

Positive Thermal Coefficient Diodes

HL06-075~250 Series

The HL06 Series is radial leaded device is designed to provide overcurrent protection for use applications where space is not a concern.

Features

- ROHS compliant and lead-free
- Fast time-to-trip
- Meets all usb protection requirements
- RoHS compliant, Lead- Free and Halogen-Free
- 40A short circuit rating
- Operating voltages of 6-16v

Applications

- Overcurrent and overtemperature protection of automotive electronics
- Hard disk drives
- PC motherboards
- PC peripherals
- Point-of-sale (POS) equipment
- PCMCIA cards
- USB port protection - USB 2.0, 3.0 & OTG
- HDMI 1.4 Source protection
- Computers&peripherals



Dimension

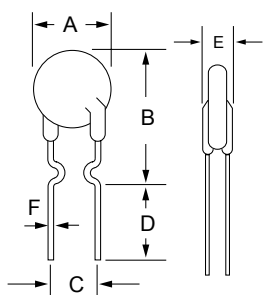


Figure 1

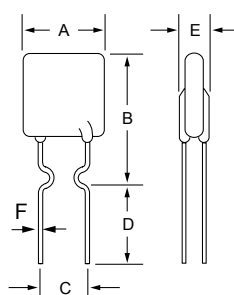


Figure 2

Type Number	Figure	A	B	C	D	E	F
		mm	mm	mm	mm	mm	mm
		Max	Max	Max	Min	typ	Min
HL06-075	1	6.4	11.4	5.1	7.6	3.0	0.8
HL06-090	1	7.9	14.2	5.1	7.6	3.0	0.8
HL06-110	1	7.9	14.2	5.1	7.6	3.0	0.8
HL06-120	2	7.9	14.5	5.1	7.6	3.0	0.8
HL06-135	2	8.9	14.5	5.1	7.6	3.0	0.8
HL06-160	2	9.2	14.5	5.1	7.6	3.0	0.8
HL06-185	2	9.7	14.5	5.1	7.6	3.0	0.8
HL06-250	2	11.7	14.5	5.1	7.6	3.0	0.8

Electrical Characteristics

Type Number	I _{hold}	I _{trip}	V _{max}	I _{max}	P _d max.	Maximum Time To Trip		Resistance		
	(A)	(A)	V _(dc)	(A)	(W)	Current (A)	Time (Sec.)	R _{min} (Ω)	R _{typ} (Ω)	R _{1max} (Ω)
HL06-075	0.75	1.3	6	40	0.30	8.0	0.4	0.14	0.23	0.345
HL06-090	0.90	1.8	6	40	0.60	8.0	1.2	0.10	0.18	0.270
HL06-110	1.10	2.2	6	40	0.70	8.0	2.3	0.08	0.14	0.210
HL06-120	1.20	2.0	6	40	0.60	8.0	3.5	0.08	0.14	0.210
HL06-135	1.35	2.7	6	40	0.81	8.0	4.5	0.06	0.12	0.180
HL06-160	1.60	3.2	6	40	0.90	8.0	9.0	0.05	0.11	0.165
HL06-185	1.85	3.7	6	40	1.00	8.0	10.0	0.05	0.09	0.135
HL06-250	2.50	5.0	6	40	1.21	8.0	40.0	0.03	0.06	0.090

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

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

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

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

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

V_{op} = The device regular operation voltage

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

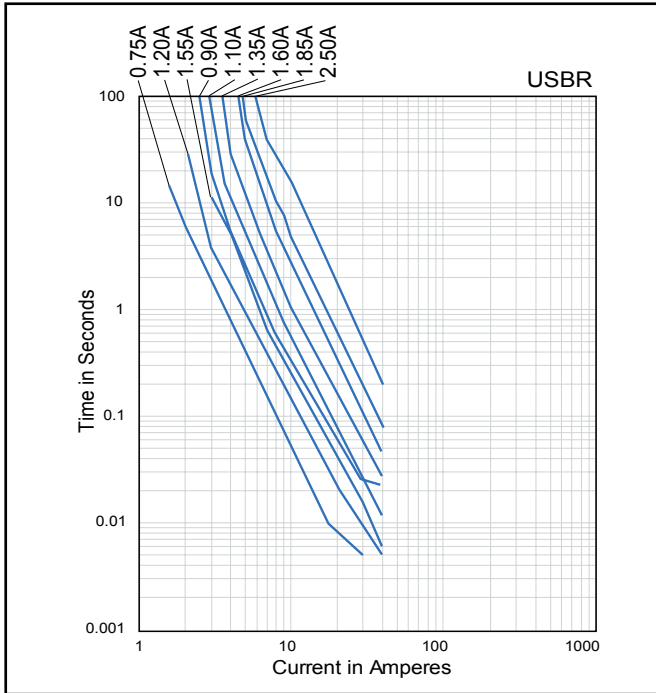
P_d = Power dissipated from device when in the tripped state at 20°C still air.

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

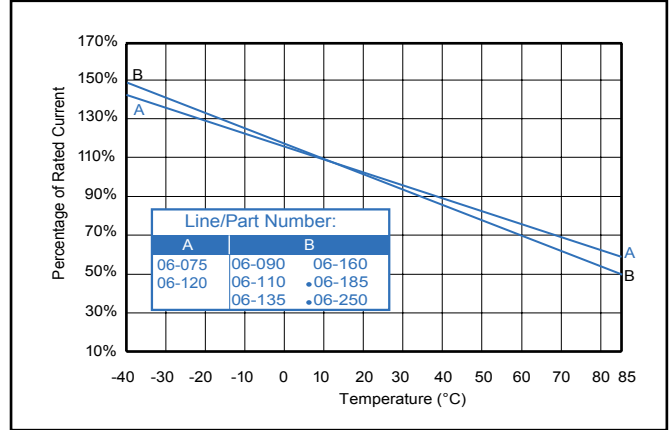
Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

Type Number	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
HL06-075	1.05	0.98	0.86	0.75	0.68	0.62	0.58	0.51	0.46	0.39
HL06-090	1.31	1.17	1.04	0.90	0.82	0.75	0.69	0.61	0.55	0.47
HL06-110	1.60	1.43	1.27	1.10	1.00	0.91	0.85	0.75	0.67	0.57
HL06-120	1.69	1.56	1.38	1.20	1.09	1.00	0.92	0.82	0.73	0.62
HL06-135	1.96	1.76	1.55	1.35	1.23	1.12	1.04	0.92	0.82	0.70
HL06-155	2.17	2.02	1.78	1.55	1.41	1.29	1.19	1.05	0.95	0.81
HL06-160	2.32	2.08	1.84	1.60	1.46	1.33	1.23	1.09	0.98	0.83
HL06-185	2.68	2.41	2.13	1.85	1.68	1.54	1.42	1.26	1.13	0.96
HL06-200	2.90	2.60	2.30	2.00	1.82	1.66	1.54	1.36	1.22	1.04
HL06-250	3.63	3.25	2.88	2.50	2.87	2.08	1.93	1.70	1.53	1.30
HL06-300	4.25	3.90	3.45	3.00	2.73	2.49	2.31	2.04	1.83	1.56

Average Time Current Curves

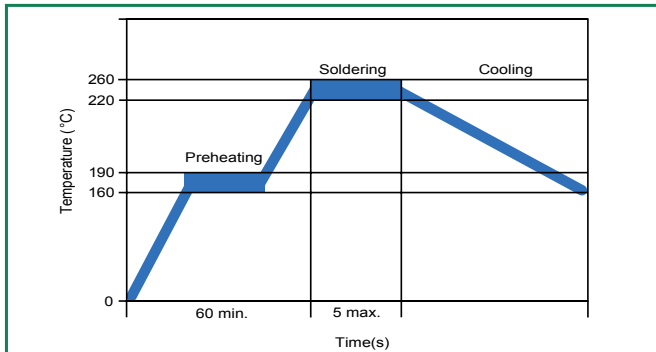


Temperature Rerating Curve



The average time current curves and Temperature Rerating 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



Pre-Heating Zone	Refer to the condition recommended by the flux manufacturer. Max. ramping rate should not exceed 4°C/Sec.
Soldering Zone	Max. solder temperature should not exceed 260°C
Cooling Zone	Cooling by natural convection in air.

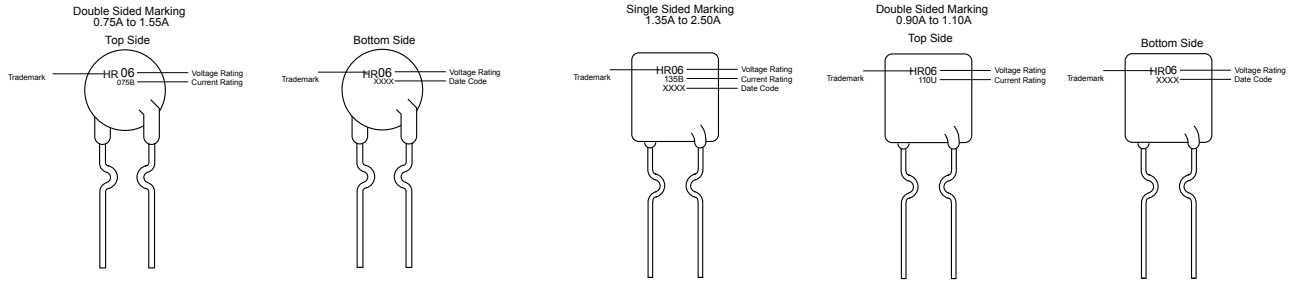
Physical Specifications

Lead Material	.90-2.50A: Tin-plated Copper clad steel .75A: Tin-plated Copper
Soldering Characteristics	Solderability per MIL-STD-202, Method 208E
Insulating Material	Cured, flame retardant epoxy polymer meets UL 94V-0 requirements.
Device Labeling	Marked with 'LF', voltage, current rating, and date code.

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	+85°C to -40°C 10 times -/+5% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215F
Moisture Sensitivity Level	Level 1, J-STD-020C

Part Marking System



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