

## NTC Thermistors Data Sheet (Silicon SERIES)

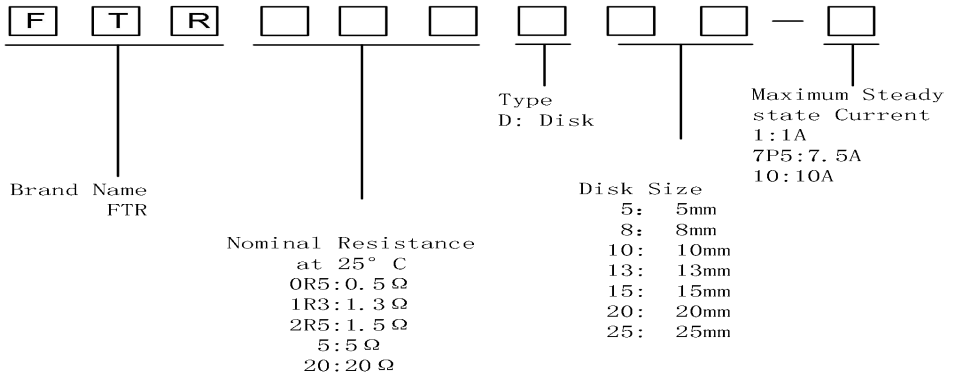
### Features

- Effectively restrain surge
- Low power loss under the stable state
- Over-current wide control range and fast response
- Thermal and electrical characteristics of high stability
- Wide range of electrical specifications
- RoHS& Halogen Free (HF) compliant

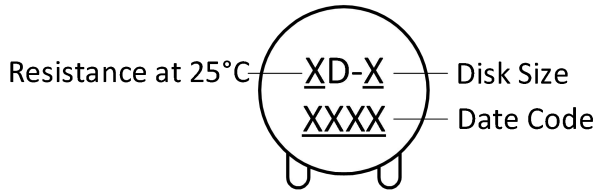
### Applications

- Monitor
- Power supply
- Communications equipment etc.
- Fax
- Telecom
- Adaptor

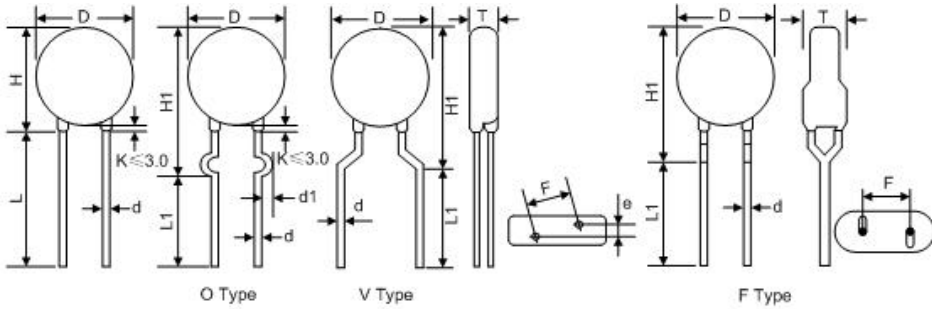
### Part Number Code



### Marking



### Dimensions (Unit: mm)



Disc Φ	D	H	H1	L (Min.)	L1 (Min.)	d (±0.02)	d1 (±0.4)	T	F (±0.8)	e (±0.5)
5	5.0~7.0	/	5.5~10.0	/	15	0.60	1.4	3.5~5.5	5.0	1.6
8	8.0~10.5	8.5~12.0	10.0~14.0	20.0	15	0.80	1.4	3.5~5.5	5.0	2.0
10	10.0~13.0	10.5~14.0	13.0~18.0	20.0	15	0.80	1.4	3.5~6.0	5.0	2.1
13	13.0~15.5	13.5~18.0	16.0~22.0	20.0	15	1.00	1.6	3.5~6.0	7.5	2.9
15	15.0~17.5	15.5~21.0	18.0~25.0	20.0	15	1.00	1.6	4.0~6.5	7.5	3.1
20	20.0~24.0	20.5~28.0	24.0~32.0	20.0	15	1.00	1.6	4.5~7.5	7.5	3.6
25	25.5~29.0	26.0~32.5	30.0~38.0	20.0	15	1.00	1.6	4.5~7.5	7.5	3.6

## Electrical Characteristics

Nominal Diameter (mm)	Part Number	Zero Power Resistance at 25°C	Maximum Steady State Current at 25°C	Thermal Time Constant	Thermal Dissipation Constant	Recommend Capacitance 240Vac	Maximum Steady Power	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(μF)	(W)	(°C)
5	FTR5D5-2	5	2	35	7	30	1.5	-40~+170
	FTR10D5-1	10	1	35	7	30	1.5	-40~+170
	FTR6D5-2	6	2	35	7	30	1.5	-40~+170
	FTR7D5-2	7	2	35	7	30	1.5	-40~+170
	FTR8D5-2	8	2	35	7	30	1.5	-40~+170
	FTR9D5-2	9	2	35	7	30	1.5	-40~+170
	FTR10D5-2	10	2	35	7	30	1.5	-40~+170
	FTR12D5-1	12	1	35	7	30	1.5	-40~+170
	FTR12D5-2	12	2	35	7	30	1.5	-40~+170
	FTR45D5-P25	45	0.25	35	7	30	1.5	-40~+170
8	FTR3D8-4	3	4	48	12	120	2.3	-40~+170
	FTR4D8-4	4	4	48	12	120	2.3	-40~+170
	FTR5D8-4	5	4	48	9	120	2.3	-40~+170
	FTR6D8-4	6	4	48	9	120	2.3	-40~+170
	FTR7D8-4	7	4	48	9	120	2.3	-40~+170
	FTR8D8-3	8	3	45	12	120	2.3	-40~+170
	FTR9D8-3	9	3	45	12	120	2.3	-40~+170
	FTR10D8-3	10	3	45	12	120	2.3	-40~+170
	FTR15D8-2	15	2	45	12	60	2.0	-40~+170
	FTR20D8-2	20	2	45	12	60	2.0	-40~+170
	FTR22D8-2	22	2	45	12	60	2.0	-40~+170
	FTR33D8-1P5	33	1.5	45	12	60	2.0	-40~+170
10	FTR1D10-5	1	5	59	12	330	2.5	-40~+170
	FTR1R3D10-5	1.3	5	63	17	330	2.5	-40~+170

Notes: Tolerance of Resistance is ±20%

### Electrical Characteristics

Nominal Diameter (mm)	Part Number	Zero Power Resistance at 25°C	Maximum Steady State Current at 25°C	Thermal Time Constant	Thermal Dissipation Constant	Recommend Capacitance 240Vac	Maximum Steady Power	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(μF)	(W)	(°C)
10	FTR1R5D10-5	1.5	5	60	15	330	2.5	-40 <sup>~</sup> +170
	FTR2D10-5	2	5	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR2R5D10-5	2.5	5	58	11	330	2.5	-40 <sup>~</sup> +170
	FTR3D10-5	3	5	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR5D10-4	5	4	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR6D10-4	6	4	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR7D10-4	7	4	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR8D10-4	8	4	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR9D10-4	9	4	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR10D10-4	10	4	59	12	330	2.5	-40 <sup>~</sup> +170
	FTR11D10-3	11	3	58	11	230	2.5	-40 <sup>~</sup> +170
	FTR12D10-3	12	3	58	11	230	2.5	-40 <sup>~</sup> +170
	FTR13D10-3	13	3	58	11	230	2.5	-40 <sup>~</sup> +170
	FTR14D10-3	14	3	58	11	230	2.5	-40 <sup>~</sup> +170
	FTR15D10-3	15	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR16D10-3	16	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR17D10-3	17	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR18D10-3	18	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR19D10-3	19	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR20D10-3	20	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR21D10-3	21	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR22D10-3	22	3	62	11	230	2.5	-40 <sup>~</sup> +170
	FTR25D10-2	25	2	56	12	220	2.5	-40 <sup>~</sup> +170
	FTR50D10-2	50	2	58	10	220	2.5	-40 <sup>~</sup> +170
FTR8D10-1	80	1	55	10	150	2.5	-40 <sup>~</sup> +170	
FTR120D10-1	120	1	60	10	150	2.5	-40 <sup>~</sup> +170	
FTR150D10-1	150	1	55	10	150	2.5	-40 <sup>~</sup> +170	

Notes: Tolerance of Resistance is ±20%

### Electrical Characteristics

Nominal Diameter (mm)	Part Number	Zero Power Resistance at 25°C	Maximum Steady State Current at 25°C	Thermal Time Constant	Thermal Dissipation Constant	Recommend Capacitance 240Vac	Maximum Steady Power	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(μF)	(W)	(°C)
13	FTR1D13-7	1	7	85	18	430	3	-40~+200
	FTR1R3D13-7	1.3	7	91	15	430	3.0	-40~+200
	FTR1R5D13-7	1.5	7	90	15	430	3.0	-40~+200
	FTR2D13-7	2	7	85	18	430	3	-40~+200
	FTR2R5D13-6	2.5	6	85	16	430	3.0	-40~+200
	FTR3D13-7	3	7	85	18	430	3	-40~+200
	FTR4D13-5	4	5	91	16	430	3.0	-40~+200
	FTR5D13-6	5	6	93	17	430	3	-40~+200
	FTR6D13-5	6	5	90	17	430	3	-40~+200
	FTR7D13-5	7	5	80	19	430	3	-40~+200
	FTR8D13-5	8	5	91	15	430	3	-40~+200
	FTR9D13-5	9	5	89	15	430	3	-40~+200
	FTR10D13-5	10	5	87	14	430	3	-40~+200
	FTR11D13-4	11	4	87	14	330	3	-40~+200
	FTR12D13-4	12	4	87	14	330	3	-40~+200
	FTR13D13-4	13	4	87	14	330	3	-40~+200
	FTR14D13-4	14	4	87	14	330	3	-40~+200
	FTR15D13-4	15	4	87	14	330	3	-40~+200
FTR16D13-4	16	4	87	15	330	3	-40~+200	
FTR17D13-4	17	4	87	15	330	3	-40~+200	
FTR18D13-4	18	4	87	15	330	3	-40~+200	

Notes: Tolerance of Resistance is  $\pm 20\%$

### Electrical Characteristics

Nominal Diameter (mm)	Part Number	Zero Power Resistance at 25°C	Maximum Steady State Current at 25°C	Thermal Time Constant	Thermal Dissipation Constant	Recommend Capacitance 240Vac	Maximum Steady Power	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(μF)	(W)	(°C)
13	FTR19D13-4	19	4	87	15	330	3	-40~+200
	FTR20D13-4	20	4	87	15	330	3	-40~+200
	FTR25D13-3	25	3	93	17	330	3.0	-40~+200
15	FTR1D15-9	1	9	104	20	640	4	-40~+200
	FTR1R3D15-8	1.3	8	107	20	640	4.0	-40~+200
	FTR1R5D15-8	1.5	8	107	19	640	4.0	-40~+200
	FTR2D15-9	2	9	104	20	640	4	-40~+200
	FTR2R5D15-9	2.5	9	104	20	640	4	-40~+200
	FTR3D15-9	3	9	106	20	640	4	-40~+200
	FTR4D15-6	4	6	104	18	640	4.0	-40~+200
	FTR5D15-8	5	8	110	20	640	4	-40~+200
	FTR6D15-5	6	5	102	20	640	4.0	-40~+200
	FTR7D15-5	7	5	99	21	640	4.0	-40~+200
	FTR8D15-6	8	6	99	15	640	4	-40~+200
	FTR9D15-6	9	6	99	16	640	4	-40~+200
	FTR10D15-6	10	6	99	19	640	4	-40~+200
	FTR11D15-6	11	6	99	19	560	4	-40~+200
	FTR12D15-6	12	6	99	21	560	4	-40~+200
FTR13D15-6	13	6	99	19	560	4	-40~+200	
FTR14D15-6	14	6	99	19	560	4	-40~+200	
FTR15D15-6	15	6	99	17	560	4	-40~+200	

Notes: Tolerance of Resistance is ±20%

### Electrical Characteristics

Nominal Diameter (mm)	Part Number	Zero Power Resistance at 25°C	Maximum Steady State Current at 25°C	Thermal Time Constant	Thermal Dissipation Constant	Recommend Capacitance 240Vac	Maximum Steady Power	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(μF)	(W)	(°C)
15	FTR16D15-4	16	4	102	22	560	4.0	-40~+200
	FTR20D15-4	20	4	101	20	560	4.0	-40~+200
	FTR22D15-4	22	4	101	20	560	4.0	-40~+200
	FTR25D15-3	25	3	100	21	560	4.0	-40~+200
	FTR33D15-3	33	3	100	21	560	4.0	-40~+200
	FTR40D15-4	40	4	101	20	560	4	-40~+200
	FTR47D15-3	47	3	102	21	560	4.0	-40~+200
	FTR55D15-3	55	3	102	21	560	4.0	-40~+200
	FTR80D15-2P5	80	2.5	102	22	560	4.0	-40~+200
FTR120D15-2	120	2	104	20	560	4.0	-40~+200	
20	FTR0R7D20-12	0.7	12	160	28	820	5	-40~+200
	FTR1D20-12	1	12	160	28	820	5	-40~+200
	FTR1R3D20-8	1.3	8	144	24	820	5.0	-40~+200
	FTR2D20-12	2	12	160	28	820	5	-40~+200
	FTR2R5D20-12	2.5	12	120	24	820	5	-40~+200
	FTR3D20-12	3	12	130	24	820	5	-40~+200
	FTR4D20-8	4	8	135	25	820	5.0	-40~+200
	FTR5D20-10	5	10	144	24	820	5	-40~+200
	FTR6D20-10	6	10	144	24	820	5	-40~+200
	FTR7D20-6	7	6	132	24	820	5.0	-40~+200
FTR8D20-6	8	6	135	24	820	5	-40~+200	

Notes: Tolerance of Resistance is  $\pm 20\%$

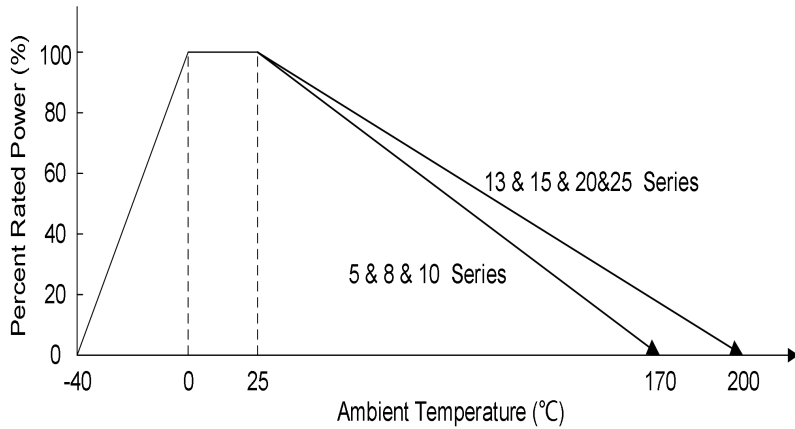
### Electrical Characteristics

Nominal Diameter (mm)	Part Number	Zero Power Resistance at 25°C	Maximum Steady State Current at 25°C	Thermal Time Constant	Thermal Dissipation Constant	Recommend Capacitance 240Vac	Maximum Steady Power	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(μF)	(W)	(°C)
20	FTR10D20-6	10	6	135	23	820	5.0	-40~+200
	FTR12D20-5	12	5	132	25	820	5.0	-40~+200
	FTR20D20-6	20	6	127	22	740	5.0	-40~+200
	FTR25D20-6	25	6	127	22	740	5.0	-40~+200
	FTR120D20-2	120	2	142	24	740	5.0	-40~+200
25	FTR1D25-15	1	15	150	30	1240	6.5	-40~+200
	FTR1R5D25-15	1.5	15	150	30	1240	6.5	-40~+200
	FTR2D25-15	2	15	150	30	1240	6.5	-40~+200
	FTR2R5D25-15	2.5	15	150	30	1240	6.5	-40~+200
	FTR3D25-15	3	15	150	30	1240	6.5	-40~+200
	FTR4D25-14	4	14	150	30	1240	6.5	-40~+200
	FTR4R7D25-13	4.7	13	150	30	1240	6.5	-40~+200
	FTR5D25-12	5	12	150	30	1240	6.5	-40~+200
	FTR6R8D25-10P5	6.8	10.5	150	30	820	6.5	-40~+200
	FTR7D25-10	7	10	150	30	820	6.5	-40~+200
	FTR8D25-9	8	9	150	30	820	6.5	-40~+200
	FTR10D25-8	10	8	150	30	820	6.5	-40~+200
	FTR12D25-7P5	12	7.5	150	30	820	6.5	-40~+200
	FTR15D25-6P5	15	6.5	150	30	740	6.5	-40~+200
	FTR18D25-5P5	18	5.5	150	30	740	6.5	-40~+200
FTR20D25-5	20	5	150	30	740	6.5	-40~+200	

Notes: Tolerance of Resistance is ±20%



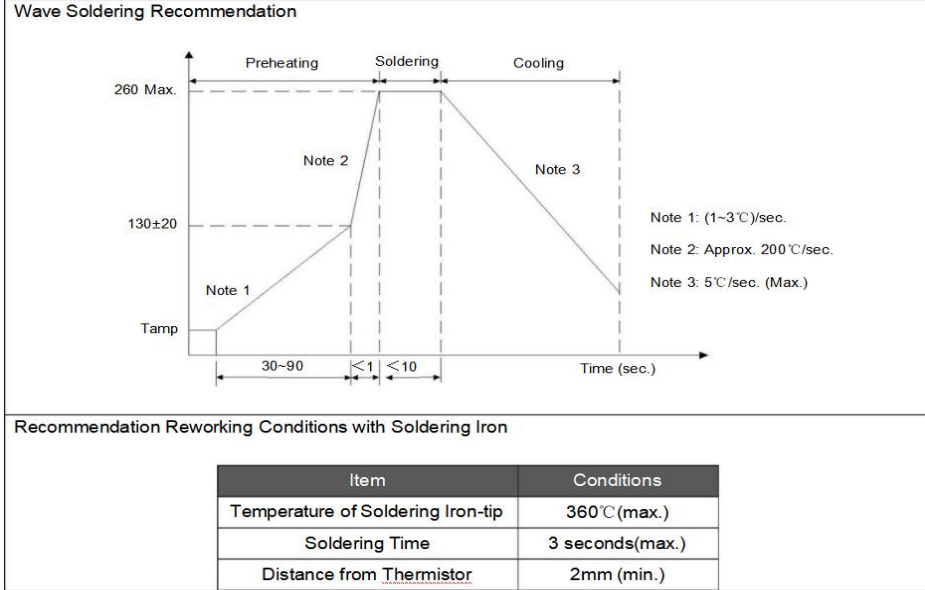
## Maximum Power Rating



## Warehouse Storage Conditions

- Storage temperature:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- Relative humidity:  $\leq 75\% \text{RH}$ .
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 6 months

### Soldering Recommendation



### Packaging

#### ■ Bulk Packing

Bulk	Quantity (pcs/box) (@L1=20mm)	Quantity (pcs/box) (@L1=3.5mm)
	1000pcs/box (Φ5、Φ7)	1000pcs/box (Φ5、Φ7)
	500pcs/box (Φ9、Φ11)	1000pcs/box (Φ9、Φ11)
	500pcs/box (Φ13、Φ15)	500pcs/box (Φ13、Φ15)
	250pcs/box (Φ20)	250pcs/box (Φ20)