



NTC Type SMD

Thermometrics Surface Mount Devices



Features

- Nickel barrier tin plated terminations for soldering
- High sensitivity to changes in temperature
- Wide operating temperature range -40°F to 257°F (-40°C to 125°C)
- Rugged construction
- Available in other material systems
- Intended for temperature measurement, control and compensation
- Suitable for standard soldering techniques
- Excellent solderability without “tombstoning”
- Ceramic between electrodes glass coated for improved stability
- Supplied in tape-and-reel packaging

Type NHQ Specification

Surface mount chip 1206 size

Description

A range of 1206 size surface mount NTC chip thermistors. The terminations are nickel barrier with tin plating.

General

Soldering Recommendations

- Maximum storage time in closed package: One year
- Maximum storage time exposed to ambient conditions of 59°F to 86°F (15°C to 30°C), 15% to 70% RH: 30 days
- Drying prior to soldering: Not to exceed 48h at 176°F (80°C) or 16h at 212°F (100°C) or 8h at 257°F (125°C)
- Flux type: R or RMA

Flow Soldering Conditions

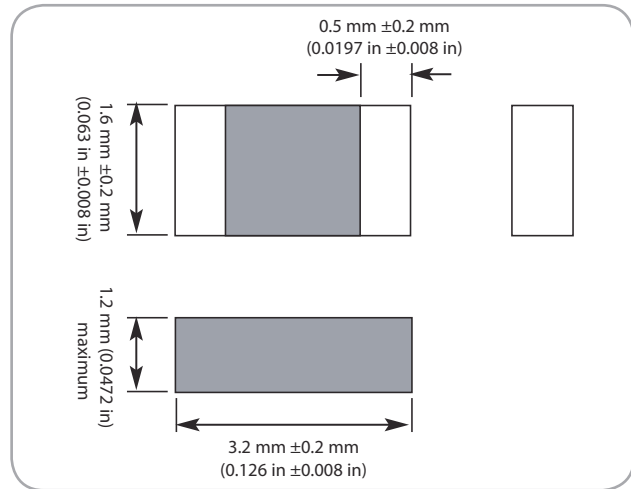
- Preheat temperature: 176°F to 302°F (80°C to 150°C)
- Maximum rate of temperature change: 4.5°F/s or 2.5°C/s
- Maximum solder temperature: 509°F (265°C)
- Maximum dwell time: 10 seconds
- Cooling in ambient or air flow of 5m/s

Reflow Soldering Conditions

- Method infrared, hot gas, vapor
- Maximum rate of preheat temperature change: 4.5°F/s or 2.5°C/s
- Maximum temperature: 437°F (225°C)
- Maximum time above: 392°F (200°C) 30 seconds
- Maximum radiant flux: (0.1 to 100 W μ) 5 W/cm²
- Maximum hot air temperature: 527°F (275°C) at 4 m/s
- Maximum vapor temperature: 419°F (215°C)
- Maximum rate of cooling: 4.5°F/s or 2.5°C/s

Cleaning

Ultrasonic cleaning in methanol or isopropanol not exceeding 40 kHz for 5 minutes, or aqueous cleaning not exceeding 158°F (70°C) for 7 minutes (recommended).



NTC Type NHQ Outline Drawing

| Code | R25 Ω | B (25/85) |
|--------------|--------|-----------|
| NHQ202B410T5 | 2000 | 4100 |
| NHQ222B410T5 | 2200 | 4100 |
| NHQ252B410T5 | 2500 | 4100 |
| NHQ302B410T5 | 3000 | 4100 |
| NHQ472B355T5 | 4700 | 3550 |
| NHQ502B355T5 | 5000 | 3550 |
| NHQ103B375T5 | 10000 | 3750 |
| NHQ153B400T5 | 15000 | 4000 |
| NHQ203B400T5 | 20000 | 4000 |
| NHQ223B400T5 | 22000 | 4000 |
| NHQ303B400T5 | 30000 | 4000 |
| NHQ333B400T5 | 33000 | 4000 |
| NHQ473B400T5 | 47000 | 4000 |
| NHQ503B400T5 | 50000 | 4000 |
| NHQ104B425T5 | 100000 | 4250 |
| NHQ154B425T5 | 150000 | 4250 |
| NHQ304B435T5 | 300000 | 4350 |
| NHQ474B435T5 | 470000 | 4350 |
| NHQ504B435T5 | 500000 | 4350 |

Data

- Resistance tolerance at 77°F (25°C) ±5%; for ±10% replace T5 by T10 in code.
- Tolerance on B value ±200 K
- Minimum temperature: -40°F (-40°C)
- Maximum temperature: 257°F (125°C)
- Dissipation factor: 3 mW/K
- Time constant: 8 seconds maximum

Type NHQM Specification

Surface mount chip 0805 size

Description

A range of 0805 size surface mount NTC chip thermistors. The terminations are nickel barrier with tin plating.

General

Soldering Recommendations

- Maximum storage time in closed package: One year
- Maximum storage time exposed to ambient conditions of 59°F to 86°F (15°C to 30°C), 15% to 70% RH: 30 days
- Drying prior to soldering: Not to exceed 48h at 176°F (80°C) or 16h at 212°F (100°C) or 8h at 257°F (125°C)
- Flux type: R or RMA

Flow Soldering Conditions

- Preheat temperature: 176°F to 302°F (80°C to 150°C)
- Maximum rate of temperature change: 4.5°F/s or 2.5°C/s
- Maximum solder temperature: 509°F (265°C)
- Maximum dwell time: 10 seconds
- Cooling in ambient or air flow of 5m/s

Reflow Soldering Conditions

- Method infrared, hot gas, vapor
- Maximum rate of preheat temperature change: 4.5°F/s or 2.5°C/s
- Maximum temperature: 437°F (225°C)
- Maximum time above: 392°F (200°C) 30 seconds
- Maximum radiant flux: (0.1 to 100 W/μ) 5 W μ/cm²
- Maximum hot air temperature: 527°F (275°C) at 4 m/s
- Maximum vapor temperature: 419°F (215°C)
- Maximum rate of cooling: 4.5°F/s or 2.5°Cs

Cleaning

Ultrasonic cleaning in methanol or isopropanol not exceeding 40 kHz for 5 minutes, or aqueous cleaning not exceeding 158°F (70°C) for 7 minutes (recommended).



NTC Type NHQM Outline Drawing

| Code | R25 Ω | B (25/85°C) |
|---------------|--------|-------------|
| NHQM202B410T5 | 2000 | 4100 |
| NHQM252B410T5 | 2500 | 4100 |
| NHQM272B410T5 | 2700 | 4100 |
| NHQM302B410T5 | 3000 | 4100 |
| NHQM472B355T5 | 4700 | 3550 |
| NHQM502B355T5 | 5000 | 3550 |
| NHQM682B375T5 | 6800 | 3750 |
| NHQM103B375T5 | 10000 | 3750 |
| NHQM153B400T5 | 15000 | 4000 |
| NHQM203B400T5 | 20000 | 4000 |
| NHQM223B400T5 | 22000 | 4000 |
| NHQM273B400T5 | 27000 | 4000 |
| NHQM303B400T5 | 30000 | 4000 |
| NHQM333B400T5 | 33000 | 4000 |
| NHQM473B415T5 | 47000 | 4150 |
| NHQM503B415T5 | 50000 | 4150 |
| NHQM104B425T5 | 100000 | 4250 |
| NHQM154B425T5 | 150000 | 4250 |
| NHQM304B425T5 | 300000 | 4250 |
| NHQM474B435T5 | 470000 | 4350 |
| NHQM504B435T5 | 500000 | 4350 |

Data

- Resistance tolerance at 77°F (25°C) ±5%; for ±10% replace T5 by T10 in code.
- Tolerance on B value ±200 K
- Minimum temperature: -40°F (-40°C)
- Maximum temperature: 257°F (125°C)
- Dissipation factor: 1.5 mW/K
- Time constant: 5 seconds maximum

Type NHQMM Specification

Surface mount chip 0603 size

Description

A range of 0603 size surface mount NTC chip thermistors. The terminations are nickel barrier with tin plating.

General

Soldering Recommendations

- Maximum storage time in closed package: One year
- Maximum storage time exposed to ambient conditions of 59°F to 86°F (15°C to 30°C), 15% to 70% RH: 30 days
- Drying prior to soldering: Not to exceed 48h at 176°F (80°C) or 16h at 212°F (100°C) or 8h at 257°F (125°C)
- Flux type: R or RMA

Flow Soldering Conditions

- Preheat temperature: 176°F to 302°F (80°C to 150°C)
- Maximum rate of temperature change: 4.5°F/s or 2.5°C/s
- Maximum solder temperature: 509°F (265°C)
- Maximum dwell time: 10 seconds
- Cooling in ambient or air flow of 5m/s

Reflow Soldering Conditions

- Method infrared, hot gas, vapor
- Maximum rate of preheat temperature change: 4.5°F/s or 2.5°C/s
- Maximum temperature: 437°F (225°C)
- Maximum time above: 392°F (200°C) 30 seconds
- Maximum radiant flux: (0.1 to 100 W μ) 5 W μ /cm²
- Maximum hot air temperature: 527°F (275°C) at 4 m/s
- Maximum vapor temperature: 419°F (215°C)
- Maximum rate of cooling: 4.5°F/s or 2.5°C/s

Cleaning

Ultrasonic cleaning in methanol or isopropanol not exceeding 40 kHz for 5 minutes, or aqueous cleaning not exceeding 158°F (70°C) for 7 minutes (recommended).



NTC Type NHQMM Outline Drawing

| Code | R25 Ω | B (25/85) |
|----------------|--------------|-----------|
| NHQMM202B410T5 | 2000 | 4100 |
| NHQMM222B410T5 | 2200 | 4100 |
| NHQMM302B410T5 | 3000 | 4100 |
| NHQMM332B410T5 | 3300 | 4100 |
| NHQMM472B355T5 | 4700 | 3550 |
| NHQMM502B355T5 | 5000 | 3550 |
| NHQMM682B355T5 | 6800 | 3550 |
| NHQMM103B375T5 | 10000 | 3750 |
| NHQMM153B380T5 | 15000 | 3800 |
| NHQMM203B380T5 | 20000 | 3800 |
| NHQMM223B380T5 | 22000 | 3800 |
| NHQMM303B400T5 | 30000 | 4000 |
| NHQMM333B400T5 | 33000 | 4000 |
| NHQMM473B400T5 | 47000 | 4000 |
| NHQMM503B400T5 | 50000 | 4000 |
| NHQMM683B400T5 | 68000 | 4000 |
| NHQMM104B415T5 | 100000 | 4150 |
| NHQMM154B425T5 | 150000 | 4250 |
| NHQMM204B425T5 | 200000 | 4250 |

Data

- Resistance tolerance at 77°F (25°C) \pm 5%; for \pm 10% replace T5 by T10 in code
- Tolerance on B value \pm 200 K
- Minimum temperature: -40°F (-40°C)
- Maximum temperature: 257°F (125°C)
- Dissipation factor: 1.2 mW/K
- Time constant: 4 seconds maximum

Type NHQT Specification

Surface mount chip 0402 size

Description

A range of 0402 size surface mount NTC chip thermistors. The terminations are nickel barrier with tin plating.

General

Soldering Recommendations

- Maximum storage time in closed package: One year
- Maximum storage time exposed to ambient conditions of 59°F to 86°F (15°C to 30°C), 15% to 70% RH: 30 days
- Drying prior to soldering: Not to exceed 48h at 176°F (80°C) or 16h at 212°F (100°C) or 8h at 257°F (125°C)
- Flux type: R or RMA

Flow Soldering Conditions

- Preheat temperature: 176°F to 302°F (80°C to 150°C)
- Maximum rate of temperature change: 4.5°F/s or 2.5°C/s
- Maximum solder temperature: 509°F (265°C)
- Maximum dwell time: 10 seconds
- Cooling in ambient or air flow of 5m/s

Reflow Soldering Conditions

- Method infrared, hot gas, vapor
- Maximum rate of preheat temperature change: 4.5°F/s or 2.5°C/s
- Maximum temperature: 437°F (225°C)
- Maximum time above: 392°F (200°C) 30 seconds
- Maximum radiant flux: (0.1 to 100 W μ) 5 W μ /cm²
- Maximum hot air temperature: 527°F (275°C) at 4 m/s
- Maximum vapor temperature: 419°F (215°C)
- Maximum rate of cooling: 4.5°F/s or 2.5°C/s

Cleaning

Ultrasonic cleaning in methanol or isopropanol not exceeding 40 kHz for 5 minutes, or aqueous cleaning not exceeding 158°F (70°C) for 7 minutes (recommended).



NTC Type NHQT Outline Drawing

| Code | R25 Ω | B (25/85) |
|---------------|--------------|-----------|
| NHQT500B285T5 | 50 | 2850 |
| NHQT202B410T5 | 2000 | 4100 |
| NHQT252B410T5 | 2500 | 4100 |
| NHQT332B410T5 | 3300 | 4100 |
| NHQT352B410T5 | 3500 | 4100 |
| NHQT402B410T5 | 4000 | 4100 |
| NHQT652B410T5 | 6500 | 4100 |
| NHQT153B380T5 | 15000 | 3800 |
| NHQT203B380T5 | 20000 | 3800 |
| NHQT223B380T5 | 22000 | 3800 |
| NHQT303B400T5 | 30000 | 4000 |
| NHQT473B400T5 | 47000 | 4000 |
| NHQT683B400T5 | 68000 | 4000 |
| NHQT154B425T5 | 150000 | 4250 |

Data

- Resistance tolerance at 77°F (25°C) \pm 5%; for \pm 10% replace T5 by T10 in code
- Tolerance on B value \pm 200 K
- Minimum temperature: -40°F (-40°C)
- Maximum temperature: 257°F (125°C)
- Dissipation factor: 1.5 mW/K
- Time constant: 4 seconds maximum

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