Chip Temperature Sensing NTC Thermistor

Notice

1. In order to improve this catalog, specifications may be changed without prior notice, please consult our sales representative or product engineer before ordering;
2. Due to the limitation of length, this catalog provides only the main product information.
3. We can produce any special specifications products according to customers' requests.

Contents

Features

- Coated with glass layer, excellent humidity resistance, high reliability and stability
- Miniature size, no lead, excellent solderability, ideal for high density SMT installation
- Wide operating temperature range: -55℃～＋125℃；
- Series of B constant for various applications

Application

- Telecommunication equipment such as cellphone, automobile phone, etc.
- Office automation such as printer, Fax machine, projector, desktop computer, etc.
- Consumer electronics such as video recorder, laptop, wearable devices, etc.
- Others such as power supplies， rechargeable batteries and chargers, LED lighting fields, etc.

1. Shape and Dimensions

- Dimensions: See Fig.1 and Table 1.
- Recommended PCB pattern for reflow soldering: See Fig.2 and Table 1.

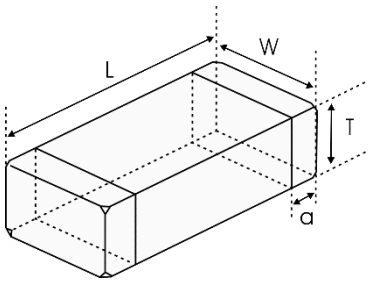


Fig.1

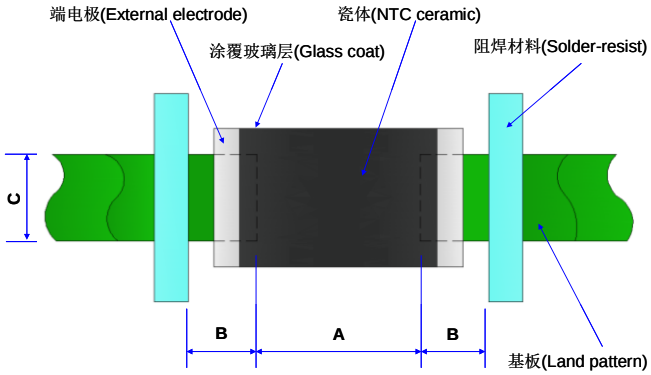


Fig.2

Table 1 Unit: inch[mm]

Type	L	W	T	a	A	B	C
0201 [0603]	0.024±0.002 [0.6±0.05]	0.012±0.002 [0.3±0.05]	0.012±0.002 [0.3±0.05]	0.006±0.002 [0.15±0.05]	[0.2-0.3]	[0.25-0.35]	[0.25-0.35]
0402 [1005]	0.039±0.006 [1.0±0.15]	0.020±0.006 [0.5±0.15]	0.020±0.006 [0.5±0.15]	0.010±0.004 [0.25±0.1]	[0.45-0.55]	[0.4-0.5]	[0.45-0.55]
0603 [1608]	0.063±0.006 [1.6±0.15]	0.031±0.006 [0.8±0.15]	0.031±0.006 [0.8±0.15]	0.012±0.008 [0.3±0.2]	[0.6-0.8]	[0.6-0.7]	[0.6-0.8]
0805 [2012]	0.079±0.008 [2.0±0.2]	0.049±0.008 [1.25±0.2]	0.033±0.008 [0.85±0.2]	0.020±0.012 [0.5±0.3]	[1.0-1.1]	[0.6-0.7]	[1.0-1.2]
1206 [3216]	0.126±0.008 [3.2±0.2]	0.063±0.008 [1.6±0.2]	0.033±0.008 [0.85±0.2]	0.020±0.012 [0.5±0.3]	[1.8-2.5]	[1.0-1.5]	[1.2-2.0]

2. Product Identification(Part Number)

QN	0402	X	103	F	3950	F	B
①	②	③	④	⑤	⑥	⑦	⑧

① Type	
QN	Chip NTC Thermistor

② External Dimensions (L×W×T)	
0201[0603]	0.600×0.30×0.30
0402[1005]	1.00×0.50×0.50
0603[1608]	1.60×0.88×0.80
0805[2012]	2.00×1.25×0.85
1206[3216]	3.20×1.60×0.85

③ Delimiter
X

④ Nominal Zero-Power Resistance at 25℃	
222	2.2kΩ
103	10kΩ
104	100kΩ

⑥ B Constant	
3380	3380K
3950	3950K
4250	4250K

⑤ Tolerance of Resistance	
F	±1%
G	±2%
H	±3%
J	±5%

⑦ Tolerance of B Constant	
F	±1%

⑧B constant calculation method	
A	25℃&85℃
B	25℃&50℃

3. Main Techno-Parameters（In static air）

3.1 QN0201 Series

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0201X102□3500FB	1.0	3500±1%	3545	1.00	1.0	<3	100
QN0201X152□3500FB	1.5	3500±1%	3545	0.81			
QN0201X222□3500FB	2.2	3500±1%	3545	0.67			
QN0201X332□3500FB	3.3	3500±1%	3545	0.55			
QN0201X472□3500FB	4.7	3500±1%	3545	0.46			
QN0201X682□3380FB	6.8	3380±1%	3435	0.38			
QN0201X103□3380FB	10	3380±1%	3435	0.31			
QN0201X103□3900FB	10	3900±1%	3935	0.31			
QN0201X153□3380FB	15	3380±1%	3435	0.25			
QN0201X223□3380FB	22	3380±1%	3435	0.21			
QN0201X333□4250FB	33	4250±1%	4310	0.17			
QN0201X473□4050FB	47	4050±1%	4100	0.14			
QN0201X473□4485FB	47	4485±1%	4545	0.14			
QN0201X683□4250FB	68	4250±1%	4310	0.12			
QN0201X683□4485FB	68	4485±1%	4545	0.12	1.0	<3	100
QN0201X104□4250FB	100	4250±1%	4310	0.10			
QN0201X104□4485FB	100	4485±1%	4545	0.10			
QN0201X154□4485FB	150	4485±1%	4545	0.08			
QN0201X224□4485FB	220	4485±1%	4545	0.06			

- We can produce special specifications products according to customer's requests.
- □Please specify tolerance of resistance（F=±1%, G=±2%, H=±3%, J=±5%）

3.2 QN0402 Series

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0402X102□3450FB	1.0	3450±1%	3500	1.00	1.0	<3	100
QN0402X152□3950FB	1.5	3950±1%	3987	0.81			
QN0402X222□3450FB	2.2	3450±1%	3500	0.67			
QN0402X222□3950FB	2.2	3950±1%	3987	0.67			
QN0402X332□3450FB	3.3	3450±1%	3500	0.55			
QN0402X332□3950FB	3.3	3950±1%	3987	0.55			
QN0402X472□3500FB	4.7	3500±1%	3545	0.46			
QN0402X472□3950FB	4.7	3950±1%	3987	0.46			
QN0402X682□3500FB	6.8	3500±1%	3545	0.38			
QN0402X682□3950FB	6.8	3950±1%	3987	0.38			
QN0402X103□3380FB	10	3380±1%	3435	0.31			
QN0402X103□3900FB	10	3900±1%	3935	0.31			
QN0402X153□3950FB	15	3950±1%	3987	0.25			
QN0402X223□3950FB	22	3950±1%	3987	0.21			
QN0402X333□4050FB	33	4050±1%	4100	0.17			
QN0402X473□4050FB	47	4050±1%	4100	0.14			
QN0402X473□4485FB	47	4485±1%	4545	0.14			
QN0402X493□3937FB	49.1	3937±1%	3973	0.13			
QN0402X503□4100FA	50	4050	4100±1%	0.13			
QN0402X683□4150FB	68	4150±1%	4210	0.12			
QN0402X683□4485FB	68	4485±1%	4545	0.12			
QN0402X104□4250FB	100	4250±1%	4310	0.10			
QN0402X104□4360FB	100	4360±1%	4403	0.10			
QN0402X104□4485FB	100	4485±1%	4545	0.10			
QN0402X154□4500FB	150	4500±1%	4582	0.08			
QN0402X224□3950FB	220	3950±1%	3987	0.06			
QN0402X224□4250FB	220	4250±1%	4310	0.06			
QN0402X224□4500FB	220	4500±1%	4582	0.06			
QN0402X334□3950FB	330	3950±1%	3987	0.05			

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0402X334□4500FB	330	4500±1%	4582	0.05	1.0	<3	100
QN0402X474□4000FB	470	4000±1%	4045	0.04			
QN0402X474□4500FB	470	4500±1%	4582	0.04			
QN0402X684□4100FB	680	4100±1%	4135	0.03			
QN0402X684□4500FB	680	4500±1%	4582	0.03			

- We can produce special specifications products according to customer's requests.
- □Please specify tolerance of resistance（F=±1%, G=±2%, H=±3%, J=±5%）

3.3 QN0603 Series

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0603X102□3650FB	1.0	3650±1%	3700	1.00	1.0	<5	100
QN0603X152□3950FB	1.0	3950±1%	3987	0.81			
QN0603X222□3450FB	2.2	3450±1%	3500	0.67			
QN0603X222□3950FB	2.2	3950±1%	3987	0.67			
QN0603X302□3450FB	3.0	3450±1%	3500	0.58			
QN0603X302□3950FB	3.0	3950±1%	3987	0.58			
QN0603X332□3450FB	3.3	3450±1%	3500	0.55			
QN0603X332□3950FB	3.3	3950±1%	3987	0.55			
QN0603X472□3500FB	4.7	3500±1%	3545	0.46			
QN0603X472□3950FB	4.7	3950±1%	3987	0.46			
QN0603X502□3500FB	5.0	3500±1%	3545	0.44			
QN0603X502□3950FB	5.0	3950±1%	3987	0.44			
QN0603X682□3500FB	6.8	3500±1%	3545	0.38			
QN0603X682□3950FB	6.8	3950±1%	3987	0.38			
QN0603X103□3380FB	10	3380±1%	3435	0.31			
QN0603X103□3450FB	10	3450±1%	3500	0.31			
QN0603X103□3610FA	10	3550	3610±1%	0.31			
QN0603X103□3900FB	10	3900±1%	3935	0.31			

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0603X103□3950FB	10	3950±1%	3987	0.31	1.0	<5	100
QN0603X153□3950FB	15	3950±1%	3987	0.25			
QN0603X223□3950FB	22	3950±1%	3987	0.21			
QN0603X223□4050FB	22	4050±1%	4100	0.21			
QN0603X333□4050FB	33	4050±1%	4100	0.17			
QN0603X473□3960FA	47	3920	3960±1%	0.14			
QN0603X473□4050FB	47	4050±1%	4100	0.14			
QN0603X473□4150FB	47	4150±1%	4210	0.14			
QN0603X503□4150FB	50	4150±1%	4210	0.13			
QN0603X683□4150FB	68	4150±1%	4210	0.12			
QN0603X104□3950FB	100	3950±1%	3987	0.10			
QN0603X104□4100FA	100	4050	4100±1%	0.10			
QN0603X104□4250FB	100	4250±1%	4310	0.10			
QN0603X154□4250FB	150	4250±1%	4310	0.08			
QN0603X154□4500FB	150	4500±1%	4582	0.08			
QN0603X224□4300FB	220	4300±1%	4343	0.06			
QN0603X224□4500FB	220	4500±1%	4582	0.06			
QN0603X334□3950FB	330	3950±1%	3987	0.05			
QN0603X334□4300FB	330	4300±1%	4343	0.05			
QN0603X474□4000FB	470	4000±1%	4045	0.04			
QN0603X474□4500FB	470	4500±1%	4582	0.04			
QN0603X684□4100FB	680	4100±1%	4135	0.03			
QN0603X684□4500FB	680	4500±1%	4582	0.03			
QN0603X135□4500FB	1300	4500±1%	4582	0.02			

- We can produce special specifications products according to customer's requests.
- □Please specify tolerance of resistance（F=±1%, G=±2%, H=±3%, J=±5%）

3.4 QN0805 Series

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0805X102□3650FB	1.0	3650±1%	3700	1.4	1.0	<5	100
QN0805X152□3950FB	1.5	3950±1%	3987	1.1			
QN0805X222□3450FB	2.2	3450±1%	3500	0.9			
QN0805X222□3950FB	2.2	3950±1%	3987	0.9			
QN0805X302□3450FB	3.0	3450±1%	3500	0.75			
QN0805X302□3950FB	3.0	3950±1%	3987	0.75			
QN0805X332□3450FB	3.3	3450±1%	3500	0.70			
QN0805X332□3950FB	3.3	3950±1%	3987	0.70			
QN0805X472□3500FB	4.7	3500±1%	3545	0.65			
QN0805X472□3950FB	4.7	3950±1%	3987	0.65			
QN0805X502□3500FB	5.0	3500±1%	3545	0.63			
QN0805X502□3950FB	5.0	3950±1%	3987	0.63			
QN0805X682□3500FB	6.8	3500±1%	3545	0.55			
QN0805X682□3950FB	6.8	3950±1%	3987	0.55			
QN0805X103□3380FB	10	3380±1%	3435	0.44			
QN0805X103□3450FB	10	3450±1%	3500	0.44			
QN0805X103□3570FA	10	3520	3570±1%	0.44			
QN0805X103□3900FB	10	3900±1%	3935	0.44			
QN0805X103□3950FB	10	3950±1%	3987	0.44			
QN0805X153□3950FB	15	3950±1%	3987	0.36			
QN0805X223□3950FB	22	3950±1%	3987	0.30			
QN0805X223□4050FB	22	4050±1%	4100	0.30			
QN0805X333□4050FB	33	4050±1%	4100	0.24			
QN0805X473□4050FB	47	4050±1%	4100	0.20			
QN0805X473□3960FA	47	3920	3960±1%	0.20			
QN0805X473□4150FB	47	4150±1%	4210	0.20			
QN0805X503□4150FB	50	4150±1%	4210	0.19			
QN0805X683□4150FB	68	4150±1%	4210	0.16			
QN0805X104□3590FB	100	3535	3590±1%	0.14			

Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN0805X104□3950FB	100	3950±1%	3987	0.14	1.0	<5	100
QN0805X104□4100FA	100	4050	4100±1%	0.14			
QN0805X104□4250FB	100	4250±1%	4310	0.14			
QN0805X154□4250FB	150	4250±1%	4310	0.11			
QN0805X154□4500FB	150	4500±1%	4582	0.11			
QN0805X224□4300FB	220	4300±1%	4343	0.08			
QN0805X224□4500FB	220	4500±1%	4582	0.08			
QN0805X334□3950FB	330	3950±1%	3987	0.07			
QN0805X334□4300FB	330	4300±1%	4343	0.07			
QN0805X474□4000FB	470	4000±1%	4045	0.05			
QN0805X474□4500FB	470	4500±1%	4582	0.05			
QN0805X684□4100FB	680	4100±1%	4135	0.03			
QN0805X684□4500FB	680	4500±1%	4582	0.03			
QN0805X135□4500FB	1300	4500±1%	4582	0.02			

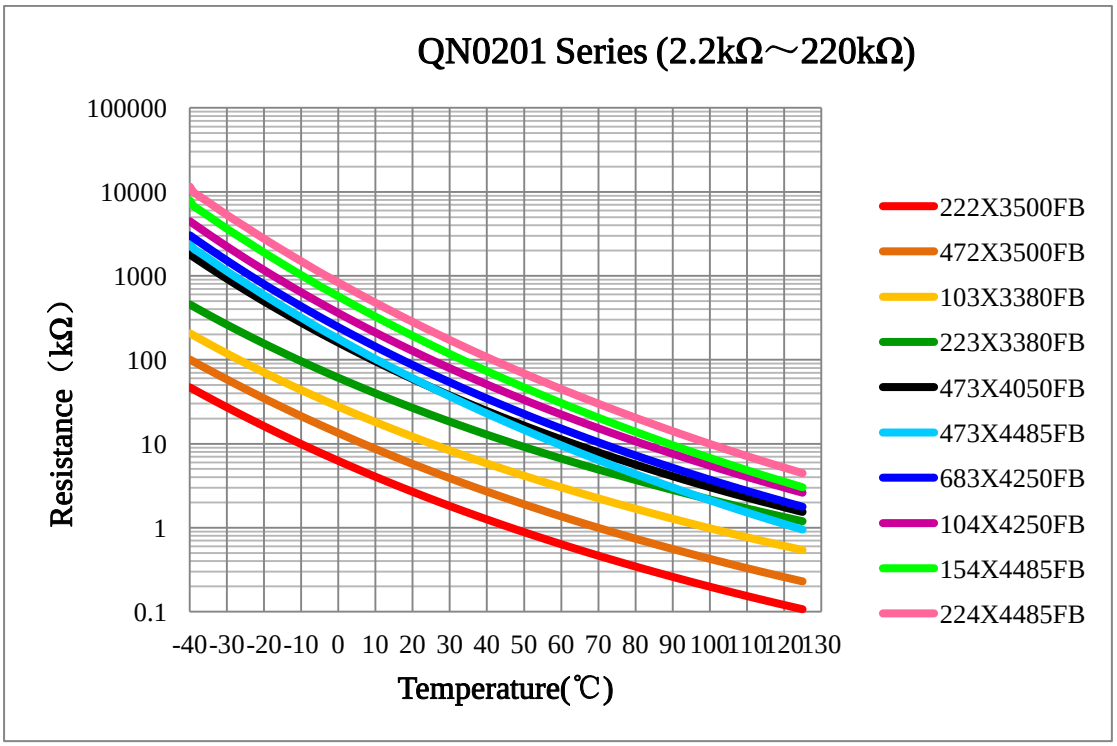
- We can produce special specifications products according to customer's requests.
- □Please specify tolerance of resistance（F=±1%, G=±2%, H=±3%, J=±5%）

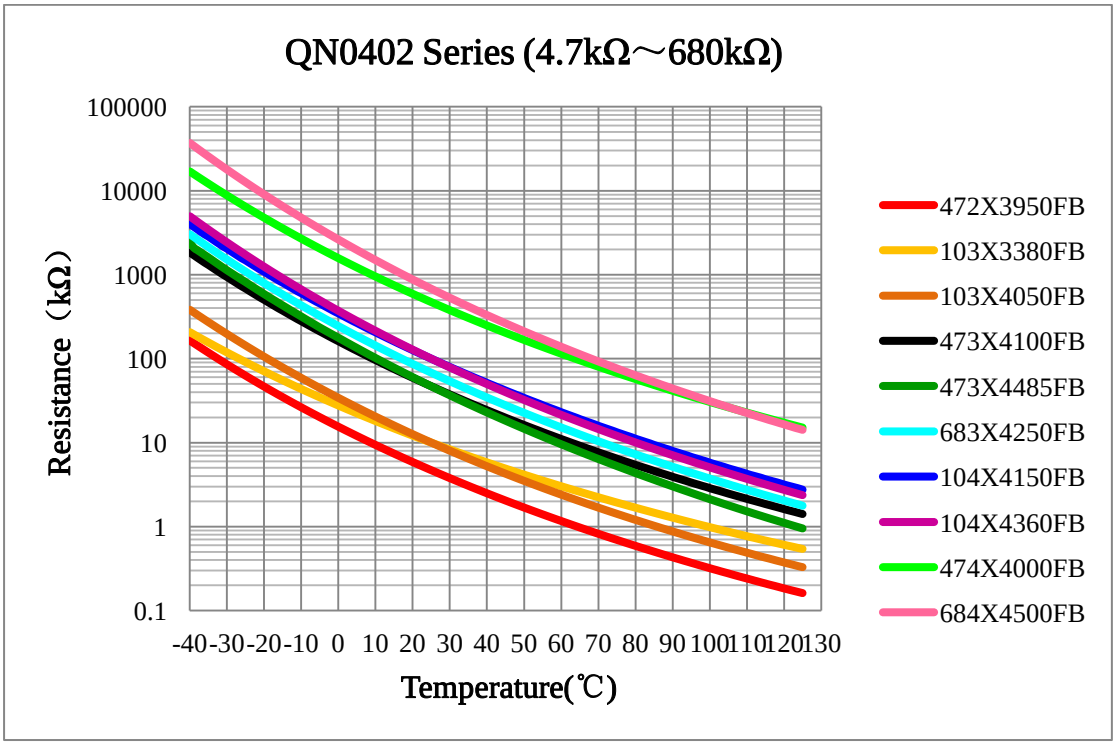
3.5 QN1206 Series

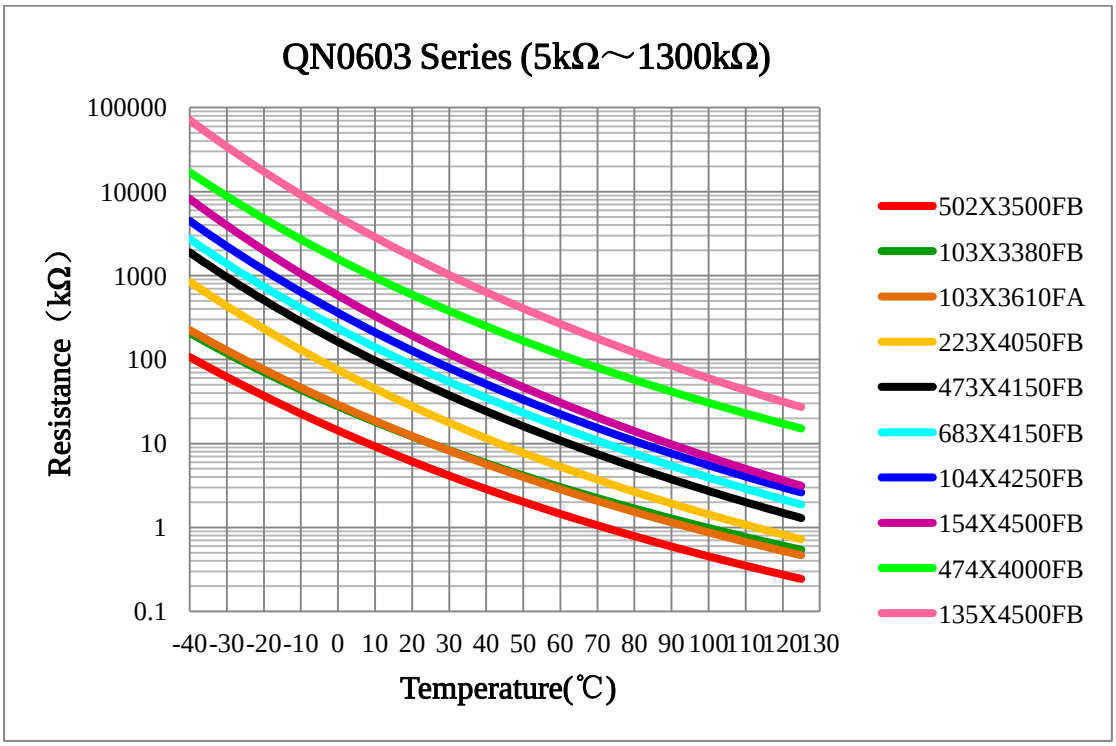
Part No	Resistance (25℃) (kΩ)	B Constant (25/50℃) （K）	B Constant (25/85℃) （K）	Permissible Operating Current (25℃) （mA）	Dissipation Factor (mW/℃)	Thermal Time Constant (s)	Rated Electric Power (25℃) (mW)
QN1206X103□3450FB	10	3450±1%	3500	0.66	1.5	<8	150
QN1206X104□4250FB	100	4250±1%	4310	0.21			

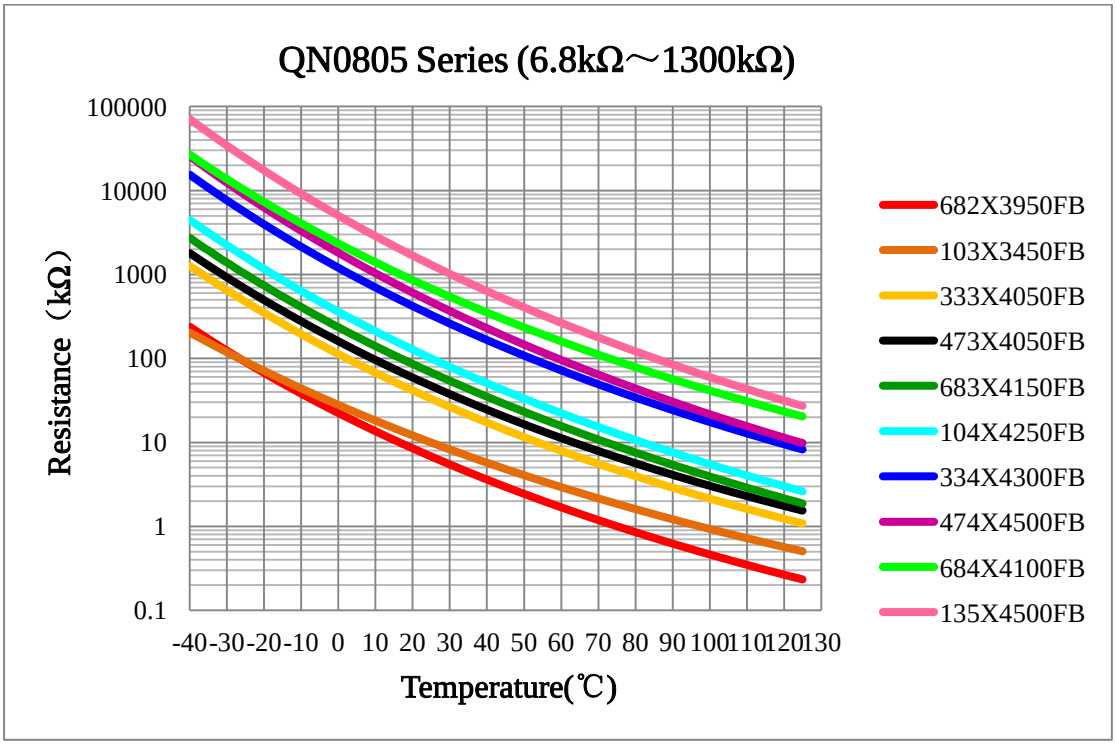
- We can produce special specifications products according to customer's requests.
- □Please specify tolerance of resistance（F=±1%, G=±2%, H=±3%, J=±5%）

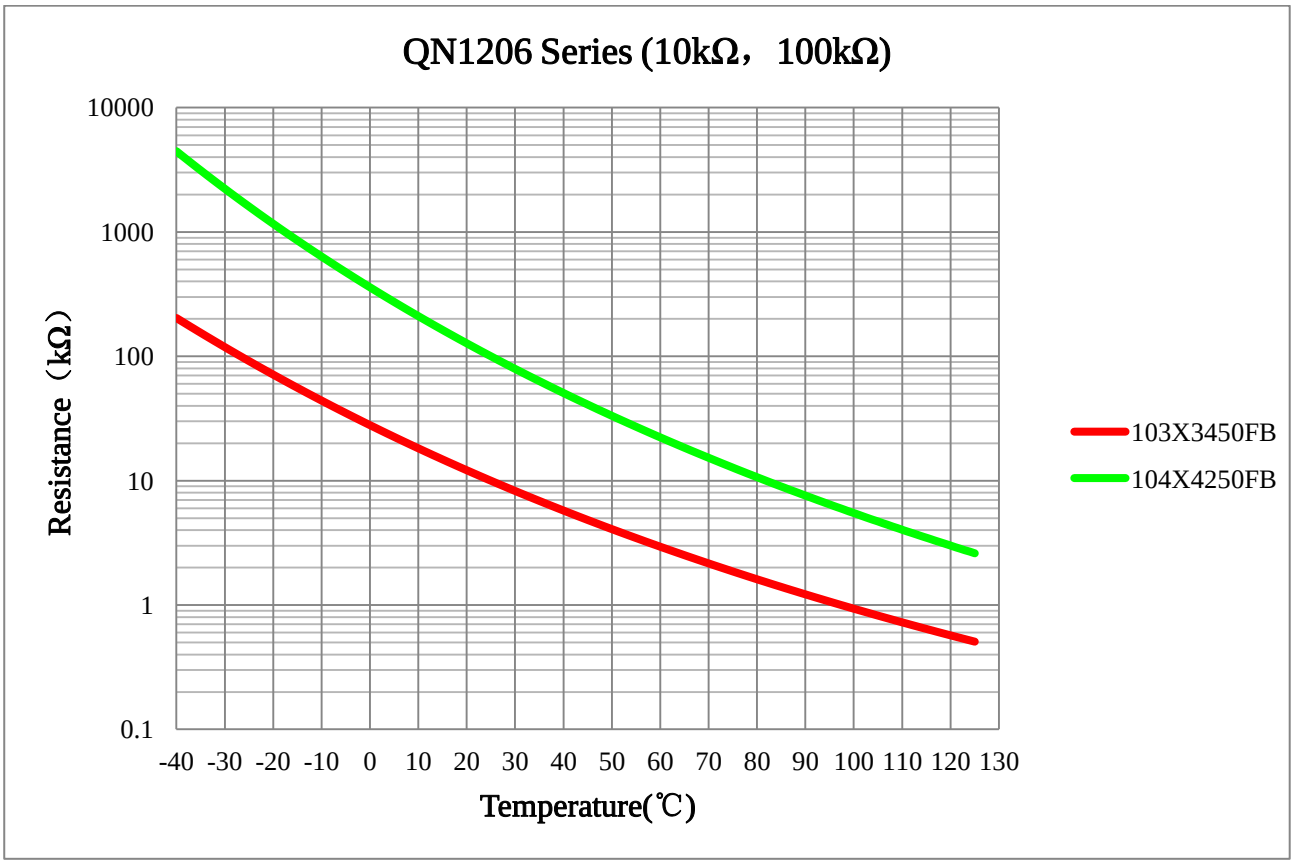
4. R-T Characteristic Curves






QN0603 Series (5kΩ～1300kΩ)
Resistance（kΩ）
100000
10000
1000
100
10
1
0.1
-40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130
Temperature(℃)
502X3500FB
103X3380FB
103X3610FA
223X4050FB
473X4150FB
683X4150FB
104X4250FB
154X4500FB
474X4000FB
135X4500FB


QN0805 Series (6.8kΩ～1300kΩ)
Resistance（kΩ）
100000
10000
1000
100
10
1
0.1
-40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130
Temperature(℃)
682X3950FB
103X3450FB
333X4050FB
473X4050FB
683X4150FB
104X4250FB
334X4300FB
474X4500FB
684X4100FB
135X4500FB



5. Test and Measurement Procedures

- **Test Conditions**

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

a. Ambient Temperature: 20±15℃

b. Relative Humidity: 65±20%

c. Air Pressure: 86kPa to 106kPa

If any doubt on the results, measurements/tests should be made within the following limits:

a. Ambient Temperature: 25±2℃

b. Relative Humidity: 65±5%RH

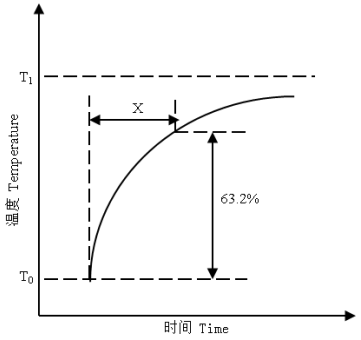
c. Air Pressure: 86kPa to 106kPa

- **Inspection Equipment**

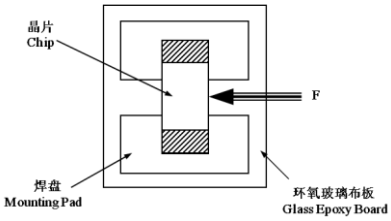
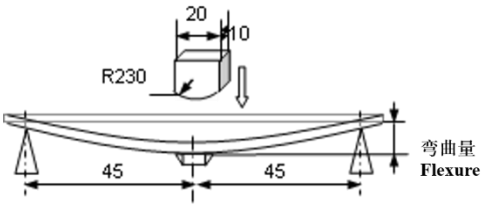
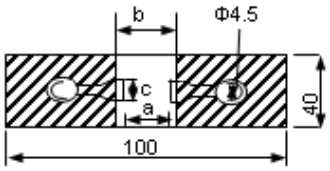
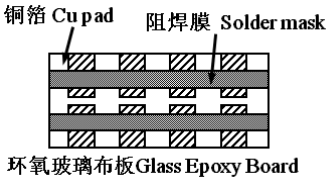
Visual Examination: 20× magnifier

Resistance value test: Thermistor resistance tester

6. Electrical Test

No.	Items	Test Methods and Remarks
1	Nominal Zero-Power Resistance at 25℃(R25)	Ambient temperature：25±0.05℃ Measuring electric power：≤0.1mW
2	Nominal B Constant	Measure the resistance at the ambient temperature of 25±0.05℃ and 50±0.05℃ or 85±0.05℃. $B=\frac{\ln R_{25}-\ln R_{50}}{1/T_{25}-1/T_{50}}$ T: Absolute temperature (K)
3	Thermal Time Constant	The total time for the temperature of the thermistor to change by 63.2% of the difference from ambient temperature T_0 (℃) to T_1 (℃) by the drastic change of the power applied to thermistor from Non-zero Power to Zero-Power state, normally expressed in second(S). 
4	Dissipation Factor	The required power which makes the NTC thermistor body temperature raise 1℃ through self-heated, normally expressed in milliwatts per degree Celsius (mW/℃). It can be calculated by the following formula: $\delta=\frac{W}{T-T_0}$
5	Rated Electric Power	The necessary electric power makes thermistor's temperature rise 100℃ by self-heating at ambient temperature 25℃.
6	Permissible Operating Current	The current that keep body temperature of chip NTC on the PC board in still air rising 1 ℃ by self-heating.

7. Reliability Test

<table>
<tr><th>Items</th><th>Standard</th><th>Test Methods and Remarks</th><th>Requirements</th></tr>
<tr><td>Terminal Strength</td><td>IEC 60068-2-21</td><td>① Solder the chip to the testing jig (glass epoxy board shown in the right) using eutectic solder. Then apply a force in the direction of the arrow.
② 5N force for 0201, 0402and 0603 series,
10N force for 0805, 1206 series.
③ Duration：10±1s</td><td>No removal or split of the termination or other defects shall occur.
 
</td></tr>
<tr><td>Resistance to Flexure</td><td>IEC 60068-2-21</td><td>① Solder the chip to the test jig (glass epoxy board shown in the right) using a eutectic solder. Then apply a force in the direction shown as follow;
② Flexure
0201:1mm
0402, 0603, 0805: 2mm
③ Pressurizing Speed：＜0.5mm/s；
④ Duration：10s
 
</td><td>① No visible damage.
② R25 variation: within ±5%
unit：mm
<table>
<tr><th>Type</th><th>a</th><th>b</th><th>c</th></tr>
<tr><td>0201</td><td>0.25</td><td>0.3</td><td>0.3</td></tr>
<tr><td>0402</td><td>0.4</td><td>1.5</td><td>0.5</td></tr>
<tr><td>0603</td><td>1.0</td><td>3.0</td><td>1.2</td></tr>
<tr><td>0805</td><td>1.2</td><td>4.0</td><td>1.65</td></tr>
<tr><td>1206</td><td>1.8</td><td>5.0</td><td>1.8</td></tr>
</table>

</td></tr>
<tr><td>Vibration</td><td>IEC 60068-2-80</td><td>① Solder the chip to the testing jig (glass epoxy board shown in the left) using eutectic solder.
② The chip shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.
③ The frequency ranges from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3mutually perpendicular directions (total of 6 hours).</td><td>No visible damage.
 
</td></tr>
<tr><td>Dropping</td><td>IEC 60068-2-32</td><td>Drop a chip 10 times on a concrete floor from a height of 1 meter.</td><td>No visible damage.</td></tr>
<tr><td>Solderability</td><td>IEC 60068-2-58</td><td>① Solder temperature: 245±5℃.
② Duration: 3±0.3s.
③ Solder: Sn/3.0Ag/0.5Cu.
④ Flux: 25% Resin and 75% ethanol in weight.</td><td>① No visible damage.
② Wetting shall exceed 95% coverage.</td></tr>
</table>

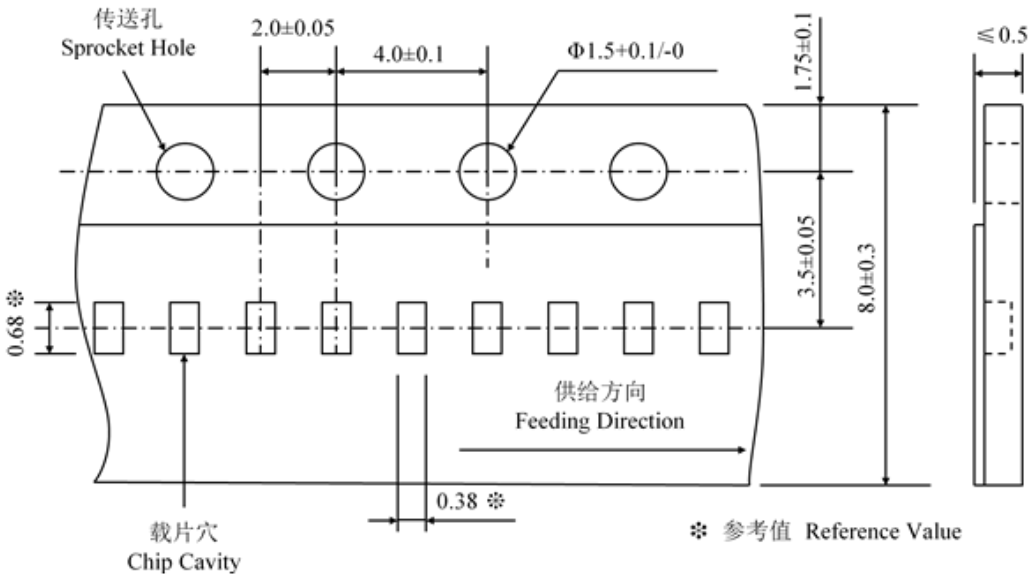
<table>
<tr><td>Resistance to Soldering Heat</td><td>IEC 60068-2-58</td><td>① Solder temperature: 260±5℃.
② Duration: 10±1s.
③ Solder: Sn/3.0Ag/0.5Cu.
④ Flux: 25% Resin and 75% ethanol in weight.
⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td rowspan="2">① No visible damage.
② R25 variation: within ±3%
③ B constant variation: within ±2%</td></tr>
<tr><td>Temperature cycling</td><td>IEC 60068-2-14</td><td>① 5 cycles of following sequence without loading.
<table>
<tr><th>Step</th><th>Temperature</th><th>Time</th></tr>
<tr><td>1</td><td>-40±5℃</td><td>30±3min</td></tr>
<tr><td>2</td><td>25±2℃</td><td>5±3min</td></tr>
<tr><td>3</td><td>125±2℃</td><td>30±3min</td></tr>
<tr><td>4</td><td>25±2℃</td><td>5±3min</td></tr>
</table>
② The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td></tr>
<tr><td>Resistance to dry heat</td><td>IEC 60068-2-2</td><td>① 125±5℃ in air, for 1000±24 hours without loading.
② The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td rowspan="2">① No visible damage.
② R25 variation: within ±5%
③ B constant variation: within ±2%</td></tr>
<tr><td>Resistance to cold</td><td>IEC 60068-2-1</td><td>① -40±3℃ in air, for 1000±24 hours without loading.
② The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td></tr>
<tr><td>Resistance to damp heat</td><td>IEC 60068-2-78</td><td>① 40±2℃,90~95%RH in air, for 1000±24 hours without loading.
② The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td>① No visible damage.
② R25 variation: within ±3%
③ B constant variation: within ±2%</td></tr>
<tr><td>Resistance to heat</td><td>IEC 60539-1 5.25.4</td><td>① 85±2℃in air with permissive operating current for 1000±48 hours
② The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td>① No visible damage.
② R25 variation: within ±5%
③ B constant variation: within ±2%</td></tr>
</table>

8. Taping

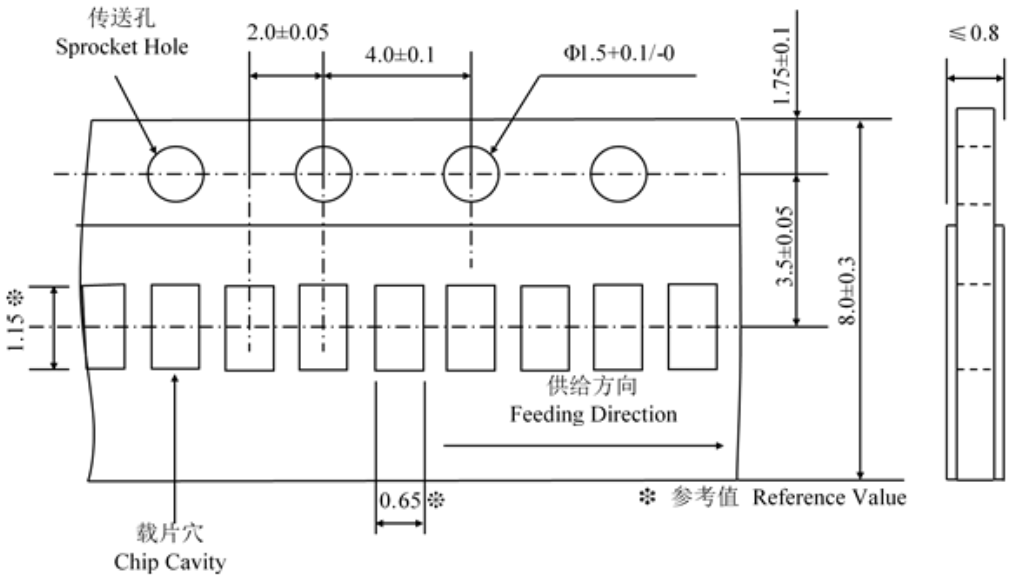
Type	0201	0402	0603	0805	1206
Tape thickness(mm)	0.5±0.15	0.5±0.15	0.8±0.15	0.85±0.2	1.8±0.2
Tape material	Paper Tape				Embossed Tape
Quantity per Reel	15K	10K	4K	4K	2K

- **Paper Tape Dimensions (Unit：mm)**

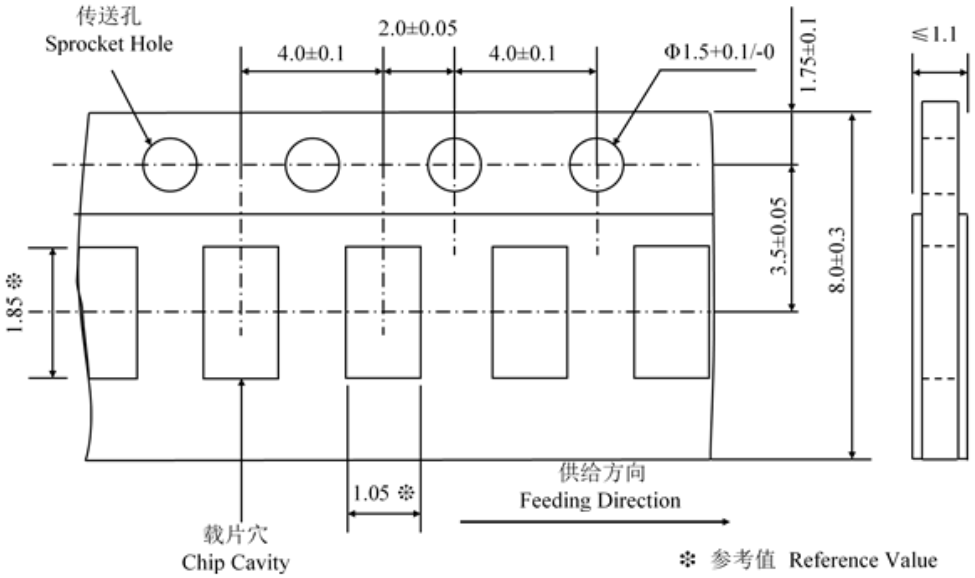
(1) QN0201 Series



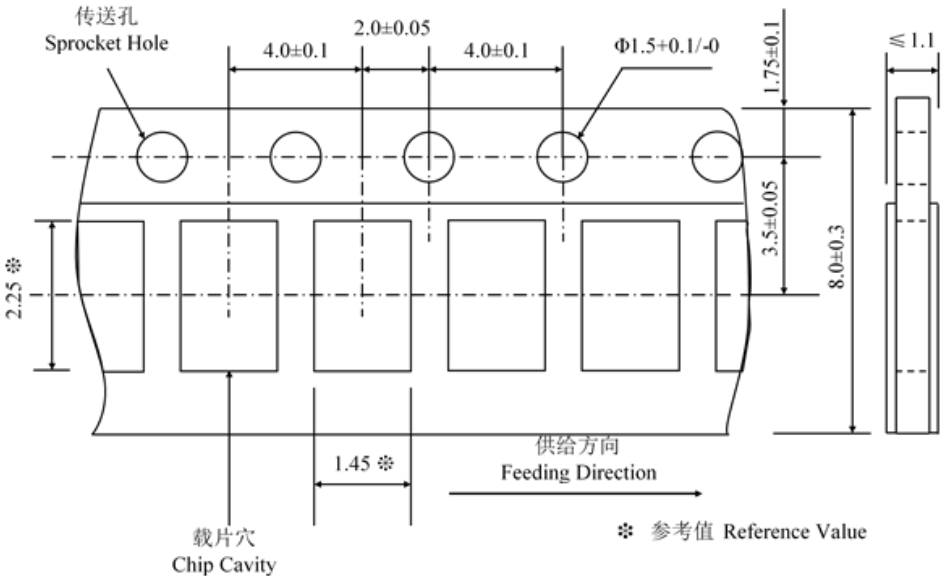
(2) QN0402 Series



(3) QN0603 Series

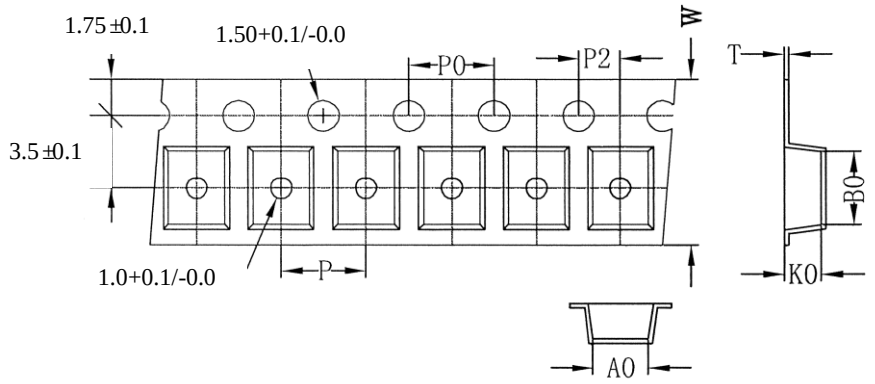


(4) QN0805 Series



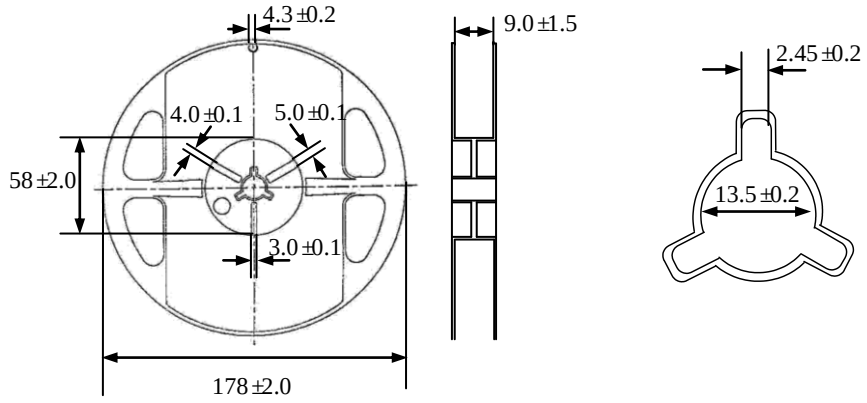
- **Embossed Tape Dimensions (Unit：mm)**

(5) QN1206 Series

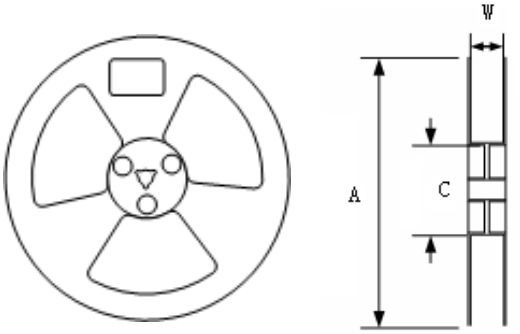


A0 (±0.2)	B0 (±0.2)	K0 Max.	T Max.	W (±0.3)	P0 (±0.2)	P (±0.2)	P2 (±0.2)
2.1	3.6	2.5	0.30	8.0	4.0	4.0	2.0

- **Paper Tape Reel Dimensions (Unit：mm)**



- **Embossed Tape Reel Dimensions (Unit：mm)**



Type	Spec.	Dimensions(mm)		
		A	W	C
1206	7"	178±2	8.4+2.0/-0.0	58±2

9. Storage

Storage Conditions

a. Storage Temperature: 20±15℃

b. Relative Humidity: ≤75%RH

c. Keep away from corrosive atmosphere and sunlight.

Period of Storage: 6 Months

10. Notes & Warnings

- The QN series thermistors shall not be operated and stored under the following environmental condition:

(1) Corrosive or deoxidized atmospheres(such as chlorine, sulfureted hydrogen, ammonia, sulfuric acid, nitric oxide and so on)

(2) Volatile or inflammable atmospheres

(3) Dusty condition

(4) Excessively high/low pressure condition

(5) Humid site

(6) Places with brine, oil, chemical liquid or organic solvent

(7) Intense vibration

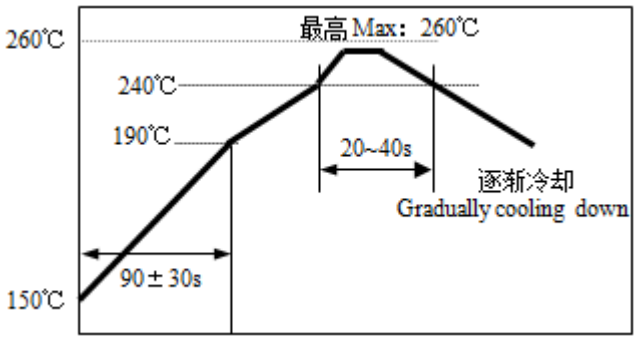
(8) Places with analogously deleterious conditions

- The ceramic body of the QN series thermistors is fragile, no excessive pressure or impact shall be exerted on it.
- The QN series thermistors shall not be operated beyond the specified "Operating Temperature Range" in the catalog.

11. Recommended Soldering Technologies

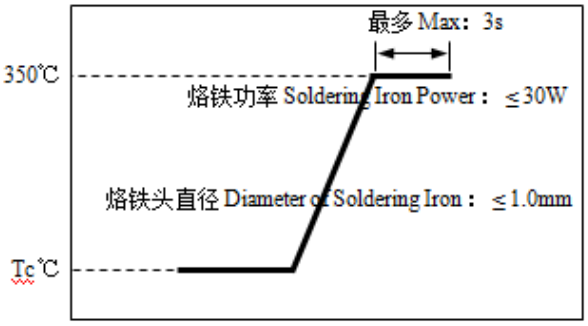
Re-flowing Profile

- 1~2℃/sec. Ramp
- Pre-heating: 150~190℃/90±30s.
- Time above 240℃: 20~40s
- Peak temperature: 260℃Max./10s
- Solder paste: Sn/3.0Ag/0.5Cu
- Max.2 times for re-flowing



Iron Soldering Profile

- Iron soldering power: Max.30W
- Pre-heating: 150℃/60 sec.
- Soldering Tip temperature: 350℃Max.
- Soldering time: 3 sec Max.
- Solder paste: Sn/3.0Ag/0.5Cu
- Max.1 times for iron soldering



[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]