

## Positive Temperature Coefficient (PTC) Data Sheet

### Description

The 0805 series provides miniature surface mount resettable overcurrent protection withholding current from 0.1A to 1.1A. This series is suitable for ultra portable applications where space is at a premium and the device current is low.

### Features

- ROHS compliant and lead-free
- Fast response to fault current
- Low profile
- Low resistance
- Compatible with high temperature solders
- Compact design saves board space

### Applications

- USB peripherals and Type C
- Disk drives
- General electronics
- PDAs/digital cameras
- Game console port protection
- HDMI and Set-top-box

### Electrical Characteristics

Part Number	Marking	I <sub>hold</sub> (A)	I <sub>trip</sub> (A)	V <sub>max</sub> (V)	I <sub>max</sub> (A)	Pd typ. (W)	Maximum time to trip		Resistance	
							Time(s)	Current(A)	R <sub>min</sub> (Ω)	R <sub>1max</sub> (Ω)
FTR0805-010	1	0.10	0.30	15	100	0.5	1.50	0.50	1.00	6.00
FTR0805-020	2	0.20	0.50	9	100	0.5	0.02	8.00	0.65	3.50
FTR0805-035	3	0.35	0.75	6	100	0.5	0.10	8.00	0.25	1.20
FTR0805-050	5	0.50	1.00	6	100	0.5	0.10	8.00	0.15	0.85
FTR0805-075	7	0.75	1.50	6	40	0.6	0.20	8.00	0.09	0.35
FTR0805-100	0	1.00	1.95	6	40	0.6	0.30	8.00	0.04	0.23
FTR0805-110	0	1.10	2.00	6	100	0.8	0.30	8.00	0.03	0.21

·I<sub>hold</sub>= Hold current: maximum current device will pass without tripping in 23°C still air.

·I<sub>trip</sub>= Trip current: minimum current at which the device will trip in 23°C still air.

·V<sub>max</sub>= Maximum voltage device can withstand without damage at rated current (I<sub>max</sub>)

·I<sub>max</sub>= Maximum fault current device can withstand without damage at rated voltage

(V<sub>max</sub>)

·Pd typ.= Typical power dissipated from device when in the tripped state at 23°C still air.

·R<sub>min</sub>= Minimum resistance of device in initial (un-soldered) state.

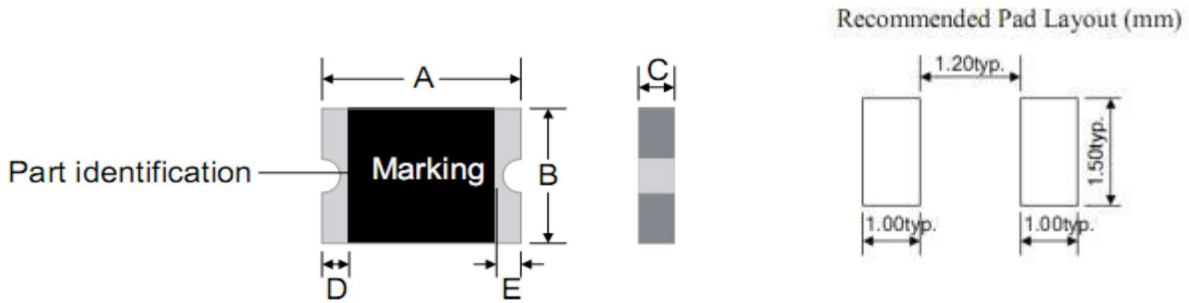
·R<sub>1max</sub>= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

■Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

### Thermal Derating Chart

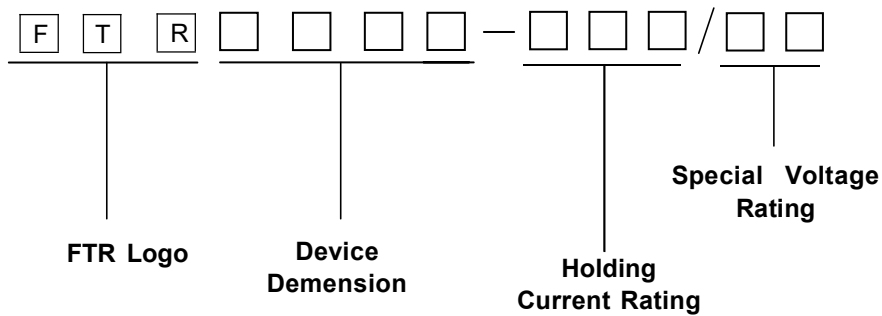
Part Number	Ambient Operation Temperature									
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C	
FTR0805-010	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.03	
FTR0805-020	0.28	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07	
FTR0805-035	0.47	0.44	0.39	0.35	0.30	0.27	0.24	0.20	0.14	
FTR0805-050	0.68	0.62	0.55	0.50	0.40	0.37	0.33	0.29	0.23	
FTR0805-075	1.00	0.90	0.79	0.75	0.63	0.57	0.53	0.41	0.34	
FTR0805-100	1.35	1.25	1.10	1.00	0.82	0.74	0.65	0.55	0.42	
FTR0805-110	1.45	1.35	1.20	1.10	0.92	0.84	0.75	0.65	0.52	

## Dimensions and PAD Size

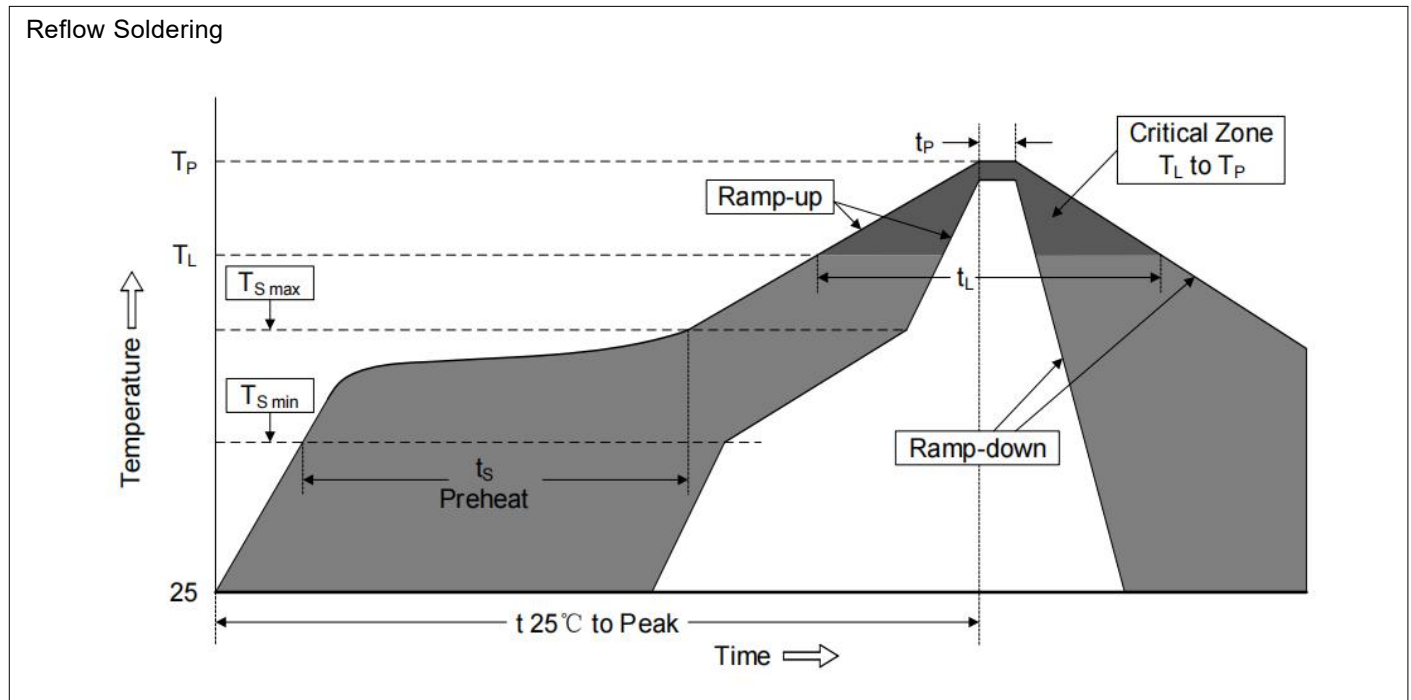


Part Number	Dimensins(mm)									
	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FTR0805-010	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.05	0.45
FTR0805-020	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.05	0.45
FTR0805-035	2.00	2.20	1.20	1.50	0.45	1.00	0.20	0.55	0.05	0.45
FTR0805-050	2.00	2.20	1.20	1.50	0.35	1.25	0.20	0.55	0.05	0.45
FTR0805-075	2.00	2.20	1.20	1.50	0.75	1.25	0.20	0.55	0.05	0.45
FTR0805-100	2.00	2.20	1.20	1.50	0.50	1.50	0.20	0.55	0.05	0.45
FTR0805-110	2.00	2.20	1.20	1.50	0.80	1.50	0.20	0.55	0.05	0.45

## Partnumber code



## Recommended Soldering Conditions



### Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) ( $t_s$ )	60-180 seconds
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	217°C
-Time ( $t_L$ )	60-150 seconds
Peak Temperature ( $T_P$ )	260°C
Time within 5°C of actual Peak Temperature ( $t_p$ )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
Storage Condition	0°C~35°C, ≤70%RH

·Recommended reflow methods: IR, vapor phase oven, hot air oven, N 2 environment for lead-free

·Recommended maximum paste thickness is 0.25mm (0.010 inch)

·Device can be cleaned using standard industry methods and solvents.

Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

## Environmental Specifications

Operating / Storage temperature	-40°C to +85°C
Maximum Device Surface Temperature in Tripped State	125°C
Passive Aging	+85°C, 1000 hours ±50% typical resistance change
Humidity Aging	+85°C, 85%RH, 1000 hours ±50% typical resistance change
Thermal Shock	MIL-STD-202, Method 107G +85°C/-40°C 20 times -50% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215 No change
Vibration	MIL-STD-883C, Method 2007.1, Condition A No change
Moisture Level Sensitivity	Level 1, J-STD-020C

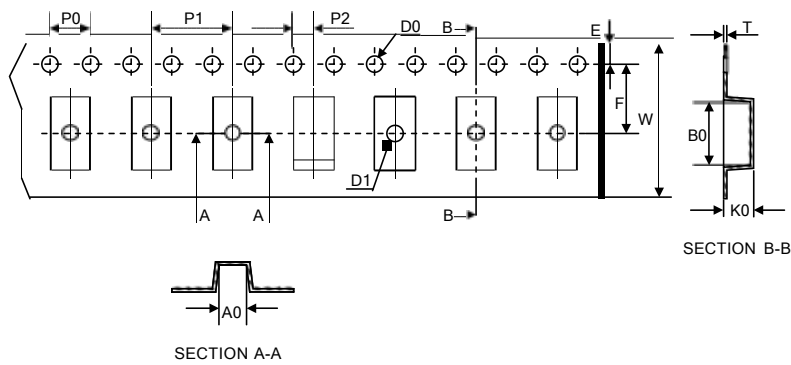
## Physical Specifications

Terminal Material	Solder-Plated Copper (Solder Material: Matte Tin (Sn))
Terminal Solderability	Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3.

## Packaging

Part Number	Quantity	Part Number	Quantity
FTR0805-010	5000	FTR0805-075	4000
FTR0805-020	5000	FTR0805-100	4000
FTR0805-035	5000	FTR0805-110	4000
FTR0805-050	5000		

## Tape



### Symbol

### Dimension (mm)

W	8.00±0.30
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ 1.55±0.10
E	1.75±0.10
F	3.50±0.05
A0	1.65±0.10
B0	2.35±0.10
K0	0.90±0.1
T	0.20±0.1
C	Φ 178.0±1.0
D	Φ 59.0±1.0
H	12.0±1.0
W	9.0±1.5

## Reel

