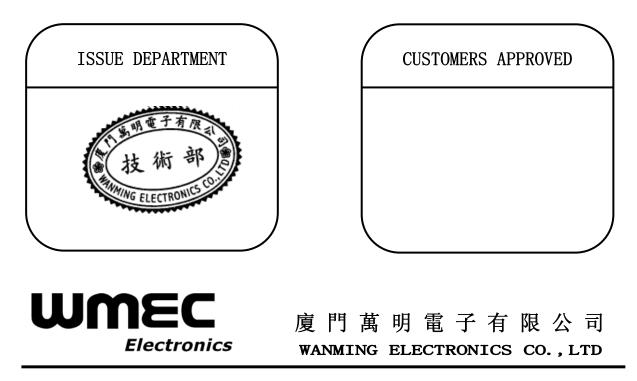
CUSTOMERS:

SPECIFICATION FOR APPROVAL SHEET NO: WM-S08-012

DESCRIPTION:	NTC THERMISITORS	
CUSTOMER P/N:		_
PART NO:		_
TYPE:	WTR TYPE	_
DATE:	2011/04/01	



地址: 廈門杏林工業區日新路2號 電話: 0592-6220571 傳真: 0592-6220570 ADDRESS:No 2 RiXin Road XingLin District XiaMen, FuJian, China TEL: 86-592-6220571/572/573 FAX: 86-592-6220570

NTC Thermistors

For Inrush Current Suppression Lead Type

WTR Series

Features

- 1. Lead is not contained in the ceramic element, the terminations, the solder for inner connection and the coating resin.
- 2. Most suitable for power supplies of less than 100W
- 3.Excellent recovery characteristics due to resin coating with excellent heat characteristics
- 4. Wide resistance range
- 5. Highly reliable

Applications

- 1. Swith mode power supplies
- 2. Electric motors
- 3. Transformer.
- 4. Adapter
- 5. CRT monitors
- 6. Other power circuits

Explanation of part Number



①Product ID	
Product ID	Contents
WTR	Inrush Current Limiters NTC Thermistors
②Series	
Code	Dimensions
05D	Φ 5.0 mm
08D	Ф 8.0 mm
10D	Φ 10 mm
13D	φ 13 mm
15D	φ 15mm
20D	Φ 20 mm
25D	φ 25 mm
30D	φ 30 mm

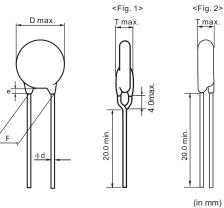
③Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

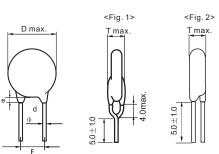
Ex.)	Code	Resistance
	5R0	5 Ω
	100	10 Ω

6 7 8	
4 Resistance Tolera	nce
Code	Resistance Tolerance
L	±15%
Μ	±20%
⑤Lead style	
Code	Lead Style
Α	Straight Lead (Long)
В	Straight Lead (Short)
G	Vertical Crimped (Short)
н	Vertical Crimped (Long)
⑥Lead Spacing	
Code	Lead Spacing(\pm 1.0)
2	5.0mm
3	7.50mm
4	10.0mm
⑦Packaging	
Code	Packaging
В	Bulk
А	Taping Ammo Pack
R	Taping Reel Pack
8 Internal Code	

Dimensions



		(in mm)
Lead code	Coating Extension e	Style
G2	up to the end of crimp	Fig. 1
G3 ,G4	up to the end of crimp	Fig. 1
A2	4.0 max.	Fig. 2
A3,A4	4.0 max.	Fig. 2



		(in mm)
Lead code	Coating Extension e	Style
H2	up to the end of crimp	Fig. 1
H3 ,H4	up to the end of crimp	Fig. 1
A2	4.0 max.	Fig. 2
A3,A4	4.0 max.	Fig. 2

(in mm)

Series	Disc Size	D max.	F	T max.	φd
05D	φ5.0	8.5	5.0±1.0	5.0	0.6±0.05
08D	Φ8.0	10.5	5.0±1.0	5.0	0.6±0.05
10D	φ 10	12.5	5.0±1.0	5.0	0.6±0.05
13D	ф 13	15.0	7.5±1.0	5.0	0.8±0.05
15D	φ15	17.5	7.5±1.0	5.0	1.0±0.05
20D	Φ20	23.0	10±1.0	5.5	1.0±0.05
25D	φ25	29.0	10±1.0	6.0	1.0±0.05
30D	φ 30	36.0	10±1.0	6.0	1.0±0.05

Specification

Part Number	Zero power resistance (25 ^{°C}) (ohm)	Max. Steady state current (25 [°] C) (A)		Thermal dissipation constant (mw/°C)	Thermal time constant (se c.)	Operating thmperature range (°C)	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
WTR05D050M □ □ □	5	2			,				
WTR05D080M □ □ □	8	1							
WTR05D100M □ □	10	1	1.8	14	18	-40~+150	G2B	H2B	G2A
WTR05D120M □ □	12	0.7							
WTR05D160M □ □	16	0.7							
WTR05D200M □ □	20	0.3							
WTR08D030M	3	4							
WTR08D040M □ □	4	3		45	30	40 1470	000	LIOD	004
WTR08D050M □ □	5	3	2.3	15	30	-40~+170	G2B	H2B	G2A
WTR08D060M □ □	6	2							
WTR08D080M □ □ □	8	2							
WTR08D100M □ □	10	2							

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WANMING ELECTRONICS CO., LTD.

NTC Thermistors

NTC Thermistors

Continued from the preceding page.

Part Number	Zero power resistance (25℃) (ohm)	Max. Steady state current (25℃) (A)	Max. Steady power rating (25℃) (w)	Thermal dissipation constant (mw/°C)	Thermal time constant (sec.)	Operating thmperature range (℃)	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
WTR08D120M □ □	12	2							
WTR08D160M □ □ □	16	2							
WTR08D200M □ □ □	20	1							
WTR08D220M □ □ □	22	1	2.3	16	38	-40 ~ +170	G2B	H2B	G2A
WTR08D300M □ □ □	30	0.5							
WTR08D330M □ □ □	33	0.5							
WTR08D500M □ □ □	50	0.5							
WTR10D010M □ □ □	1	5							
WTR10D1R5M	1.5	5							
WTR10D2R5M □ □ □	2.5	5							
WTR10D030M □ □ □	3	5							
WTR10D040M □ □ □	4	4							
WTR10D050M □ □ □	5	4							
WTR10D060M	6	3				-40 ~ +170	G2B	H2B	G2A
WTR10D070M	7	3		17	43				
WTR10D080M	8	3	2.4						
WTR10D100M	10	3							
WTR10D120M □ □ □	12	2							
WTR10D160M □ □ □	16	2							
WTR10D200M □ □ □	20	2	-						
WTR10D250M □ □ □	25	2							
WTR10D300M □ □ □	30	2							
WTR10D500M □ □ □	50	1.5	-						
WTR10D600M □ □ □	60	1.5	-						
WTR10D800M □ □ □	80	1	-						
WTR10D121M □ □ □	120	1							
WTR13D1R3M	1.3	7	-						
WTR13D1R5M □ □	1.5	7	-						
WTR13D2R5M □ □	2.5	6							
WTR13D030M □ □ □	3	6							
WTR13D040M	4	5	-						
WTR13D050M	5	5	-						
WTR13D060M	6	4	-						
WTR13D070M	7	4	0.4	10		40	000		004
WTR13D080M	8	4	3.1	18	66	-40 ~ +200	G3B	H3B	G3A
WTR13D100M	10	4							
WTR13D120M	12	4	-						
WTR13D150M	15	3	-						
WTR13D160M	16	3							
WTR13D200M	20	3	-						
WTR13D300M	30	2.5	-						
WTR13D470M	47	2.0	-						
WTR13D121M 🛛 🗠 🗠	120	1.5							

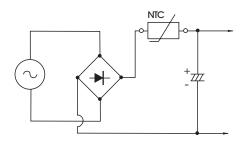
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NTC Thermistors

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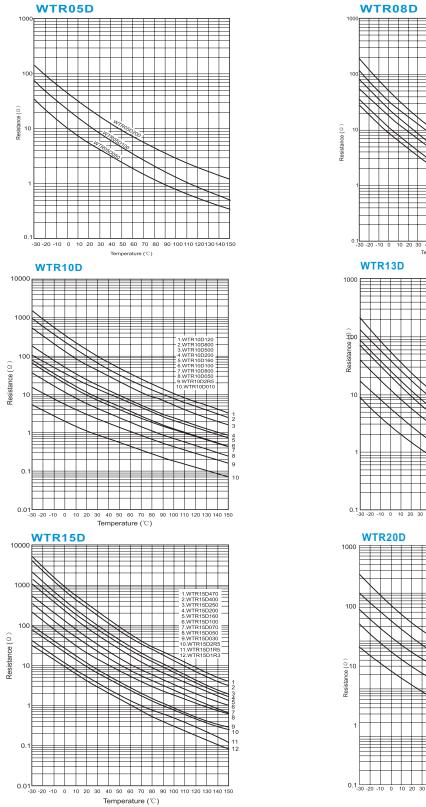
Part Number (25°C) (25°C) constant constant constant cance Package Package Package										
WTR15D1RS 1.5 8 WTR15D2RS 2.5 8 WTR15D3040 3 7 WTR15D040M 4 6 WTR15D060M 5 6 WTR15D060M 6 5 WTR15D060M 6 5 WTR15D060M 7 5 WTR15D060M 0 6 WTR15D060M 7 5 WTR15D060M 10 5 WTR15D10M 110 5 WTR15D160M 16 4 WTR15D160M 16 4 WTR15D160M 16 4 WTR15D160M 120 4 WTR15D260M 120 2 WTR15D260M 120 2 WTR15D200M 13 9 WTR20026M 13 9 WTR20026M 2 8 WTR20026M 2 8 WTR20026M 2 8 WTR20026M 3 8	Part Number	resistance (25℃)	state current (25℃)	power rating (25℃)	dissipation constant	time constant	thmperature range	Package	Package	Lead Package Taping
WTR15D2R5M □ 0 2.5 8 WTR15D030M 0 3 7 WTR15D030M 0 4 6 WTR15D030M 0 5 6 WTR15D030M 0 6 5 WTR15D030M 0 6 5 WTR15D030M 0 7 5 WTR15D030M 0 7 5 WTR15D030M 0 10 5 WTR15D030M 0 102 4 WTR15D100M 0 115 4 WTR15D100M 0 15 4 WTR15D100M 0 16 4 WTR15D100M 0 25 3 WTR15D200M 0 27 3 WTR15D200M 0 27 3 WTR15D200M 0 0 3 WTR20020M 0 0 3 WTR20020M 0 0 3 WTR20020	WTR15D1R3M □ □	1.3	8							
WTR15D030H 3 7 WTR15D040H 4 6 WTR15D060H 5 6 WTR15D060H 6 5 WTR15D060H 6 5 WTR15D060H 6 5 WTR15D060H 6 5 WTR15D100H 6 5 WTR15D100H 10 5 WTR15D100H 12 4 WTR15D100H 15 4 WTR15D100H 16 4 WTR15D200H 20 4 WTR15D200H 20 4 WTR15D200H 20 4 WTR15D200H 0 2 WTR15D200H 0 2 WTR15D200H 0 2 WTR15D200H 0 2 WTR20D20H 13 9 WTR20D20H 3 8 WTR20D20H 2 8 WTR20D20H 3 8 WTR20D20H 5 7	WTR15D1R5M □ □	1.5	8							
WTR15D040M 0 0 4 6 WTR15D050M 0 0 5 6 WTR15D060M 0 0 6 5 WTR15D060M 0 0 7 5 WTR15D060M 0 0 10 5 WTR15D060M 0 0 10 5 WTR15D060M 0 0 12 4 WTR15D160M 0 0 15 4 WTR15D160M 0 0 16 4 WTR15D160M 0 0 20 4 WTR15D160M 0 0 40 3 WTR15D200M 0 0 20 4 WTR15D200M 0 0 20 4 WTR15D200M 0 0 40 3 WTR15D200M 0 0 40 3 WTR15D200M 0 0 120 2 WTR20D0R7M 0 0 1.3 9 WTR20D0R7M 0 0 3 8 WTR20D20K 0 0 2 8 WTR20D20K 0 0 5 7 WTR20D20K 0 0 5 7 WTR20D20K 0 0 6 6 WTR20D204M 0 0 13	WTR15D2R5M □ □	2.5	8							
WTR15D050M G G WTR15D060M G 5 WTR15D070M 7 5 WTR15D010M 0 5 WTR15D010M 0 10 VTR15D010M 12 4 WTR15D120M 15 4 WTR15D10M 15 4 WTR15D10M 0 16 WTR15D10M 16 4 WTR15D10M 20 4 WTR15D10M 40 3 WTR15D20M 40 3 WTR15D20M 40 3 WTR15D20M 40 3 WTR15D20M 40 3 WTR15D200M 600 2.5 WTR15D200M 13 9 WTR2000R 0.7 12 WTR20002M 2.5 8 WTR20002M 2.5 8 WTR20002M 3 8 WTR20004M 3 8 WTR20004M 6 6 </td <td>WTR15D030M □ □</td> <td>3</td> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	WTR15D030M □ □	3	7							
WTR15D060M G G WTR15D070M 7 5 WTR15D080M 8 5 WTR15D080M 0 5 WTR15D100M 10 5 WTR15D100M 12 4 WTR15D150M 16 4 WTR15D120M 16 4 WTR15D100M 20 4 WTR15D200M 25 3 WTR15D400M 40 3 WTR15D400M 40 3 WTR15D400M 40 3 WTR15D400M 120 2 WTR15D400M 120 2 WTR2000R 0.7 12 WTR2000R 0.7 12 WTR2000R 2.5 8 WTR2002RM 2.5 8 WTR20003M 3 8 WTR2002RM 2 8 WTR2002RM 4 8 WTR20003M 6 6 WTR200030M 6 6	WTR15D040M □ □	4	6							
WTR15D070M T 5 WTR15D080M 8 5 WTR15D100M 10 5 WTR15D100M 12 4 WTR15D100M 12 4 WTR15D100M 16 4 WTR15D100M 20 4 WTR15D200M 20 4 WTR15D200M 20 4 WTR15D200M 40 3 WTR15D200M 47 3 WTR15D21M 470 3 WTR15D21M 0.7 12 WTR20D07M 0.7 12 WTR20D07M 0.7 12 WTR20007M 0.7 12 WTR20007M 2.5 8 WTR20003M 3 8 WTR20003M 5 7 WTR20003M 6 6 WTR20003M 6 6 WTR20003M 10 6 WTR20003M 12 5 WTR20010M 12 5	WTR15D050M □ □	5	6							
WTR15D080M 8 5 WTR15D100M 10 5 WTR15D120M 12 4 WTR15D100M 15 4 WTR15D100M 16 4 WTR15D200M 20 4 WTR15D200M 20 4 WTR15D200M 20 4 WTR15D200M 40 3 WTR15D200M 80 2.5 WTR2000R 0.7 12 WTR2000R 1.3 9 WTR2002RM 0.2.5 8 WTR2002RM 2.5 8 WTR2002RM 0.2.5 8 WTR2002RM 0.2.5 8 WTR2002RM 0.2.5 8 WTR20002M 6 6 WTR20000M 16	WTR15D060M □ □	6	5							
WTR15D100M 10 5 WTR15D120M 12 4 WTR15D150M 15 4 WTR15D160M 16 4 WTR15D200M 20 4 WTR15D200M 20 4 WTR15D200M 25 3 WTR15D470M 40 3 WTR15D200M 40 3 WTR15D470M 0 25 WTR15D200M 0.7 120 WTR15D200TM 0.7 120 WTR20D0TM 0.7 12 WTR20D0TM 2.5 8 WTR200D0TM 1.3 9 WTR20002M 2.5 8 WTR20002M 2 8 WTR20002M 3 8 WTR20000M 6 6 WTR20000M 6 6 WTR20000M 8 6 WTR20000M 10 6 WTR20000M 10 6 WTR200100M 10	WTR15D070M □ □	7	5							
WTR15D100M 10 5 WTR15D100M 12 4 WTR15D100M 15 4 WTR15D100M 16 4 WTR15D100M 20 4 WTR15D100M 20 4 WTR15D200M 20 4 WTR15D200M 40 3 WTR15D40M 40 3 WTR15D20M 80 2.5 WTR15D200M 80 2.5 WTR15D200M 10.0 2 WTR20D0R7M 0.0 2 WTR20D0R7M 0.0 2 WTR20D020M 2 8 WTR20D020M 2 8 WTR20D020M 3 8 WTR20D020M 5 7 WTR20D020M 6 6 WTR20D080M 6 6 WTR20D080M 7 6 WTR20D080M 10 6 WTR20D080M 110 6 WTR20D100M 116	WTR15D080M □ □ □	8	5	2.0	01	75	40 1000	020		C 2A
WTR15D150M154WTR15D160M164WTR15D200M204WTR15D250M253WTR15D200M403WTR15D470M403WTR15D470M802.5WTR15D11M1202WTR20D077M0.712WTR20D077M0.712WTR20D20M2.5WTR20D20M2.5WTR20D20M2.5WTR20D030M3.8WTR20D030M5WTR20D050M5VTR20D050M57WTR20D050M606WTR20D050M706WTR20D050M1066WTR20D050M11076WTR20D050M1276WTR20D100M10106WTR20D100M15WTR20D100M15WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M16WTR20D100M <t< td=""><td>WTR15D100M □ □ □</td><td>10</td><td>5</td><td>3.0</td><td>21</td><td>75</td><td>-40 ~ +200</td><td>G3B</td><td>пзв</td><td rowspan="10">G3A</td></t<>	WTR15D100M □ □ □	10	5	3.0	21	75	-40 ~ +200	G3B	пзв	G3A
WIR15D160M 0 16 4 WIR15D160M 0 16 4 WIR15D200M 20 4 4 WIR15D200M 25 3 4 WIR15D100M 40 3 4 WIR15D400M 40 3 4 WIR15D200M 40 3 4 WIR15D11M 0 2 4 WIR20D0R7M 0.7 12 4 WIR20D20M 2 8 4 WIR20D20M 2 8 4 WIR20D20M 2 8 4 WIR20D20M 2 8 4 WIR20D020M 2 8 4 WIR20D030M 3 8 4 WIR20D050M 5 7 4 WIR20D050M 6 6 4 WIR20D050M 6 6 4 WIR20D120M 10 6 4 WIR20D120M 10	WTR15D120M □ □ □	12	4							
WTR1SD2000204WTR1SD2500253WTR1SD4000403WTR1SD4000403WTR1SD4700473WTR1SD121M802.5WTR20D07M0.712WTR20D07M0.712WTR20D1R3M1.39WTR20D20M28WTR20D20M2.58WTR20D20M2.58WTR20D20M57WTR20D030M66WTR20D050M57WTR20D050M66WTR20D060M66WTR20D050M106WTR20D100M1106WTR20D100M1125WTR20D150M1155WTR20D150M1165	WTR15D150M □ □ □	15	4							
WTR15D250M 25 3 WTR15D400M 40 3 WTR15D400M 47 3 WTR15D470M 47 3 WTR15D10M 80 2.5 WTR15D121M 120 2 WTR20D0R7M 0.7 12 WTR20D1R3M 1.3 9 WTR20D20M 2.5 8 WTR20D20M 2.5 8 WTR20D020M 2.5 8 WTR20D030M 3 8 WTR20D030M 5 7 WTR20D000M 6 6 WTR20D000M 7 6 WTR20D000M 10 6 WTR20D100M 112 5 WTR20D100M 115 5 WTR20D150M 155 5 WTR20D150M 16 5	WTR15D160M	16	4							
WTR15D4000 40 3 WTR15D4700 47 3 WTR15D4700 60 2.5 WTR15D121M 120 2 WTR20D077M 0.7 12 WTR20D1R3M 1.3 9 WTR20D20M 2.5 8 WTR20D20Sh 2.5 8 WTR20D20Sh 2.5 8 WTR20D030M 3.8 8 WTR20D030M 5 7 WTR20D050M 6 6 WTR20D060M 7 6 WTR20D030M 8 6 WTR20D100M 10 6 WTR20D100M 113 64 WTR20D100M 10 6 WTR20D100M 115 5 WTR20D1100M 116 5	WTR15D200M □ □ □	20	4							
WTR15D47000 0 47 3 WTR15D80000 0 80 2.5 WTR15D12110 0 120 2 WTR20D007700 0 0.7 12 WTR20D113300 0 1.3 9 WTR20D2000 0 2.5 8 WTR20D20500 0 2.5 8 WTR20D03000 0 3 8 WTR20D05000 0 5 7 WTR20D05000 0 6 6 WTR20D05000 0 7 6 WTR20D03000 0 8 6 WTR20D10000 0 10 6 WTR20D10000 0 12 5 WTR20D10000 0 12 5 WTR20D10000 0 115 5 WTR2011000 0 115 5 WTR2011000 0 16 5	WTR15D250M □ □ □	25	3							
WTR15D800M 80 2.5 WTR15D121M 120 2 WTR20D0R7M 0.7 12 WTR20D1R3M 1.3 9 WTR20D20M 2 8 WTR20D2R5M 2.5 8 WTR20D030M 3 8 WTR20D030M 5 7 WTR20D050M 6 6 WTR20D060M 7 6 WTR20D080M 8 6 WTR20D100M 10 6 WTR20D100M 12 5 WTR20D100M 12 5 WTR20D100M 15 5 WTR20D100M 16 5	WTR15D400M □ □ □	40	3							
WTR15D121M 120 2 Image: Normal State Network State N	WTR15D470M □ □	47	3							
WTR20D0R7M 0.7 12 WTR20D1R3M 1.3 9 WTR20D020M 2 8 WTR20D02S5M 2.5 8 WTR20D030M 3 8 WTR20D050M 4 8 WTR20D050M 6 6 WTR20D050M 7 6 WTR20D070M 7 6 WTR20D080M 8 6 WTR20D100M 10 6 WTR20D120M 12 5 WTR20D150M 15 5 WTR20D160M 16 5	WTR15D800M □ □ □	80	2.5							
WTR20D1R3M 1.3 9 WTR20D020M 2 8 WTR20D2R5M 2.5 8 WTR20D030M 3 8 WTR20D040M 4 8 WTR20D050M 5 7 WTR20D050M 6 6 WTR20D050M 7 6 WTR20D070M 7 6 WTR20D080M 8 6 WTR20D100M 10 6 WTR20D100M 112 5 WTR20D150M 15 5 WTR20D160M 16 5	WTR15D121M □ □	120	2							
WTR20D020M 0 2 8 WTR20D2R5M 0 2.5 8 WTR20D030M 0 3 8 WTR20D040M 0 4 8 WTR20D050M 0 5 7 WTR20D060M 0 6 6 WTR20D060M 0 7 6 WTR20D080M 0 8 6 WTR20D100M 0 10 6 WTR20D100M 0 10 6 WTR20D100M 0 12 5 WTR20D150M 0 15 5 WTR20D160M 0 16 5	WTR20D0R7M □ □	0.7	12							
WTR20D2R5M 0 2.5 8 WTR20D030M 0 3 8 WTR20D040M 0 4 8 WTR20D050M 0 5 7 WTR20D060M 0 6 6 WTR20D060M 0 6 6 WTR20D070M 0 7 6 WTR20D080M 0 8 6 WTR20D100M 0 10 6 WTR20D120M 0 12 5 WTR20D150M 0 15 5 WTR20D160M 0 16 5	WTR20D1R3M	1.3	9							
WTR20D030M · · · 3 3 8 WTR20D040M · · · 44 8 WTR20D050M · · · 55 7 WTR20D060M · · · 66 6 WTR20D070M · · · 7 6 WTR20D080M · · · 8 6 WTR20D080M · · · 10 6 WTR20D100M · · · 112 5 WTR20D150M · · · 16 5	WTR20D020M □ □ □	2	8							
WTR20D040M · · · · 4 8 WTR20D050M · · · · 5 7 WTR20D060M · · · · 6 6 WTR20D070M · · · · 7 6 WTR20D080M · · · · 8 6 WTR20D0100M · · · · 10 6 WTR20D100M · · · · 10 6 WTR20D100M · · · · 112 5 WTR20D150M · · · · 15 5 WTR20D160M · · · · 16 5	WTR20D2R5M	2.5	8							
WTR20D050M · · · · 5 5 7 WTR20D060M · · · · 6 6 6 WTR20D070M · · · 7 6 WTR20D080M · · · 8 6 WTR20D100M · · · 10 6 WTR20D120M · · · 12 5 WTR20D150M · · · 16 5	WTR20D030M □ □	3	8							
WTR20D060M 6	WTR20D040M □ □	4	8							
WTR20D060M 6 WTR20D070M 7 6 6 WTR20D080M 8 6 6 WTR20D100M 10 6 6 WTR20D120M 12 5 5 WTR20D150M 16 5 5	WTR20D050M □ □	5	7			410	40 005			<u> </u>
WTR20D080M 8 6 WTR20D100M 10 6 WTR20D120M 12 5 WTR20D150M 15 5 WTR20D160M 16 5	WTR20D060M □ □	6	6	4.9	28	113	-40 ~ +200	G4B	H4B	G4A
WTR20D100M · · · 10 6 WTR20D120M · · · 12 5 WTR20D150M · · · 15 5 WTR20D160M · · · 16 5	WTR20D070M □ □	7	6							
WTR20D120M 12 5 WTR20D150M 15 5 WTR20D160M 16 5	WTR20D080M	8	6							
WTR20D150M 15 5 WTR20D160M 16 5	WTR20D100M	10	6							
WTR20D160M 16 5	WTR20D120M	12	5	1						
	WTR20D150M	15	5	1						
WTR20D200M 2 20 4	WTR20D160M	16	5	1						
	WTR20D200M	20	4	1						

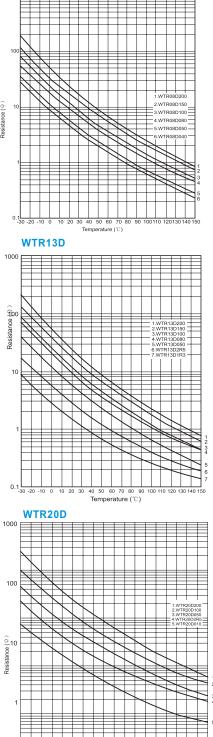
Application Circuit



NTC Thermistors

Resistance VS.Temperature Characteristic





90 100 110 120 130 140 15

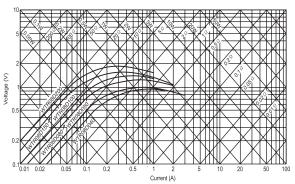
40 50 60 70 80 Temperature ('C)

NTC Thermistors

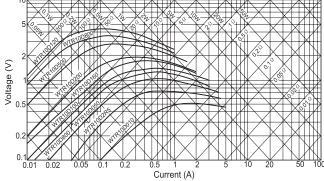
Curent vs.Voltage Characteristic

WTR05D Voltage (V) WIRO 0. 0.2 0.1 0.02 0.05 0.1 0.2 0.5 10 20 50 100 Current (A)

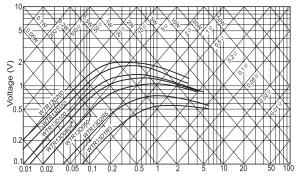
WTR08D



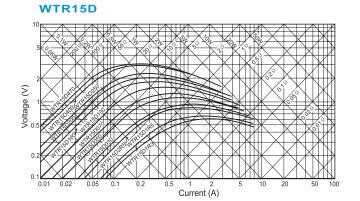




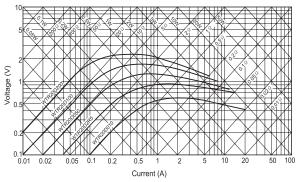
WTR13D







WTR20D



NTC Thermistors

▲ Caution/Notice

- Caution (Storage and Operating Conditions)
- This product is designed for the Switching Power Supply with smoothing capacitors. Other applications of this product may result in fire.
- 2. Use this product within the specified maximum
- current. Otherwise it may catch fire in the worst case. 3. Use this product with smoothing capacitor within
- the specified maximum capacitance value. Otherwise it may catch fire in the worst case.4. This product is designed for application in
- an ordinary environment (normal room temperature, humidity and atmospheric pressure). Do not use under the following conditions because

Caution (Others)

Be sure to provide an appropriate fail-safe function on your product to prevent secondary damages that may be caused by the abnormal function or the failure of our product.

■ Notice (Storage and Operating Conditions) To keep solderability of product from declining, the

- following storage condition is recommended.
- 1. Storage condition:
 - Temperature -10 to +40 degree C
- Humidity less than 75%RH (not dewing condition) 2. Storage term:
- Use this product within 6 months after delivery by first-in and first-out stocking system.

Notice (Rating)

Use this product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality of this product.

Notice (Soldering and Mounting)

- Be sure that the preheat-up does not melt the soldering of this product. Excessive heat may cause failure to open, short or insulation break down.
- Do not touch the body with soldering iron. The soldering point should be min. 5mm away from the root of lead wire.

all these factors can deteriorate the

product characteristics cause failure and burn-out. (1) Corrosive gas or deoxidizing gas.

- (Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
- (2) Volatile or flammable gas
- (3) Dusty conditions
- (4) Under high or low pressure
- (5) Wet or humid conditions
- (6) Near with salt water, oils, chemical liquids or organic solvents
- (7) Strong vibrations
- (8) Other places where similar hazardous conditions exist.

3. Handling after unpacking:

After unpacking, reseal product promptly or store it in a sealed container with a drying agent.

4. Storage place:

Do not store this product in corrosive gas (sulfuric acid gas, chlorine gas, etc.) or in direct sunlight.

NTC Thermistors

Notice (Handling)

- When this product is operated, temperature of some area may be about 160 (degree C).
 Use proper surrounding parts and material which with stand such temperature. If they are inadequate and kept at high temperature for long time, they may be deteriorated or may produce harmful gas. And, such harmful gas may deteriorate the element of this product.
- This product does not have waterproof construction. Splashed water may cause failure mode such as deterioration of characteristics or current leak. So, do not apply cleaning to immerse it into water or any solvent.

Notice (Others)

- This products need sufficient cool off time to recover high resistance. Repeated ON-OFF may cause over specified current rating. Make sure inrush current do not exceed the specified ratings even at the worst condition. (maximum ambient temperature and the shortest off time.)
- The resin coating of this product does not guarantee insulating. Keep an adequate insulating distance to surrounding parts.

- 3. The ceramic element of this product is fragile, and care must be taken not to load an excessive press-force or not to give a shock at handling. Such forces may cause cracking or chipping to the element.
- Do not apply an excessive force to the lead wire. Otherwise, it may cause break off junction between lead wire and element, or may crack element. So, fix lead wire of element side when lead wire is bent or cut.