden board	(1)
7	Soldering Test	Test Condition: Soaking in the soldering bath at 230±5˚C for 3.5±1 seconds	More than 95% of lead or pad should be covered by solder
8	Soldering Resistance	Pre-heat: 180˚C 90±30 seconds, Peak temperature 260±5 (Max 10 seconds) ˚C, 230˚C min 30±10 seconds 3times each	(1)

(1) After the tests mentioned above, the electrical specifications are satisfied.
Also frequency deviation before and after test should be $\Delta F/F \leqq \pm 10\times10^{-6}$.
The electrical specifications are current consumption, Tr/Tf, Vol/Voh, Duty Cycle, current consumption (stand-by), stand-by function.

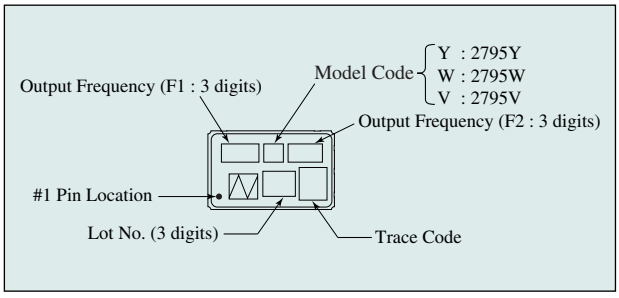
2700 SERIES MARKING

Marking frequency digits differs according to marking space available.
Please refer to below.

■ 2700 Series



■ 2795 Series



2700 Series:

- Including decimal point, 6 digits are marked.
  [EX] 14.31818MHz → 14.318