

Specification of Cjiang products

Customer	
Product Name	片式感温 NTC热敏电阻器 Chip Temp. Sensing NTC Thermistor
Customer P/N:	
Cjiang P/N:	FNTC Series

[☒ New Released, ☐ Revised]

SPEC No.:

REMARK:

Customer Approval Feedback

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Version change history

Rev	Date	Description	APPROVED	CHECKED	DRAWN
1.0	2024/03/16	Document formulation	BOND	MIKO	Roy
2.0	2026/10/16	Additional Model Introduced	BOND	MIKO	Roy

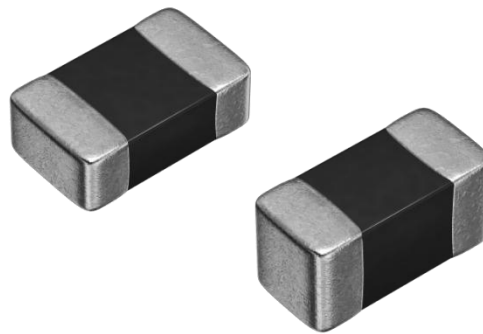
Caution :

All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or Warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

1. Aircraft equipment.
2. Aerospace equipment.
3. Undersea equipment.
4. nuclear control equipment.
5. military equipment.
6. Power plant equipment.
7. Medical equipment.
8. Transportation equipment (automobiles, trains, ships,etc.)
9. Traffic signal equipment.
10. Disaster prevention / crime prevention equipment.
11. Data-processing equipment.
12. Applications of similar complexity or with reliability requirements comparable to the applications listed in the above.

1. 特征 Features

- High accuracy: resistance tolerance and B value tolerance down to $\pm 0.5\%$
- Small size with leadless chip structure, excellent solderability, suitable for high-density surface mounting
- Excellent moisture resistance: moisture sensitivity level MSL 1
- Wide operating temperature range: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- High reliability and long-term stability
- Halogen free, RoHS 2.0 compliant
- Custom electrical specifications available upon request



2. 用途 Applications

- Mobile phones, wearable device such as smart watches, TWS headphones, etc.
- Office automation such as printer, facsimile, word processor, etc.
- Battery, CPU temperature protection

3. 产品编码 Model Number

FNTC **0603** **X** **103** □ **3435** ◎ **A**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	系列名称 Series Name
FNTC	Chip NTC Thermistor

②	外形尺寸 (长X宽X高) External dimensions (L×W×T, mm)
0201[0603]	0.60×0.30×0.30
0402[1005]	1.00×0.50×0.50
0603[1608]	1.60×0.80×0.80
0805[2012]	2.00×1.25×0.85
1206[3216]	3.20×1.60×0.85

③	内部代码 Internal Code
X	

④	电阻值 Nominal zero-power resistance at 25°C (KΩ)
Example	Nominal Value
222	2.2
103	10
104	100

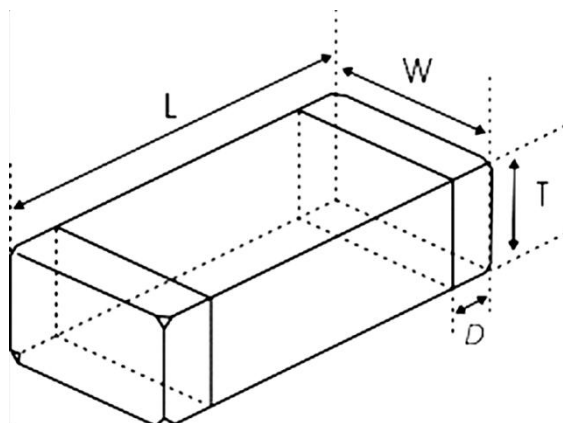
⑤	□=电阻值公差 □=Resistance tolerance
D	$\pm 0.5\%$ available for 0201 / 0402 / 0603
F	$\pm 1\%$
G	$\pm 2\%$
H	$\pm 3\%$
J	$\pm 5\%$

⑥	B 常数 B Constant
Example	Nominal
3435	3435 K
3950	3950 K
4250	4250 K

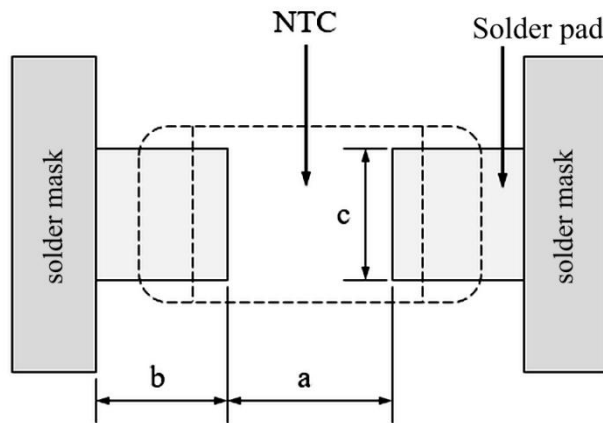
⑦	◎=B值公差 ◎=B value tolerance
D	$\pm 0.5\%$
E	$\pm 0.7\%$
F	$\pm 1\%$
H	$\pm 3\%$

⑧	B值计算方式 B constant calculation method
A	25°C & 85°C
B	25°C & 50°C

4.尺寸 Dimensions (unit: mm)



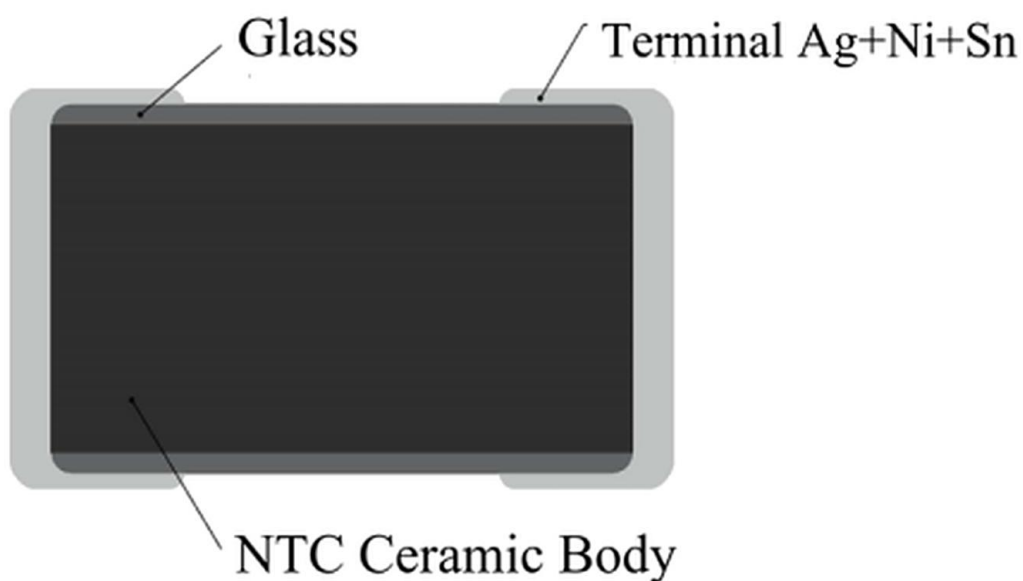
Outline dimensions



Recommended Land Pattern Dimensions

Size code	L	W	T	D	a	b	c
0201[0603]	0.6±0.03	0.30±0.03	0.30±0.03	0.15±0.05	0.25	0.3	0.3
0402[1005]	1.0±0.05	0.50±0.05	0.50±0.05	0.25±0.10	0.4	0.4~0.5	0.5
0603[1608]	1.6±0.15	0.80±0.15	0.80±0.15	0.40±0.20	0.6~0.8	0.6~0.7	0.6~0.8
0805[2012]	2.0±0.15	1.25±0.15	0.85±0.15	0.45±0.25	0.9~1.2	0.7~0.9	0.9~1.2
1206[3216]	3.2±0.15	1.60±0.15	0.85±0.15	0.50±0.30	1.8~2.5	1.2~1.8	1.5~2.0

5. 产品构成 Product construction



6. 电气特性 Electrical Characteristics

FNTC 0201 Series

型号 Part Number	电阻 Resistance at 25℃ R25 (kΩ)	B常数 B Constant B(25/50℃) (K)	B常数 B Constant B(25/85℃) (K)	最大容许工作电流 Max. Permissive Operating Current I _{max} (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/℃)	热时间常 数 Thermal Time Constant t (s)
FNTC0201X103□3380◎B	10	3380	3435	0.31	100	1.0	<3
FNTC0201X223□3380◎B	22	3380	3435	0.21			
FNTC0201X473□4050◎B	47	4050	4110	0.14			
FNTC0201X683□4150◎B	68	4150	4210	0.12			
FNTC0201X104□4250◎B	100	4250	4310	0.10			
FNTC0201X474□3950◎B	470	3950	4010	0.04			
FNTC0201X474□4050◎A	470	3990	4050	0.04			

* □ indicates the resistance tolerance code: D=±0.5%, F=±1%, G=±2%, H=±3%, J=±5%.

FNTC 0402 Series

型号 Part Number	电阻 Resistance at 25℃ R25 (kΩ)	B常数 B Constant B(25/50℃) (K)	B常数 B Constant B(25/85℃) (K)	最大容许工作电流 Max. Permissive Operating Current I _{max} (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/℃)	热时间常 数 Thermal Time Constant t (s)
FNTC0402X202□3300◎B	2.0	3300	3350	0.70	100	1.0	<3
FNTC0402X472□3380◎B	4.7	3380	3435	0.46			
FNTC0402X472□3500◎B	4.7	3500	3545	0.46			
FNTC0402X502□3380◎B	5.0	3380	3435	0.44			
FNTC0402X502□3500◎B	5.0	3500	3545	0.44			
FNTC0402X682□3600◎B	6.8	3600	3660	0.38			
FNTC0402X103□3380◎B	10	3380	3435	0.31			
FNTC0402X103□3450◎B	10	3450	3500	0.31			
FNTC0402X103□3900◎B	10	3900	3935	0.31			
FNTC0402X103□3950◎B	10	3950	3990	0.31			
FNTC0402X103□4050◎B	10	4050	4110	0.31			
FNTC0402X153□3950◎B	15	3950	3990	0.25			
FNTC0402X203□3950◎B	20	3950	3990	0.21			
FNTC0402X223□3950◎B	22	3950	3990	0.21			
FNTC0402X223□4050◎B	22	4050	4110	0.21			
FNTC0402X303□3950◎B	30	3950	3990	0.17			
FNTC0402X303□4050◎B	30	4050	4110	0.17			
FNTC0402X333□3950◎B	33	3950	3990	0.17			
FNTC0402X333□4050◎B	33	4050	4110	0.17			
FNTC0402X473□3380◎B	47	3380	3435	0.14			
FNTC0402X473□3950◎B	47	3950	3990	0.14			
FNTC0402X473□4050◎B	47	4050	4110	0.14			
FNTC0402X493□3380◎B	49	3380	3435	0.14			
FNTC0402X493□3937◎B	49	3937	3980	0.14			
FNTC0402X493□3950◎B	49	3950	3990	0.14			
FNTC0402X503□3380◎B	50	3380	3435	0.14			
FNTC0402X503□3937◎B	50	3937	3980	0.14			
FNTC0402X503□3950◎B	50	3950	3990	0.14			
FNTC0402X503□4050◎B	50	4050	4110	0.14			
FNTC0402X563□3380◎B	56	3380	3435	0.13			
FNTC0402X563□3450◎B	56	3450	3500	0.13			

型号 Part Number	电阻 Resistance at 25℃ R25 (kΩ)	B常数 B Constant B(25/50℃) (K)	B常数 B Constant B(25/85℃) (K)	最大容许工作电流 Max. Permissive Operating Current Imax (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/℃)	热时间常数 Thermal Time Constant t (s)
FNTC0402X683□3380◎B	68	3380	3435	0.12	100	1.0	<3
FNTC0402X683□3450◎B	68	3450	3500	0.12			
FNTC0402X683□4000◎B	68	4000	4060	0.12			
FNTC0402X683□4150◎B	68	4150	4210	0.12			
FNTC0402X104□3380◎B	100	3380	3435	0.10			
FNTC0402X104□3950◎B	100	3950	4010	0.10			
FNTC0402X104□3975◎A	100	3935	3975	0.10			
FNTC0402X104□4050◎B	100	4050	4110	0.10			
FNTC0402X104□4100◎B	100	4100	4160	0.10			
FNTC0402X104□4150◎B	100	4150	4210	0.10			
FNTC0402X104□4250◎B	100	4250	4310	0.10			
FNTC0402X104□4360◎B	100	4360	4375	0.10			
FNTC0402X104□4485◎B	100	4485	4500	0.10			
FNTC0402X154□3950◎B	150	3950	4010	0.08			
FNTC0402X154□4250◎B	150	4250	4310	0.08			
FNTC0402X154□4500◎B	150	4500	4510	0.08			
FNTC0402X204□3950◎B	200	3950	4010	0.07			
FNTC0402X204□4250◎B	200	4250	4310	0.07			
FNTC0402X224□3950◎B	220	3950	4010	0.06			
FNTC0402X224□4250◎B	220	4250	4310	0.06			
FNTC0402X224□4500◎B	220	4500	4510	0.06			
FNTC0402X224□4700◎B	220	4700	4715	0.06			
FNTC0402X334□3950◎B	330	3950	4010	0.05			
FNTC0402X334□4500◎B	330	4500	4510	0.05			
FNTC0402X474□3950◎B	470	3950	4010	0.04			
FNTC0402X474□4050◎A	470	3990	4050	0.04			
FNTC0402X474□4100◎B	470	4100	4160	0.04			
FNTC0402X474□4500◎B	470	4500	4510	0.04			
FNTC0402X474□4700◎A	470	4685	4700	0.04			
FNTC0402X684□4050◎A	680	3990	4050	0.03			
FNTC0402X684□4500◎B	680	4500	4510	0.03			
FNTC0402X135□4500◎B	1300	4500	4510	0.02			

* □ indicates the resistance tolerance code: D=±0.5%, F=±1%, G=±2%, H=±3%, J=±5%.

FNTC 0603 Series

型号 Part Number	电阻 Resistance at 25℃ R25 (kΩ)	B常数 B Constant B(25/50℃) (K)	B常数 B Constant B(25/85℃) (K)	最大容许工作电流 Max. Permissive Operating Current Imax (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/℃)	热时间常数 Thermal Time Constant t (s)
FNTC0603X102□3100◎B	1.0	3100	3135	1.00	100	1.0	<5
FNTC0603X102□3250◎B	1.0	3250	3280	1.00			
FNTC0603X202□3380◎B	2.0	3380	3435	0.70			
FNTC0603X222□3380◎B	2.2	3380	3435	0.67			
FNTC0603X332□3380◎B	3.3	3380	3435	0.55			
FNTC0603X472□3435◎A	4.7	3380	3435	0.46			
FNTC0603X472□3500◎B	4.7	3500	3545	0.46			
FNTC0603X472□3600◎B	4.7	3600	3660	0.46			
FNTC0603X502□3380◎B	5.0	3380	3435	0.44			
FNTC0603X502□3500◎B	5.0	3500	3545	0.44			
FNTC0603X502□3600◎B	5.0	3600	3660	0.44			

型号 Part Number	电阻 Resistance at 25°C R25 (kΩ)	B常数 B Constant B(25/50°C) (K)	B常数 B Constant B(25/85°C) (K)	最大容许工作电流 Max. Permissive Operating Current Imax (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/°C)	热时间常数 Thermal Time Constant t (s)
FNTC0603X502□3950◎B	5.0	3950	3990	0.44	100	1.0	<5
FNTC0603X682□3435◎B	6.8	3435	3480	0.38			
FNTC0603X682□3500◎B	6.8	3500	3545	0.38			
FNTC0603X682□3600◎B	6.8	3600	3660	0.38			
FNTC0603X682□3950◎B	6.8	3950	3990	0.38			
FNTC0603X682□4050◎B	6.8	4050	4110	0.38			
FNTC0603X103□3380◎B	10	3380	3435	0.31			
FNTC0603X103□3450◎B	10	3450	3500	0.31			
FNTC0603X103□3500◎B	10	3500	3545	0.31			
FNTC0603X103□3600◎B	10	3600	3660	0.31			
FNTC0603X103□3610◎A	10	3565	3610	0.31			
FNTC0603X103□3900◎B	10	3900	3935	0.31			
FNTC0603X103□3950◎B	10	3950	3990	0.31			
FNTC0603X103□4050◎B	10	4050	4110	0.31			
FNTC0603X153□3950◎B	15	3950	3990	0.25			
FNTC0603X203□3950◎B	20	3950	3990	0.22			
FNTC0603X223□3950◎B	22	3950	3990	0.21			
FNTC0603X223□4050◎B	22	4050	4110	0.21			
FNTC0603X303□3950◎B	30	3950	3990	0.18			
FNTC0603X303□4050◎B	30	4050	4110	0.18			
FNTC0603X333□3950◎B	33	3950	3990	0.17			
FNTC0603X333□4050◎B	33	4050	4110	0.17			
FNTC0603X473□3950◎B	47	3950	3990	0.14			
FNTC0603X473□4050◎B	47	4050	4110	0.14			
FNTC0603X493□3380◎B	49	3380	3435	0.14			
FNTC0603X493□3937◎B	49	3937	3980	0.14			
FNTC0603X493□3950◎B	49	3950	3990	0.14			
FNTC0603X503□3380◎B	50	3380	3435	0.14			
FNTC0603X503□3937◎B	50	3937	3980	0.14			
FNTC0603X503□3950◎B	50	3950	3990	0.14			
FNTC0603X503□4050◎B	50	4050	4110	0.14			
FNTC0603X563□3380◎B	56	3380	3435	0.13			
FNTC0603X563□3450◎B	56	3450	3500	0.13			
FNTC0603X683□3380◎B	68	3380	3435	0.12			
FNTC0603X683□3450◎B	68	3450	3500	0.12			
FNTC0603X683□4000◎B	68	4000	4060	0.12			
FNTC0603X683□4150◎B	68	4150	4210	0.12			
FNTC0603X753□3950◎B	75	3950	4010	0.11			
FNTC0603X753□4100◎B	75	4100	4160	0.11			
FNTC0603X104□3380◎B	100	3380	3435	0.10			
FNTC0603X104□3950◎B	100	3950	4010	0.10			
FNTC0603X104□3975◎A	100	3935	3975	0.10			
FNTC0603X104□4050◎B	100	4050	4110	0.10			
FNTC0603X104□4100◎B	100	4100	4160	0.10			
FNTC0603X104□4150◎B	100	4150	4210	0.10			
FNTC0603X104□4250◎B	100	4250	4310	0.10			
FNTC0603X104□4360◎B	100	4360	4375	0.10			
FNTC0603X104□4485◎B	100	4485	4500	0.10			
FNTC0603X114□3950◎B	110	3950	4010	0.10			
FNTC0603X154□3950◎B	150	3950	4010	0.08			
FNTC0603X154□4250◎B	150	4250	4310	0.08			

型号 Part Number	电阻 Resistance at 25°C R25 (kΩ)	B常数 B Constant B(25/50°C) (K)	B常数 B Constant B(25/85°C) (K)	最大容许工作电流 Max. Permissive Operating Current Imax (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/°C)	热时间常数 Thermal Time Constant t (s)
FNTC0603X154□4500◎B	150	4500	4510	0.08	100	1.0	<5
FNTC0603X204□3950◎B	200	3950	4010	0.07			
FNTC0603X224□3950◎B	220	3950	4010	0.06			
FNTC0603X224□4200◎B	220	4200	4260	0.06			
FNTC0603X224□4500◎B	220	4500	4510	0.06			
FNTC0603X224□4700◎B	220	4700	4715	0.06			
FNTC0603X474□3950◎B	470	3950	4050	0.04			
FNTC0603X474□4050◎A	470	3950	4050	0.04			
FNTC0603X474□4100◎B	470	4100	4160	0.04			
FNTC0603X474□4500◎B	470	4500	4510	0.04			
FNTC0603X474□4700◎A	470	4685	4700	0.04			
FNTC0603X564□4100◎B	560	4100	4160	0.03			
FNTC0603X684□4050◎A	680	3990	4050	0.03			
FNTC0603X684□4500◎B	680	4500	4510	0.03			
FNTC0603X135□4500◎B	1300	4500	4510	0.02			

* □ indicates the resistance tolerance code: D=±0.5%, F=±1%, G=±2%, H=±3%, J=±5%.

FNTC 0805 Series

型号 Part Number	电阻 Resistance at 25°C R25 (kΩ)	B常数 B Constant B(25/50°C) (K)	B常数 B Constant B(25/85°C) (K)	最大容许工作电流 Max. Permissive Operating Current Imax (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/°C)	热时间常数 Thermal Time Constant t (s)
FNTC0805X102□3300◎B	1.0	3300	3350	1.40	100	2.0	<5
FNTC0805X202□3450◎B	2.0	3450	3500	0.98			
FNTC0805X222□3380◎B	2.2	3380	3435	0.95			
FNTC0805X222□3450◎B	2.2	3450	3500	0.95			
FNTC0805X472□3380◎B	4.7	3380	3435	0.65			
FNTC0805X472□3450◎B	4.7	3450	3500	0.65			
FNTC0805X472□3500◎B	4.7	3500	3545	0.65			
FNTC0805X472□3600◎B	4.7	3600	3660	0.65			
FNTC0805X472□3950◎B	4.7	3950	3990	0.65			
FNTC0805X502□3380◎B	5.0	3380	3435	0.63			
FNTC0805X502□3500◎B	5.0	3500	3545	0.63			
FNTC0805X502□3600◎B	5.0	3600	3660	0.63			
FNTC0805X502□3950◎B	5.0	3950	3990	0.63			
FNTC0805X682□3380◎B	6.8	3380	3435	0.54			
FNTC0805X682□3500◎B	6.8	3500	3545	0.54			
FNTC0805X682□3600◎B	6.8	3600	3660	0.54			
FNTC0805X682□3950◎B	6.8	3950	3990	0.54			
FNTC0805X682□4050◎B	6.8	4050	4110	0.54			
FNTC0805X103□3380◎B	10	3380	3435	0.44			
FNTC0805X103□3450◎B	10	3450	3500	0.44			
FNTC0805X103□3500◎B	10	3500	3545	0.44			
FNTC0805X103□3600◎B	10	3600	3660	0.44			
FNTC0805X103□3900◎B	10	3900	3935	0.44			
FNTC0805X103□3950◎B	10	3950	3990	0.44			
FNTC0805X103□3970◎A	10	3945	3970	0.44			
FNTC0805X103□4050◎B	10	4050	4110	0.44			

型号 Part Number	电阻 Resistance at 25℃ R25 (kΩ)	B常数 B Constant B(25/50℃) (K)	B常数 B Constant B(25/85℃) (K)	最大容许工作电流 Max. Permissive Operating Current Imax (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/℃)	热时间常数 Thermal Time Constant t (s)
FNTC0805X153□3950◎B	15	3950	3990	0.36	100	2.0	<5
FNTC0805X203□3950◎B	20	3950	3990	0.32			
FNTC0805X203□4050◎B	20	4050	4110	0.32			
FNTC0805X223□3950◎B	22	3950	3990	0.30			
FNTC0805X223□4050◎B	22	4050	4110	0.30			
FNTC0805X303□3950◎B	30	3950	3990	0.25			
FNTC0805X303□4050◎B	30	4050	4110	0.25			
FNTC0805X333□3950◎B	33	3950	3990	0.24			
FNTC0805X333□4050◎B	33	4050	4110	0.24			
FNTC0805X473□3950◎B	47	3950	3990	0.20			
FNTC0805X473□4050◎B	47	4050	4110	0.20			
FNTC0805X473□4150◎B	47	4150	4210	0.20			
FNTC0805X493□3937◎B	49	3937	3980	0.19			
FNTC0805X493□3950◎B	49	3950	3990	0.19			
FNTC0805X503□3950◎B	50	3950	3990	0.19			
FNTC0805X503□4050◎B	50	4050	4110	0.19			
FNTC0805X503□4150◎B	50	4150	4210	0.19			
FNTC0805X683□3950◎B	68	3950	4010	0.17			
FNTC0805X683□4050◎B	68	4050	4110	0.17			
FNTC0805X683□4150◎B	68	4150	4210	0.17			
FNTC0805X104□3950◎B	100	3950	4010	0.14			
FNTC0805X104□4050◎B	100	4050	4110	0.14			
FNTC0805X104□4150◎B	100	4150	4210	0.14			
FNTC0805X104□4250◎B	100	4250	4310	0.14			
FNTC0805X104□4360◎B	100	4360	4375	0.14			
FNTC0805X104□4485◎B	100	4485	4500	0.14			
FNTC0805X124□3950◎B	120	3950	4010	0.13			
FNTC0805X154□3950◎B	150	3950	4010	0.11			
FNTC0805X154□4250◎B	150	4250	4310	0.11			
FNTC0805X204□3950◎A	200	3890	3950	0.09			
FNTC0805X204□3950◎B	200	3950	4010	0.09			
FNTC0805X204□4050◎B	200	4050	4110	0.09			
FNTC0805X224□3950◎B	220	3950	4010	0.08			
FNTC0805X224□4250◎B	220	4250	4310	0.08			
FNTC0805X224□4500◎B	220	4500	4515	0.08			
FNTC0805X304□3950◎B	300	3950	4010	0.07			
FNTC0805X334□3950◎B	330	3950	4010	0.07			
FNTC0805X334□4050◎B	330	4050	4110	0.07			
FNTC0805X334□4250◎B	330	4250	4310	0.07			
FNTC0805X474□3950◎B	470	3950	4010	0.05			
FNTC0805X474□4050◎B	470	4050	4110	0.05			
FNTC0805X474□4100◎B	470	4100	4160	0.05			
FNTC0805X474□4500◎B	470	4500	4515	0.05			
FNTC0805X504□3950◎B	500	3950	4010	0.05			
FNTC0805X504□4150◎B	500	4150	4210	0.05			
FNTC0805X564□4050◎B	560	4050	4110	0.04			
FNTC0805X564□4500◎B	560	4500	4515	0.04			
FNTC0805X684□4150◎B	680	4150	4210	0.03			
FNTC0805X684□4500◎B	680	4500	4515	0.03			
FNTC0805X105□4500◎B	1000	4500	4515	0.02			
FNTC0805X135□4500◎B	1300	4500	4515	0.02			

* □ indicates the resistance tolerance code: F=±1%, G=±2%, H=±3%, J=±5%.

更多资讯, 请点击长江微电官网 more information, Please click: WWW.CJIANG.COM.CN

FNTC 1206 Series

型号 Part Number	电阻 Resistance at 25°C R25 (kΩ)	B常数 B Constant B(25/50°C) (K)	B常数 B Constant B(25/85°C) (K)	最大容许工作电流 Max. Permissible Operating Current I _{max} (mA)	额 定 功 率 Rated Electric Power P (mW)	耗散因子 Dissipation Factor δ (mW/°C)	热时间常数 Thermal Time Constant t (s)
FNTC1206X472□3600◎B	4.7	3600	3660	0.98	150	3.0	<8
FNTC1206X502□3500◎A	5.0	3450	3500	0.95			
FNTC1206X103□3380◎B	10	3380	3435	0.66			
FNTC1206X103□3450◎B	10	3450	3500	0.66			
FNTC1206X103□3600◎B	10	3600	3660	0.66			
FNTC1206X103□3950◎B	10	3950	3990	0.66			
FNTC1206X473□3950◎B	47	3950	3990	0.45			
FNTC1206X473□4050◎B	47	4050	4110	0.45			
FNTC1206X503□3950◎B	50	3950	3990	0.43			
FNTC1206X503□4050◎B	50	4050	4110	0.43			
FNTC1206X104□3950◎B	100	3950	4010	0.21			
FNTC1206X104□4250◎B	100	4250	4310	0.21			

* □ indicates the resistance tolerance code: F=±1%, G=±2%, H=±3%, J=±5%.

Note:

(1) 测试条件 Test Conditions

Unless otherwise specified, the standard atmospheric conditions for inspection and test are as follows:

- a. Ambient temperature: 20±15 °C;
- b. Relative humidity: 65±20%;
- c. Air pressure: 86 kPa ~ 106 kPa

If there is any dispute over the test results, the tests shall be conducted under the following conditions:

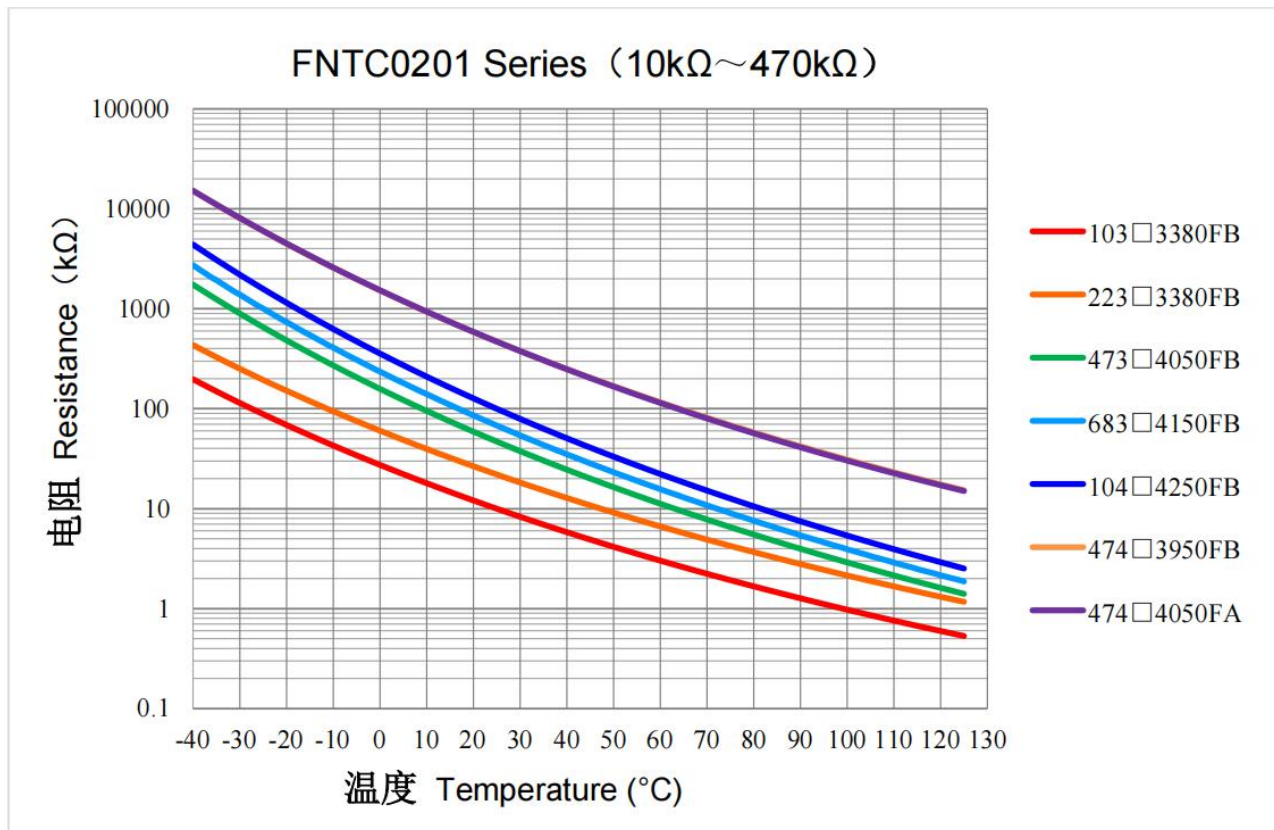
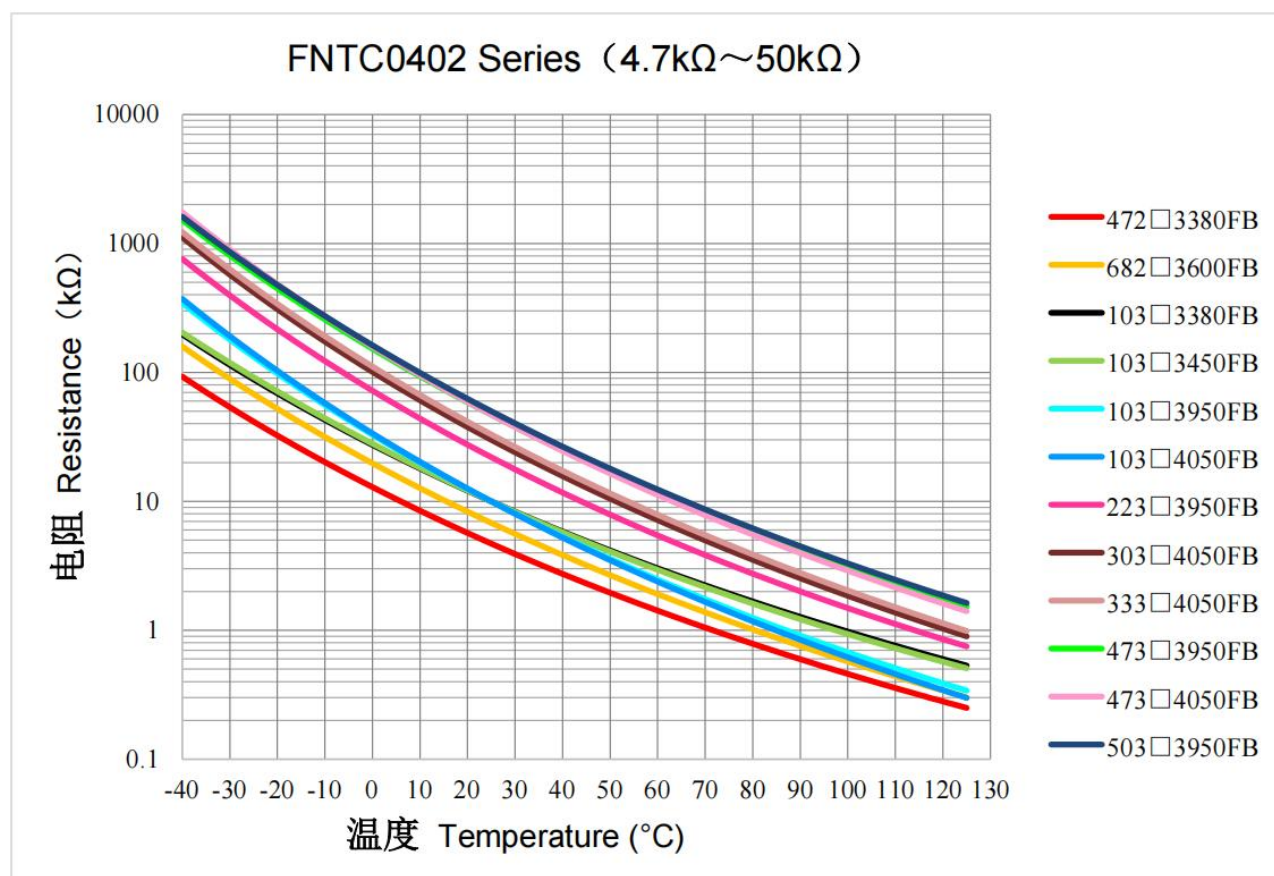
- a. Ambient temperature: 25±2 °C;
- b. Relative humidity: 65±5%;
- c. Air pressure: 86 kPa ~ 106 kPa

(2) 测试设备 Test Equipment

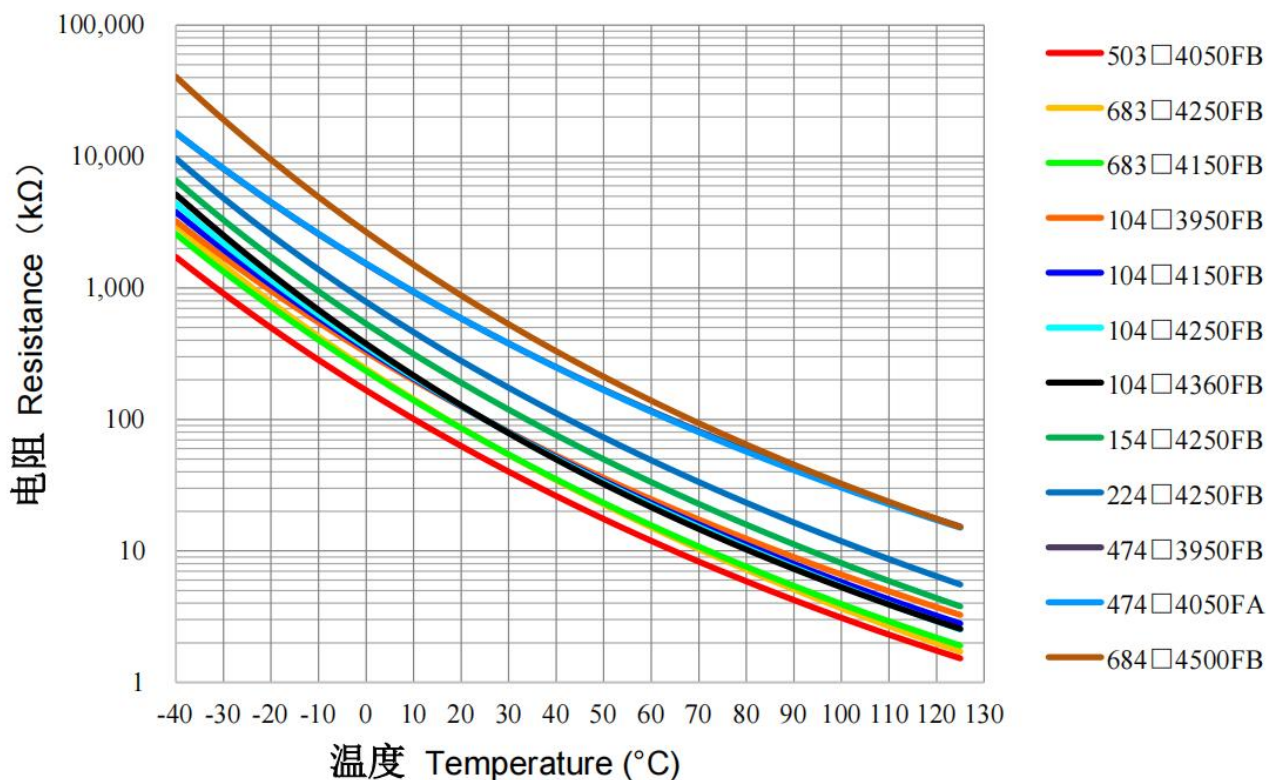
Appearance inspection: 20× magnifier;

Resistance inspection: a. Constant-temperature oil bath; b. Thermistor tester

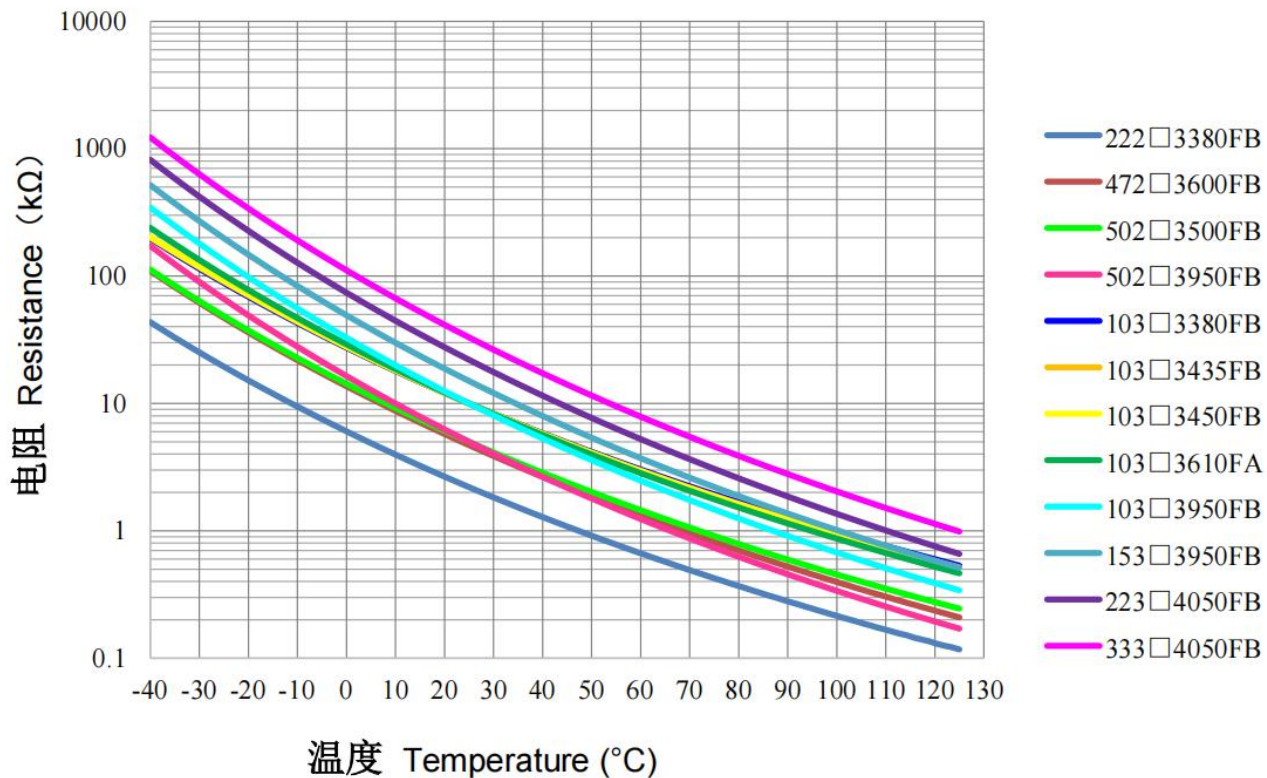
7. 典型电气特性曲线 Typical Electrical Characteristics



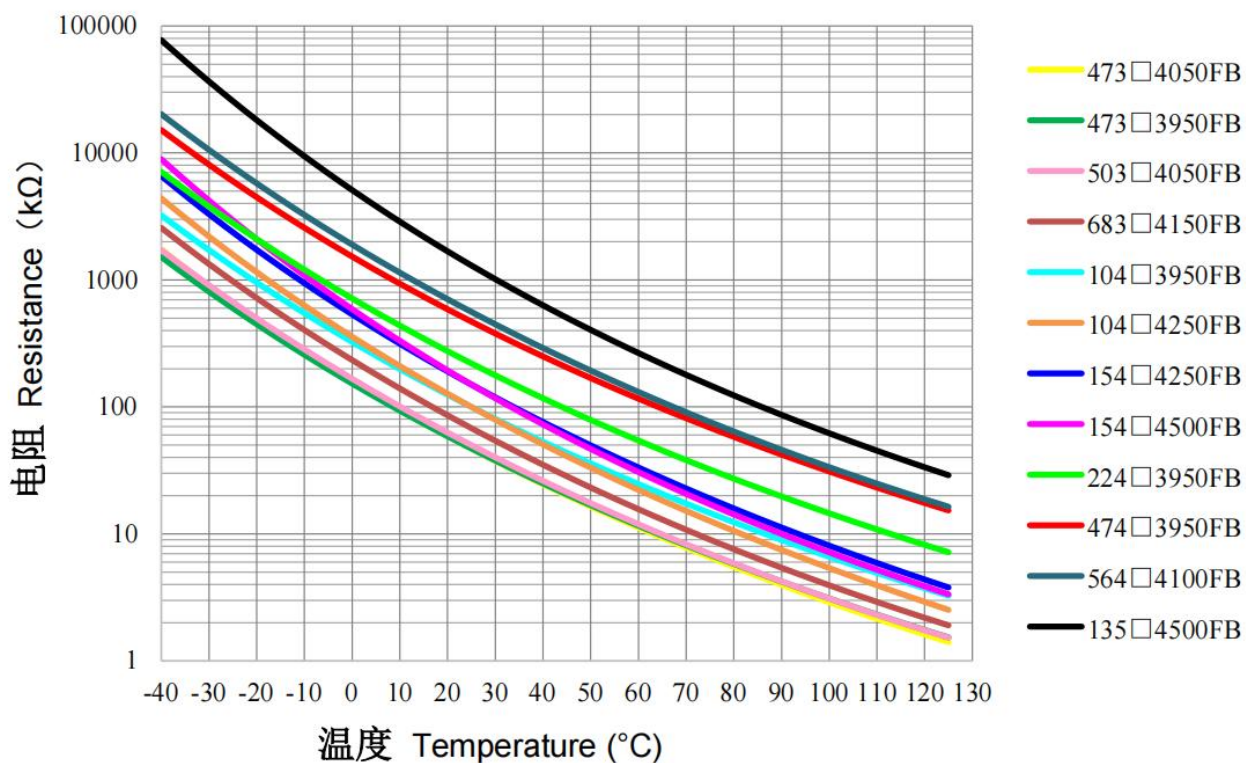
FNTC0402 Series (50kΩ~680kΩ)



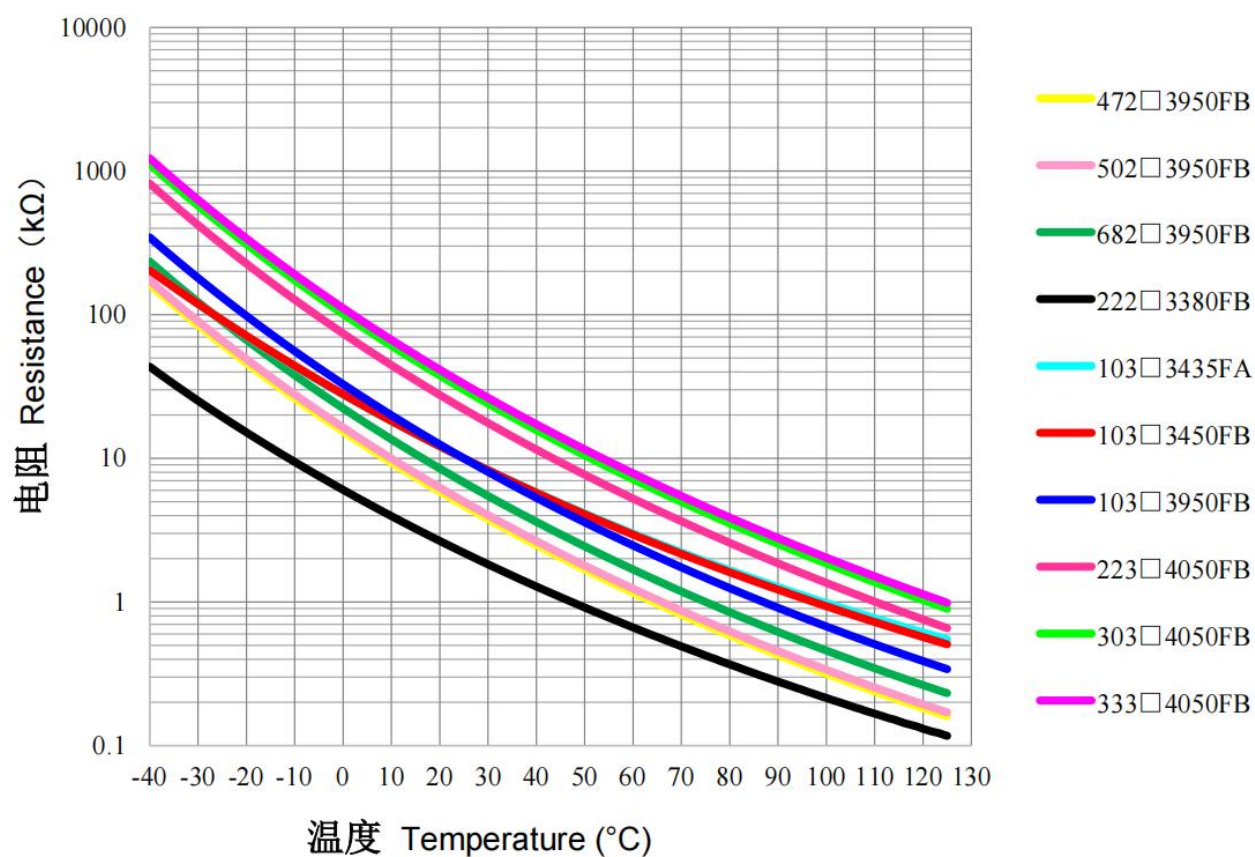
FNTC0603 Series (2.2kΩ~33kΩ)



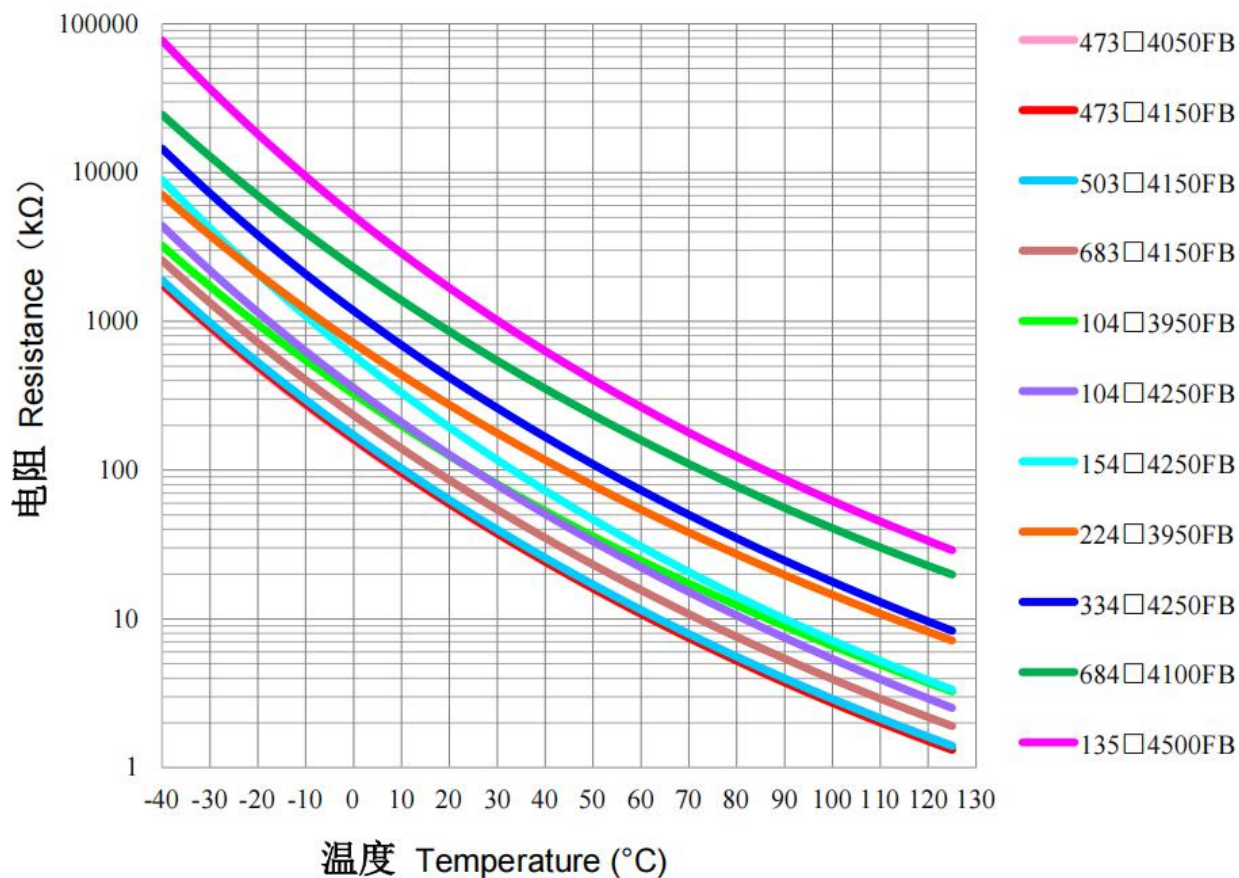
FNTC0603 Series (47kΩ~1300kΩ)



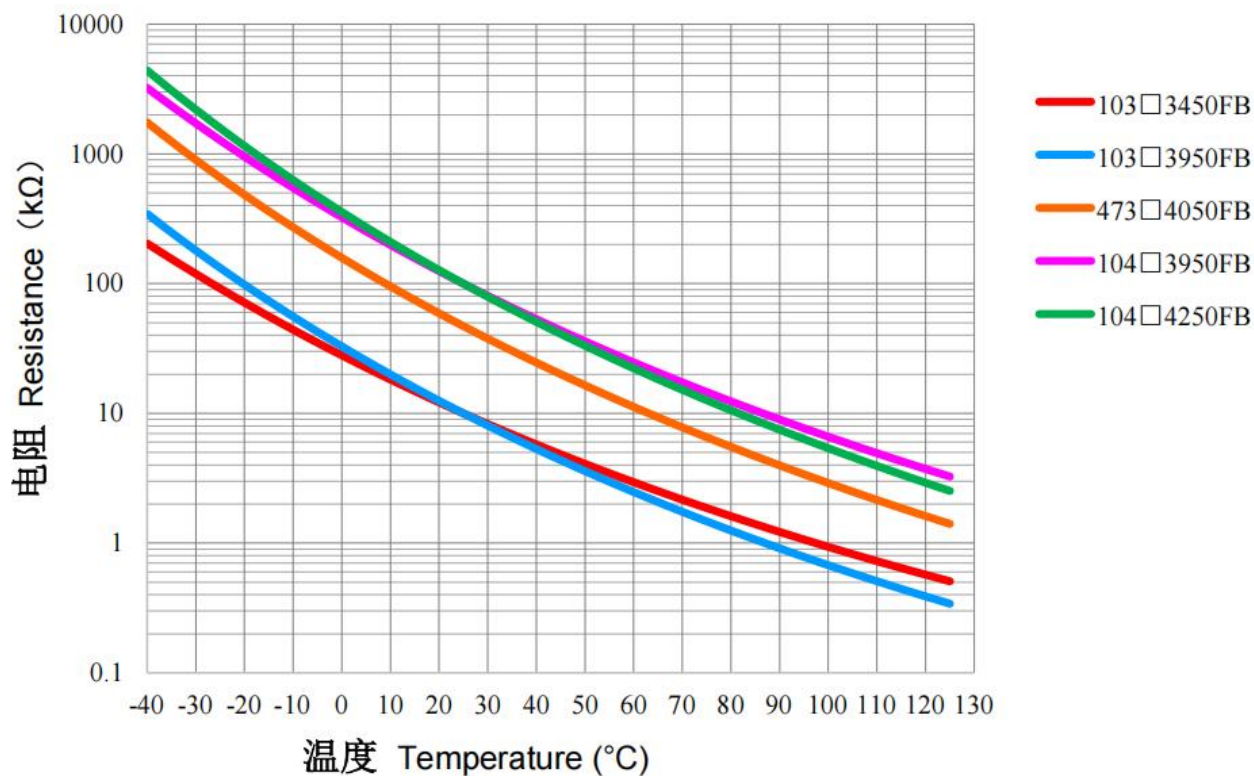
FNTC0805 Series (2.2kΩ ~ 33kΩ)



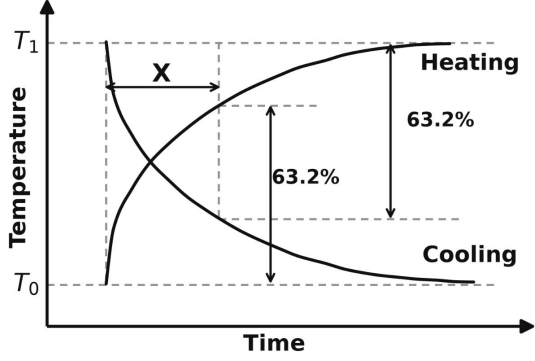
FNTC0805 Series (47kΩ~1300kΩ)



FNTC1206 Series (10kΩ~100kΩ)



8.测试方法 Test Method

No.	Items	Test Methods and Remarks
1	Nominal Zero-Power Resistance at 25°C(R25)	Ambient temperature: 25±0.01°C Measuring electric power: ≤0.1mW
2	B Constant	<p>Respectively measure the resistance value R1 & R2 at the ambient temperature of T1 & T2, calculate B constant value by the following formula:</p> $B(T_1/T_2) = \frac{\ln R_1 - \ln R_2}{1/T_1 - 1/T_2}$ <p>T: Absolute temperature (K) Usually 25°C and 50°C or 85°C are used.</p>
3	Thermal Time Constant	<p>Under zero-power conditions, when the ambient temperature of the thermistor changes drastically, the time required for the thermistor to produce a temperature change of 63.2% of the difference between the initial temperature and the final temperature, usually expressed in seconds (S).</p> 
4	Dissipation Factor	<p>The required power which makes the NTC thermistor body temperature raise 1 °C through self-heated, normally expressed in milliwatts per degree Celsius (mW/°C). It can be calculated by the following formula:</p> $\delta = \frac{W}{T - T_0}$
5	Rated Power	The necessary electric power makes thermistor's temperature rise 100°C by self-heating at ambient temperature 25°C.
6	Permissible operating current	The current that keep body temperature of chip NTC on the PC board in still air rising 1°C by self-heating.

9. 电阻温度特性表 Resistance-Temperature Characteristics

Model codes correspond to the FNTC series part numbers, e.g. 103□3380□B = FNTC××××X103□3380□B (applicable to all sizes listed in Section 6).

Table 9-1

Temp (°C)	472□3500□B	502□3500□B	682□3600□B	103□3380□B	103□3950□B	153□3950□B
R25 (kΩ)	4.7	5.0	6.8	10	10	15
B (K)	3500	3500	3600	3380	3950	3950
-40	105.705	112.452	158.872	197.390	345.275	517.912
-35	79.126	84.176	118.383	149.390	247.816	371.724
-30	59.794	63.611	89.287	114.340	180.032	270.048
-25	45.630	48.543	67.946	88.381	132.284	198.426
-20	35.144	37.387	52.215	68.915	98.185	147.278
-15	27.303	29.046	40.469	54.166	73.626	110.439
-10	21.377	22.741	31.618	42.889	55.744	83.617
-5	16.869	17.946	24.891	34.196	42.592	63.888
0	13.411	14.267	19.742	27.445	32.814	49.221
5	10.735	11.420	15.759	22.165	25.497	38.245
10	8.653	9.205	12.658	18.010	19.958	29.936
15	7.018	7.465	10.232	14.720	15.742	23.613
20	5.726	6.092	8.318	12.099	12.504	18.756
25	4.700	5.000	6.800	10.000	10.000	15.000
30	3.879	4.127	5.589	8.309	8.049	12.074
35	3.219	3.424	4.617	6.939	6.520	9.780
40	2.685	2.856	3.833	5.824	5.313	7.969
45	2.250	2.394	3.197	4.911	4.354	6.531
50	1.895	2.016	2.680	4.160	3.588	5.382
55	1.604	1.706	2.255	3.539	2.973	4.459
60	1.363	1.449	1.906	3.024	2.476	3.713
65	1.163	1.237	1.618	2.593	2.072	3.108
70	0.996	1.060	1.380	2.233	1.742	2.613
75	0.857	0.912	1.181	1.929	1.472	2.208
80	0.740	0.787	1.014	1.673	1.249	1.873
85	0.641	0.682	0.875	1.455	1.065	1.597
90	0.558	0.593	0.757	1.270	0.911	1.367
95	0.487	0.518	0.657	1.112	0.783	1.174
100	0.426	0.454	0.573	0.976	0.675	1.013
105	0.375	0.399	0.501	0.860	0.585	0.878
110	0.330	0.351	0.440	0.759	0.508	0.763
115	0.292	0.311	0.387	0.673	0.443	0.665
120	0.259	0.275	0.341	0.598	0.388	0.582
125	0.230	0.245	0.302	0.532	0.341	0.511

Table 9-2

Temp (°C)	223□3950◎B	333□3950◎B	473□3950◎B	473□4050◎B	683□4150◎B	104□3950◎B
R25 (kΩ)	22	33	47	47	68	100
B (K)	3950	3950	3950	4050	4150	3950
-40	759.605	1139.407	1622.792	1747.920	2735.359	3225.545
-35	545.196	817.793	1164.736	1245.428	1937.391	2343.289
-30	396.070	594.105	846.150	898.485	1389.345	1719.704
-25	291.025	436.537	621.734	655.802	1008.014	1274.376
-20	216.008	324.012	461.471	483.954	738.978	953.185
-15	161.977	242.965	346.041	360.850	547.456	719.319
-10	122.638	183.957	261.999	271.697	409.600	547.478
-5	93.702	140.554	200.182	206.463	309.217	420.105
0	72.191	108.286	154.225	158.214	235.606	324.899
5	56.093	84.140	119.835	122.259	180.980	253.161
10	43.907	65.860	93.801	95.227	140.139	198.687
15	34.633	51.949	73.988	74.730	109.344	157.015
20	27.509	41.264	58.769	59.065	85.929	124.908
25	22.000	33.000	47.000	47.000	68.000	100.000
30	17.709	26.563	37.832	37.643	54.167	80.550
35	14.344	21.516	30.644	30.334	43.421	65.265
40	11.688	17.532	24.970	24.591	35.016	53.180
45	9.578	14.367	20.463	20.048	28.406	43.569
50	7.894	11.841	16.864	16.433	23.166	35.881
55	6.540	9.810	13.972	13.539	18.997	29.699
60	5.446	8.169	11.635	11.209	15.657	24.701
65	4.559	6.838	9.739	9.328	12.967	20.641
70	3.832	5.748	8.187	7.798	10.794	17.325
75	3.239	4.858	6.919	6.544	9.021	14.605
80	2.748	4.122	5.870	5.518	7.575	12.364
85	2.342	3.513	5.004	4.674	6.387	10.509
90	2.004	3.007	4.282	3.972	5.407	8.967
95	1.722	2.583	3.679	3.388	4.598	7.680
100	1.486	2.229	3.175	2.902	3.922	6.601
105	1.287	1.931	2.750	2.494	3.359	5.694
110	1.119	1.678	2.390	2.150	2.887	4.929
115	0.975	1.463	2.084	1.860	2.489	4.280
120	0.854	1.281	1.824	1.615	2.155	3.728
125	0.750	1.125	1.602	1.406	1.870	3.257

Table 9-3

Temp (°C)	104□4250◎B	154□3950◎B	224□3950◎B	334□3950◎B	474□3950◎B	474□4050◎A
R25 (kΩ)	100	150	220	330	470	470
B (K)	4250	3950	3950	3950	3950	4050
-40	4397.119	4838.317	7096.199	10644.298	15160.061	15250.667
-35	3088.599	3514.933	5155.235	7732.852	11013.456	11090.796
-30	2197.225	2579.556	3783.348	5675.022	8082.608	8146.571
-25	1581.881	1911.564	2803.627	4205.441	5989.567	6041.010
-20	1151.037	1429.778	2097.008	3145.512	4479.971	4520.310
-15	846.579	1078.979	1582.502	2373.753	3380.799	3411.675
-10	628.988	821.217	1204.452	1806.678	2573.148	2596.202
-5	471.632	630.158	924.232	1386.348	1974.496	1991.242
0	357.012	487.348	714.777	1072.166	1527.024	1538.790
5	272.500	379.741	556.953	835.430	1189.855	1197.758
10	209.710	298.030	437.111	655.667	933.828	938.790
15	162.651	235.522	345.432	518.148	737.969	740.732
20	127.080	187.361	274.797	412.195	587.065	588.218
25	100.000	150.000	220.000	330.000	470.000	470.000
30	79.222	120.825	177.210	265.815	378.585	377.786
35	63.167	97.898	143.583	215.375	306.746	305.418
40	50.677	79.770	116.996	175.494	249.946	248.290
45	40.904	65.353	95.851	143.776	204.772	202.939
50	33.195	53.822	78.938	118.408	168.641	166.739
55	27.091	44.549	65.338	98.007	139.585	137.691
60	22.224	37.052	54.343	81.514	116.096	114.264
65	18.323	30.961	45.409	68.114	97.011	95.277
70	15.184	25.988	38.115	57.173	81.428	79.814
75	12.635	21.908	32.132	48.197	68.645	67.164
80	10.566	18.546	27.201	40.801	58.110	56.768
85	8.873	15.763	23.119	34.679	49.391	48.188
90	7.481	13.450	19.727	29.590	42.144	41.076
95	6.337	11.520	16.895	25.343	36.095	35.158
100	5.384	9.902	14.523	21.785	31.026	30.212
105	4.594	8.541	12.527	18.791	26.763	26.064
110	3.934	7.393	10.843	16.264	23.164	22.572
115	3.380	6.420	9.415	14.123	20.115	19.621
120	2.916	5.592	8.202	12.303	17.522	17.119
125	2.522	4.886	7.166	10.750	15.310	14.989

10. 可靠性测试 Reliability Tests

10.1 Mechanical performance

Item	Test method	Requirement
Bending test	Solder the NTC onto a test PCB and apply a force in the direction shown. 0201: deflection 1 mm; 0402/0603/0805/1206: deflection 2 mm; speed < 0.5 mm/s, held for 10±1 s.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
Terminal attachment	Solder the NTC onto a test PCB and apply the force for 10±1 s. 0201: 2 N; 0402/0603: 5 N; 0805/1206: 10 N.	No terminal electrode peel-off and no ceramic body damage.
Vibration	Solder the NTC onto a test PCB. Full amplitude 1.5 mm, frequency 10 Hz ~ 55 Hz, cycle 10→55→10 Hz in 1 minute, 2 h in each of three mutually perpendicular directions (6 h in total).	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
Drop	Free drop onto a concrete floor from a height of 1 m, 10 times.	No appearance damage.
Solderability	Solder temperature: 240±5°C; immersion time: 3±0.3 s; solder: 96.5Sn/3.0Ag/0.5Cu; flux: 25 wt% rosin + 75 wt% alcohol.	Solder coverage on the terminal electrode ≥ 95%, no appearance damage.
Resistance to soldering heat	Preheat: 150±5°C for 3 min; solder temperature: 260±5°C, immersion 10±1 s; solder: 96.5Sn/3.0Ag/0.5Cu; flux: 25 wt% rosin + 75 wt% alcohol; measure 1~2 h after the test under standard conditions.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.

10.2 Environmental performance

Item	Test method	Requirement
Temperature cycling	5 cycles without load: ① -40±5°C, 30±3 min → ② 25±2°C, 5±3 min → ③ 125±2°C, 30±3 min → ④ 25±2°C, 5±3 min. Measure 1~2 h after the test.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
Thermal shock	After one reflow pretreatment: -40°C (30 min) ↔ +125°C (30 min), transfer time within 20 s, 100 cycles in total.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
High temperature storage	125±5°C in air, without load, 1000±24 h. Measure 1~2 h after the test.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
Low temperature storage	-40±3°C in air, without load, 1000±24 h. Measure 1~2 h after the test.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
Humidity storage	60±2°C, 90~95%RH in air, without load, 1000±24 h. Measure 1~2 h after the test.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.
High temperature load	85±2°C in air, with the max. permissive operating current applied, 1000±48 h. Measure 1~2 h after the test.	① No appearance damage. ② ΔR_{25} within $\pm 2\%$. ③ ΔB within $\pm 1\%$.

* The above change rates apply to products with $R_{25} \geq 10 \text{ k}\Omega$. For products with $R_{25} < 10 \text{ k}\Omega$: ΔR_{25} within $\pm 5\%$, ΔB within $\pm 2\%$.

11. 包装信息 Packaging Information

Reel quantity

Size code (EIA)	Quantity per reel (pcs)	Quantity per boxl (pcs)
0201	15,000	900,000
0402	10,000	600,000
0603	4,000	240,000
0805	4,000	240,000
1206	3,000	180,000

12. 使用注意事项和预防措施 Cautions and Precautions for Use

12.1 Operating environment

The products are intended for use in general environments (normal temperature, humidity and pressure). Do not use or store the products under the following conditions, which may deteriorate the product characteristics or cause failure:

- (1) Corrosive or reducing gases (Cl₂, H₂S, NH₃, SO₂, NO, etc.)
- (2) Volatile or flammable gases
- (3) Dusty conditions
- (4) High or low pressure conditions
- (5) Humid locations
- (6) Locations exposed to salt water, oil, chemicals or organic solvents
- (7) Excessive vibration and shock
- (8) Other locations with similar harmful conditions

The products are made of brittle ceramic material. Excessive pressure or shock may cause cracking or breaking. Do not use the products beyond their rated values or outside the specified temperature range. Please provide appropriate protective functions in your application to prevent secondary damage caused by product malfunction or failure.

12.2 Storage

- (1) Storage temperature: -10℃ ~ +40℃
- (2) Relative humidity: ≤ 75%RH (non-condensing)
- (3) Keep away from dust, corrosive atmosphere and direct sunlight
- (4) Use the products within 6 months after delivery on a first-in, first-out basis

12.3 Soldering and mounting

- (1) Placement position: choose a proper position so that the stress applied to the products due to PCB bending or deflection is minimized. Keep the products away from slit and via positions of the PCB.
- (2) Recommended land pattern dimensions: Point 4 of the specification sheet Pad Dimension Diagram
- (3) Placement pressure: control the nozzle static load within 0.1 ~ 0.3 N; adjust the nozzle bottom dead point to the PCB surface to avoid board warpage; support the PCB back side to suppress bending. Worn positioning claws may cause localized mechanical shock, missing components or cracking — manage the claw closing dimension and maintain / replace the claws periodically.
- (4) Recommended reflow soldering conditions:
 - Temperature ramp: 1 ~ 2 °C/s
 - Preheat: 150 ~ 170℃ / 90±30 s (insufficient preheating may crack the ceramic body; keep the difference between preheat temperature and peak temperature at about 100℃)
 - Time above 240℃: 20 ~ 40 s; peak temperature: 260℃ max / 10 s
 - Solder paste: 96.5 wt%Sn / 3.0 wt%Ag / 0.5 wt%Cu; use rosin flux
 - Reflow soldering: 2 times max; cumulative time above peak temperature of two solderings must be within 30 s
 - Cooling: cool gradually in air; do not quench the products with solvent or other means

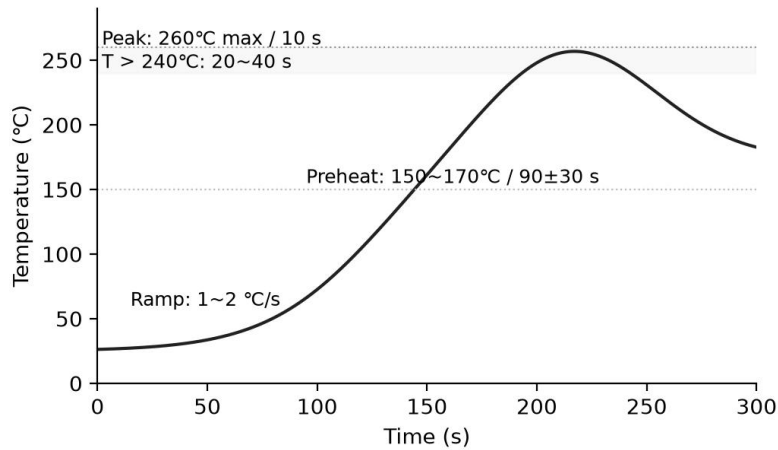


Fig. 12-1 Recommended reflow soldering profile

(5) Manual soldering: iron power 20 W max; preheat 150°C / 60 s; tip temperature 280°C max; soldering time 3 s max; 1 time max; the iron tip must not touch the terminal electrodes.

(6) Solder paste printing:

Size code (EIA)	Stencil thickness	Solder fillet height H
0201	100 μm	$1/3 T \leq H \leq T$
0402	150 μm	$1/3 T \leq H \leq T$
0603	150 μm	$1/3 T \leq H \leq T$
0805	200 μm	$0.2 \text{ mm} \leq H \leq T$
1206	200 μm	$0.2 \text{ mm} \leq H \leq T$

Excessive solder may cause mechanical stress, resulting in cracking, mechanical damage and/or damage to electronic components.

(7) After soldering:

When cleaning flux residue, avoid resonance between mounted components and the PCB during ultrasonic cleaning. Do not clean the products when non-water-washable flux is used.

Size code (EIA)	Solvent	Immersion cleaning	Ultrasonic cleaning
0201, 0402	Isopropyl alcohol	5 min (room temp.) or 2 min (max. 40°C)	Within 5 min, 20 W/L, 28~40 kHz
0603, 0805, 1206	Isopropyl alcohol	5 min (room temp.) or 2 min (max. 40°C)	Within 1 min, 20 W/L, 10~100 kHz

Dry the products promptly after cleaning.