

0805L Series



Description

The 0805L Series PTC provides surface mount overcurrent protection for applications where space is at a premium and resettable protection is desired.



Features

- RoHS compliant, lead-free and halogen-free
- Fast response to fault currents
- Compact design saves board space
- Low resistance
- Low-profile
- Compatible with high temperature solders



Applications

- USB peripherals
- Disk drives
- CD-ROMs
- Plug and play protection for motherboards and peripherals
- Mobile phones - battery and port protection
- Disk drives
- PDAs / digital cameras
- Game console port protection

Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E183209
	R50119118

Electrical Characteristics

Part Number	Marking	I _{hold} (A)	I _{trip} (A)	V _{max} (Vdc)	I _{max} (A)	P _d typ. (W)	Maximum Time To Trip		Resistance			Agency Approvals	
							Current (A)	Time (Sec.)	R _{min} (Ω)	R _{typ} (Ω)	R _{1max} (Ω)		
0805L010	A	0.10	0.30	15	100	0.5	0.50	1.50	1.000	3.500	6.000	X	X
0805L010/24	J	0.10	0.30	24	100	0.5	0.50	1.50	1.500	–	6.000	X	X
0805L020	C	0.20	0.50	9	100	0.5	8.00	0.02	0.650	2.000	3.500	X	X
0805L035	E	0.35	0.75	6	100	0.5	8.00	0.10	0.250	0.750	1.200	X	X
0805L050	F	0.50	1.00	6	100	0.5	8.00	0.10	0.150	0.500	0.850	X	X
0805L075	G	0.75	1.50	6	40	0.6	8.00	0.20	0.090	–	0.350	X	X
0805L100	N	1.00	1.95	6	40	0.6	8.00	0.30	0.060	–	0.210	X	X
0805L110	H	1.10	2.00	6	100	0.8	8.00	0.10	0.050	–	0.160	X	X

I_{hold} = Hold current: maximum current device will pass without tripping in 20°C still air.

I_{trip} = Trip current: minimum current at which the device will trip in 20°C still air.

V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})

I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})

P_d = Power dissipated from device when in the tripped state at 20°C still air.

R_{min} = Minimum resistance of device in initial (un-soldered) state.

R_{typ} = Typical resistance of device in initial (un-soldered) state.

R_{1max} = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

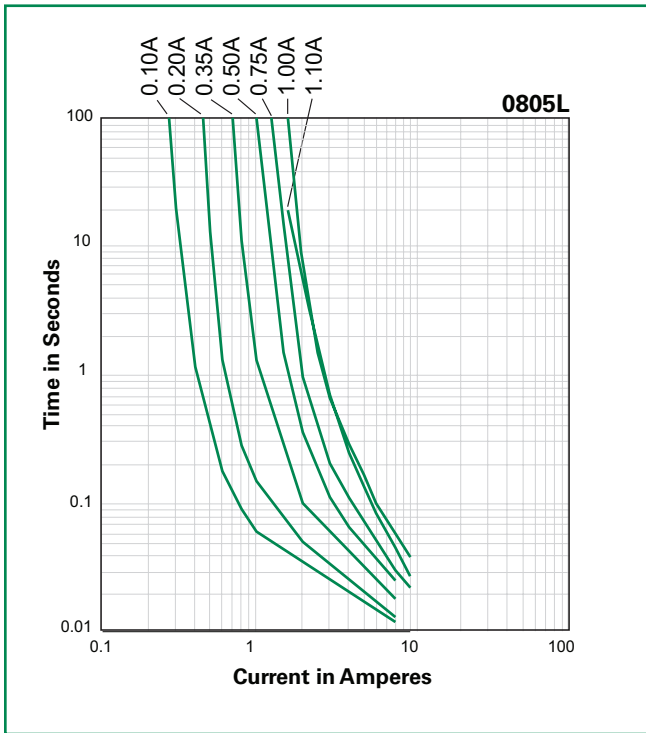
Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

Temperature Derating

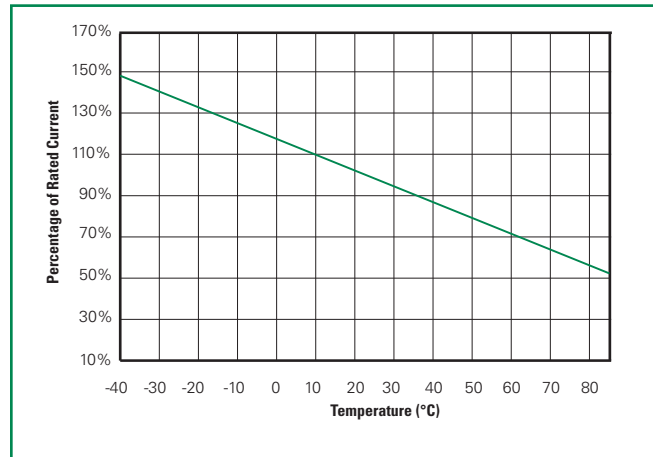
Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	20°C	40°C	50°C	60°C	70°C	85°C
0805L010	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.03
0805L010/24	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.04
0805L020	0.28	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
0805L035	0.47	0.44	0.39	0.35	0.30	0.27	0.24	0.20	0.14
0805L050	0.68	0.62	0.55	0.50	0.40	0.37	0.33	0.29	0.23
0805L075	1.00	0.90	0.79	0.75	0.63	0.57	0.53	0.41	0.34
0805L100	1.35	1.25	1.10	1.00	0.82	0.74	0.65	0.55	0.42
0805L110	1.56	1.41	1.24	1.10	0.96	0.86	0.76	0.68	0.55

Notes: The temperature derating data is only for reference, please contact Littelfuse technical support for detail temperature derating information.

Average Time Current Curves



Temperature Derating Curve



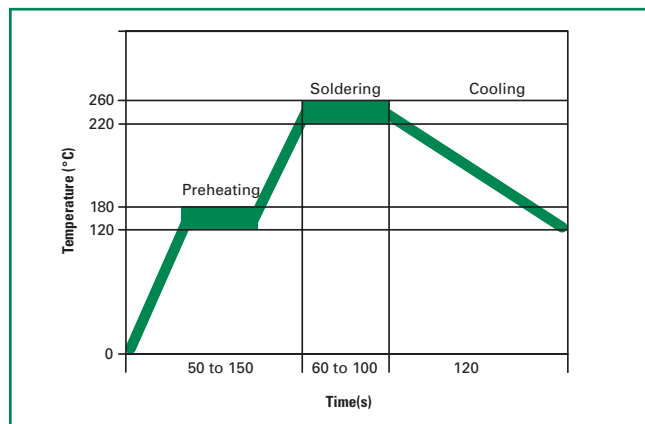
The average time current curves and Temperature Derating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

Soldering Parameters

Condition	Reflow
Peak Temp/ Duration Time	260°C / 10 Sec
Time above liquids (TAL) 220°C	60 Sec ~ 100 Sec
Preheat 120°C~ 180°C	50 Sec ~ 150 Sec
Storage Condition	0°C~35°C, ≤70%RH

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N₂ environment for lead-free
- Recommended maximum paste thickness is 0.25mm (0.010 inch)
- Devices can be cleaned using standard industry methods and solvents.

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



Physical Specifications

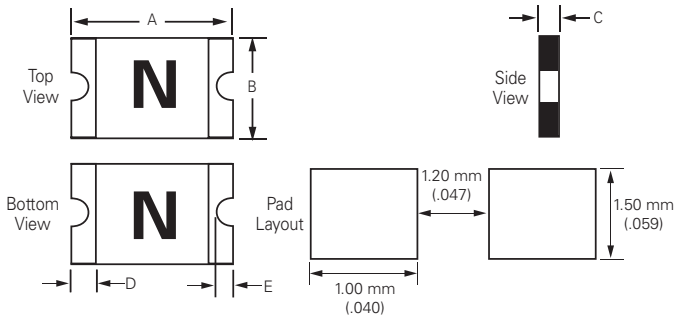
Terminal Material	Solder-Plated Copper (Solder Material: Matte Tin (Sn))
Lead Solderability	Meets EIA Specification RS186-9E, ANSI/J-STD-002, Category 3

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 -/+5% typical resistance change
Humidity Aging	+85°C, 85%, R.H., 1000 hours -/+5% typical resistance change
Thermal Shock	MIL-STD-202, Method 107G +85°C/-40°C 20 times -30% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215 No change
Vibration	MIL-STD-883C, Method 2007.1, Condition A No change
Moisture Sensitivity Level	Level 1, J-STD-020C

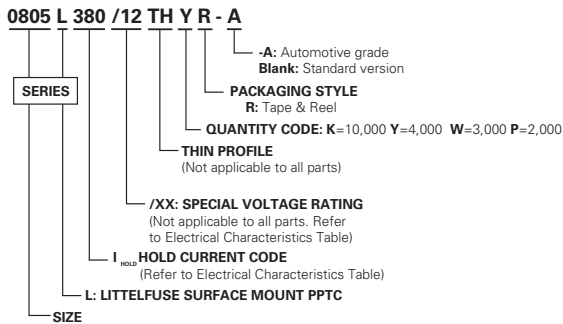
Dimensions

MARKING CODE VARIES WITH AMPERAGE RATING (See Electrical Characteristic Table) SHOWN IS 1.0AMP RATING



Part Number	A				B				C				D				E			
	Inches		mm		Inches		mm		Inches		mm		Inches		mm		Inches		mm	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
0805L010	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.02	0.04	0.55	1.00	0.01	0.02	0.20	0.55	0.004	0.02	0.10	0.45
0805L010/24	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.02	0.04	0.55	1.00	0.008	0.014	0.20	0.35	0.002	0.018	0.05	0.45
0805L020	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.02	0.04	0.55	1.00	0.01	0.02	0.20	0.55	0.004	0.02	0.10	0.45
0805L035	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.02	0.03	0.45	0.75	0.01	0.02	0.20	0.55	0.004	0.02	0.10	0.45
0805L050	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.03	0.05	0.75	1.25	0.01	0.02	0.20	0.55	0.004	0.02	0.10	0.45
0805L075	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.03	0.05	0.75	1.25	0.01	0.02	0.20	0.55	0.006	0.02	0.15	0.45
0805L100	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.03	0.07	0.80	1.80	0.01	0.02	0.20	0.55	0.006	0.02	0.15	0.45
0805L110	0.08	0.09	2.00	2.20	0.05	0.06	1.20	1.50	0.03	0.06	0.80	1.40	0.01	0.02	0.20	0.55	0.002	0.02	0.05	0.45

Part Ordering Number System



Packaging

Part Number	Ordering Number	Halogen Free	I _{hold} (A)	I _{hold} Code	Packaging Option	Quantity	Quantity & Packaging Codes
0805L010	0805L010YR	Yes	0.10	010	Tape and Reel	4000	YR
0805L010/24	0805L010/24YR	Yes	0.10	010	Tape and Reel	4,000	YR
0805L020	0805L020YR	Yes	0.20	020	Tape and Reel	4000	YR
0805L035	0805L035YR	Yes	0.35	035	Tape and Reel	4000	YR
0805L050	0805L050WR	Yes	0.50	050	Tape and Reel	3000	WR
0805L075	0805L075WR	Yes	0.75	075	Tape and Reel	3000	WR
0805L100	0805L100WR	Yes	1.00	100	Tape and Reel	3000	WR
0805L110	0805L110WR	Yes	1.10	110	Tape and Reel	3000	WR

Tape and Reel Specifications

TAPE SPECIFICATIONS: EIA-481-1 (mm)				
	0805L010 0805L020 0805L035 0805L010/24	0805L050	0805L075	0805L100 0805L110
W	8.00+/-0.10	8.00+/-0.10	8.00+/-0.10	8.00+/-0.10
F	3.50+/-0.05	3.50+/-0.05	3.50+/-0.05	3.50+/-0.05
E₁	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10
D₀	1.55+/-0.05	1.55+/-0.05	1.55+/-0.05	1.55+/-0.05
D₁	1.00 (min)	1.00 (min)	1.00 (min)	1.00 (min)
P₀	4.00+/-0.10	4.00+/-0.10	4.00+/-0.08	4.00+/-0.10
P₁	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10
P₂	2.00+/-0.05	2.00+/-0.05	2.00+/-0.05	2.00+/-0.05
A₀	1.45+/-0.10	1.42+/-0.10	1.60+/-0.10	1.65+/-0.10
B₀	2.30+/-0.10	2.24+/-0.10	2.30+/-0.10	2.35+/-0.10
T	0.25+/-0.10	0.20+/-0.10	0.25+/-0.10	0.25+/-0.10
K₀	0.90+/-0.10	1.04+/-0.10	0.90+/-0.10	1.50+/-0.10
<i>Leader min.</i>	390	390	390	390
<i>Trailer min.</i>	160	160	160	160

REEL DIMENSIONS: EIA-481-1 (mm)	
H	11.0+/-0.05
W	9.0+/-0.5
D	Ø60.2+0.5
F	Ø13.0+/-0.2
C	Ø178+/-1.0
H₁	11+/-0.5
W₁	2.2+/-0.5
W₂	3.0+0.5
W₃	4.0+0.5
W₄	5.5+0.5

