BUSSMANN SERIES

1350HV

High voltage fast-acting brick fuse



Product features

- 13 x 5.0 x 5.0 mm surface mount package
- · High voltage fast-acting brick fuse
- 600 Vdc voltage rating
- Ceramic tube, silver plated cap construction
- Moisture sensitivity level (MSL): 1

Applications

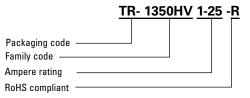
Primary and secondary circuit protection:

- Server & telecom systems, including 380 Vdc distribution
- Single phase and 3-phase UPS
- 380 Vdc DC-DC converters
- High voltage DC-DC conversion
- · Power factor correction
- · Capacitor output protection

Environmental compliance



Ordering part number



Packaging prefix

TR- (1000 parts on a 13" diameter tape and reel)



Electrical characteristics

Amp Rating	% of rated current	Opening time
1 A ~ 5 A	100%	1 hour minimum
1 A ~ 5 A	200%	120 seconds maximum

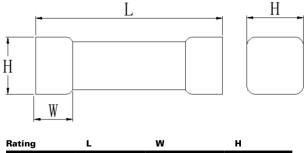
Product specifications

Part number	Current rating (A)	Voltage (Vac)	rating (Vdc)	Interrupti @ rated vo (A) Vac		Typical resistance² (mΩ)	Typical voltage drop (mV)	Typical pre-arcing³ I²t (A²s)	Part marking
1350HV1-R	1	350	600	100	100	252	335	0.5	1
1350HV1-25-R	1.25	350	600	100	100	192	325	0.95	1.25
1350HV1-6-R	1.6	350	600	100	100	116	230	2.3	1.6
1350HV2-R	2	350	600	100	100	93	255	4.1	2
1350HV2-5-R	2.5	350	600	100	100	51	174	2.6	2.5
1350HV3-15-R	3.15	350	600	100	100	39	165	3.4	3.15
1350HV4-R	4	350	500	100	100	31	175	5.5	4
1350HV5-R	5	350	500	100	100	22	155	11.5	5

^{1.} AC Interrupting rating (measured at designated voltage, 100% power factor); DC Interrupting rating (measured at designated voltage, time constant of less than 50 microseconds, battery source)

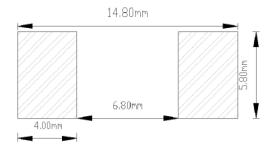
Dimensions- mm

Drawing not to scale



Rating	L	W	Н
1 A ~ 5 A	13.20 ± 0.50	2.80 ± 0.50	5.05 ± 0.50

Recommended pad layout



Recommended trace thickness is 35 um; the minimum trace width is 5 mm Recommended stencil thickness is 0.15 mm

1350HV is also compatible with Littlefuse LF485 pad layout; wave solder pad size 5.6 mm x 6.9 mm and reflow solder pad size 5.6 mm x 3.5 mm

General specifications

Operating temperature: -40 °C to +125 °C with proper derating factor applied

Thermal shock: MIL-STD-202,Method 107G -40 °C/+125 °C. Note: Number of cycles required 100 times

Mechanical shock: Figure 1 of Method 213. Condition C, 100 g, 6 ms

Mechanical vibration: MIL-STD-202G, Method 204, 5 g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000 Hz

Resistance to solder heat: MIL-STD-202G Method 210F, condition D (+260 °C,10 s)

Solderability test: J-STD-002, Method B1 Steam aging 1 hour, Solder temperature +255 ± 5 °C, solder immersion time 5 s

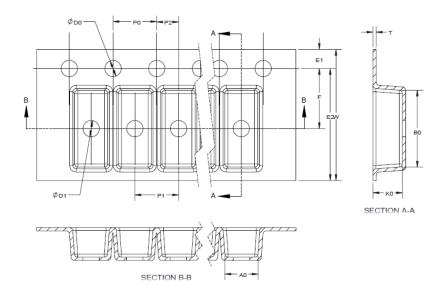
^{2.}DC Cold resistance are measured at <10% of rated current in ambient temperature of +25 °C

^{3.} Typical pre-arcing I2t are measured at 10 In current, DC battery bank

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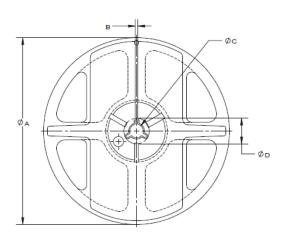
Packaging information - mm

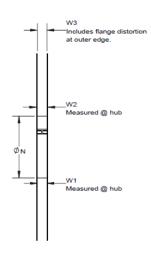
1000 parts per 13" diameter reel (EIA-481 compliant) Drawing not to scale



Dimension	millimeter
W	24.00
F	11.50
E1	1.75
E2	N/A
P0	4.00
P1	8.00
P2	2.00
DO	1.50
D1	1.50
A0	4.85
В0	12.75
КО	4.90
T	0.40

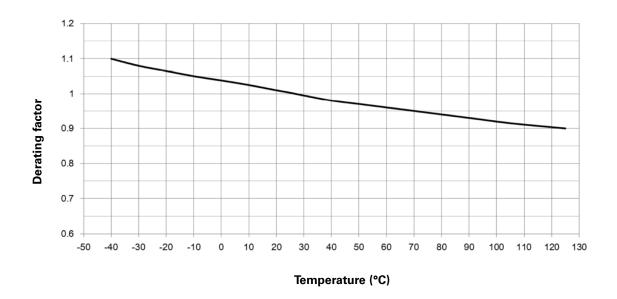
Reel dimension- mm



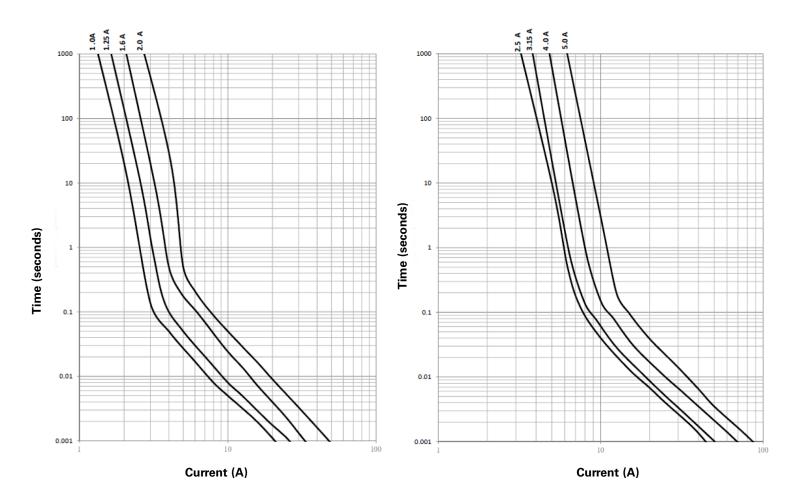


Dimension	millimeter
A	330 ± 1
В	2.5 ± 0.2
С	13.5 ± 0.2
D	N/A
N	100 ± 0.5
W1	24.8 ± -0.5
W2	30.4 max
W3	N/A

Temperature derating curve



Current vs. time curve



Solder reflow profile

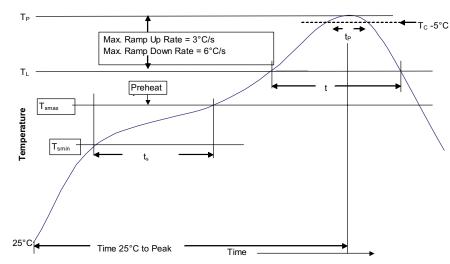


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak • Temperature min. (T _{smin})	100 °C	150 °C
 Temperature max. (T_{smax}) 	150 °C	200 °C
• Time (T _{Smin} to T _{Smax}) (t _S)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (TL) Time (t_L) maintained above T_L	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (Tp)*	Table 1	Table 2
Time $(t_p)^*$ within 5 °C of the specified classification temperature (T_c)	20 seconds*	30 seconds*
Ramp-down rate (Tp to TL)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

^{*} Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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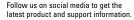
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