

### NTC Thermistors Data Sheet (PF Resin SERIES)

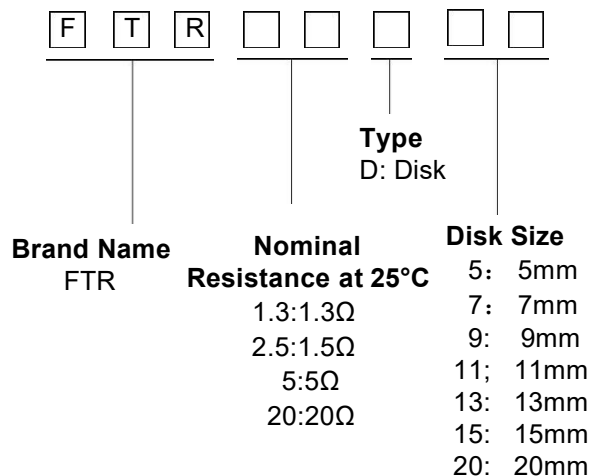
#### Features

- 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

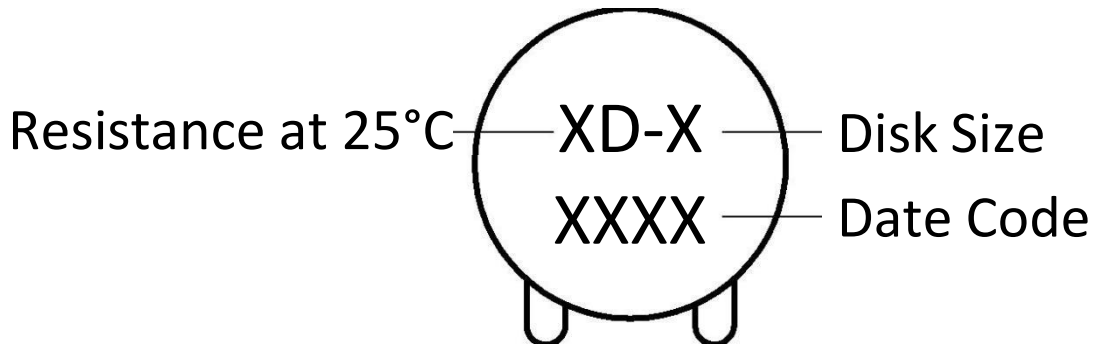
#### Applications

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

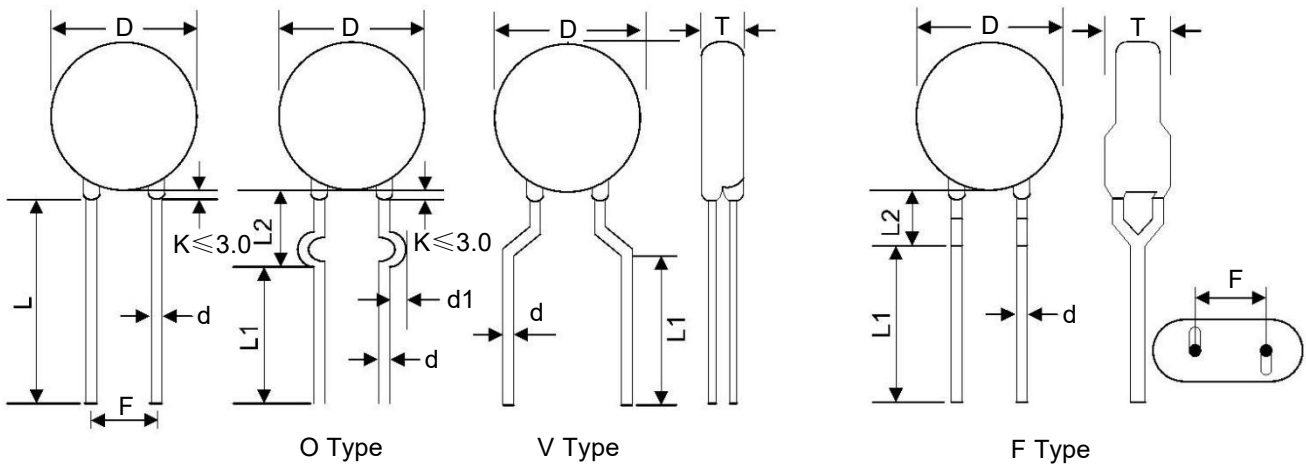
#### Part Number Code



### Marking



### Dimensions (Unit: mm)



Disc Φ	Dmax.	Tmax.	d (±0.1)	F (±1)	L (Min.)	L1 (±0.5)	L2 (±2)
5	7	5	0.55	5	15	3.5/20	7/4
7	9	5	0.55	5	15	3.5/20	7/4
9	11	5.5	0.75/0.55	7.5/5	15	3.5/20	7/4
11	13	5.5	0.75	7.5/5	15	3.5/20	7/4
13	15.5	6	0.75	7.5	15	3.5/20	7/4
15	17.5	6	0.75	10/7.5	15	3.5/20	7/4
20	22.5	7	1.0	10/7.5	15	N/A	N/A

Remarks: "V" type lead is the default lead shape of 5D products, normal straight lead shape for others.

### 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	Residual resistance	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(Ω)	(°C)
5	FTR5D5	5	1	20	6	0.35	-40~+150
	FTR10D5	10	0.7	20	6	0.77	-40~+150
	FTR60D5	60	0.5	18	6	1.88	-40~+150
	FTR200D5	200	0.1	18	6	18.70	-40~+150
7	FTR5D7	5	2	30	10	0.28	-40~+150
	FTR8D7	8	1	28	9	0.54	-40~+150
	FTR10D7	10	1	27	9	0.62	-40~+150
	FTR12D7	12	1	27	9	0.82	-40~+150
	FTR16D7	16	0.7	27	9	1.00	-40~+150
	FTR22D7	22	0.6	27	9	1.11	-40~+150
	FTR33D7	33	0.5	28	10	1.49	-40~+150
	FTR200D7	200	0.2	28	11	11.65	-40~+150
9	FTR3D9	3	4	35	11	0.12	-40~+175
	FTR4D9	4	3	35	11	0.19	-40~+175
	FTR5D9	5	3	34	11	0.21	-40~+175
	FTR6D9	6	2	34	11	0.32	-40~+175
	FTR8D9	8	2	32	11	0.40	-40~+175
	FTR10D9	10	2	32	11	0.46	-40~+175
	FTR12D9	12	1	32	11	0.66	-40~+175
	FTR16D9	16	1	31	11	0.80	-40~+175
	FTR20D9	20	1	30	11	0.88	-40~+175
	FTR22D9	22	1	30	11	0.95	-40~+175
	FTR33D9	33	1	30	11	1.12	-40~+175
	FTR50D9	50	1	30	11	1.25	-40~+175
	FTR80D9	80	0.8	30	11	2.01	-40~+175
	FTR120D9	120	0.8	30	11	3.02	-40~+175
FTR200D9	200	0.5	30	11	5.01	-40~+175	
11	FTR2.5D11	2.5	5	43	13	0.10	-40~+175
	FTR3D11	3	5	43	13	0.10	-40~+175
	FTR4D11	4	4	44	13	0.15	-40~+175
	FTR5D11	5	4	45	13	0.16	-40~+175
	FTR6D11	6	3	45	13	0.24	-40~+175

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	Residual resistance	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(Ω)	(°C)
11	FTR8D11	8	3	47	14	0.25	-40~+175
	FTR10D11	10	3	47	14	0.28	-40~+175
	FTR12D11	12	2	48	14	0.46	-40~+175
	FTR16D11	16	2	50	14	0.47	-40~+175
	FTR20D11	20	2	52	15	0.51	-40~+175
	FTR22D11	22	2	52	15	0.56	-40~+175
	FTR30D11	30	1.5	52	15	0.67	-40~+175
	FTR50D11	50	1.5	52	15	1.02	-40~+175
	FTR60D11	60	1.5	52	15	1.22	-40~+175
	FTR80D11	80	1.2	52	15	1.66	-40~+175
13	FTR1.3D13	1.3	7	60	13	0.06	-40~+200
	FTR2.5D13	2.5	6	60	13	0.088	-40~+200
	FTR3D13	3	6	60	14	0.092	-40~+200
	FTR4D13	4	5	67	15	0.12	-40~+200
	FTR5D13	5	5	68	15	0.125	-40~+200
	FTR6D13	6	4	65	15	0.17	-40~+200
	FTR8D13	8	4	65	15	0.194	-40~+200
	FTR10D13	10	4	65	15	0.206	-40~+200
	FTR12D13	12	3	65	16	0.316	-40~+200
	FTR15D13	15	3	65	16	0.335	-40~+200
	FTR20D13	20	3	65	16	0.372	-40~+200
	FTR30D13	30	2.5	65	16	0.517	-40~+200
	FTR47D13	47	2	65	17	0.81	-40~+200
15	FTR2.5D15	2.5	8	76	18	0.071	-40~+200
	FTR3D15	3	7	76	18	0.075	-40~+200
	FTR5D15	5	6	76	20	0.112	-40~+200
	FTR6D15	6	5	80	20	0.155	-40~+200
	FTR7D15	7	5	80	20	0.173	-40~+200
	FTR8D15	8	5	80	20	0.178	-40~+200
	FTR10D15	10	5	75	20	0.18	-40~+200
	FTR12D15	12	4	75	20	0.25	-40~+200
	FTR15D15	15	4	85	21	0.268	-40~+200

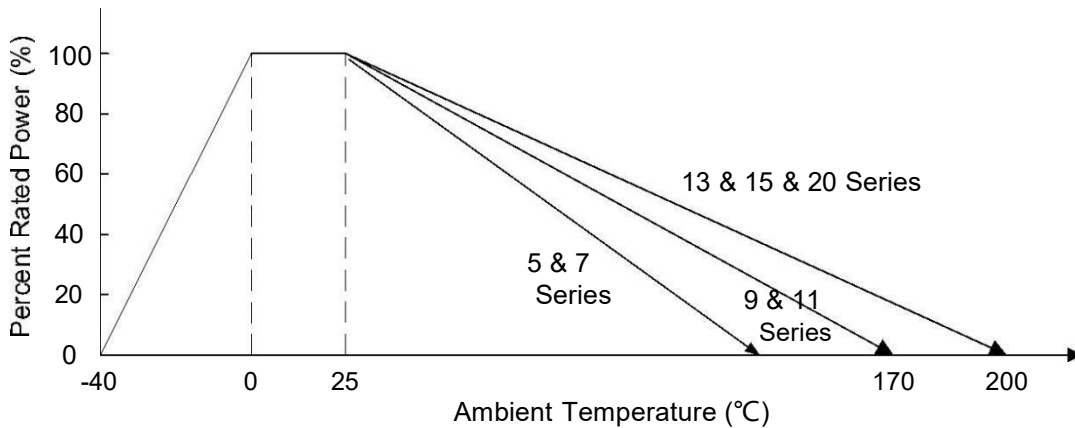
Notes: Tolerance of Resistance is ±20%

### 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	Residual resistance	Operating Temperature Range
		(Ω)	(A)	(s)	(mW/°C)	(Ω)	(°C)
15	FTR20D15	20	4	86	17	0.288	-40~+200
	FTR30D15	30	3.5	75	18	0.438	-40~+200
	FTR47D15	47	3	86	21	0.68	-40~+200
	FTR50D15	50	3	86	21	0.72	-40~+200
20	FTR1.3D20	1.3	9	113	24	0.037	-40~+200
	FTR3D20	3	8	113	24	0.055	-40~+200
	FTR5D20	5	7	112	23	0.087	-40~+200
	FTR8D20	8	6	115	25	0.142	-40~+200
	FTR10D20	10	6	113	24	0.162	-40~+200
	FTR12D20	12	5	114	24	0.195	-40~+200
	FTR16D20	16	5	113	25	0.212	-40~+200

Notes: Tolerance of Resistance is ±20%

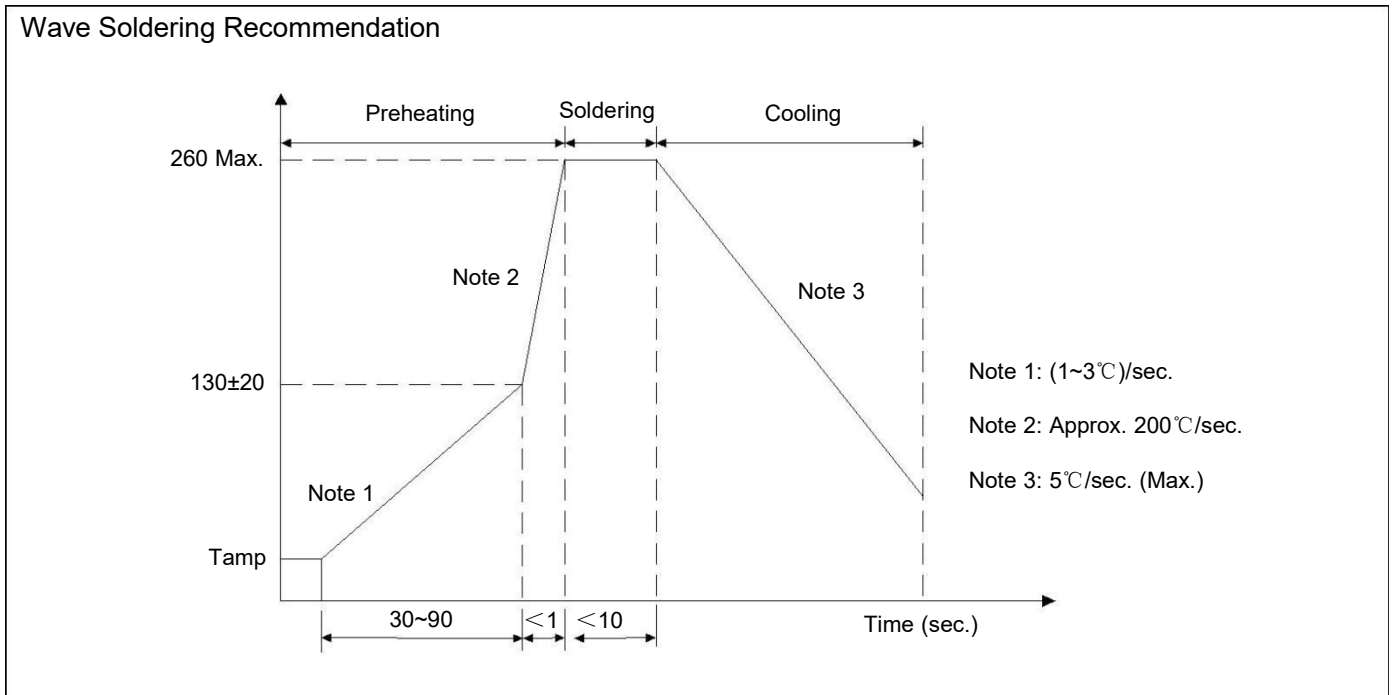
### Maximum Power Rating



### Warehouse Storage Conditions

- Storage temperature: -10°C~+40°C.
- Relative humidity: ≤75%RH.
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 6 months

## Soldering Recommendation



Recommendation Reworking Conditions with Soldering Iron

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

## 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)