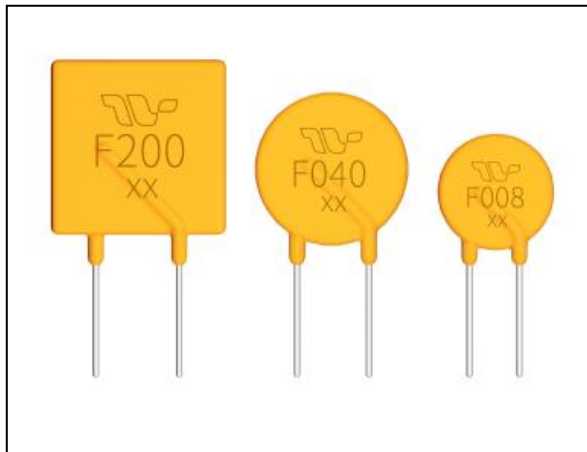


## TRC(250V) Series



### Applications

Almost anywhere there is a low voltage power supply, up to 30V and a load to be protected, including:

- ◆ Personal computer
- ◆ Toys
- ◆ Industrial controls

### Features

- ◆ Radial Leaded Devices
- ◆ Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- ◆ Bulk Package, or tape and reel available on most models
- ◆ Agency recognition: TUV on approval

### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	R 50322003

### Regulation/Standard



### Electrical Characteristics (电气特性)

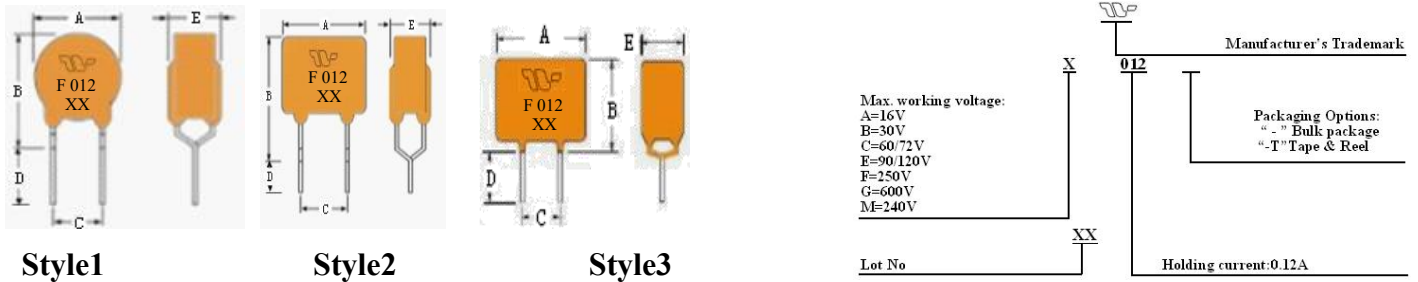
P/N	保持电流	跳脱电流	最大电压	最大电流	最大冲击电压	最大动作时间		消耗功率	电阻范围(Ω)		
	$I_H$ (A)	$I_T$ (A)	$V_{max}$ (V)	$I_{max}$ (A)	$V_{max}$ (V)	(A)	(Sec.)	$P_{d\ typ}$ (W)	$R_{min}$	$R_{max}$	$R1_{max}$
TRF002	0.020	0.045	60	3.0	250	0.10	3.0	1.0	65	145	240
TRF004	0.040	0.080	60	3.0	250	0.20	3.0	1.0	24	65.0	97.5
TRF006	0.060	0.120	60	3.0	250	0.30	3.0	1.0	22.0	36.0	56.0
TRF008	0.080	0.160	60	3.0	250	0.35	4.0	1.0	14.0	22.0	33.0
TRF009	0.090	0.220	60	3.0	250	1.00	1.0	1.0	9.7	20.6	33.0
TRF011	0.110	0.300	60	3.0	250	1.00	1.0	1.0	6.0	12.0	18.0
TRF012	0.120	0.240	60	3.0	250	1.00	3.0	1.0	6.0	10.0	16.0
TRF012U	0.120	0.240	60	3.0	250	1.00	1.5	1.0	6.0	10.0	16.0
TRF014	0.145	0.29	60	3.0	250	1.00	2.5	1.0	3.0	6.0	14.0
TRF014U	0.145	0.29	60	3.0	250	1.0	2.5	1.0	3.5	6.5	12.0
TRF018	0.180	0.54	60	3.0	250	3.0	1.5	1.8	1.0	2.2	4.0
TRF018U	0.180	0.54	60	3.0	250	3.0	1.5	1.8	1.0	2.2	4.0
TRF020	0.200	0.6	60	3.0	250	3.0	5.0	1.8	1.7	3.5	6.30
TRF030	0.300	0.60	60	3.0	250	3.0	6.0	1.8	1.0	2.2	3.50
TRF040	0.400	0.800	60	5.5	250	3.0	8	1.8	0.80	1.60	3.20
TRF050	0.500	1.00	60	6.0	250	3.0	10	3.0	0.56	1.40	2.52

TRF060	0.600	1.20	60	7.0	250	3.0	12	3.2	0.40	1.10	2.16
TRF080	0.800	1.60	60	8.0	250	4.0	18	3.6	0.32	0.80	1.44
TRF100	1.000	2.00	60	10.0	250	5.0	21	2.9	0.22	0.50	1.45
TRF150	1.500	3.00	60	15.0	250	7.50	25.0	3.5	0.12	0.28	0.68
TRF200	2.000	4.00	60	10.0	250	10.0	28	4.5	0.09	0.192	0.42

“U” suffix indicates product without insulation coating.

- $I_H$ : Holding Current: maximum current at which the device will not trip in 25°C still air.
- $I_T$ : Tripping Current minimum current at which the device will trip in 25°C still air.
- $V_{max}$ : Maximum voltage device can withstand without damage at rated current.
- $I_{max}$ : Maximum fault current device can withstand without damage at rated voltage.
- $T_{trip}$ : Maximum time to trip(s) at assigned current.
- $Pd_{typ}$ : Rated working power.
- $R_{min}$ : Minimum resistance of device prior to trip at 25°C.
- $R_{max}$ : Maximum resistance of device prior to trip at 25°C.
- $R1_{max}$ : Maximum resistance of device measured one hour after tripping at 25°C.

## Product Dimensions & Marking (Unit: mm) (产品尺寸) :



Style1

Style2

Style3

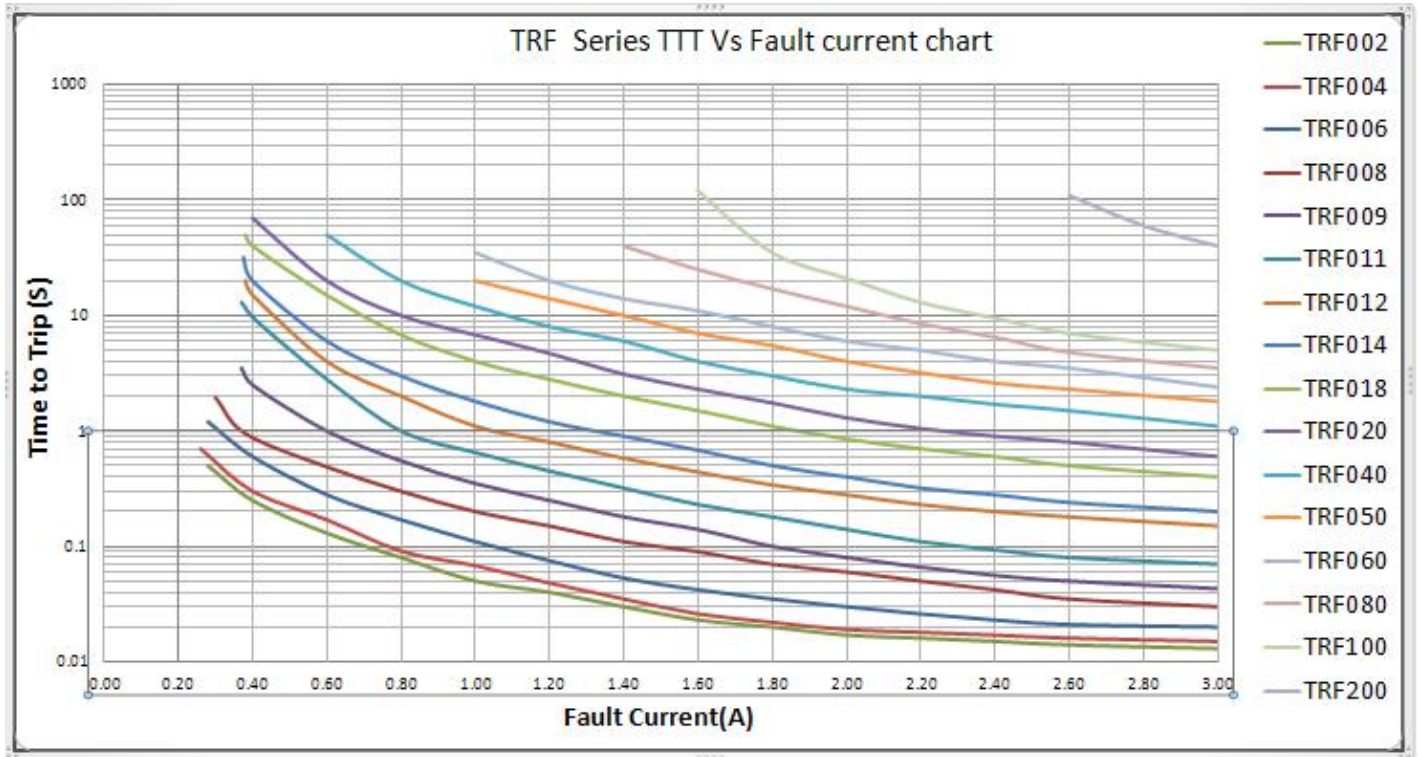
P/N	A	B	C	D	E	Physical Characteristics(物理特性)		
	Max.(最大)	Max.(最大)	Typ.(标准)	Min.(最小)	Max.(最大)	Style(样式)	Lead Φ mm	Material(材料)
TRF002	5.8	9.9	5.1	7.6	4.5	1	0.5	CP
TRF004	5.8	9.9	5.1	7.6	4.5	1	0.5	CP
TRF006	5.8	9.9	5.1	7.6	4.5	1	0.6	CP
TRF008	7.4	12.7	5.1	7.6	4.5	1	0.6	CP
TRF009	7.4	12.7	5.1	7.6	4.5	1	0.6	CP
TRF011	6.5	11.0	5.1	5.0	4.5	2	0.6	CP
TRF012	6.8	12.0	5.1	7.6	4.5	2	0.6	CP
TRF012U	6.8	12.0	5.1	7.6	4.5	2	0.6	CP
TRF014	6.5	11.0	5.1	5.0	4.5	2	0.6	CP
TRF014U	6.0	10.0	5.1	4.7	4.5	2	0.6	CP
TRF018	10.2	14.5	5.1	7.6	4.5	1	0.6	CP

TRF018U	10.2	14.5	5.1	7.6	4.5	1	0.6	CP
TRF020	10.5	17.0	5.1	7.6	4.5	1	0.6	CP
TRF030	11.0	16.8	5.1	7.6	4.5	1	0.6	Cu
TRF040	11.7	17.0	5.1	7.6	3.8	1	0.6	Cu
TRF050	13.0	18.0	5.1	7.6	3.8	2	0.6	Cu
TRF060	14.0	19.5	5.1	7.6	3.8	2	0.6	Cu
TRF080	16.3	21.3	5.1	7.6	3.8	3	0.8	Cu
TRF100	17.8	22.9	5.1	7.6	3.8	3	0.8	Cu
TRF150	20.8	29.8	10.2	7.6	3.8	3	0.8	Cu
TRF200	28.4	33.5	10.2	7.6	3.8	3	0.8	Cu

**Thermal Derating Chart -  $I_{hold}$  (Amps) (环境温度与工作电流关系特性曲线) :**

P/N	Ambient Operating Temperature(工作环境温度)								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
TRF002	0.031	0.028	0.023	0.020	0.017	0.015	0.013	0.011	0.008
TRF004	0.062	0.055	0.048	0.040	0.033	0.029	0.026	0.022	0.017
TRF006	0.093	0.075	0.071	0.060	0.050	0.044	0.038	0.033	0.025
TRF008	0.124	0.110	0.095	0.080	0.066	0.059	0.051	0.044	0.033
TRF009	0.140	0.124	0.110	0.090	0.075	0.068	0.058	0.050	0.038
TRF011	0.171	0.151	0.131	0.110	0.091	0.081	0.071	0.061	0.046
TRF012(U)	0.186	0.165	0.143	0.120	0.099	0.088	0.077	0.066	0.050
TRF014(U)	0.225	0.199	0.172	0.145	0.119	0.106	0.093	0.080	0.060
TRF018(U)	0.269	0.240	0.211	0.180	0.153	0.138	0.123	0.109	0.087
TRF020	0.310	0.275	0.237	0.200	0.165	0.147	0.128	0.110	0.082
TRF030	0.465	0.413	0.356	0.300	0.248	0.221	0.192	0.165	0.123
TRF040	0.620	0.550	0.475	0.400	0.330	0.295	0.255	0.220	0.165
TRF050	0.775	0.688	0.594	0.500	0.412	0.366	0.319	0.275	0.206
TRF060	0.930	0.825	0.710	0.600	0.495	0.443	0.393	0.330	0.246
TRF080	1.240	1.100	0.950	0.800	0.660	0.590	0.510	0.440	0.330
TRF100	1.550	1.380	1.190	1.000	0.830	0.740	0.640	0.550	0.410
TRF150	2.400	2.000	1.800	1.500	1.200	1.100	0.900	0.800	0.600
TRF200	3.100	2.750	2.380	2.000	1.650	1.480	1.280	1.100	0.830

**Typical time to trip at 25°C (25°C下的动作保护时间曲线表):**

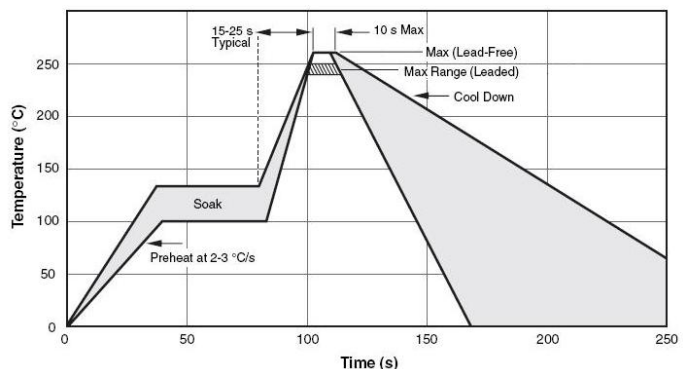


**Reliability Requirement (可靠性要求):**

Humidity Aging	85°C, 85%R.H., 1000 Hours ± 15% Typical Resistance Change
Passive Aging	85°C, 1000 Hours ± 15% Typical Resistance Change
Thermal Shock	-40°C ~ 85°C, 10 times ± 15% Typical Resistance Change
Solderability	245°C ± 5°C, 5sec >95% coverage
Resistance to Solvents	MIL-STD-202, Method 215 Marking Still legible

**Soldering Parameters**

Profile Feature	Condition
Average Ramp-Up Rate (T <sub>max</sub> to TP)	4°C/second max.
Preheat	
-Temperature Min (T <sub>min</sub> )	100°C
-Temperature Max (T <sub>max</sub> )	125°C
-Time (T <sub>min</sub> to T <sub>max</sub> )	60-180 seconds
Peak Temperature (TP)	265°C
Max Time at Peak Temperature (tP)	5 seconds
Ramp-Down Rate	6 °C /second max.
Time 25°C to Peak Temperature	5 minutes max.
Storage Condition	0°C ~35°C, ≦70%RH, 2 Years





**Environmental Characteristics (环境特性):**

- Operating/Storage Temperature ..... -40 °C to +85 °C
- Maximum Device Surface Temperature in Tripped State ..... 125 °C
- Storage Conditions .....+40 °C Max. 70% RH Max. Packed in original packaging.

**Package information (包装信息):**

Model	Q'ty/bag
TRF002-TRF040	1000 pcs
TRF050-TRF100	500 pcs
TRF200	200 pcs

- Tape and Reel Specifications  
Devices taped using EIA468-B/IEC286-2 standards.