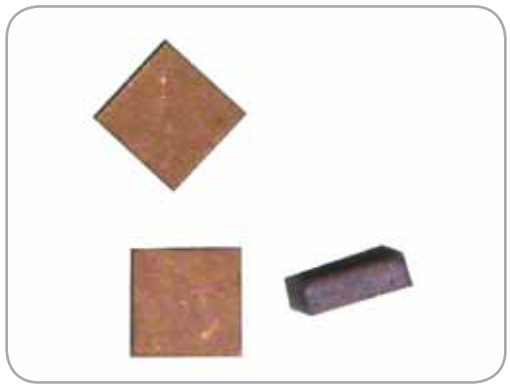
THERMOMETRICS
A COMMITMENT TO EXCELLENCE

# NTC Leadless Chips

## Thermometrics Thermistors



### Features

#### NTC Type HM

- Low cost, solid state temperature sensor
- Point matched at 77°F (25°C) to ±5% or ±10%
- Suitable for use over range of -112°F to 302°F (–80°C to 150°C)
- High sensitivity greater than –4%/°C at 77°F (25°C)
- Suitable for temperature measurement, control and compensation
- Palladium Silver contacts suitable for soldering or conductive epoxy bonding
- Sizes from 0.025 in x 0.025 in to 0.085 in x 0.085 in (0.63 mm x 0.63 mm to 2.15 mm x 2.15 mm) available
- Not suitable for immersion in fluids or high humidity

#### NTC Type NDU

- Designed for accurate temperature measurement, control and compensation
- Tight tolerances on resistance and B value
- Operation up to 311°F (155°C) with excellent stability
- Small body size
- Fast response
- Suitable for automotive, HVAC and white goods

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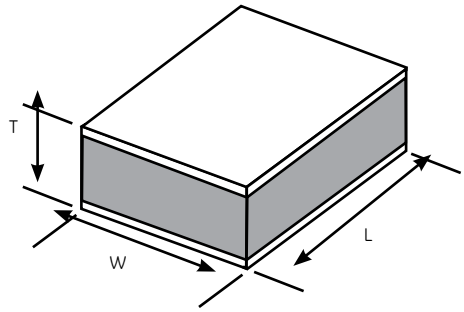
# Type HM Specifications

Leadless chip thermistor

## Description

Top and bottom electrode, uncoated chip thermistors without leads.




*NTC Type HM dimensions*

## Options

Consult Thermometrics for availability of options

- Other resistance values in the range of 100 Ω to 100 kΩ
- Other tolerances
- Other reference temperature
- Gold electrodes suitable for wire bonding
- Other sizes

## Data

### Thermal and Electrical Properties

- Dissipation constant: (still air) 7 to 15 mW/K
- Thermal time constant: (still air) 10 to 45 seconds
- The thermal time constant and dissipation constant values are dependent upon the method of mounting. The above values represent the range of smallest to largest HM thermistor chips when soldering to an aluminum substrate 0.025 in (0.635 mm) thick using 2% silver solder.w

Select appropriate part number below for resistance and temperature tolerance desired.

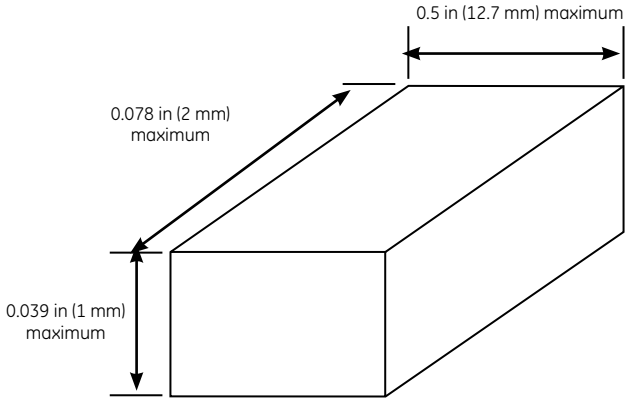
| R25°C | Material System | Width "W" in (mm) | Length "L" in (mm) | Thick "T" in (mm) | R25° ± 5% | R25° ± 10% |
|---|---|---|---|---|---|---|
| 2252 | F | 0.070 (1.778) | 0.070 (1.778) | 0.010 (0.254) | HM70NF232J | HM70NF232K |
| 2252 | F | 0.085 (2.159) | 0.085 (2.159) | 0.015 (0.380) | HM85NF232J | HM85NF232K |
| 3000 | F | 0.060 (1.523) | 0.060 (1.523) | 0.010 (0.254) | HM60NF302J | HM60NF302K |
| 3000 | F | 0.075 (1.904) | 0.075 (1.904) | 0.015 (0.380) | HM75NF302J | HM75NF302K |
| 5000 | F | 0.050 (1.27) | 0.050 (1.27) | 0.010 (0.254) | HM50NF502J | HM50NF502K |
| 5000 | F | 0.060 (1.523) | 0.060 (1.523) | 0.015 (0.380) | HM60NF502J | HM60NF502K |
| 10000 | F | 0.035 (0.889) | 0.035 (0.889) | 0.010 (0.254) | HM35NF103J | HM35NF103K |
| 10000 | F | 0.040 (1.016) | 0.045 (1.1429) | 0.015 (0.380) | HM40NF103J | HM40NF103K |
| 10000 | Y | 0.045 (1.1429) | 0.045 (1.1429) | 0.010 (0.254) | HM45NY103J | HM45NY103K |
| 10000 | Y | 0.055 (1.397) | 0.055 (1.397) | 0.015 (0.380) | HM55NY103J | HM55NY103K |
| 30000 | H | 0.025 (0.635) | 0.025 (0.635) | 0.010 (0.254) | HM25NH303J | HM25NH303K |
| 30000 | H | 0.030 (0.7619) | 0.035 (0.889) | 0.015 (0.380) | HM30NH303J | HM30NH303K |
| 100000 | Y | 0.030 (0.7619) | 0.030 (0.7619) | 0.010 (0.254) | HM30NY104J | HM30NY104K |
| 100000 | Y | 0.035 (0.889) | 0.035 (0.889) | 0.015 (0.380) | HM35NY104J | HM35NY104K |

# Type NDU Specifications

Leadless chip thermistor

## Description

A range of leadless chip thermistors.




*NTC Type NDU dimensions*

## Options

Other resistance values in the range shown; e.g., code NDU152C2R1 for 1500 Ω ±1% at 77°F (25°C)

- Reference temperature in the range of 32°F (0°C) up to the maximum operating temperature
- Resistance value outside the ranges shown with modified dimensions

## Data

- Minimum operating temperature: -40°F (-40°C)
- Maximum operating temperature: See table below
- Resistance tolerance: ±3% or greater
- Electrode: Thick film silver
- Packaging/MOQ: 1000/box

| R25 Ω | Material System | B 25/85 K | Maximum temp. °F (°C) | Code R25 ± 3% | Code R25 ± 5% | Code R25 ± 10% |
|---|---|---|---|---|---|---|
| 1000 | 2 | 3540 ± 1% | 257 (125) | NDU102C2R3 | NDU102C2R5 | NDU102C2R10 |
| 2000 | 2 | 3540 ± 1% | 257 (125) | NDU202C2R3 | NDU202C2R5 | NDU202C2R10 |
| 5000 | 2 | 3540 ± 1% | 257 (125) | NDU502C2R3 | NDU502C2R5 | NDU502C2R10 |
| 1000 | 2A | 3627 ± 1% | 257 (125) | NDU102C2AR3 | NDU102C2AR5 | NDU102C2AR10 |
| 2000 | 2A | 3627 ± 1% | 257 (125) | NDU202C2AR3 | NDU202C2AR5 | NDU202C2AR10 |
| 5000 | 2A | 3627 ± 1% | 257 (125) | NDU502C2AR3 | NDU502C2AR5 | NDU502C2AR10 |
| 2700 | 1 | 3977± 0.75% | 311 (155) | NDU272C1R3 | NDU272C1R5 | NDU272C1R10 |
| 5000 | 1 | 3977± 0.75% | 311 (155) | NDU502C1R3 | NDU502C1R5 | NDU502C1R10 |
| 10000 | 1 | 3977± 0.75% | 311 (155) | NDU103C1R3 | NDU103C1R5 | NDU103C1R10 |
| 30000 | 1 | 3977± 0.75% | 311 (155) | NDU303C1R3 | NDU303C1R5 | NDU303C1R10 |
| 50000 | 1 | 3977± 0.75% | 311 (155) | NDU503C1R3 | NDU503C1R5 | NDU503C1R10 |
| 2700 | 3 | 3960± 1% | 311 (155) | NDU272C3R3 | NDU272C3R5 | NDU272C3R10 |
| 5000 | 3 | 3960± 1% | 311 (155) | NDU502C3R3 | NDU502C3R5 | NDU502C3R10 |
| 10000 | 3 | 3960± 1% | 311 (155) | NDU103C3R3 | NDU103C3R5 | NDU103C3R10 |
| 30000 | 3 | 3960± 1% | 311 (155) | NDU303C3R3 | NDU303C3R5 | NDU303C3R10 |
| 50000 | 3 | 3960± 1% | 311 (155) | NDU503C3R3 | NDU503C3R5 | NDU503C3R10 |
| 10000 | 4 | 3435 ± 1% | 230 (110) | NDU103C4R3 | NDU103C4R5 | NDU103C4R10 |
| 30000 | 4 | 3435 ± 1% | 230 (110) | NDU303C4R3 | NDU303C4R5 | NDU303C4R10 |
| 50000 | 4 | 3435 ± 1% | 230 (110) | NDU503C4R3 | NDU503C4R5 | NDU503C4R10 |

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