

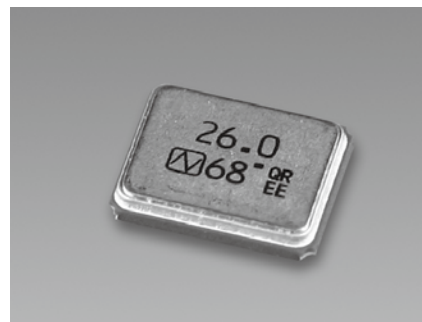
NX3225SA

For Automotive

■ Features

A small surface-mount type crystal unit, ideal for automotive applications.

- With a well established reputation for reliability, this product is best suited for automotive equipment.
- Stable start-up characteristic even under extremely severe environmental conditions.
- Excellent environmental characteristics, including heat, vibration and shock resistance.
- Lead-free. Meets the requirements for re-flow profiling using lead-free solder.
- Conforms to AEC-Q200.



Pb
Free

RoHS Compliant
Directive 2011/65/EU

■ Specifications

Item	Model	NX3225SA
Nominal Frequency		12 to 50 MHz
Overtone Order		Fundamental
Frequency Tolerance (25 ±3 °C)		±15 × 10 ⁻⁶
Frequency versus Temperature Characteristics (with reference to +25 °C)		±50 × 10 ⁻⁶
Operating Temperature Range		-40 to +125 °C
Storage Temperature Range		-40 to +125 °C
Equivalent Series Resistance		Refer to *1
Level of Drive		10 µW (Max. 200 µW)
Load Capacitance		8 pF

The above specifications are standard for this NDK product.

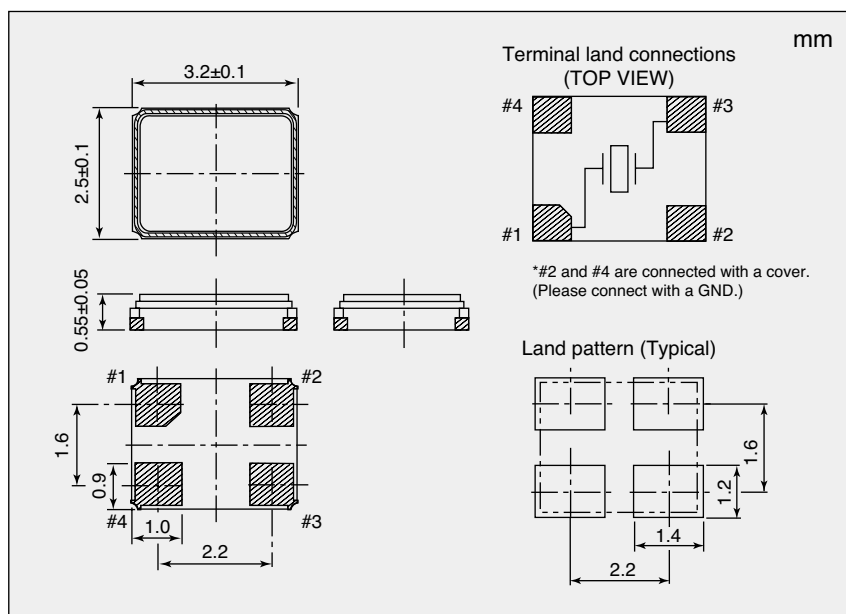
■ How to Specify an Order

When ordering our products, specify them with an "Ordering Code" that consists of the following :

[Model name] - [Frequency (Max : 9 digits)] M - [Number for specifying an order] Example NX3225SA-20.000M-STD-CRS-2

If you have any queries concerning our standard frequencies and numbers for specifying orders, please contact our sales representatives or visit our homepage (<http://www.ndk.com/>).

■ Dimensions



*1 Equivalent Series Resistance

Nominal frequency (MHz)	Equivalent Series Resistance max. [Ω]
12 to 20	120
20 to 50	100

Specification of Quartz Crystal Units

1	NDK Part Number	See table 1
2	NDK Specification Number	STD-CSR-1
3	Type	NX3225SA
4	Electrical Characteristics	
4.1	Nominal Frequency (f_{nom})	See table 1
4.2	Overtone order	Fundamental
4.3	Frequency Tolerance	$\pm 15 \times 10^{-6}$ max. (+25 °C)
4.4	Frequency Versus Temperature Characteristics	$\pm 15 \times 10^{-6}$ max. (-10 ~ +75 °C)
4.5	Equivalent Series Resistance (R_r)	The reference temperature shall be +25 °C
4.6	Shunt Capacitance (C_0)	See table 1
4.7	Maximum Drive Level	NA
5	Measurement Circuit	200 μ W max.
5.1	Frequency Measurement	
5.1.1	Measuring Instrument	π -network
5.1.2	Load Capacitance (C_L)	8 pF
5.1.3	Level of Drive	10 μ W
5.2	Equivalent Resistance Measurement	
5.2.1	Measuring Instrument	π -network
5.2.2	Load Capacitance (C_L)	Series
5.2.3	Level of Drive	10 μ W
6	Operable Temperature Range	-10 ~ +75 °C
7	Storage Temperature Range	-40 ~ +85 °C
8	Dimension	

(Unit: mm)

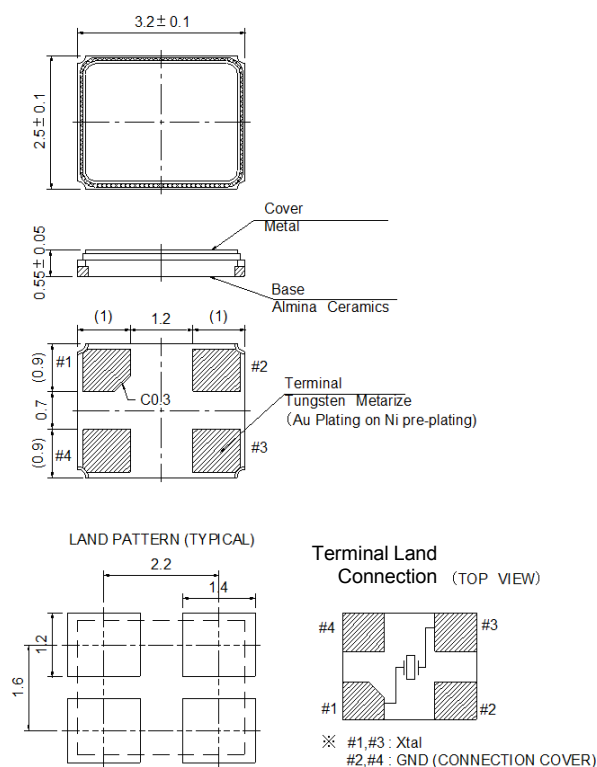


Table1

f_{nom} (MHz)	R_r (Ω) max.	NDK Part Number
12.000	100	NX3225SA-12.000M-STD-CSR-1
13.560	80	NX3225SA-13.560M-STD-CSR-1
14.31818	80	NX3225SA-14.31818M-STD-CSR-1
16.000	80	NX3225SA-16.000M-STD-CSR-1
16.384	80	NX3225SA-16.384M-STD-CSR-1
18.432	80	NX3225SA-18.432M-STD-CSR-1
18.870	80	NX3225SA-18.870M-STD-CSR-1
20.000	50	NX3225SA-20.000M-STD-CSR-1
22.000	50	NX3225SA-22.000M-STD-CSR-1
22.5792	50	NX3225SA-22.5792M-STD-CSR-1
24.000	50	NX3225SA-24.000M-STD-CSR-1
24.576	50	NX3225SA-24.576M-STD-CSR-1
25.000	50	NX3225SA-25.000M-STD-CSR-1
26.000	50	NX3225SA-26.000M-STD-CSR-1
27.000	50	NX3225SA-27.000M-STD-CSR-1
27.120	50	NX3225SA-27.120M-STD-CSR-1
28.63636	50	NX3225SA-28.63636M-STD-CSR-1
30.000	50	NX3225SA-30.000M-STD-CSR-1
32.000	50	NX3225SA-32.000M-STD-CSR-1
36.000	50	NX3225SA-36.000M-STD-CSR-1
40.000	50	NX3225SA-40.000M-STD-CSR-1
44.000	50	NX3225SA-44.000M-STD-CSR-1
48.000	50	NX3225SA-48.000M-STD-CSR-1
54.000	50	NX3225SA-54.000M-STD-CSR-1