

CHIP NTC THERMISTOR



■ FEATURES

- Miniature size ,No lead ,ideal for high density SMT installation
- Low resistance and high B-value series
- Superior solderability and resistance to soldering heat
- Ideal for wave or re-flow soldering
- Glass coating , high precision , small resistance drift
- Environment friendliness.

■ APPLICATIONS

- Temperature compensation in IC、LCD、transistor、crystal oscillator in devices such as mobile communications equipment
- Temperature sensing in rechargeable batteries
- Temperature sensor for CPU
- Temperature compensation in a variety of other circuits, such as advanced stereo、wireless earphone and etc.

■ PART NUMBER

CMF X XXX X XXXX X X X X

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product Code: Chip NTC Thermistor

② Size Code

Code	D	A	B	C
Size (Inches)	0402	0603	0805	1206

② Rated zero-power resistance(R_{25}) Unit: Ω

The first two are significant figure of resistance and the third one expresses number of following zeros.

④ Tolerance of R_{25} (%)

Code	E	F	G	H	J	K	X
Tolerance of R_{25}	± 0.5	± 1.0	± 2.0	± 3.0	± 5.0	± 10.0	Special tolerance

⑤ B value constant (25/50 $^{\circ}$ C)

⑥ Tolerance of B value(%)

Code	E	F	G	H	J	X
Tolerance of B value	± 0.5	± 1.0	± 2.0	± 3.0	± 5.0	Specific tolerance

⑦ B value Temperature Code

Code	A	B	C	D	E	F	G	H	M	N
T_1/T_2	25/50	25/ 85	0/25	0/50	0/100	0/80	25/100	-18/25	-20/25	5/25

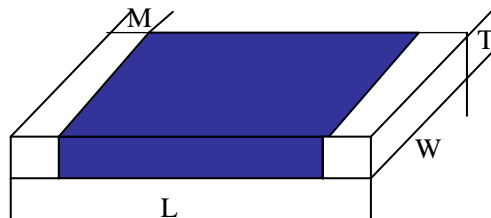
⑧ Termination Code: N—Nickel Barrier

CHIP NTC THERMISTOR



⑨ Packaging style Code: T—Tape & Reel、B—Bulk

DIMENSIONS



unit: inches(mm)

Size	L Length	W Width	T Thickness	M Termination Width
0402 (1005)	.04±.006 (1.0±0.15)	.02±.004 (0.5±0.10)	.024 max (0.60 max)	.004 min (0.10 min)
0603 (1608)	.063±.006 (1.6±0.15)	.031±.006 (0.8±0.15)	.037 max (0.95 max)	.004 min (0.10 min)
0805 (2012)	.08±.008 (2.0±0.20)	.05±.008 (1.25±0.20)	.05 max (1.25 max)	.006 min (0.15 min)
1206 (3216)	.126±.008 (3.2±0.20)	.063±.008 (1.6±0.20)	.063 max (1.60 max)	.008 min (0.20 min)

PRODUCT SERIES

- 0402 SERIES

Part No.	Resistance at 25°C (KΩ)	B-Constant 25/50°C (K)
CMFD102□3000○	1.0	3000
CMFD222□3200○	2.2	3200
CMFD332□3200○	3.3	3200
CMFD472□3400○	4.7	3400
CMFD472□4000○	4.7	4000
CMFD682□3400○	6.8	3400
CMFD103□3400○	10	3400
CMFD103□3650○	10	3650
CMFD103□3900○	10	3900



CMFD153□3900○	15	3900
CMFD223□3900○	22	3900
CMFD223□4050○	22	4050
CMFD333□3950○	33	3950
CMFD333□4150○	33	4150
CMFD473□4050○	47	4050
CMFD473□4150○	47	4150
CMFD683□4100○	68	4100
CMFD683□4200○	68	4200
CMFD104□4200○	100	4200
CMFD224□4300○	220	4300

- 0603、0805、1206 SERIES

Part No.	Resistance at 25°C (KΩ)	B-Constant 25/50°C (K)
CMF△221□3650○	0.22	3650
CMF△331□3650○	0.33	3650
CMF△471□3650○	0.47	3650
CMF△681□3650○	0.68	3650
CMF△102□3650○	1.0	3650
CMF△222□3650○	2.2	3650
CMF△222□4050○	2.2	4050
CMF△332□3650○	3.3	3650
CMF△332□4050○	3.3	4050
CMF△472□3650○	4.7	3650
CMF△472□4050○	4.7	4050
CMF△682□3650○	6.8	3650
CMF△682□4050○	6.8	4050
CMF△103□3500○	10	3500
CMF△103□3650○	10	3650



CMF△103□3900○	10	3900
CMF△153□3900○	15	3900
CMF△223□3950○	22	3950
CMF△223□4050○	22	4050
CMF△333□4000○	33	4000
CMF△333□4150○	33	4150
CMF△473□4050○	47	4050
CMF△473□4150○	47	4150
CMF△683□4100○	68	4100
CMF△683□4240○	68	4240
CMF△104□4300○	100	4300
CMF△224□4450○	220	4450
CMF△334□4500○	330	4500
CMF△105□4500○	1000	4500
CMF△225□4500○	2200	4500
CMF△335□4600○	3300	4600
CMF△475□4650○	4700	4650

Notice

- Size Code(D: 0402; △ denote A: 0603, B: 0805, C: 1206)
- □: Resistance tolerance (F: ±1%, G: ±2%, H: ±3%, J: ±5%, K: ±10%)
- ○: Tolerance of B-Constant (F: ±1%, G: ±2%, H: ±3%, J: ±5%)
- Operating Temperature Range: -40~+125
- Max rated Power: 0402 series 100mw, 0603 series 300mw, 0805、1206 series 350mw
- Dissipation factor(in still air 25°C): 0402 series 1mw/°C, 0603 series 3mw/°C, 0805、1206 series 3.5mw/°C
- Thermal time constant(in still air) : ≤10sec
- Products can be offered not including Pb and other harmful substances
- The above-mentioned products can be made into the radial and axial resin coating specification
- Special Products are available



■ RELIABILITY TEST AND TEST METHOD

NO.	ITEM	CRITERIA	TEST CONDITION															
1	HIGH TEMPERATURE TEST	<ul style="list-style-type: none"> • R25 CHANGE SHALL BE LESS THAN $\pm 3\%$ • B-CONSTANT (B25/50) CHANGE SHALL BE LESS THAN $\pm 2\%$ • NO VISIBLE DAMAGE 	WITHOUT LOADING, $125 \pm 3^\circ\text{C}$ IN AIR FOR 1000 +48/-0 HOURS															
2	LOW TEMPERATURE TEST		WITHOUT LOADING, $-40 \pm 3^\circ\text{C}$ IN AIR FOR 1000 +48/-0 HOURS															
3	HUMIDITY TEST		WITHOUT LOADING, $60 \pm 2^\circ\text{C}$ 90~95%RH IN AIR FOR 1000 +48/-0 HOURS															
4	HEAT CYCLE TEST		5 CYCLES OF FOLLOWING SEQUENCE WITHOUT LOADING. <table border="1"> <thead> <tr> <th>STEP</th> <th>TEMP($^\circ\text{C}$)</th> <th>TIME(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40 +0/-3</td> <td>30</td> </tr> <tr> <td>2</td> <td>ROOM TEMP.</td> <td>10~15</td> </tr> <tr> <td>3</td> <td>+125 +0/-3</td> <td>30</td> </tr> <tr> <td>4</td> <td>ROOM TEMP.</td> <td>10~15</td> </tr> </tbody> </table>	STEP	TEMP($^\circ\text{C}$)	TIME(min)	1	-40 +0/-3	30	2	ROOM TEMP.	10~15	3	+125 +0/-3	30	4	ROOM TEMP.	10~15
STEP	TEMP($^\circ\text{C}$)		TIME(min)															
1	-40 +0/-3		30															
2	ROOM TEMP.	10~15																
3	+125 +0/-3	30																
4	ROOM TEMP.	10~15																
5	HIGH TEMPERATURE LOAD TEST	$85 \pm 2^\circ\text{C}$ IN AIR, WITH MAX. OPERATING CURRENT FOR 1000 +48/-0 HRS..																
6	VIBRATION	FREQUENCY: 10~55~10Hz AMPLITUDE: 1.5mm VIBRATED FOR A PERIOD OF 2HRS. IN XYZ THERR DIRECTIONS EACH OTHER ,TOTBL 6HRS..																
7	RESISTANCE TO SOLDERING HEAT	MINIMUM 75% OF THE WHOLE ELECTRODE SURFBCE SHBLL BE COVERED WITH SOLDER	<ul style="list-style-type: none"> • ENVIRONMENT FRIENDLINESS SOLDERING TEMP. : $285 \pm 5^\circ\text{C}$ IMMERSION TIME: $10 \pm 0.5\text{SEC}$. PRE. TEMP. : $150 \pm 5^\circ\text{C}$ PRE. TIME. : 60SEC. <ul style="list-style-type: none"> • OTHER PRODUCT SOLDERING TEMP. : $260 \pm 5^\circ\text{C}$ IMMERSION TIME: $10 \pm 0.5\text{SEC}$. PRE. TEMP. : $150 \pm 5^\circ\text{C}$ PRE. TIME. : 3min.															
8	SOLDERABILITY	MINIMUM 95% OF THE WHOLE ELECTRODE SURFBCE SHBLL BE COVERED WITH SOLDER	<ul style="list-style-type: none"> • ENVIRONMENT FRIENDLINESS SOLDERING TEMP. : $255 \pm 5^\circ\text{C}$ IMMERSION TIME: $5 \pm 0.5\text{SEC}$. PRE. TEMP. : $120 \pm 5^\circ\text{C}$ PRE. TIME. : 60SEC <ul style="list-style-type: none"> • OTHER PRODUCT SOLDERING TEMP. : $235 \pm 5^\circ\text{C}$ IMMERSION TIME: $5 \pm 0.5\text{SEC}$. PRE. TEMP. : $120 \pm 5^\circ\text{C}$ PRE. TIME. : 60SEC															
9	ADHESIVE STRENGTH OF ELECTRODE	NO PEELING OF THE ELECTRODES	SOLDER NTC THERMISTOR ON THE GLASS EPOXY PCB, AND APPLY 5N OF FORCE															



■ PACKAGING

- Packaging Style: Bulk and taping
- Carrier configuration

1、 Paper tape (mm)

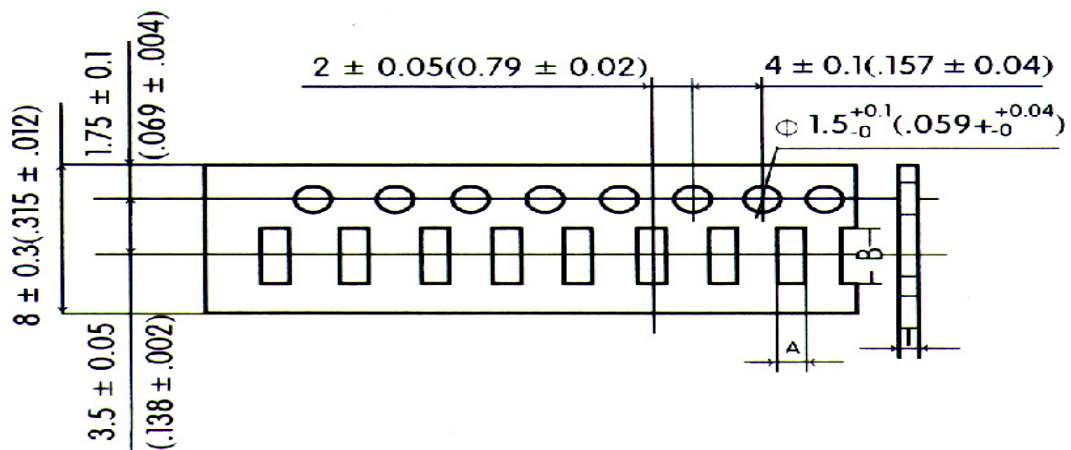


Fig.1

2、 Polystyrene tape (mm)

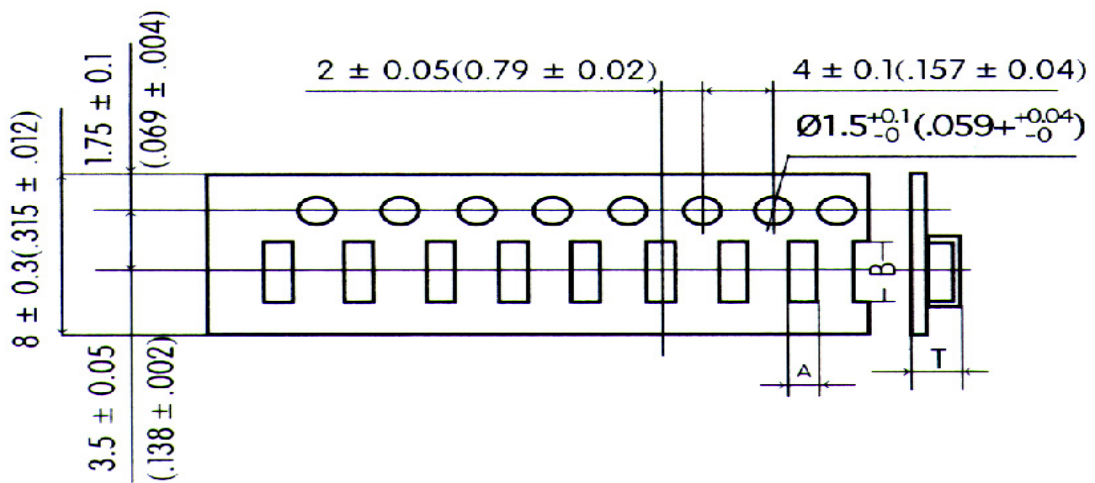


Fig.2

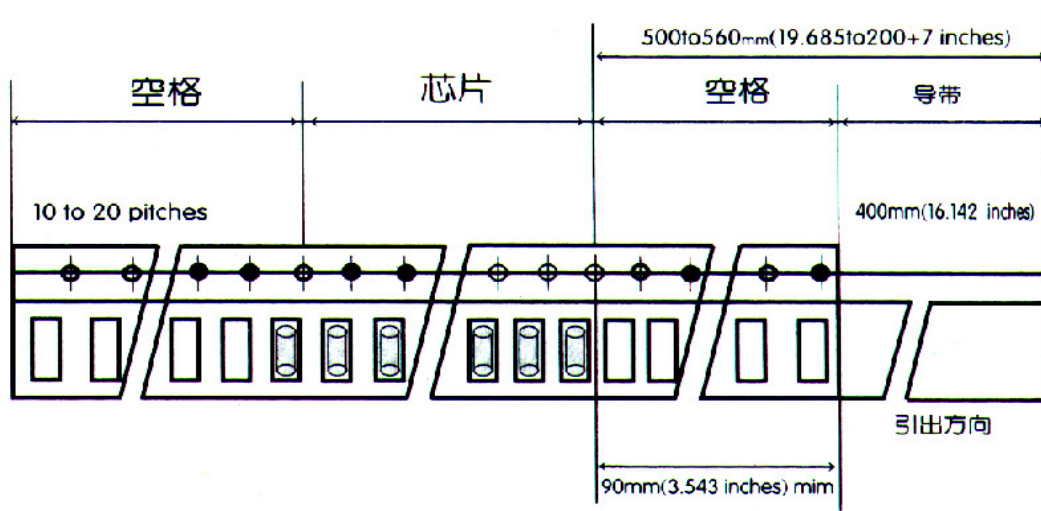


Fig. 3

3、Reel Dimensions

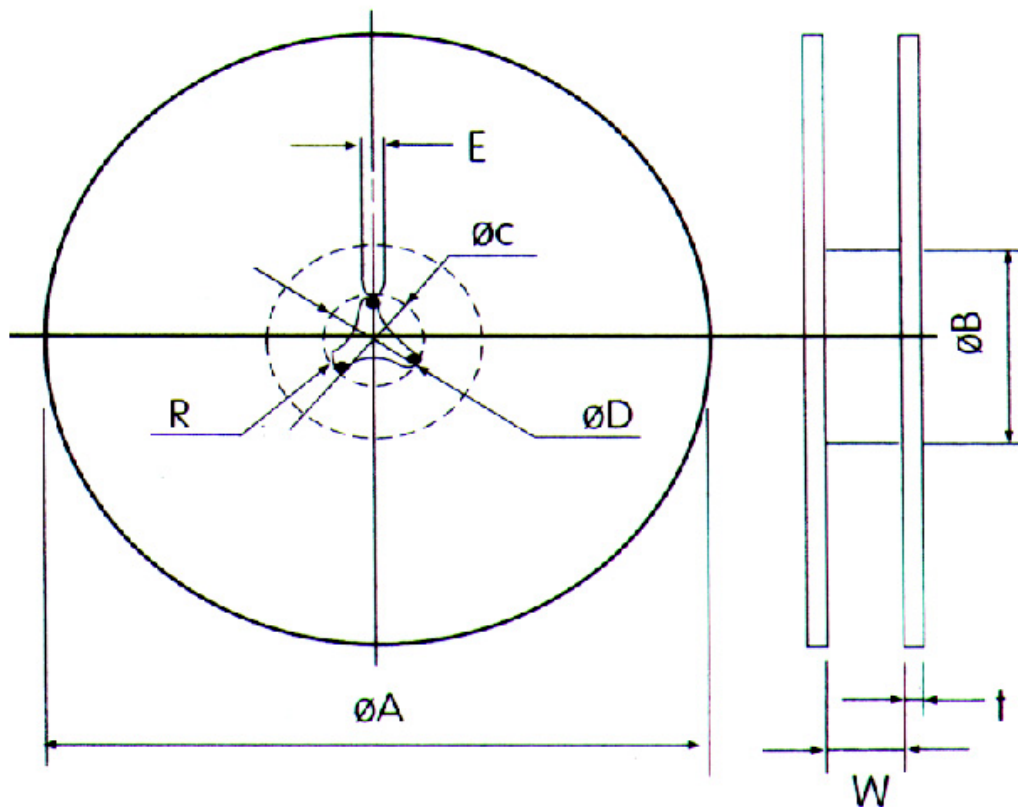


Fig. 4



Dimensions:mm

A	178±2(7.00±0.079)
B	60±1(2.36±0.039)
C	130±0.5(5.12±0.020)
D	210±0.8(8.27±0.031)
E	20±0.5(0.79±0.020)
W	10.0±1.0(0.39±0.039)
T	2.0±1.0(0.079±0.020)
R	1.0(0.039)

Reel material: Plastics

4、Packaging Quantity inch(mm)

Symbol	0402(1005)	0603(1608)	0805(2012)		1206(3216)	
A	.025(0.62)	.048(1.10)	.057(1.45)		.075(1.90)	
B	.044(1.12)	.070(1.80)	.091(2.30)		.138(3.50)	
T	.024(0.60)	.031(0.80)	.033(0.85)	.049(1.25)	.033(0.85)	.043(1.10)
max	.025(0.65)	.037(0.95)	.037(0.95)	.059(1.50)	.037(0.95)	.053(1.37)
Fig No	1	1	1	2	1	2
Pcs/reel	10000	4000	4000	3000	4000	3000

5、Big Packaging

Box Packaging

second Packaging

Quantity: 5 Reels.

Quantity: 12 boxes.

(Max 20000pcs)

(Max 300000pcs)

