

# NTC Thermistor : WZR Series



## Power Thermistor for Limiting Inrush Current

### ■ Features

1. RoHS & Halogen Free (HF) compliant
2. Body size:  $\Phi 5\text{mm} \sim \Phi 30\text{mm}$
3. Radial lead resin coated
4. High power rating
5. Wide resistance range
6. Cost effective
7. Operating temperature range:  
 $\Phi 5\text{mm}$ :  $-40^{\circ}\text{C} \sim +150^{\circ}\text{C}$   
 $\Phi 8 \sim \Phi 10\text{mm}$ :  $-40^{\circ}\text{C} \sim +170^{\circ}\text{C}$   
 $\Phi 13\text{mm} \sim \Phi 30\text{mm}$ :  $-40^{\circ}\text{C} \sim +200^{\circ}\text{C}$
8. Agency recognition: UL / cUL / TUV / CSA / CQC



### ■ Recommended Applications

1. Switch mode power supply
2. Electric motor
3. Transformer
4. Adapter
5. Projector
6. Halogen lamp
7. LED driver circuit

### ■ Part Number Code

- $\Phi 5\text{mm} \sim \Phi 15\text{mm}$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Product Type		Body Size			Zero Power Resistance at 25°C (R <sub>25</sub> )		Max Steady State Current at 25°C		Tolerance of R <sub>25</sub>		Appearance		Optional Suffix		
WZR	JIEPUTE NTC Thermistor WZR Series	05	$\Phi 5\text{mm}$	08	$\Phi 8\text{mm}$	0R5	0.5Ω	X3	0.3A	L	±15%	S	Straight lead	Y	RoHS & HF Compliant
		10	$\Phi 10\text{mm}$	13	$\Phi 13\text{mm}$	2R5	2.5Ω	2X	2.5A	M	±20%	F	Y kink lead		
		15	$\Phi 15\text{mm}$			08	8Ω	8	8A	N	±25%	T	L kink lead		
						20	20Ω	10	10A						
						120	120Ω								

- $\Phi 20\text{mm} \sim \Phi 30\text{mm}$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Product Type		Body Size		Zero Power Resistance at 25°C (R <sub>25</sub> )			Tolerance of R <sub>25</sub>		Appearance		Packaging		Optional Suffix		
WZR	JIEPUTE NTC Thermistor WZR Series	20	$\Phi 20\text{mm}$	R <sub>25</sub> < 10Ω			L	±15%	S	Straight lead	B	Bulk	Y	RoHS & HF Compliant (For WZR05 ~ WZR20 use)	
		25	$\Phi 25\text{mm}$	0R7:0.7Ω			M	±20%	F	Y kink lead			H	RoHS & HF Compliant (For WZR25 and WZR30 use)	
		30	$\Phi 30\text{mm}$	2R5:2.5Ω			N	±25%	T	L kink lead					
				R <sub>25</sub> ≥ 10Ω											
				100:10Ω											
				470:47Ω											
				471:470Ω											

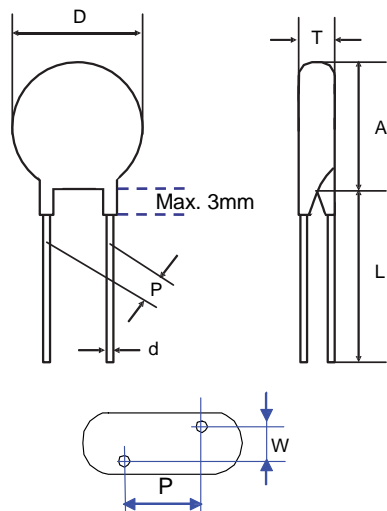
# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### ■ Structure and Dimensions

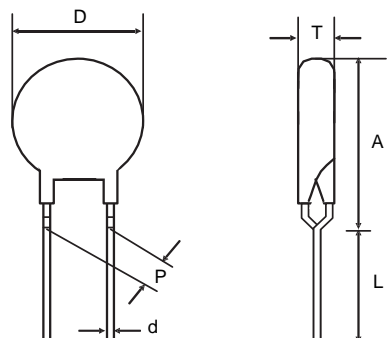
#### S Type (Straight Lead)



(Unit: mm)

Series	Dmax.	P.	d	Amax.	Lmin.	Tmax.	W
WZR05	6.5	4±0.5	0.8±0.02	6.5	31	5	1.9±0.2
WZR08	9.5	5±0.5	0.8±0.02	9.5	31	5	2.1±0.3
WZR10	11.5	5±0.5	0.8±0.02	11.5	31	5	2.1±0.3
WZR13	14.5	7.5±0.5	0.8±0.02	14.5	30	6	2.3±0.3
WZR15	16.5	7.5±0.5	1.0±0.02	16.5	29	6	2.5±0.3
WZR20	21.5	7.5±0.5	1.0±0.02	21.5	26	6	2.6±0.3
WZR25	29	7.5±1	1.0±0.02	29.0	25	6	3.1±0.5
WZR30	36	7.5±1	1.0±0.02	36.0	23	6	3.1±0.5

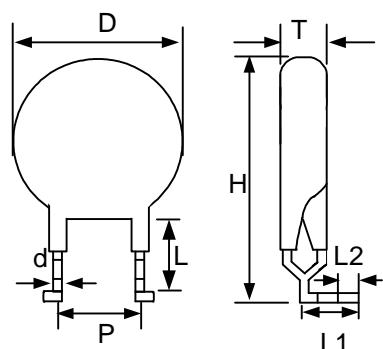
#### F Type (Y Kink Lead)



(Unit: mm)

Series	Dmax.	P	d	Amax.	Lmin.	Tmax.
WZR05	6.5	4±0.5	0.8±0.02	11.0	29	5
WZR08	9.5	5±0.5	0.8±0.02	13.0	29	5
WZR10	11.5	5±0.5	0.8±0.02	15.0	29	5
WZR13	14.5	7.5±0.5	0.8±0.02	17.5	27	6
WZR15	16.5	7.5±0.5	1±0.02	19.0	26	6
WZR20	21.5	7.5±0.5	1±0.02	24.5	25	6
WZR25	29	7.5±1	1±0.02	35.0	22	6
WZR30	36	7.5±1	1±0.02	42.0	22	6

#### T Type (Y Kink 90° Bend and Outer Kink Lead)



(Unit: mm)

Series	Dmax.	P	d	Tmax.	L	Hmax.	L1	L2
WZR08	9.5	5±0.5	0.8±0.02	5	5.0±0.5	15	7.8±1.0	3.5±0.5
WZR10	11.5	5±0.5	0.8±0.02	5	5.0±0.5	17	7.8±1.0	3.5±0.5
WZR13	14.5	7.5±0.5	0.8±0.02	6	5.0±0.5	19	7.8±1.0	3.5±0.5
WZR15	16.5	7.5±0.5	1.0±0.02	6	4.5±0.5	21	9.0±1.0	3.5±0.5
WZR20	21.5	7.5±0.5	1.0±0.02	6	4.5±0.5	26	9.0±1.0	3.5±0.5

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### ■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Max. Current at 25°C	Residual Resistance at 25°C I <sub>max</sub>	Recommend Capacitance @240Vac	Max. Power Rating at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range				
	R <sub>25</sub> (Ω)	I <sub>max</sub> (A)	R <sub>I<sub>max</sub></sub> (Ω)	C <sub>th</sub> (μF)	P <sub>max</sub> (W)	δ(mW/°C)	τ (Sec.)	T <sub>L</sub> ~T <sub>U</sub> (°C)				
WZR05052□	5	2	0.429	100	1.8	Approx. 15	Approx. 17	-40 ~ +150				
WZR05081□	8	1	1.089	68								
WZR05101□	10	1	1.126	100								
WZR05121□	12	1	1.184	68								
WZR0520X3□	20	0.3	5.560	100	2.3	Approx. 16	Approx. 38	-40 ~ +170				
WZR08042□	4	2	0.441	220								
WZR084R72□	4.7	2	0.445	220								
WZR08053□	5	3	0.261	220								
WZR08063□	6	3	0.283	220								
WZR08073□	7	3	0.287	220								
WZR08082□	8	2	0.520	220								
WZR08102□	10	2	0.542	220								
WZR08152□	15	2	0.548	100								
WZR08201□	20	1	1.544	100								
WZR0830X□	30	0.5	4.094	100								
WZR10015□	1	5	0.091	470					2.4	Approx. 17	Approx. 43	-40 ~ +170
WZR101R35□	1.3	5	0.095	330								
WZR101R55□	1.5	5	0.101	330								
WZR102R55A□	2.5	5	0.120	470								
WZR10035□	3	5	0.127	560								
WZR10044□	4	4	0.161	560								
WZR10054□	5	4	0.180	470								
WZR106R83□	6.8	3	0.270	330								
WZR10083□	8	3	0.278	330								
WZR10103□	10	3	0.297	330								
WZR10123□	12	3	0.301	470								
WZR10133□	13	3	0.356	330								
WZR10152X□	15	2.5	0.442	330								
WZR10162X□	16	2.5	0.471	330								
WZR10202□	20	2	0.646	330								
WZR10222□	22	2	0.659	220								
WZR10252□	25	2	0.674	330								
WZR10302□	30	2	0.700	330								
WZR10472□	47	2	0.720	330								
WZR10502□	50	2	0.813	330								
WZR10801□	80	1	2.236	220								
WZR101001□	100	1	2.318	200								
WZR101201□	120	1	2.406	200								

Note 1: □ = Tolerance of R<sub>25</sub>

Note 2: Special specifications are available upon request.

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### ■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Max. Current at 25°C	Residual Resistance at 25°C I <sub>max</sub>	Recommend Capacitance @240Vac	Max. Power Rating at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R <sub>25</sub> (Ω)	I <sub>max</sub> (A)	R <sub>I<sub>max</sub></sub> (Ω)	C <sub>th</sub> (μF)	P <sub>max</sub> (W)	δ(mW/°C)	τ (Sec.)	T <sub>L</sub> ~T <sub>U</sub> (°C)
WZR13013□	1	3	0.174	560	3.1	Approx. 18	Approx. 66	-40 ~ +200
WZR131R37□	1.3	7	0.070	470				
WZR132R56□	2.5	6	0.094	560				
WZR13045□	4	5	0.132	560				
WZR134R74□	4.7	4	0.168	560				
WZR13055□	5	5	0.166	560				
WZR13074□	7	4	0.184	470				
WZR13084□	8	4	0.206	470				
WZR13104□	10	4	0.217	470				
WZR13124□	12	4	0.230	560				
WZR13153□	15	3	0.343	560				
WZR13163□	16	3	0.348	560				
WZR13183□	18	3	0.365	560				
WZR13203□	20	3	0.410	470				
WZR150R78A□	0.7	8	0.051	680	3.6	Approx. 21	Approx. 75	-40 ~ +200
WZR15018□	1	8	0.054	680				
WZR151R38□	1.3	8	0.064	680				
WZR151R58□	1.5	8	0.068	800				
WZR15028□	2	8	0.078	680				
WZR152R58□	2.5	8	0.086	680				
WZR15037□	3	7	0.091	820				
WZR15046□	4	6	0.117	800				
WZR15056□	5	6	0.121	820				
WZR15065□	6	5	0.159	680				
WZR15075□	7	5	0.161	820				
WZR15085□	8	5	0.165	680				
WZR15105□	10	5	0.178	820				
WZR15125□	12	5	0.185	680				
WZR15154□	15	4	0.261	820				
WZR15164□	16	4	0.265	820				
WZR15184□	18	4	0.273	680				
WZR15204□	20	4	0.283	820				
WZR15224□	22	4	0.308	560				
WZR15253□	25	3	0.425	680				
WZR15303□	30	3	0.461	680				
WZR15333□	33	3	0.484	560				
WZR15403□	40	3	0.511	680				
WZR15473□	47	3	0.517	680				
WZR15802X□	80	2.5	0.693	560				
WZR151202□	120	2	1.010	560				

Note 1: □ = Tolerance of R<sub>25</sub>

Note 2: Special specifications are available upon request.

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### ■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Max. Current at 25°C	Residual Resistance at 25°C I <sub>max</sub>	Recommend Capacitance @240Vac	Max. Power Rating at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R <sub>25</sub> (Ω)	I <sub>max</sub> (A)	R <sub>I<sub>max</sub></sub> (Ω)	C <sub>th</sub> (μF)	P <sub>max</sub> (W)	δ(mW/°C)	τ (Sec.)	T <sub>L</sub> ~T <sub>U</sub> (°C)
WZR200R7□	0.7	15	0.035	1000	4.9	Approx. 28	Approx. 113	-40 ~ +200
WZR201R0□	1	13	0.034					
WZR201R5□	1.5	10.5	0.041					
WZR202R0□	2	10	0.062					
WZR202R5□	2.5	9	0.083					
WZR203R0□	3	8.5	0.078					
WZR204R0□	4	8	0.080					
WZR204R7□	4.7	7.5	0.114					
WZR205R0□	5	7.5	0.118					
WZR206R0□	6	7	0.120					
WZR206R8□	6.8	6.5	0.130					
WZR207R0□	7	6.5	0.132					
WZR208R0□	8	6	0.161					
WZR20100□	10	5.5	0.196					
WZR20120□	12	5	0.197					
WZR20130□	13	5	0.213					
WZR20150□	15	4.5	0.258					
WZR20160□	16	4.5	0.276					
WZR20180□	18	4	0.280					
WZR20200□	20	4	0.306					
WZR251R0□	1	20	0.020	1200	7.0	Approx. 30	Approx. 130	-40 ~ +200
WZR251R5□	1.5	18.5	0.023					
WZR252R0□	2	18	0.025					
WZR252R5□	2.5	15	0.032					
WZR253R0□	3	14.5	0.042					
WZR254R0□	4	14	0.044					
WZR254R7□	4.7	13	0.052					
WZR255R0□	5	12	0.061					
WZR256R8□	6.8	10.5	0.082					
WZR257R0□	7	10	0.092					
WZR258R0□	8	9	0.115					
WZR25100□	10	8	0.141					
WZR25120□	12	7.5	0.164					
WZR25150□	15	6.5	0.210					
WZR25180□	18	5.5	0.231					
WZR25200□	20	5	0.270					

Note 1: □ = Tolerance of R<sub>25</sub>

Note 2: Special specifications are available upon request.

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### ■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Max. Current at 25°C	Residual Resistance at 25°C $I_{max}$	Recommend Capacitance @240Vac	Max. Power Rating at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	$R_{25}(\Omega)$	$I_{max}(A)$	$R_{I_{max}}(\Omega)$	$C_{th}(\mu F)$	$P_{max}(W)$	$\delta(mW/^{\circ}C)$	$\tau$ (Sec.)	$T_L \sim T_U(^{\circ}C)$
WZR301R0□	1	30	0.016	1500	8.0	Approx. 40	Approx. 190	-40 ~ +200
WZR301R5□	1.5	25	0.020					
WZR302R0□	2	23	0.022					
WZR302R5□	2.5	18	0.030					
WZR303R0□	3	17	0.035					
WZR304R0□	4	16	0.048					
WZR304R7□	4.7	15	0.055					
WZR305R0□	5	14	0.057					
WZR306R8□	6.8	12	0.077					
WZR307R0□	7	11.5	0.084					
WZR308R0□	8	10.5	0.100					
WZR30100□	10	10	0.115					
WZR30120□	12	9	0.142					
WZR30150□	15	8	0.175					
WZR30180□	18	7	0.210					
WZR30200□	20	6	0.233					

Note 1: □ = Tolerance of  $R_{25}$

Note 2: Special specifications are available upon request.

# NTC Thermistor : WZR Series



## Power Thermistor for Limiting Inrush Current

### ■ Safety Approvals

- UL&cUL File No:
- CSA File No:
- TUV File No:
- CQC File No:

Body Size	Certified Model No.	Safety Approvals				
		UL	cUL	CSA	TUV	CQC
5mm	WZR-052	√				√
	WZR-081	√				√
	WZR-101	√				√
	WZR-121	√				√
	WZR-20X3	√				√
8mm	WZR-042	√				√
	WZR-4R72	√				√
	WZR-053	√				√
	WZR-063	√				√
	WZR-073	√				√
	WZR-082	√				√
	WZR-102	√				√
	WZR-152	√				√
	WZR-201	√				√
	WZR-30X	√				√
10mm	WZR-015	√				√
	WZR-1R35	√				√
	WZR-1R55	√				√
	WZR-2R55A	√				√
	WZR-035	√				√
	WZR-044	√				√
	WZR-054	√				√
	WZR-6R83	√				√
	WZR-083	√				√
	WZR-103	√				√
	WZR-123	√				√
	WZR-133	√				√
	WZR-152X	√				√
	WZR-162X	√				√
	WZR-202	√				√
	WZR-222	√				√
	WZR-252	√				√
	WZR-302	√				√
	WZR-472	√				√
	WZR-502	√				√
WZR-801	√				√	
WZR-1001	√				√	
WZR-1201	√				√	

Body Size	Certified Model No.	Safety Approvals				
		UL	cUL	CSA	TUV	CQC
13mm	WZR-013	√				√
	WZR-1R37	√				√
	WZR-2R56	√				√
	WZR-045	√				√
	WZR-4R74	√				√
	WZR-055	√				√
	WZR-074	√				√
	WZR-084	√				√
	WZR-104	√				√
	WZR-124	√				√
	WZR-153	√				√
	WZR-163	√				√
	WZR-183	√				√
	WZR-203	√				√
	WZR-0R78A	√				√
	WZR-018	√				√
	WZR-1R38	√				√
	WZR-1R58	√				√
	WZR-028	√				√
15mm	WZR-2R58	√				√
	WZR-037	√				√
	WZR-046	√				√
	WZR-056	√				√
	WZR-065	√				√
	WZR-075	√				√
	WZR-085	√				√
	WZR-105	√				√
	WZR-125	√				√
	WZR-154	√				√
	WZR-164	√				√
	WZR-184	√				√
	WZR-204	√				√
	WZR-224	√				√
	WZR-253	√				√
	WZR-303	√				√
	WZR-333	√				√
	WZR-403	√				√
	WZR-473	√				√

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Body Size	Certified Model No.	Safety Approvals			
		UL	cUL	TUV	CQC
20mm	WZR200R7	√	√	√	√
	WZR201R0	√	√	√	√
	WZR201R5	√	√	√	√
	WZR202R0	√	√	√	√
	WZR202R5	√	√	√	√
	WZR203R0	√	√	√	√
	WZR204R0	√	√	√	√
	WZR204R7	√	√	√	√
	WZR205R0	√	√	√	√
	WZR206R0	√	√	√	√
	WZR206R8	√	√	√	√
	WZR207R0	√	√	√	√
	WZR208R0	√	√	√	√
	WZR20100	√	√	√	√
	WZR20120	√	√	√	√
	WZR20130	√	√	√	√
	WZR20150	√	√	√	√
	WZR20160	√	√	√	√
	WZR20180	√	√	√	√
	WZR20200	√	√	√	√
25mm	WZR251R0	√	√	√	√
	WZR251R5	√	√	√	√
	WZR252R0	√	√	√	√
	WZR252R5	√	√	√	√
	WZR253R0	√	√	√	√
	WZR254R0	√	√	√	√
	WZR254R7	√	√	√	√
	WZR255R0	√	√	√	√
	WZR256R8	√	√	√	√
	WZR257R0	√	√	√	√
	WZR258R0	√	√	√	√
	WZR25100	√	√	√	√
	WZR25120	√	√	√	√
	WZR25150	√	√	√	√
	WZR25180	√	√	√	√
WZR25200	√	√	√	√	

Body Size	Certified Model No.	Safety Approvals			
		UL	cUL	TUV	CQC
30mm	WZR301R0	√	√	√	√
	WZR301R5	√	√	√	√
	WZR302R0	√	√	√	√
	WZR302R5	√	√	√	√
	WZR303R0	√	√	√	√
	WZR304R0	√	√	√	√
	WZR304R7	√	√	√	√
	WZR305R0	√	√	√	√
	WZR306R8	√	√	√	√
	WZR307R0	√	√	√	√
	WZR308R0	√	√	√	√
	WZR30100	√	√	√	√
	WZR30120	√	√	√	√
	WZR30150	√	√	√	√
	WZR30180	√	√	√	√
	WZR30200	√	√	√	√

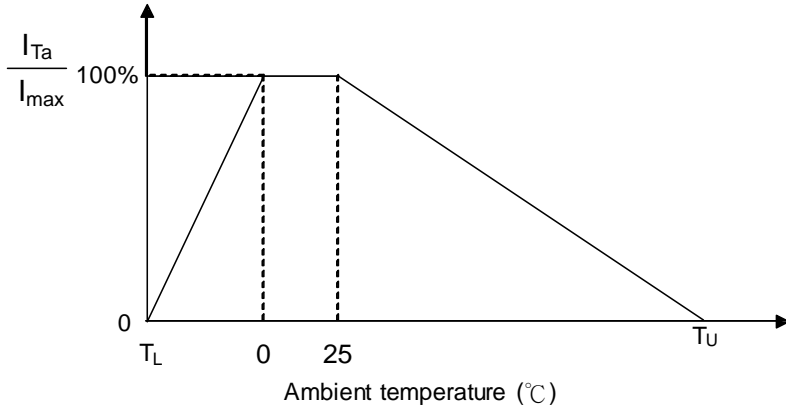


# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### Max. Current Derating Curve



$T_U$ : Maximum operating temperature ( $^{\circ}C$ )

$T_L$ : Minimum operating temperature ( $^{\circ}C$ )

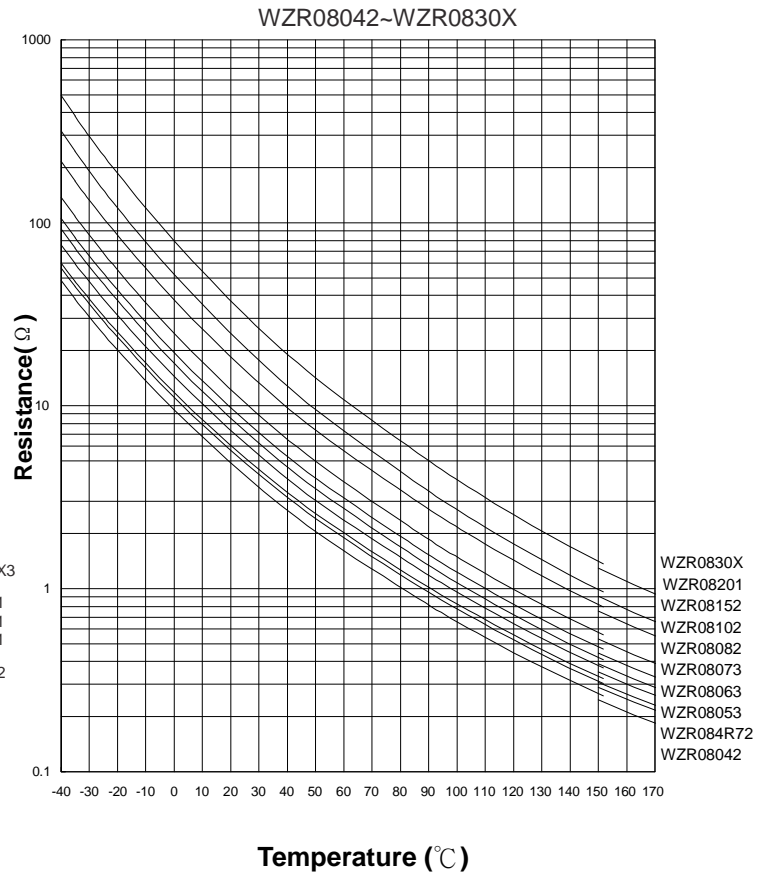
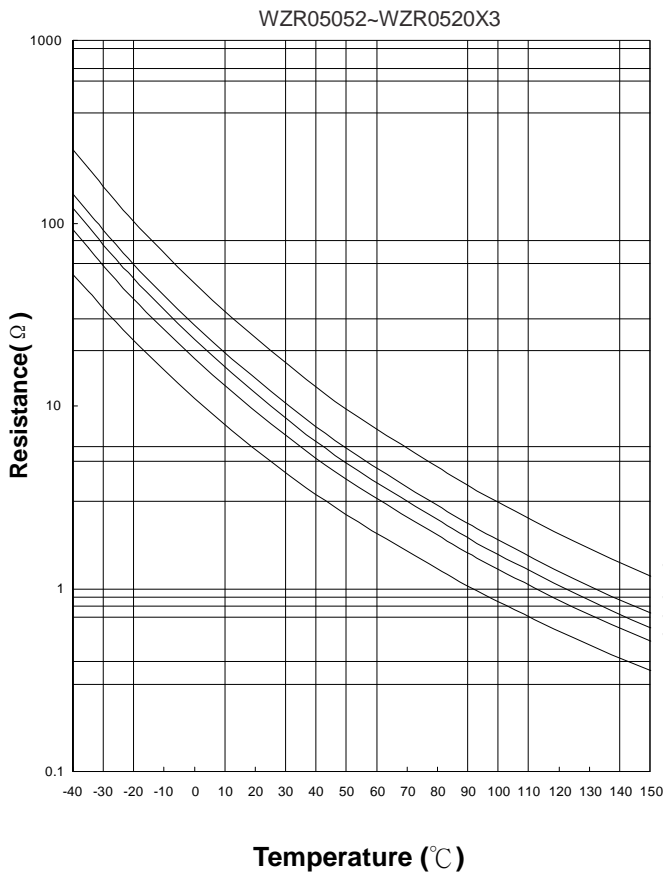
For example:

Ambient temperature( $T_a$ ) = 60 $^{\circ}C$

Maximum operating temperature( $T_U$ ) = 200 $^{\circ}C$

$$I_{Ta} = [1 - (T_a - 25) / (T_U - 25)] \times I_{max} = 80\% I_{max}$$

### R-T Characteristic Curves



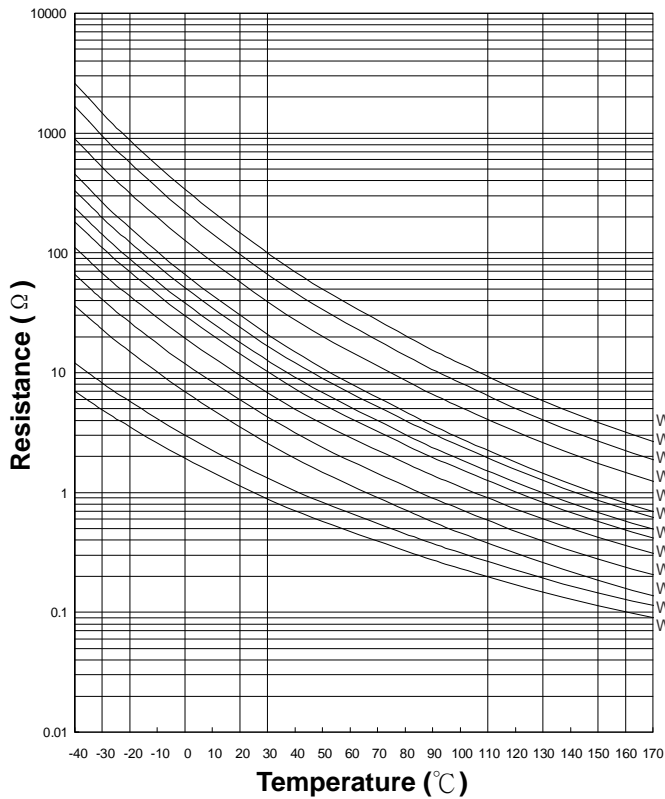
# NTC Thermistor : SCK Series



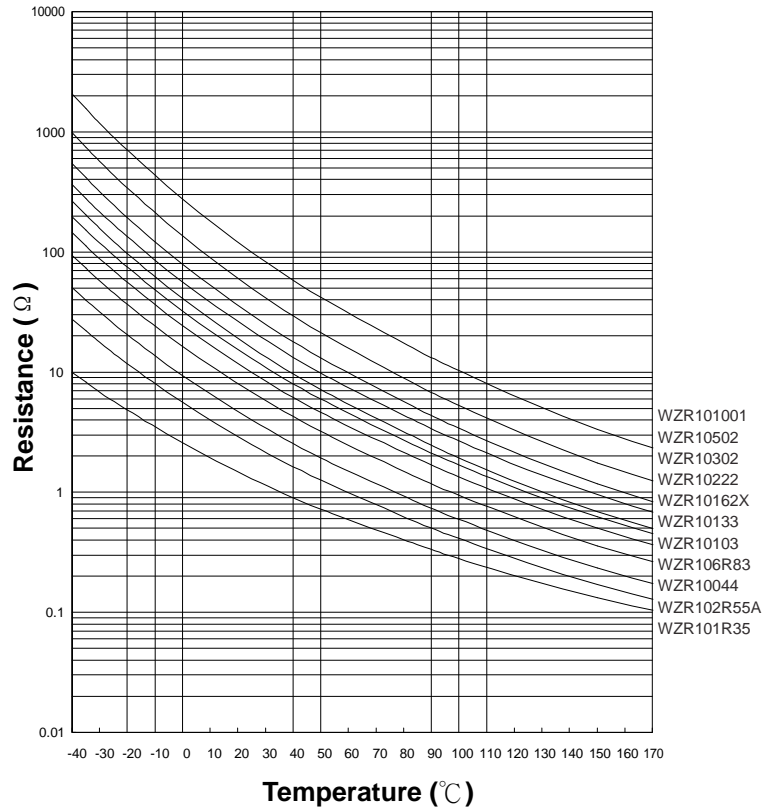
## Power Thermistor for Limiting Inrush Current

### ■ R-T Characteristic Curves

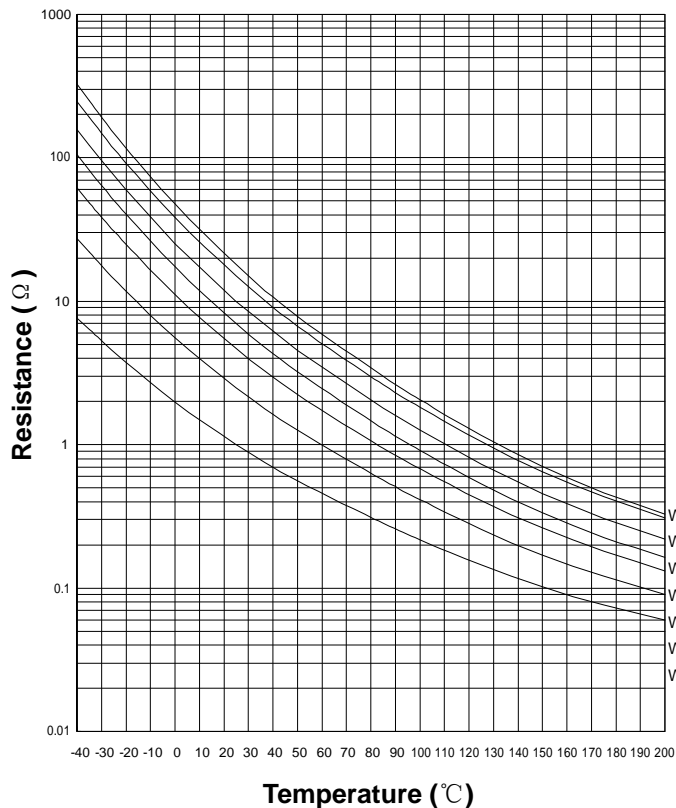
WZR10015~WZR101201



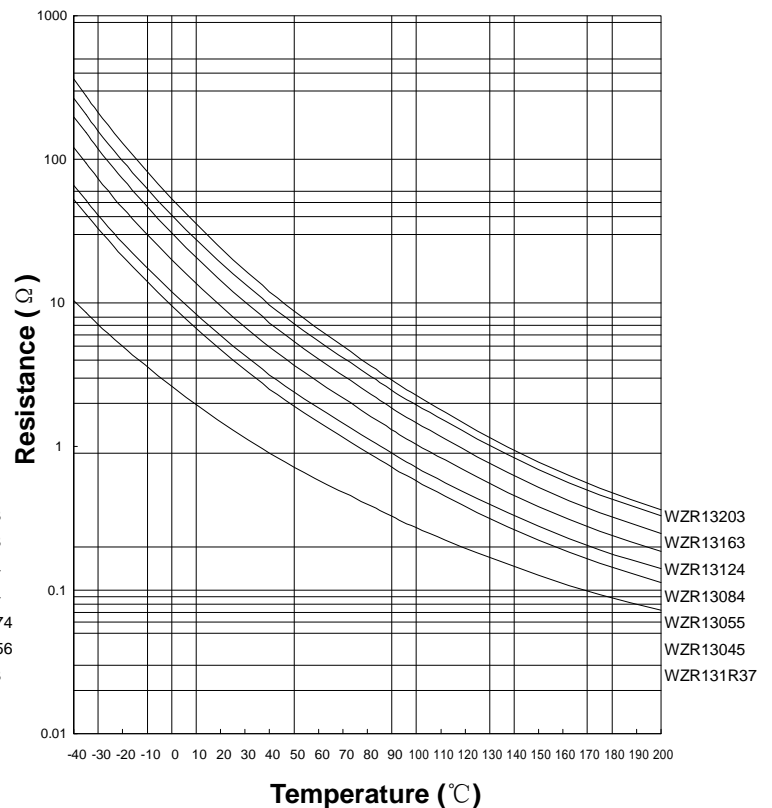
WZR101R35~WZR101001



WZR13013~WZR13183



WZR131R37~WZR13203

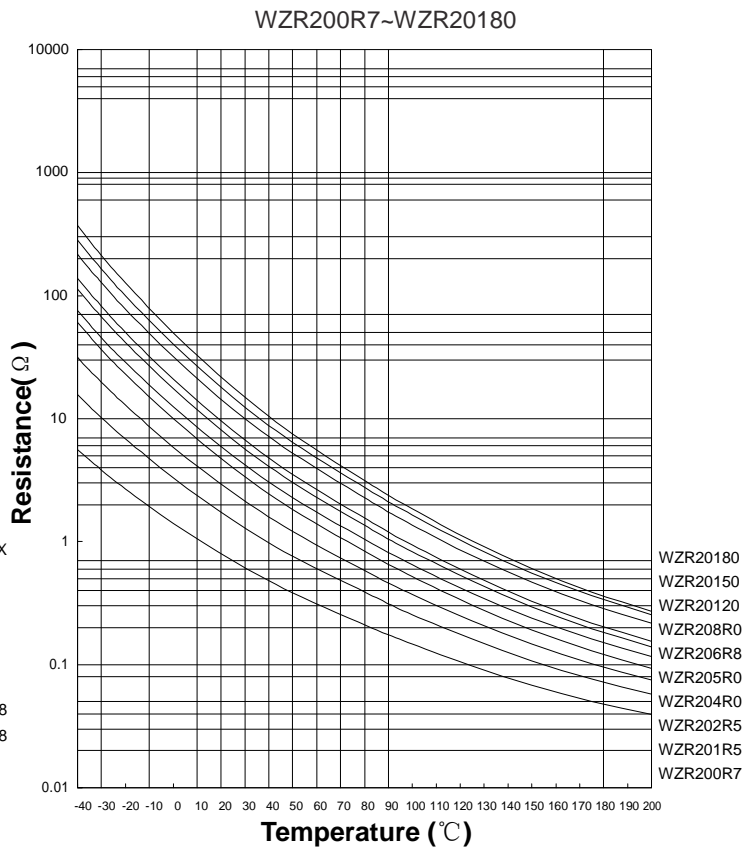
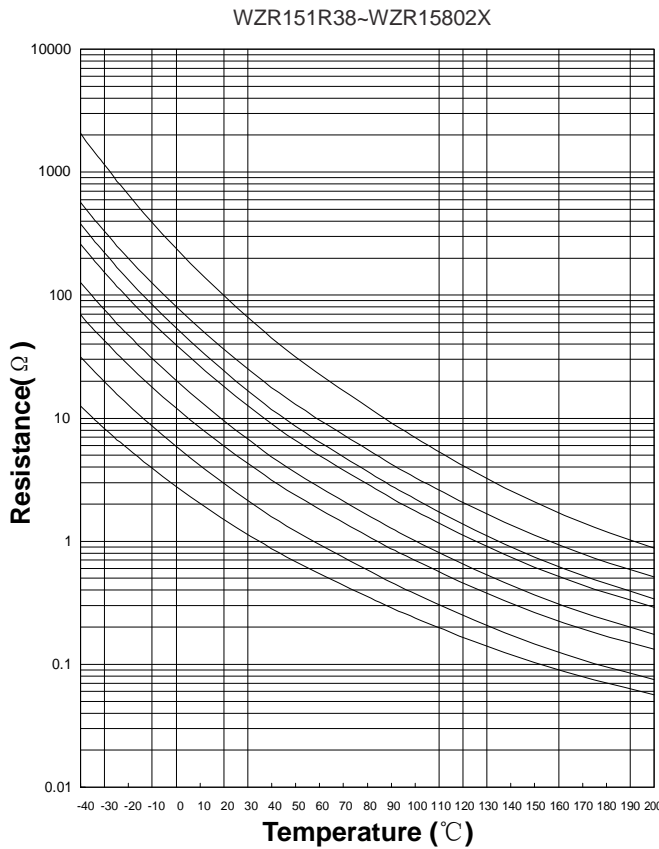
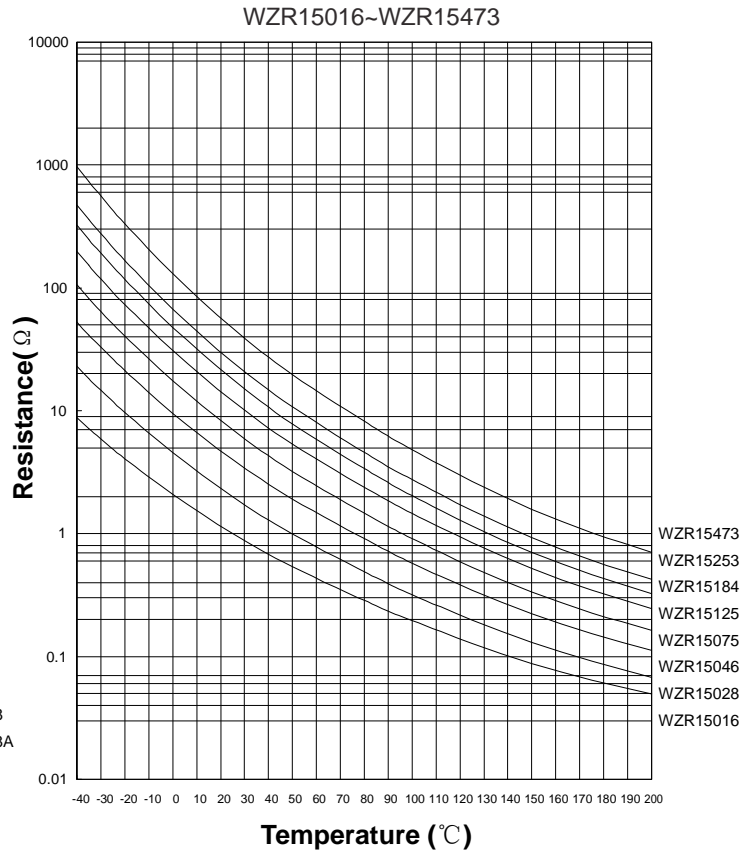
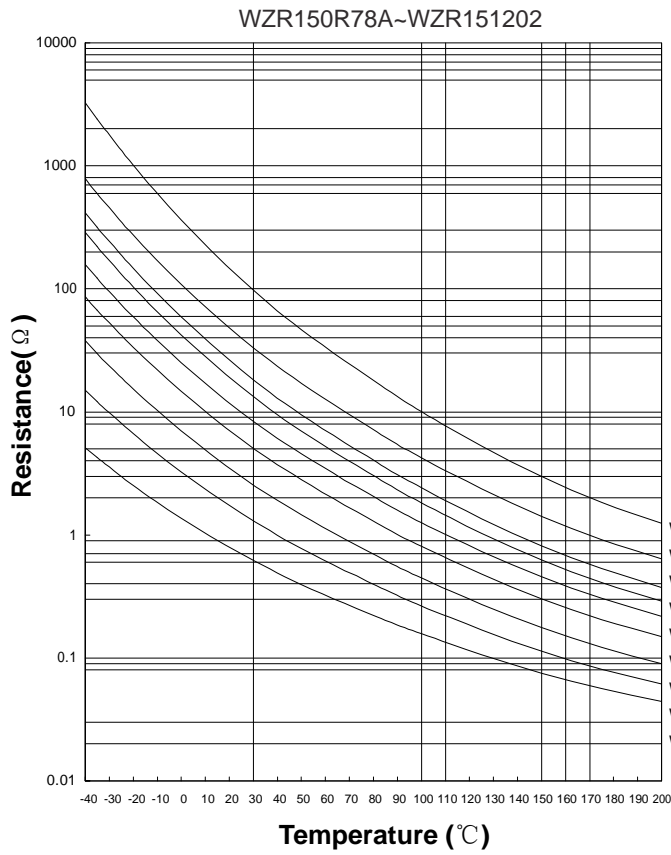


# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### ■ R-T Characteristic Curves



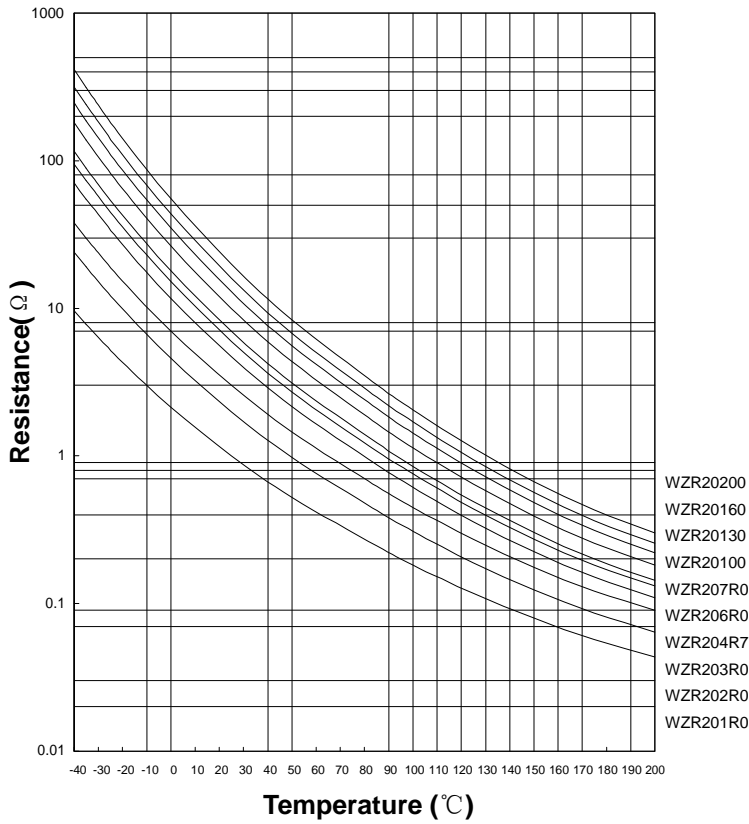
# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current

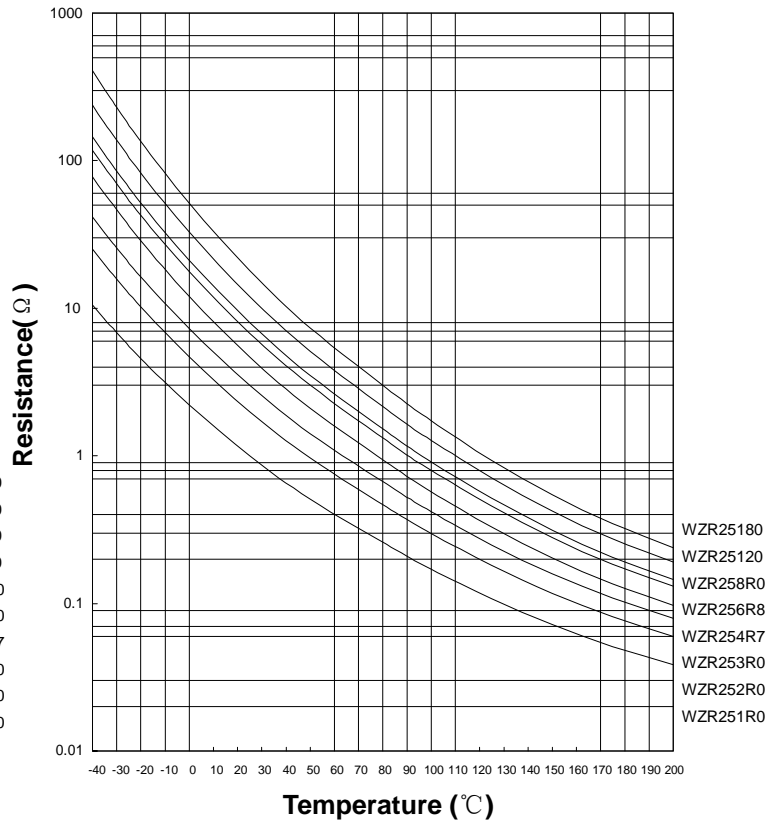


### ■ R-T Characteristic Curves

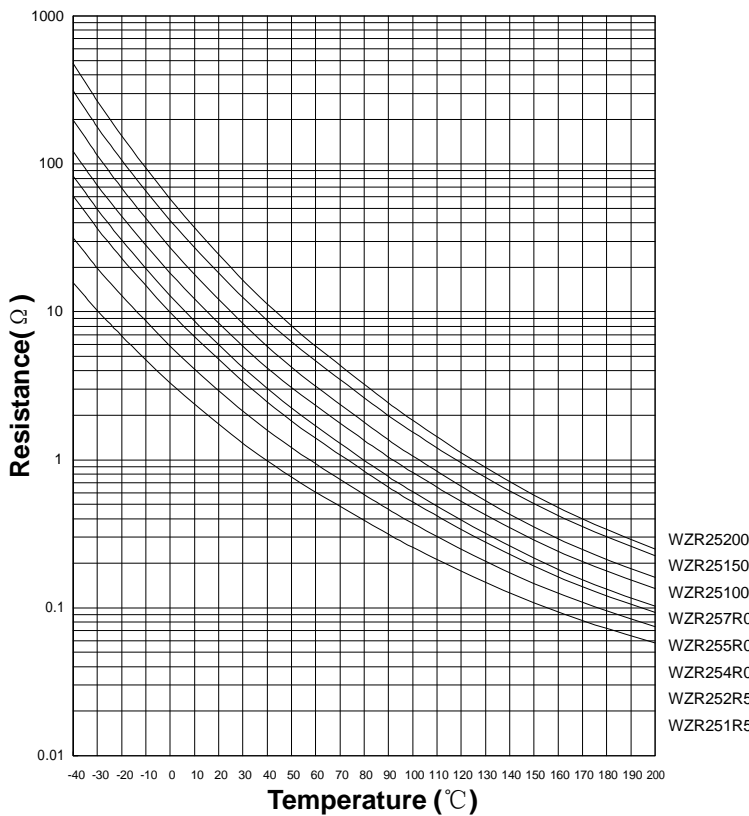
WZR201R0~WZR2020



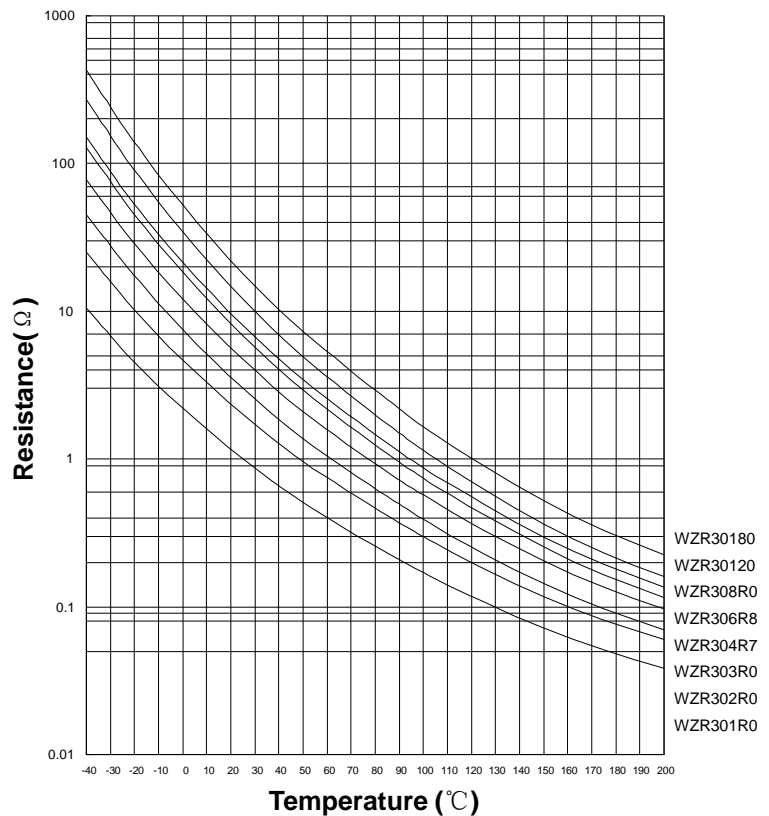
WZR251R0~WZR2518



WZR251R5~WZR25200



WZR301R0~WZR30180

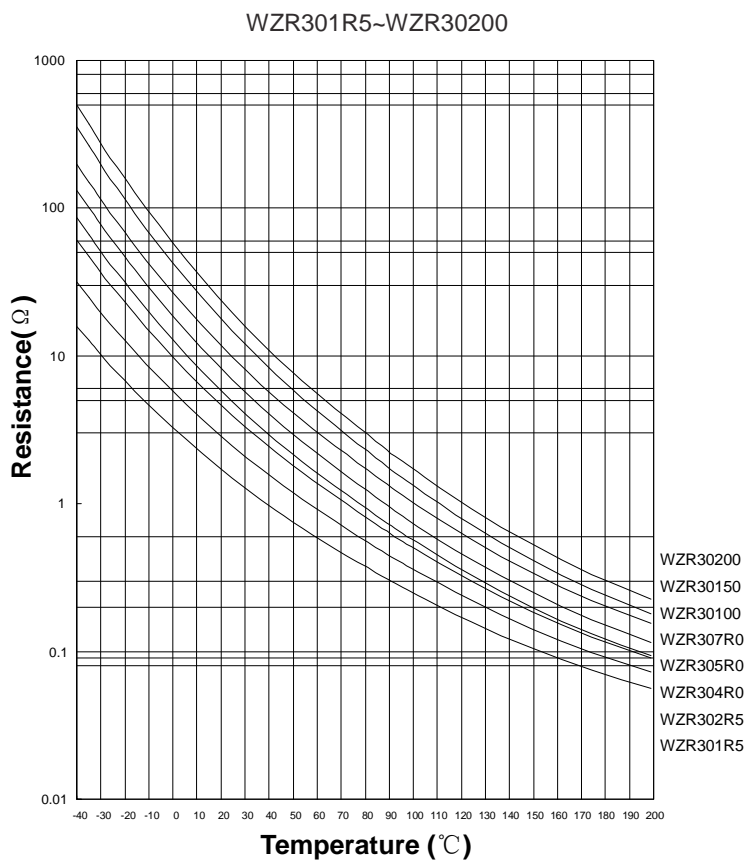


# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### ■ R-T Characteristic Curves

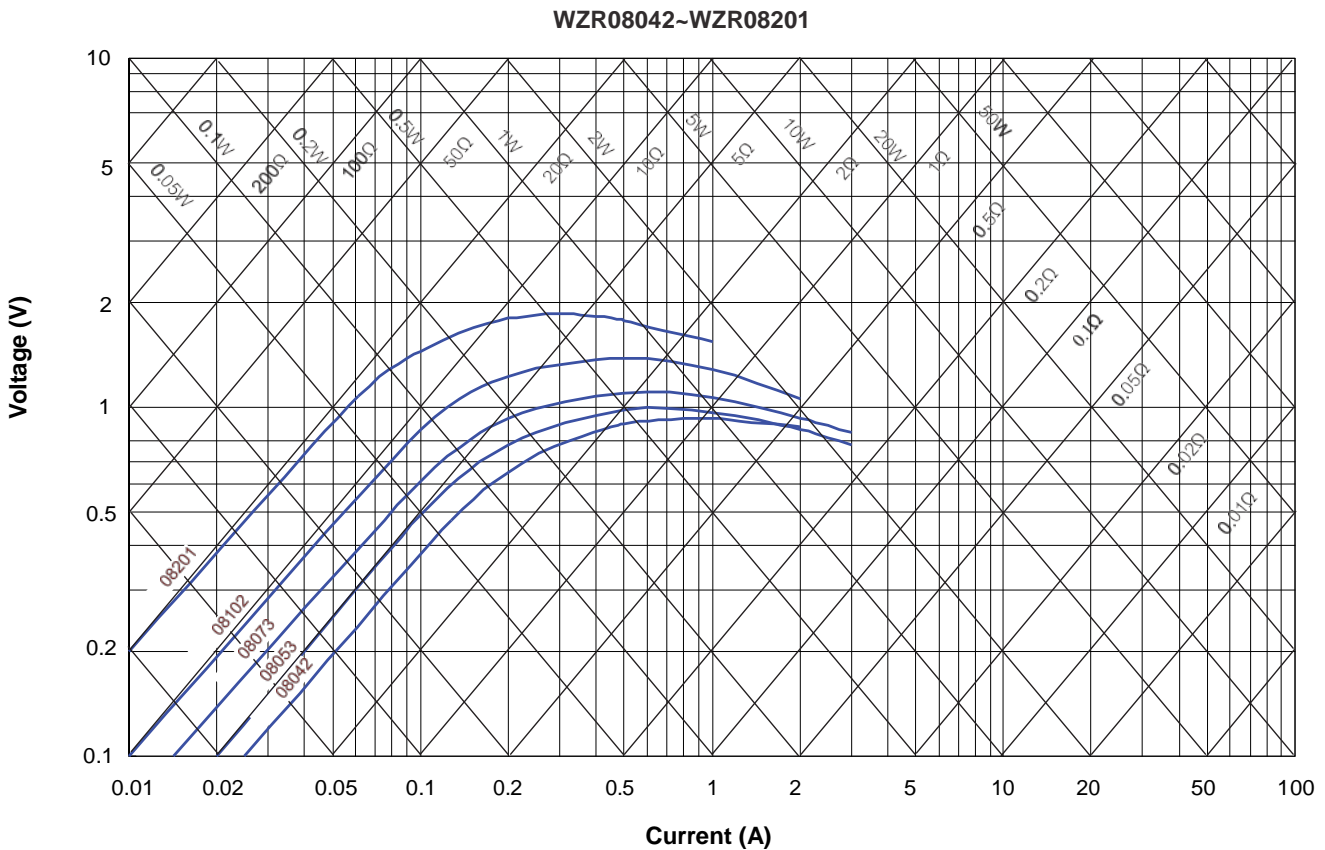
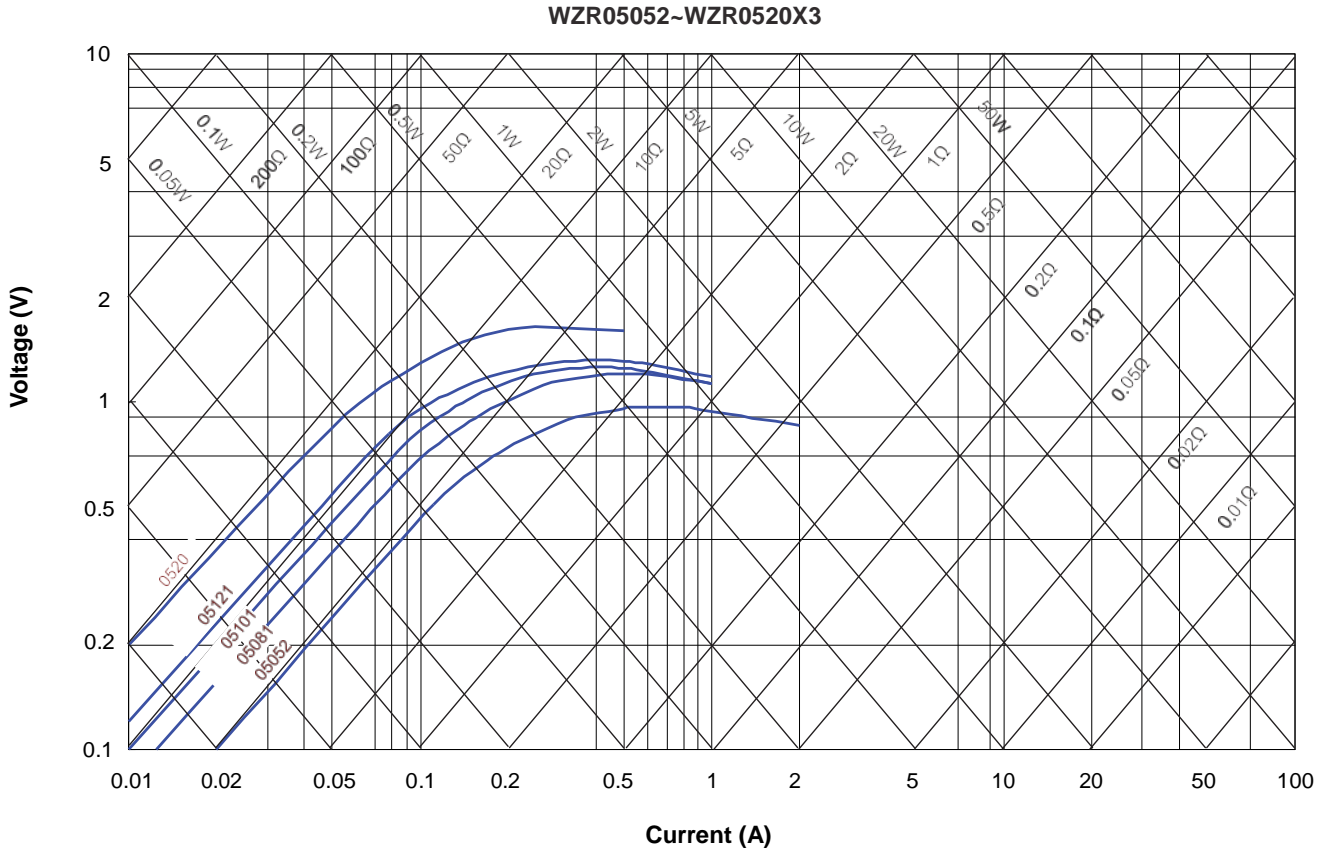


# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current

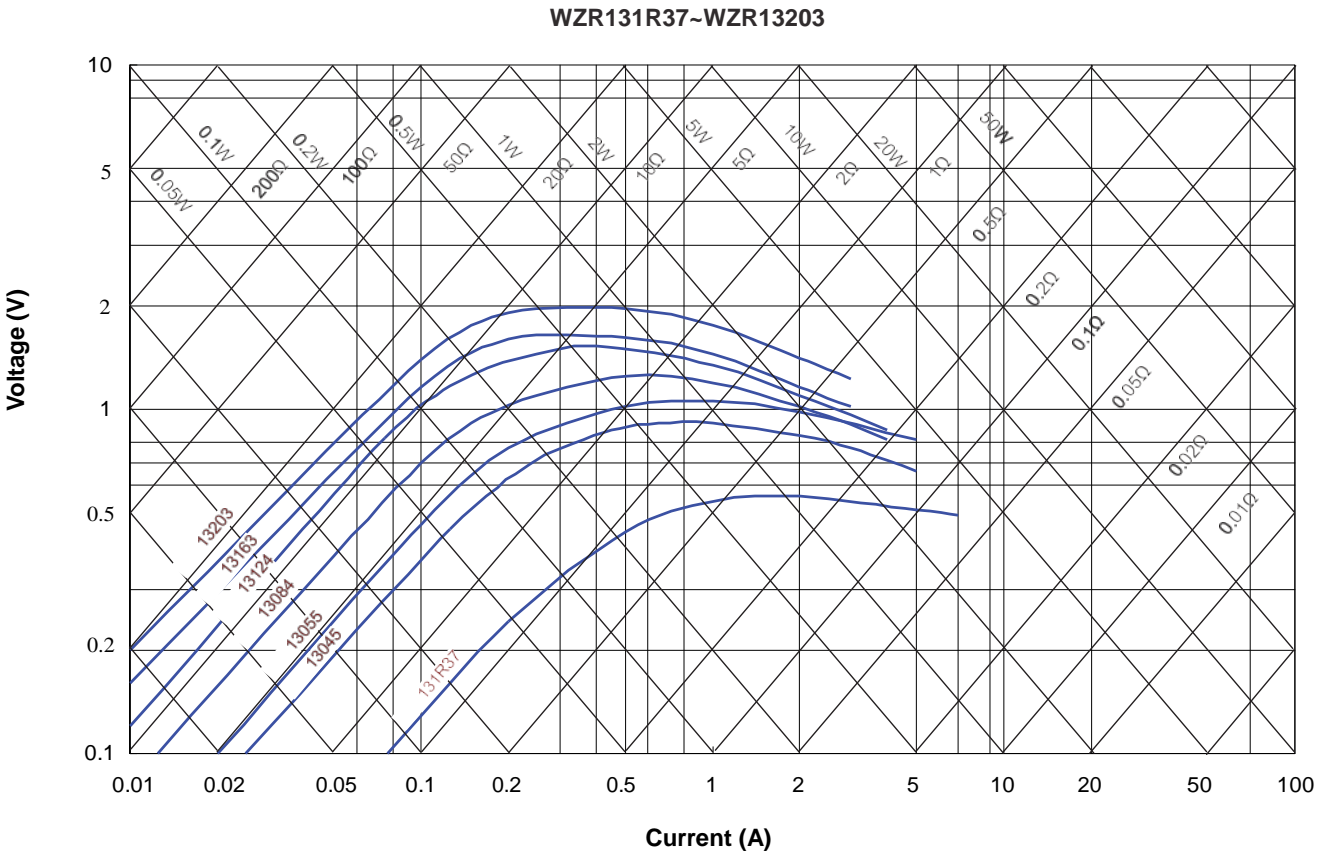
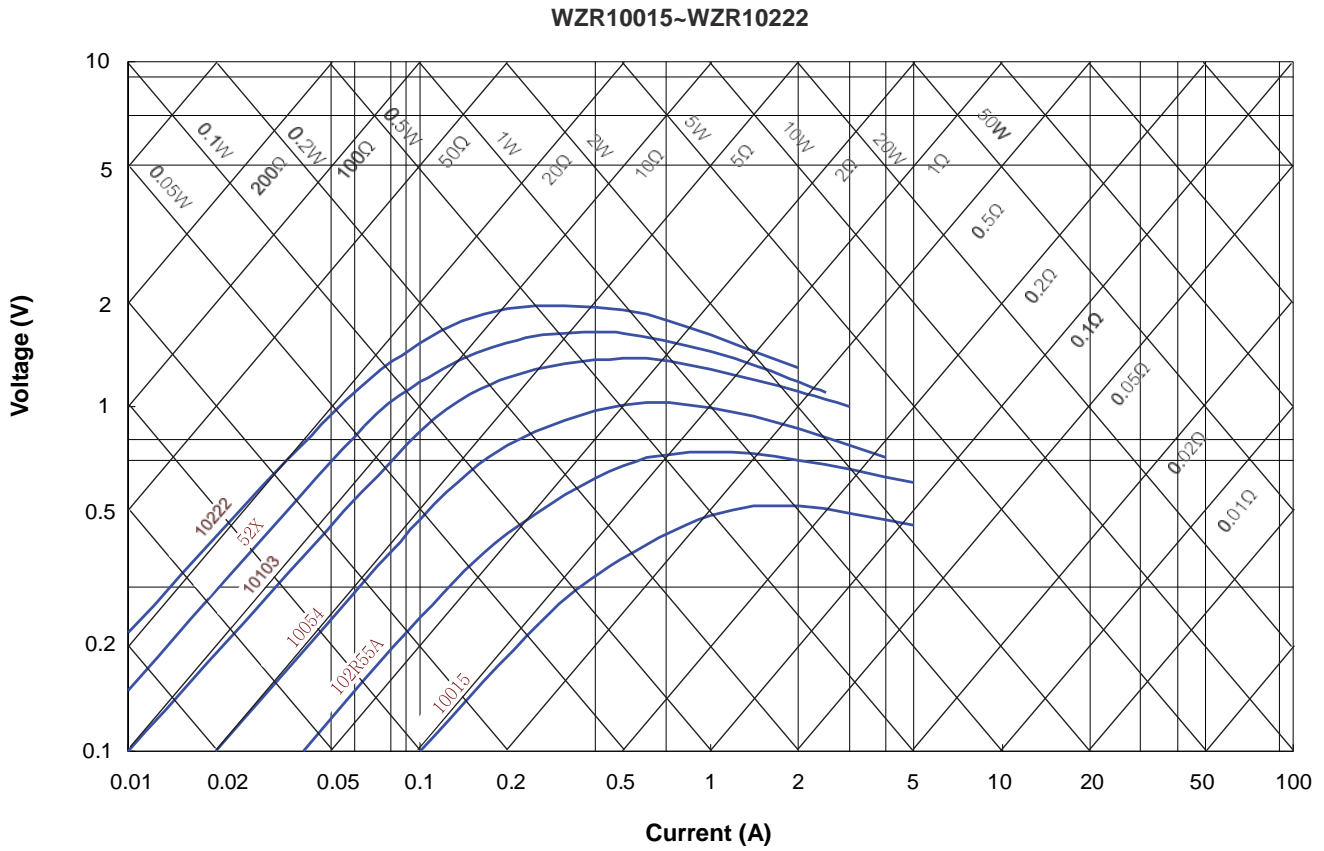


### ■ V-I Characteristic Curves (representative)



# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current

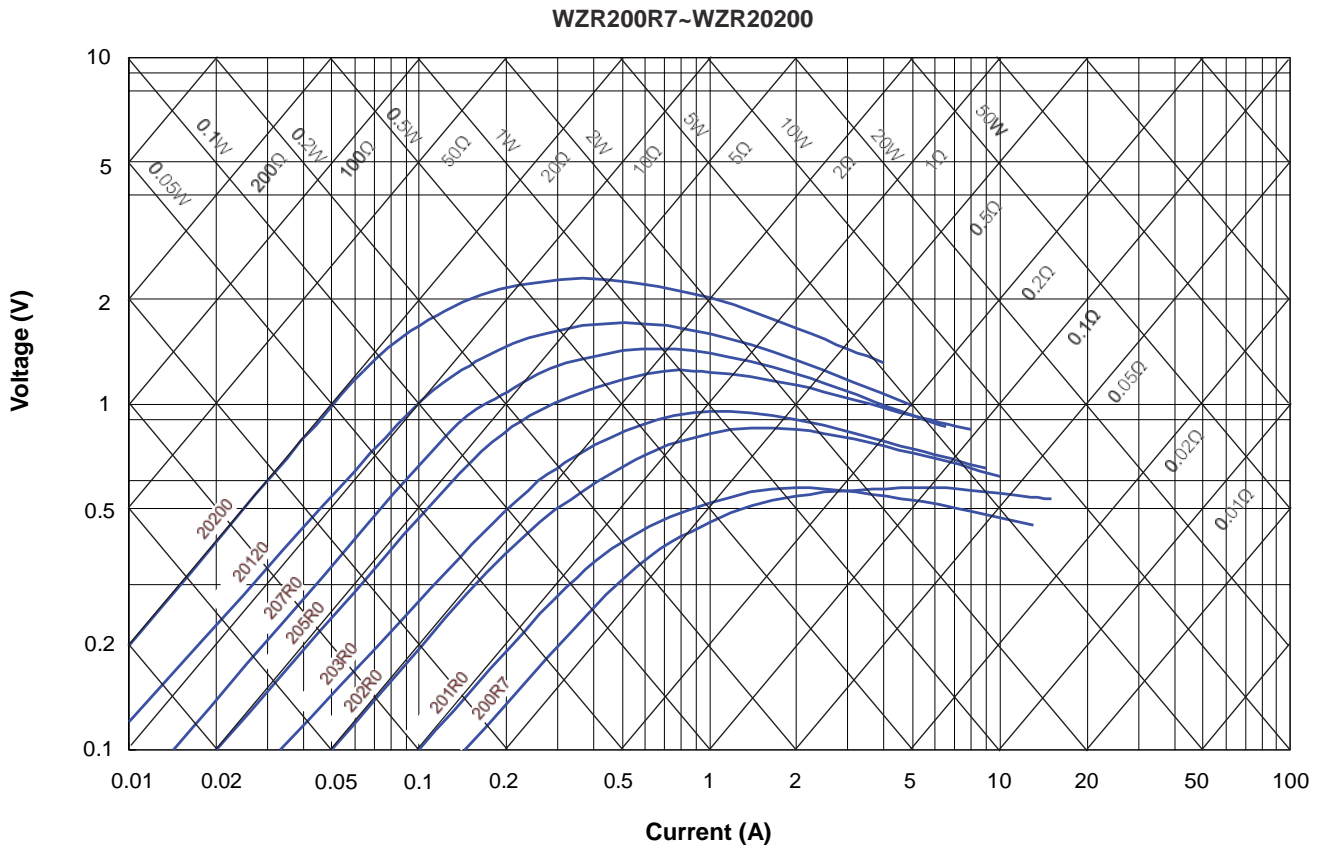
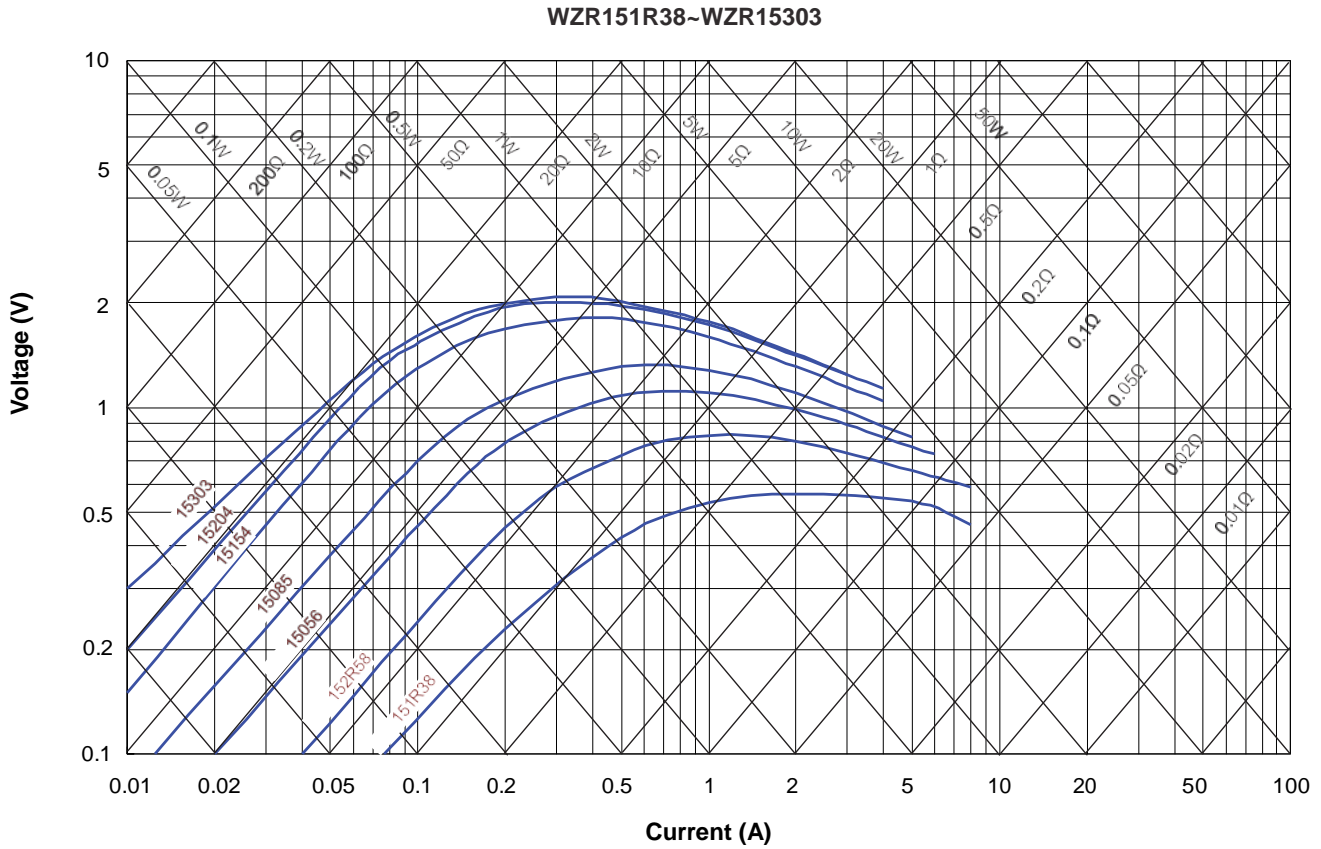




# NTC Thermistor : WZR Series



## Power Thermistor for Limiting Inrush Current



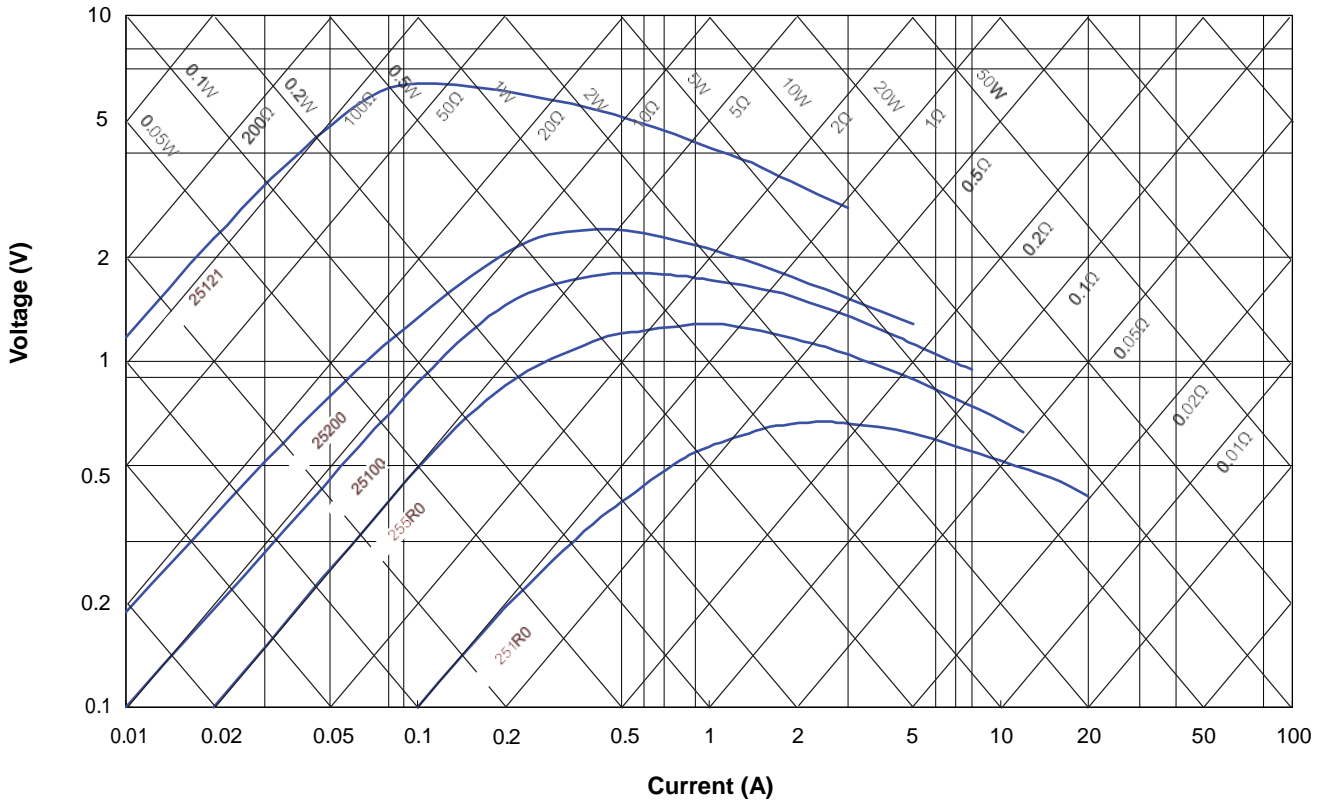


# NTC Thermistor : WZR Series

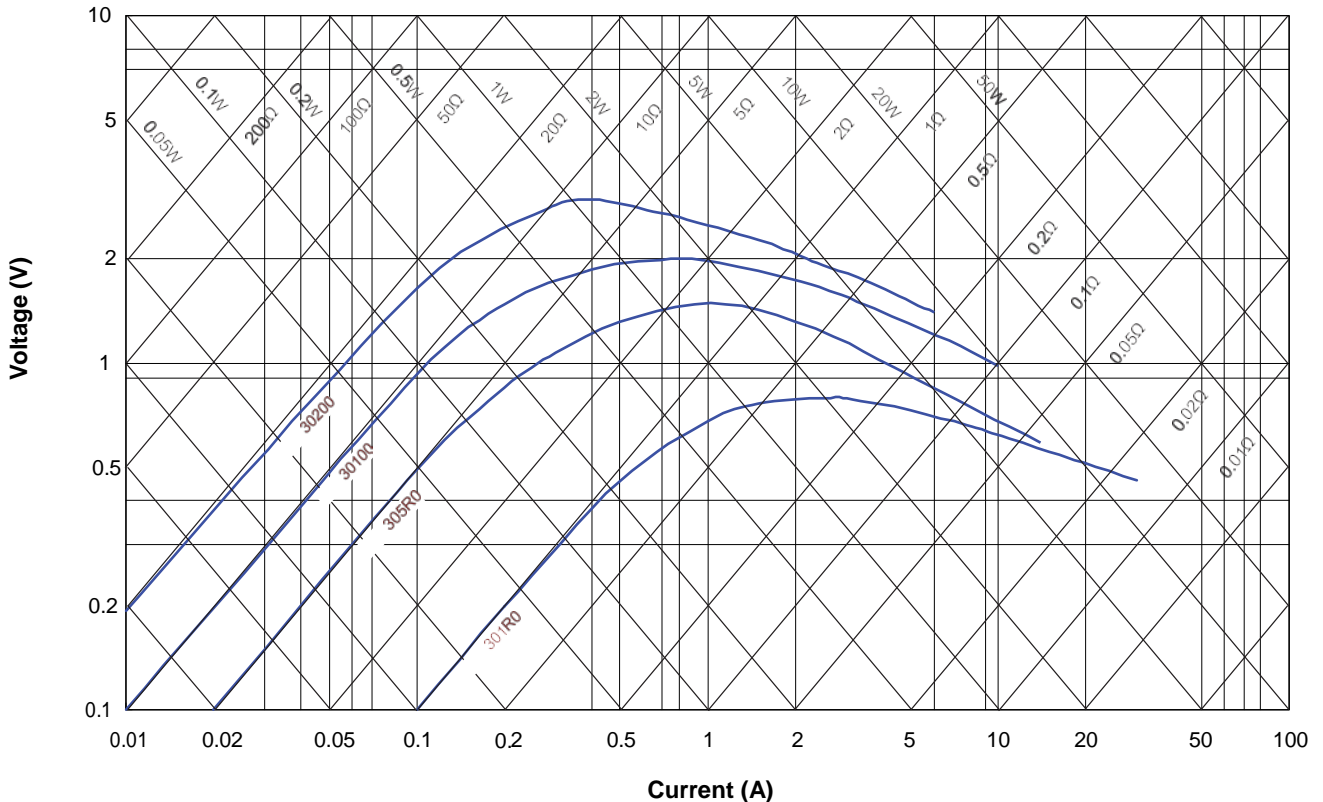


## Power Thermistor for Limiting Inrush Current

WZR251R0~WZR25121



WZR301R0~WZR30200



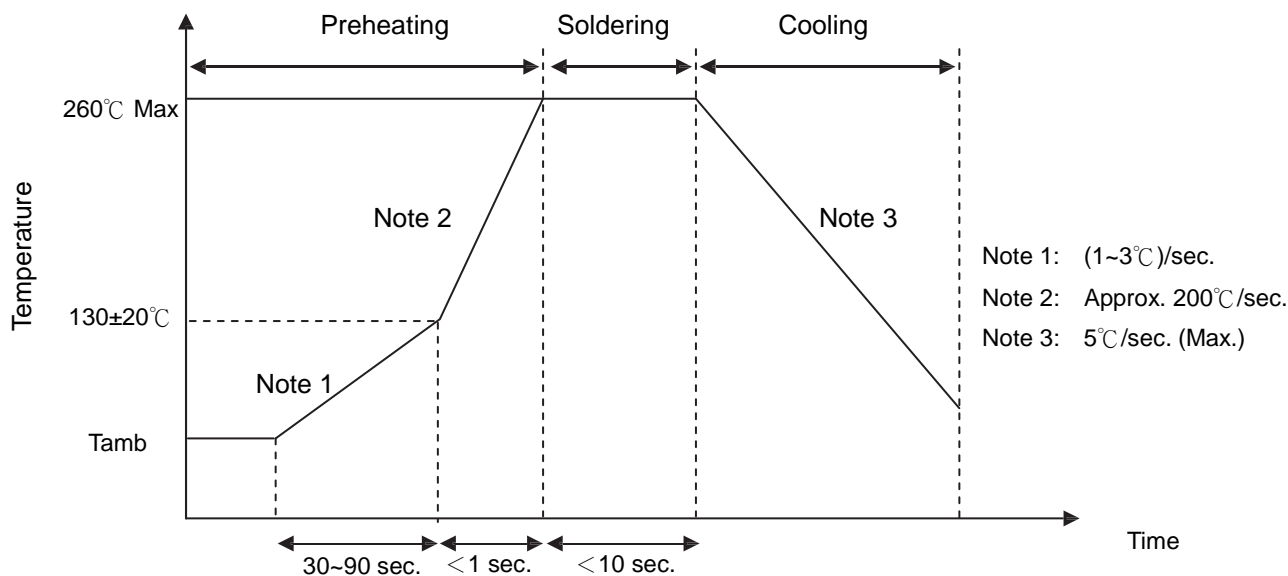
# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### ■ Soldering Recommendation

#### ● Wave Soldering Profile



#### ● Recommended Reworking Conditions with Soldering Iron

Item	Condition
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 sec. (max.)
Distance from Thermistor	2 mm (min.)

# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### ■ Reliability

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminals	IEC 60068-2-21	<p>Gradually apply the specified force and keep the unit fixed for 10±1 sec.</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td style="border-bottom: 1px solid black;">Terminal diameter (mm)</td> <td style="border-bottom: 1px solid black;">Force (Kg)</td> </tr> <tr> <td>0.5&lt;d≤0.80</td> <td>1.0</td> </tr> <tr> <td>0.8&lt;d≤1.25</td> <td>2.0</td> </tr> </table>	Terminal diameter (mm)	Force (Kg)	0.5<d≤0.80	1.0	0.8<d≤1.25	2.0	$ \Delta R_{25}/R_{25}  \leq 10\%$									
Terminal diameter (mm)	Force (Kg)																	
0.5<d≤0.80	1.0																	
0.8<d≤1.25	2.0																	
Solderability	IEC 60068-2-20	245 ±3°C, 3 ± 0.3 sec	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 3°C, 10 ± 1 sec	No visible damage $ \Delta R_{25}/R_{25}  \leq 10\%$															
High Temperature Storage	IEC 60068-2-2	T <sub>u</sub> ± 5 °C , 1000± 24 hrs	No visible damage $ \Delta R_{25}/R_{25}  \leq 20\%$															
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C, 90~95% RH, 1000 ± 24 hrs	No visible damage $ \Delta R_{25}/R_{25}  \leq 20\%$															
Rapid Change of Temperature	IEC 60068-2-14	<p>The conditions shown below shall be repeated 5 cycles.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>T<sub>L</sub> ± 5</td> <td>30 ± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> <tr> <td>3</td> <td>T<sub>U</sub> ± 5</td> <td>30 ± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Period (minutes)	1	T <sub>L</sub> ± 5	30 ± 3	2	Room temperature	5 ± 3	3	T <sub>U</sub> ± 5	30 ± 3	4	Room temperature	5 ± 3	No visible damage $ \Delta R_{25}/R_{25}  \leq 20\%$
Step	Temperature (°C)	Period (minutes)																
1	T <sub>L</sub> ± 5	30 ± 3																
2	Room temperature	5 ± 3																
3	T <sub>U</sub> ± 5	30 ± 3																
4	Room temperature	5 ± 3																
Max. Current	IEC 60539-1 4.26.1	25 ± 5°C, I <sub>max.</sub> , 1000± 24 hrs	No visible damage $ \Delta R_{25}/R_{25}  \leq 20\%$															
Endurance	Specification Standard	25 ± 5°C, I <sub>max.</sub> , C <sub>th</sub> , 1min ON / 5 mins OFF x 1000 cycles C <sub>th</sub> = Capacitance at 240 Vac	No visible damage $ \Delta R_{25}/R_{25}  \leq 20\%$															
Insulation Test	MIL-STD-202F -Method 302	1000 V <sub>DC</sub> , 1 min	≥ 500 MΩ															

# NTC Thermistor : WZR Series



## Power Thermistor for Limiting Inrush Current

### ■ Packaging

#### ● Taping Specification

#### S (Straight lead) Type

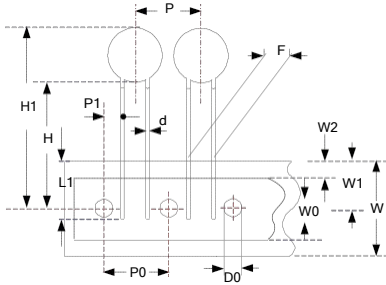


Figure A

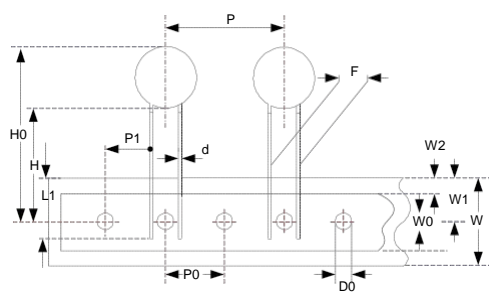


Figure B

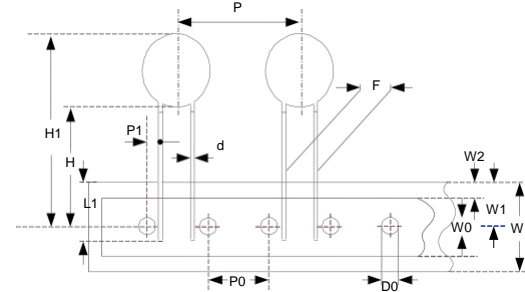
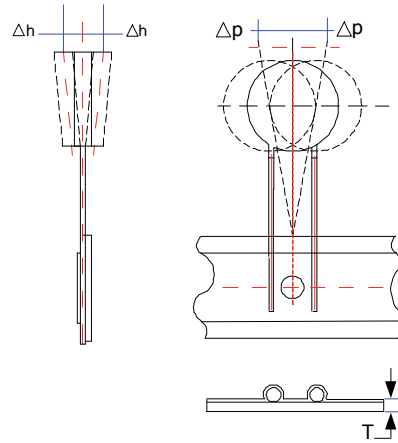
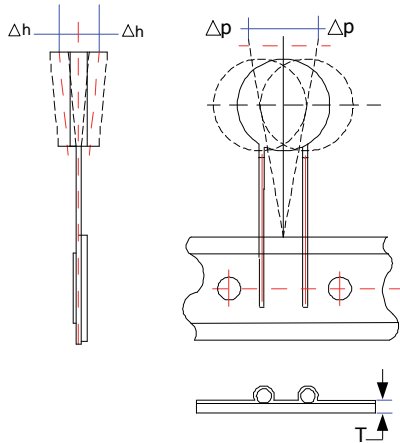


Figure C



(Unit: mm)

Taping Dimension	Disc Size	P <sub>0</sub>	F	P	P <sub>1</sub>	H	H <sub>1</sub>	d	W <sub>0</sub>	W <sub>1</sub>	W <sub>2</sub>	W	ΔP	Δh	L <sub>1</sub>	D <sub>0</sub>	T	Figure
		±0.3	±0.5	±1	±0.7	+2 /-0	Max.	±0.02	±1	+0.75 /-0.5	Max	+1/ -0.5	Max	Max.	Min	±0.2	±0.2	
P <sub>0</sub> :12.7	05	12.7	4.0	12.7	4.35	18	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	12.7	5.0	12.7	3.85	18	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	12.7	5.0	12.7	3.85	18	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	12.7	7.5	25.4	8.95	18	35	0.8	12	9	3	18	1	2	9	4	0.6	B
	15	12.7	7.5	25.4	8.95	18	37	1.0	12	9	3	18	1	2	9	4	0.6	B
	20	12.7	7.5	25.4	8.95	18	42	1.0	12	9	3	18	1	2	9	4	0.6	B
P <sub>0</sub> :15.0	05	15.0	4.0	15.0	5.50	18	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	15.0	5.0	15.0	5.00	18	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	15.0	5.0	15.0	5.00	18	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	15.0	7.5	15.0	3.75	18	35	0.8	12	9	3	18	1	2	9	4	0.6	A
	15	15.0	7.5	30.0	3.75	18	37	1.0	12	9	3	18	1	2	9	4	0.6	C
	20	15.0	7.5	30.0	3.75	18	42	1.0	12	9	3	18	1	2	9	4	0.6	C

# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



### F Type (Y kink lead)

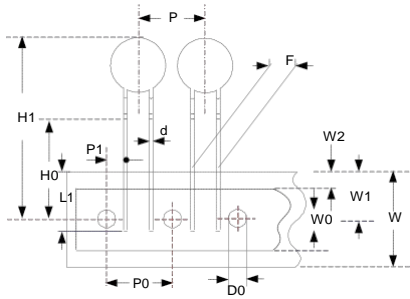


Figure A

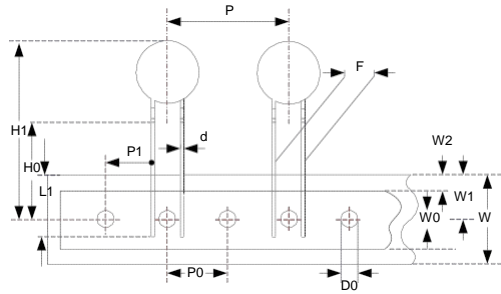


Figure B

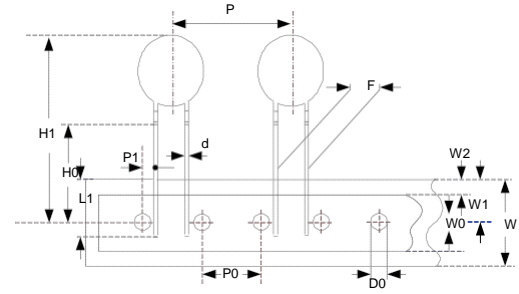
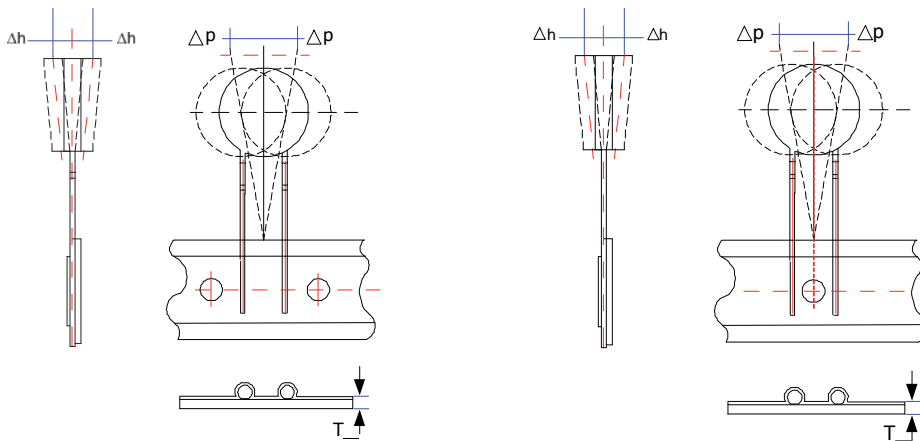


Figure C



(Unit: mm)

Taping Dimension	Disc Size	P <sub>0</sub>	F	P	P <sub>1</sub>	H <sub>0</sub>	H <sub>1</sub>	d	W <sub>0</sub>	W <sub>1</sub>	W <sub>2</sub>	W	ΔP	Δh	L <sub>1</sub>	D <sub>0</sub>	T	Figure
		±0.3	±0.5	±1	±0.7	±0.5	Max.	±0.02	±1	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	Min	±0.2	±0.2	
P <sub>0</sub> :12.7	05	12.7	4.0	12.7	4.35	16	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	12.7	5.0	12.7	3.85	16	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	12.7	5.0	12.7	3.85	16	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	12.7	7.5	25.4	8.95	16	35	0.8	12	9	3	18	1	2	9	4	0.6	B
	15	12.7	7.5	25.4	8.95	16	37	1.0	12	9	3	18	1	2	9	4	0.6	B
	20	12.7	7.5	25.4	8.95	16	42	1.0	12	9	3	18	1	2	9	4	0.6	B
P <sub>0</sub> :15.0	05	15.0	4.0	15.0	5.50	16	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	15.0	5.0	15.0	5.00	16	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	15.0	5.0	15.0	5.00	16	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	15.0	7.5	15.0	3.75	16	35	0.8	12	9	3	18	1	2	9	4	0.6	A
	15	15.0	7.5	30.0	3.75	16	37	1.0	12	9	3	18	1	2	9	4	0.6	C
	20	15.0	7.5	30.0	3.75	16	42	1.0	12	9	3	18	1	2	9	4	0.6	C

# NTC Thermistor : WZR Series

## Power Thermistor for Limiting Inrush Current



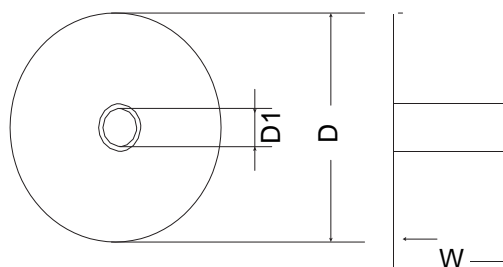
### ■ Quantity

#### ● Bulk Packing

Series	Standard Lead Type Quantity (pcs/bag)	Cut Lead Type Quantity (pcs/bag)	L kink Type Quantity (pcs/bag)
WZR05	250	500	---
WZR08	250	250	200
WZR10	200	250	200
WZR13	100	200	100
WZR15	100	100	100
WZR20	500 (pcs/box)	50	50
WZR25	168 (pcs/box)	168 (pcs/box)	---
WZR30	168 (pcs/box)	168 (pcs/box)	---

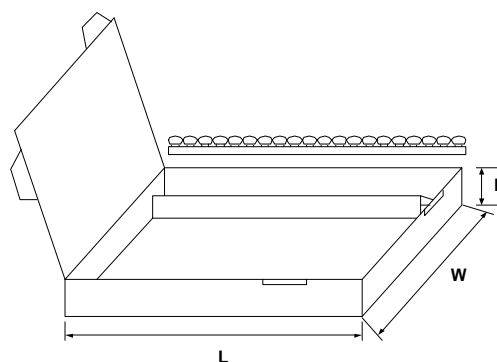
#### ● Reel Packing

Series	D (mm)	D1 (mm)	W (mm)	Quantity (pcs/reel)
WZR05	340±10	31±1	46±1	2,500
WZR08				1,500
WZR10				1,500
WZR13				750
WZR15			52±1	750
WZR20				500



#### ● Ammo Packing

Series	Quantity (pcs/box)
WZR05	1,000
WZR08	1,000
WZR10	1,000
WZR13	500 (P <sub>0</sub> 12.7mm)
	1,000 (P <sub>0</sub> 15.0mm)
WZR15	500
WZR20	500



(Unit: mm)

Body Size	L	W	H
Φ5~Φ20	348	275	60

### ■ Warehouse Storage Conditions of Products

#### ● Storage Conditions:

1. Storage Temperature: -10°C ~ +40°C
2. Relative Humidity: ≤ 75%RH
3. Keep away from corrosive atmosphere and sunlight.

#### ● Period of Storage: 1 year