



Description

The 1206L Series device provides surface mount overcurrent protection for applications where space is at a premium and resettable protection is desired.

Features

- RoHS compliant and lead-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 max. (W)	Maximum Time To Trip		Resistance			Agency Approvals	
							Current (A)	Time (Sec.)	R_{min} (Ω)	R_{typ} (Ω)	R_{1max} (Ω)		
1206L012	A	0.125	0.29	30	100	0.6	1.00	0.20	1.500	3.600	6.000	X	X
1206L016	B	0.16	0.37	30	100	0.6	1.00	0.30	1.200	2.800	4.500	X	X
1206L020-C	C	0.20	0.42	24	100	0.6	8.00	0.10	0.650	1.550	2.600	X	X
1206L025-C	D	0.25	0.50	16	100	0.6	8.00	0.08	0.550	1.400	2.300	X	X
1206L035-C	E	0.35	0.75	6	100	0.6	8.00	0.10	0.300	0.750	1.200	X	X
1206L035/16	J	0.35	0.75	16	100	0.6	8.00	0.10	0.300	0.750	1.200	X	X
1206L050-C	F	0.50	1.00	6	100	0.6	8.00	0.10	0.150	0.400	0.700	X	X
1206L050/15	M	0.50	1.00	15	100	0.6	8.00	0.10	0.150	0.400	0.750	X	X
1206L075-C	G	0.75	1.50	6	100	0.6	8.00	0.20	0.090	0.200	0.290	X	X
1206L100	N	1.00	1.80	6	100	0.8	8.00	0.30	0.055	0.110	0.210	X	X
1206L110-C	H	1.10	2.20	6	100	0.8	8.00	0.30	0.040	0.110	0.180	X	X
1206L150-C	K	1.50	3.00	6	100	0.8	8.00	1.00	0.040	0.080	0.120	X	X
1206L160	L	1.60	3.20	6	100	0.8	8.00	0.40	0.025		0.110	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.

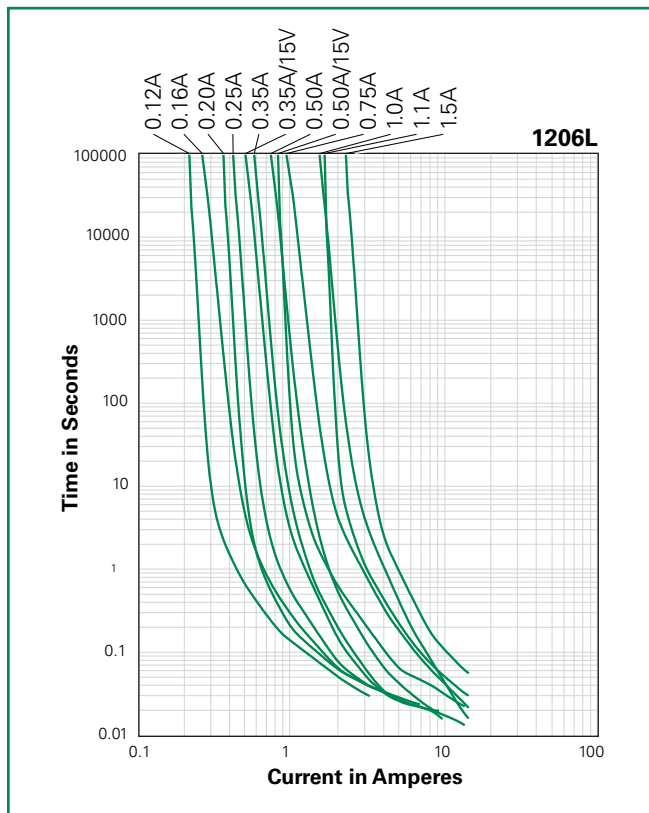
***Note:** Some devices in this product series may have “-C” in the Part Number. The “-C” should be omitted when placing orders for the device.

Temperature Derating

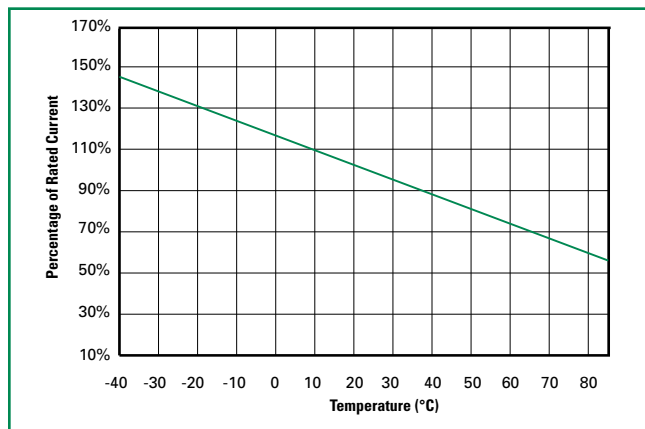
Part Number*	Ambient Operation Temperature								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
Part Number*	Hold Current (A)								
1206L012	0.18	0.16	0.14	0.125	0.10	0.09	0.08	0.07	0.05
1206L016	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.09	0.08
1206L020-C	0.28	0.25	0.23	0.20	0.17	0.15	0.14	0.12	0.09
1206L025-C	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
1206L035-C	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
1206L035/16	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
1206L050-C	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
1206L050/15	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
1206L075-C	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
1206L100	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
1206L110-C	1.52	1.37	1.25	1.10	0.92	0.82	0.75	0.64	0.52
1206L150-C	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77

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Average Time Current Curves



Temperature Derating Curve



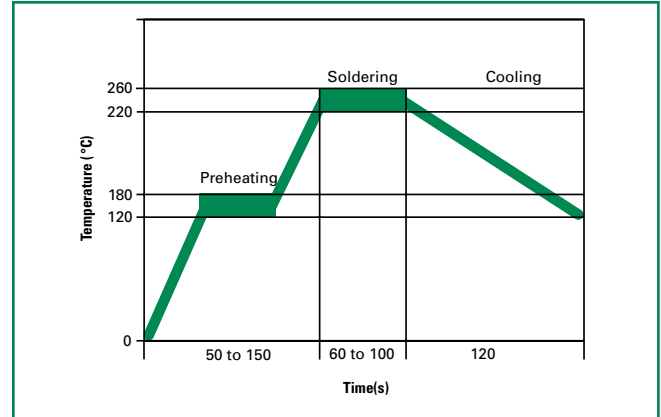
The average time current curves and Temperature Derating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

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.



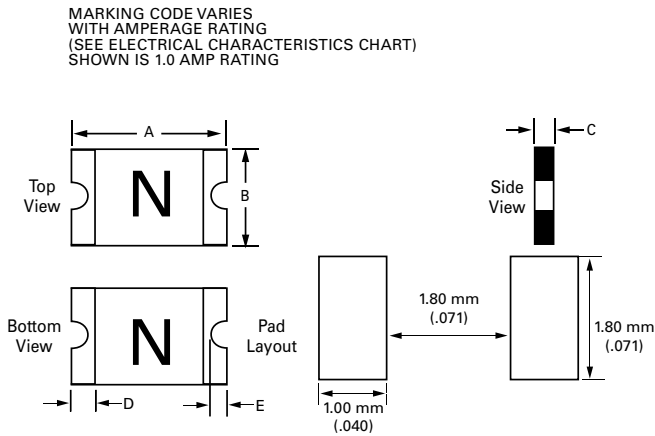
Physical Specifications

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

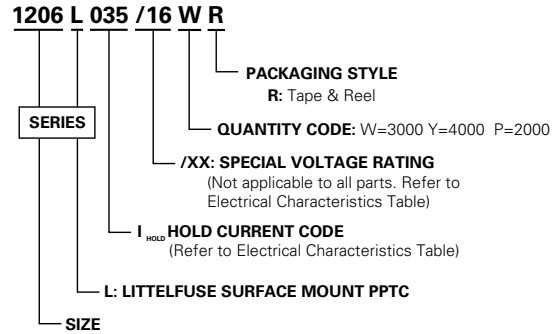
Environmental Specifications

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 Sensivity Level	Level 1, J-STD-020C

Dimensions



Part Ordering Number System*



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.	Min.	Min.	Max.	Min.	Max.
1206L012	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.03	0.06	0.65	1.45	0.01	0.2	0.004	0.02	0.1	0.45
1206L016	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.03	0.06	0.65	1.45	0.01	0.2	0.004	0.02	0.1	0.45
1206L020-C	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.04	0.5	1	0.01	0.2	0.004	0.02	0.1	0.45
1206L025-C	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.04	0.5	1	0.01	0.2	0.004	0.02	0.1	0.45
1206L035-C	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.03	0.45	0.75	0.01	0.2	0.004	0.02	0.1	0.45
1206L035/16	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.03	0.45	0.75	0.01	0.2	0.004	0.02	0.1	0.45
1206L050-C	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.03	0.45	0.75	0.01	0.2	0.004	0.02	0.1	0.45
1206L050/15	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.03	0.45	0.75	0.01	0.2	0.004	0.02	0.1	0.45
1206L075-C	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.02	0.05	0.45	1.25	0.01	0.2	0.004	0.02	0.1	0.45
1206L100	0.12	0.13	3	3.4	0.06	0.07	1.5	1.8	0.03	0.04	0.75	1	0.01	0.2	0.004	0.02	0.1	0.45
1206L110-C	0.12	0.13	3	3.4	0.06	0.07	1.5	1.8	0.03	0.04	0.75	1	0.01	0.2	0.004	0.02	0.1	0.45
1206L150-C	0.12	0.13	3	3.4	0.06	0.07	1.5	1.8	0.03	0.06	0.85	1.4	0.01	0.2	0.004	0.02	0.1	0.45
1206L160	0.12	0.14	3	3.5	0.06	0.07	1.5	1.8	0.03	0.07	0.80	1.6	0.01	0.2	0.004	0.02	0.1	0.45

Packaging

Part Number*	Ordering Number*	I _{hold} (A)	I _{hold} Code	Packaging Option	Quantity	Quantity & Packaging Codes
1206L012	1206L012WR	0.125	012	Tape and Reel	3000	WR
1206L016	1206L016WR	0.16	016	Tape and Reel	3000	WR
1206L020-C	1206L020YR	0.20	020	Tape and Reel	4000	YR
1206L025-C	1206L025YR	0.25	025	Tape and Reel	4000	YR
1206L035-C	1206L035YR	0.35	035	Tape and Reel	4000	YR
1206L035/16	1206L035/16YR	0.35	035	Tape and Reel	4000	YR
1206L050-C	1206L050YR	0.50	050	Tape and Reel	4000	YR
1206L050/15	1206L050/15YR	0.50	050	Tape and Reel	4000	YR
1206L075-C	1206L075WR	0.75	075	Tape and Reel	3000	WR
1206L100	1206L100WR	1.00	100	Tape and Reel	3000	WR
1206L110-C	1206L110WR	1.10	110	Tape and Reel	3000	WR
1206L150-C	1206L150WR	1.50	150	Tape and Reel	2000	PR
1206L160	1206L160	1.60	160	Tape and Reel	2000	PR

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Tape and Reel Specifications

TAPE SPECIFICATIONS: EIA-481-1 (mm)				REEL DIMENSIONS: EIA-481-1 (mm)	
	1206L020-C, 1206L025-C, 1206L035-C, 1206L035/16, 1206L050-C, 1206L050/15, 1206L075	1206L012, 1206L016, 1206L100, 1206L110-C	1206L150-C 1206L160		
W	8.15+0.15-0.30	8.00+/-0.30	8.15+0.15-0.30	H	16.0+/-0.2
F	3.50+/-0.05	3.50+/-0.05	3.50+/-0.05	W	13.2+/-1.5
E₁	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	D	Ø 60.2+/-0.5
D₀	1.55+/-0.05	1.55+/-0.05	1.55+/-0.05	F	Ø 13.0+/-0.5
D₁	1.00 (MIN)	1.00 (MIN)	1.00 (MIN)	C	Ø 178+/-1.0
P₀	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10	H₁	11+/-0.5
P₁	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10	W₁	2.5+0.5
P₂	2.00+/-0.05	2.00+/-0.05	2.00+/-0.05	W₂	3.0+0.5
A₀	1.95+/-0.10	1.95+/-0.10	1.95+/-0.10	W₃	4.0+0.5
B₀	3.65+/-0.10	3.65+/-0.10	3.65+/-0.10	W₄	5.0+0.5
T	0.25+/-0.10	0.25+/-0.10	0.25+/-0.10		
K₀	0.87+/-0.10	1.30+/-0.10	1.70+/-0.10		
<i>Leader min.</i>	390	390	390		
<i>Trailer min.</i>	160	160	160		

Tape and Reel Diagram

