# Murata Introduces New Tighter Tolerance Version of its NCP Series of Chip NTC Thermistors

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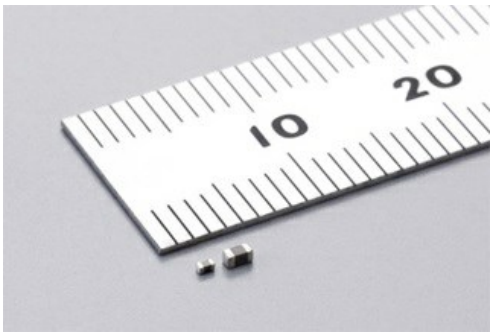
Murata Manufacturing Co., Ltd.

President/ Statutory Representative Director:
Tsuneo Murata




## Overview

Murata Manufacturing Co., Ltd. announces an ultra-high precision version of its NCP Series This new model features precision chip both a resistance tolerance and B-constant* tolerance of less than ±1%, making it the world's first ultra-high precision chip thermistor. These thermistors make it possible to keep detection temperature error at high temperatures to a minimum, allowing for increased design freedom..

## Background

In recent years, the miniaturization and performance improvement of electronic equipment has been accompanied by an increasingly important need for countermeasures against heat generated in circuits. Chip NTC thermistors are widely used as temperature sensing devices in equipment that tends to generate relatively high internal heat, such as mobile equipment, rechargeable batteries, and automobiles.

Current Murata chip thermistors have a resistance tolerance and B-constant tolerance of ±1%. By refining our ceramic materials and laminating processes Murata developed NCP Series models of ultra-high precision chip thermistors with both a resistance tolerance and B-constant tolerance of less than ±1%.

By using these NCP Series ultra-high precision chip thermistors, it is possible to keep detection temperature error at high temperatures to a minimum, which makes it possible to reduce the design margin for detection of anomalies caused by overheating. In addition, stable operation can be achieved at temperatures close to the application's maximum rating. Because the NCP series enables the accurate detection of any temperature rise that exceeds the rating, it may be used with circuits with higher temperature-related performance.

## Terminology

| | |
|---|---|
| B constant | a constant which indicates magnitude of resistance change with respect to temperature |



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# Features

- Tight resistance and B-constant tolerance keep detection temperature error to a minimum
- At 0-40℃, detection temperature error is less than ±0.5℃ (Murata simulation)
- 1.0mm x 0.5mm and 1.6mm x 0.8 mm size
- Compatible with automotive applications
- Murata online simulator available at:

http://www.murata.com/products/design_support/mcnvs/index.html

# Applications

- PC-related products
- mobile phones
- DSC/DVC
- mobile audio players
- automotive electrical equipment

# Part Number

## Consumer products

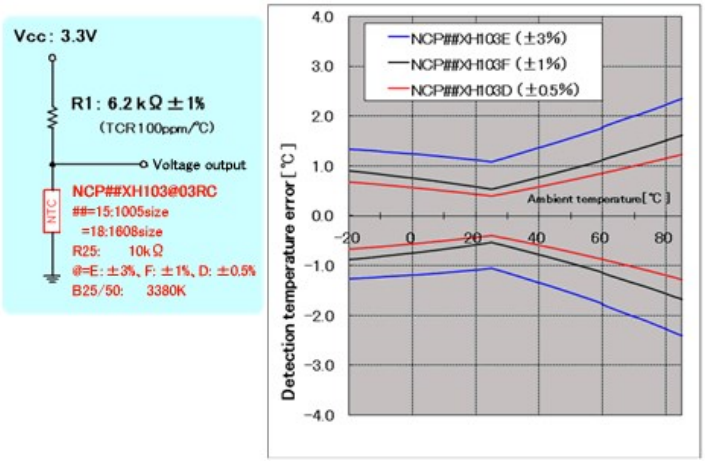
| | | | |
|---|---|---|---|
| NCP18XH103D03RB | NCP15XH103D03RC | NCP18WB473D03RB | NCP15WB473D03RC |
| NCP18WF104D03RB | NCP15WF104D03RC | | |

## Automotive products

| | | | |
|---|---|---|---|
| NCP18XH103D0SRB | NCP15XH103D0SRC | NCP18WB473D0SRB | NCP15WB473D0SRC |
| NCP18WF104D0SRB | NCP15WF104D0SRC | | |

# Characteristics

Temperature detection circuit using an NTC thermistor and detection temperature error




# Electric Characteristics

## Consumer products

| Chipsize | Product name | Resistance | B constant | Operating temperature range |
|---|---|---|---|---|
| 1005 | NCP15XH103D03RC | 10kΩ±0.5% | 3380K±0.7% | -40～+125℃ |
| 1608 | NCP18XH103D03RB | | | |
| 1005 | NCP15WB473D03RC | 47kΩ±0.5% | 4050K±0.5% | -40～+125℃ |
| 1608 | NCP18WB473D03RB | | 4030K±0.5% | |
| 1005 | NCP15WF104D03RC | 100kΩ±0.5% | 4250K±0.5% | -40～+125℃ |
| 1608 | NCP18WF104D03RB | | 4200K±0.5% | |

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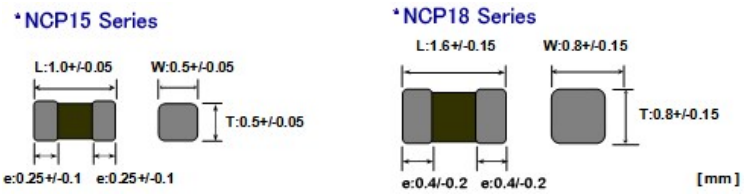
## External Size




**Murata in Brief**

Murata Manufacturing Co., Ltd. is a worldwide leader in the design, manufacture and sale of ceramic-based passive electronic components & solutions, communication modules and power supply modules. Murata is committed to the development of advanced electronic materials and leading edge, multi-functional, high-density modules. The company has employees and manufacturing facilities throughout the world. For more information, visit Murata's website at www.murata.com


**Products**

Capacitor Inductors Noise Suppression Products / EMI Suppression Filters / ESD Protection Devices Resistors Thermistors Sensors Timing Devices (Ceramic Resonator / Crystal Unit / Oscillator) Quartz Devices Sound Components (Buzzer) Power Devices Small Energy Devices Batteries MetroCirc™ (Multilayer Resin Substrate) Micro Mechatronics RFID/NFC Matching Devices Balun Coupler Filters SAW Components Phase Shifter RF Switch Front End Module Connectors Antennas Isolators RF Modules LPWA Products Wireless Connectivity Platforms Ultra Low power Short Range RF-IC LTCC Multilayer Substrates Ionizers / Active Oxygen Module (Ozonizers)

**Applications**

Smarthome Medical and Healthcare Automotive Mobile Communication Network Data Center Lighting Industrial Equipment White Goods Personal Computers Business Machine AV Security & Safety

**Design Tools**

Video Presentation of Design Tools

**Support**

Contact Information FAQs Library Reference Design Health and Safety Compliance Restriction of Weapons and Military End-Use Stock Check

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**EU RoHS / REACH**

Approach for chemical regulation for Murata Products.

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