

## AT-51 / AT-51AD / AT-51CD / AT-51CD2 For Automotive

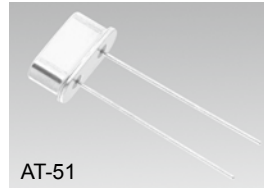
### ■ Features

A crystal unit, ideally suited for the clock signal generating source of the CPUs for power trains and safety control devices, requiring extremely high reliability as part of an automobile's electronics system.

- Highly reliable under severe environmental conditions in terms of stable start-up characteristics, heat and heat-cycle resistance and vibration resistance.
- A surface-mount crystal unit that due to the resin seating attached to the AT-51 type crystal unit maintains high-level electrical characteristics and reliability.
- AT-51AD, AT-51CD and AT-51CD2 meet the requirements for re-flow profiling using lead-free solder.
- AT-51CD2 meets the requirements for re-flow profiling using lead-free solder.

Pb Free

RoHS Compliant  
Directive 2011/65/EU



### ■ Specifications

Item	Model	AT-51 / AT-51AD / AT-51CD / AT-51CD2
Nominal frequency		4 to 25 MHz
Overtone order		Fundamental
Frequency tolerance (25 ±3 °C)		±50 × 10 <sup>-6</sup>
Frequency versus temperature characteristics (with reference to +25 °C)		±150 × 10 <sup>-6</sup>
Operating temperature range		-40 to +125 °C
Storage temperature range		-40 to +125 °C
Equivalent series resistance		Refer to *1
Level of drive		50 μW (Max. 1000 μW)
Load capacitance		16 pF

The above specifications are standard for this NDK product.

Custom-made specifications such as load capacitance and temperature characteristics are also available. Please contact NDK sales with your enquiries.

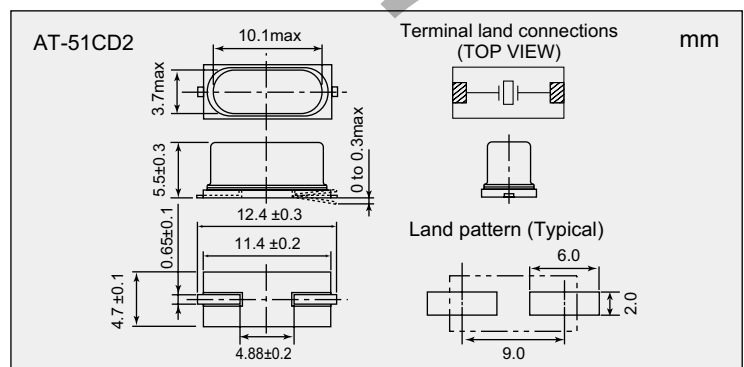
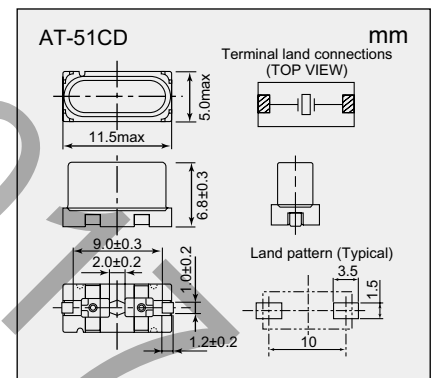
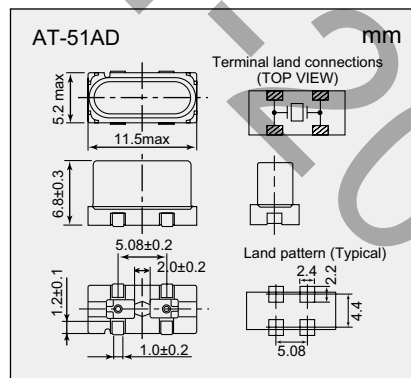
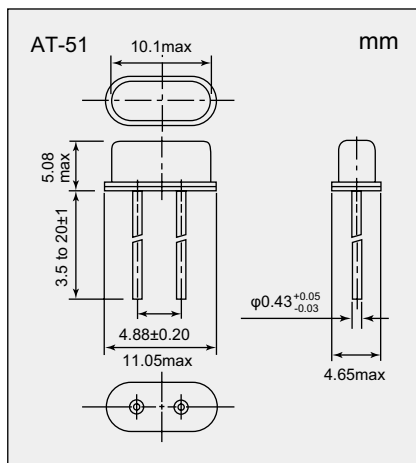
### ■ How to Specify an Order

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 AT-51-4.000M-STD-PFE-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]
4 to 4.5	150
4.5 to 6	120
6 to 8	80
8 to 10	70
10 to 25	50