# Crystal Oscillator

**NDK**
Crystal **Bridge to the Future**

## Model Name NT3225SA

**Temperature Compensated Crystal Oscillator with AFC Function (VC-TCXO) NT3225S Series**

### ■ Main Application

For mobile phones, etc.

### ■ Features

● Supports low power supply voltage. (Supports DC +1.7 V to +3.3 V)

● Compact and light with a height, cubic volume, and weight of Max. 1.0 mm, 0.007 cm$^3$, and 0.024g, respectively.

● With an AFC (Automatic Frequency Control) function.

● Low power consumption.

● A surface-mount crystal oscillator. (Reflow soldering is possible.)

● Lead-free. Meets the requirements for re-flow profiling using lead-free solder.

Pb Free

**RoHS Compliant**
Directive 2011/65/EU

### ■ Specifications

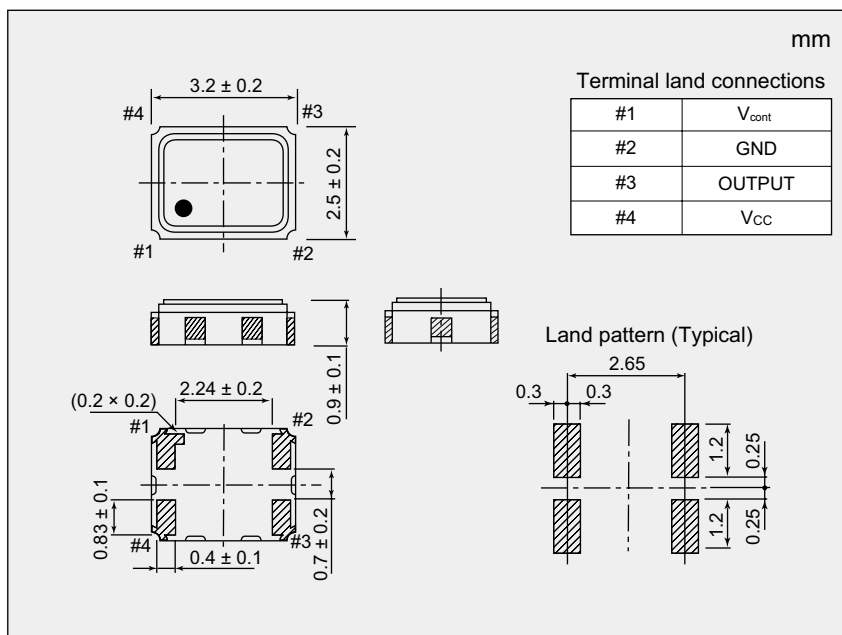| Item \ Model | NT3225SA | |
|---|---|---|
| Nominal frequency range (MHz) | 10 to 40 | |
| Standard frequency (MHz) | 10, 12, 12.288, 12.8, 13, 14.4, 14.7456, 15, 15.36, 16, 16.368, 16.369, 16.384, 16.8, 18, 19.2, 19.44, 19.68, 20, 21.25, 22.4, 24, 24.576, 25, 26 | 38.4, 40 |
| Supply voltage [$V_{CC}$] (V) | +3.0 | |
| Load impedance | 10 kΩ//10 pF | |
| Current consumption (mA) | Max. 1.5 | Max. 1.7 |
| Output voltage | Min. 0.8 V(p-p) (DC Coupling *1) | |
| Frequency/Temperature characteristics | Max. ±2.5×10$^{-6}$ | |
| Operating temperature range (°C) | −30 to +75 | |
| Storage temperature range (°C) | −40 to +85 | |
| Frequency/Voltage coefficient | Max. ±0.3×10$^{-6}$/+3.0 V±5 % | |
| Frequency/Load coefficient | Max. ±0.2×10$^{-6}$/(10 kΩ//10 pF) ±10 % | |
| Long-term frequency stability | Max. ±1.0×10$^{-6}$/year | |
| Frequency control range | ±9.0×10$^{-6}$ to ±15.0×10$^{-6}$/+1.5 V±1 V (*2) | |

• Frequency setting conditions
  1. Frequencies are set at normal temperatures (+25±2 °C).
• If you require a product with a different frequency, power supply voltage, frequency control range, etc. to the standard specifications, please contact us with your enquiries.
*1. A DC-cut capacitor is not embedded in this crystal oscillator. Connect a DC-cut capacitor (1,000 pF) to the line-out terminal of the oscillator.
*2. This is a representative specification. The specifications may change according to the frequency and the supply voltage that you request.

### ■ Dimensions



mm

Terminal land connections

| #1 | $V_{cont}$ |
|---|---|
| #2 | GND |
| #3 | OUTPUT |
| #4 | $V_{CC}$ |

Land pattern (Typical)

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**NIHON DEMPA KOGYO CO.,LTD.**

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# Crystal Oscillator

## Model Name NT3225SA

### ■ List of Ordering Codes

| Frequency (MHz) | Ordering Code |
|---|---|
| 10 | NT3225SA-10M-NSA3630A |
| 12 | NT3225SA-12M-NSA3630A |
| 12.288 | NT3225SA-12.288M-NSA3630A |
| 12.8 | NT3225SA-12.8M-NSA3630A |
| 13 | NT3225SA-13M-NSA3630A |
| 14.4 | NT3225SA-14.4M-NSA3630A |
| 14.7456 | NT3225SA-14.7456M-NSA3630A |
| 15 | NT3225SA-15M-NSA3630A |
| 15.36 | NT3225SA-15.36M-NSA3630A |
| 16 | NT3225SA-16M-NSA3630A |
| 16.368 | NT3225SA-16.368M-NSA3630A |
| 16.369 | NT3225SA-16.369M-NSA3630A |
| 16.384 | NT3225SA-16.384M-NSA3630A |
| 16.8 | NT3225SA-16.8M-NSA3630A |
| 18 | NT3225SA-18M-NSA3630A |
| 19.2 | NT3225SA-19.2M-NSA3630A |
| 19.44 | NT3225SA-19.44M-NSA3630A |
| 19.68 | NT3225SA-19.68M-NSA3630A |
| 20 | NT3225SA-20M-NSA3630A |
| 21.25 | NT3225SA-21.25M-NSA3630B |
| 22.4 | NT3225SA-22.4M-NSA3630B |
| 24 | NT3225SA-24M-NSA3630B |
| 24.576 | NT3225SA-24.576M-NSA3630B |
| 25 | NT3225SA-25M-NSA3630B |
| 26 | NT3225SA-26M-NSA3630B |
| 38.4 | NT3225SA-38.4M-NSA3630C |
| 40 | NT3225SA-40M-NSA3630C |

The above frequencies are NDK's standard frequencies.

Frequencies other than the above are available. Feel free to contact our sales representatives.