

# 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
- Up to 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

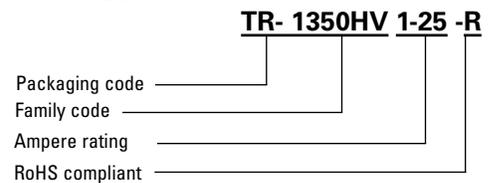


### Agency information

cURus Recognition file number:  
E19180, Guide JDYX2



### Ordering part number



### Packaging prefix

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



Powering Business Worldwide

**Electrical characteristics**

Amp Rating	% of rated current	Opening time
1 A ~ 7.5 A	100%	4 hours minimum
1 A ~ 7.5 A	200%	120 seconds maximum

**Product specifications**

Part number	Current rating (A)	Voltage rating (Vac)	Voltage rating (Vdc)	Interrupting rating @ rated voltage <sup>1</sup>		Typical resistance <sup>2</sup> (mΩ)	Typical voltage drop (mV)	Typical pre-arcing <sup>3</sup> I <sup>2</sup> t (A <sup>2</sup> s)	Part marking
				(A) Vac	(A) Vdc				
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	3.0	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
1350HV6-R	6	350	400	100	200	16.3	155	15	6
1350HV7-5-R	7.5	350	400	100	200	13.5	165	25	7.5

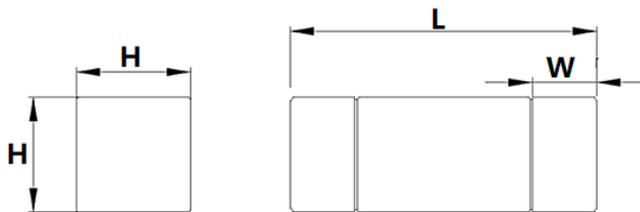
1. AC Interrupting rating (measured at designated voltage, 100% power factor); DC Interrupting rating (measured at designated voltage, time constant of less than 50 microseconds, battery source)

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

3. Typical pre-arcing I<sup>2</sup>t are measured at 10 I<sub>n</sub> current, DC battery bank

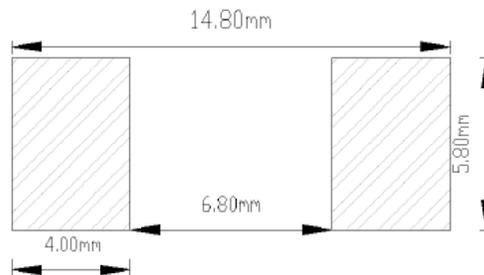
**Dimensions- mm**

Drawing not to scale



Rating	L	W	H
1 A ~ 7.5 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 Littelfuse 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

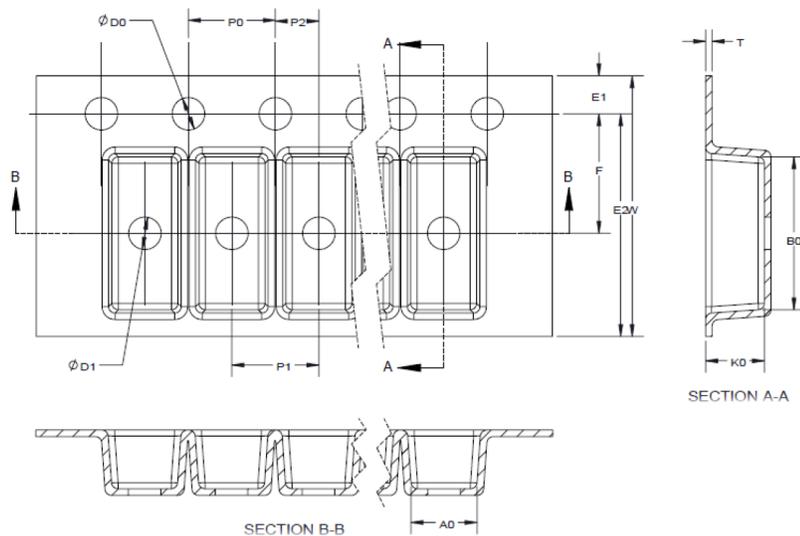
Mechanical vibration: MIL-STD-202G, Method 204, 5 g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000 Hz

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

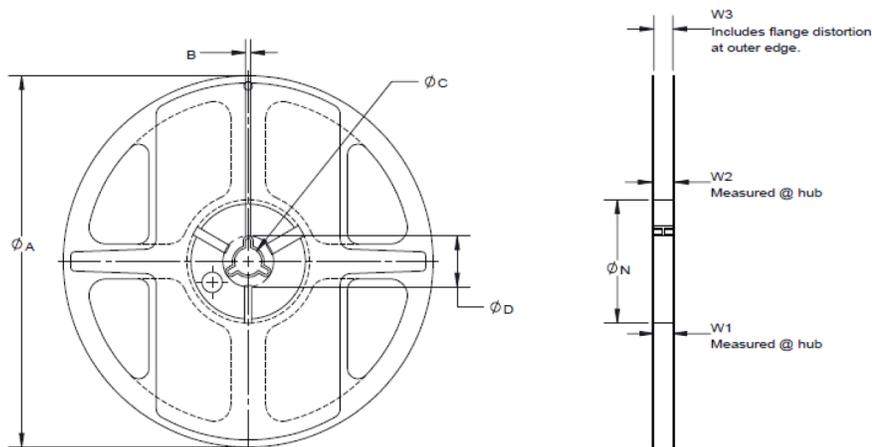
**Packaging information - mm**

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



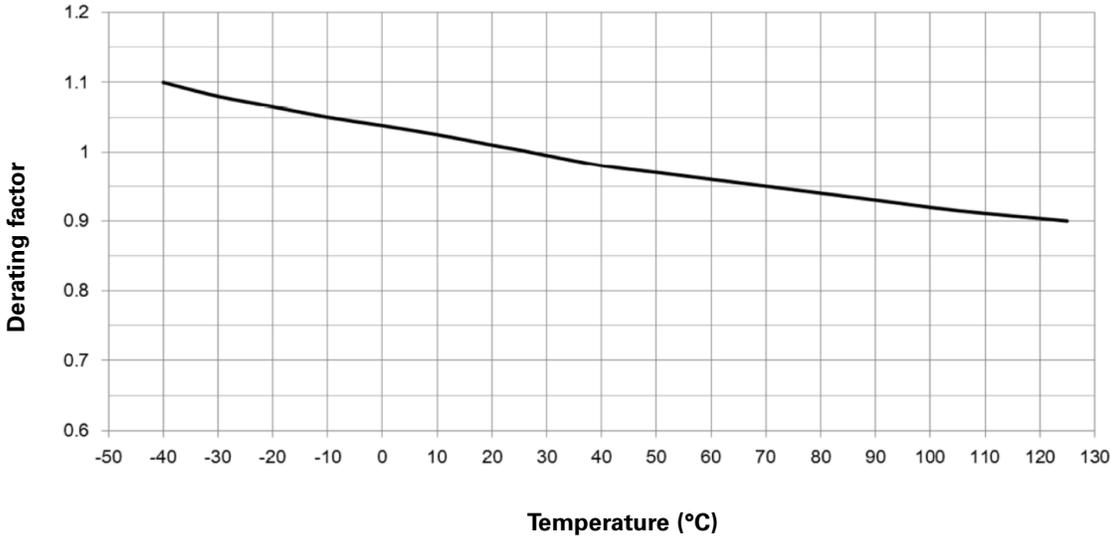
Dimension	millimeter
W	24.00
F	11.50
E1	1.75
E2	N/A
P0	4.00
P1	8.00
P2	2.00
D0	1.50
D1	1.50
A0	4.85
B0	12.75
K0	4.90
T	0.40

**Reel dimension- mm**

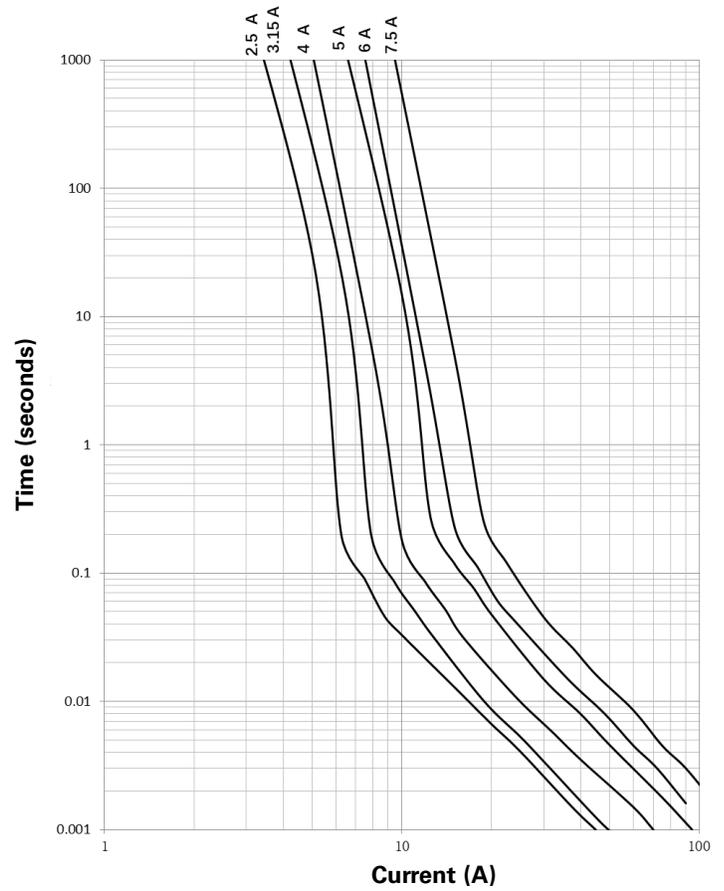
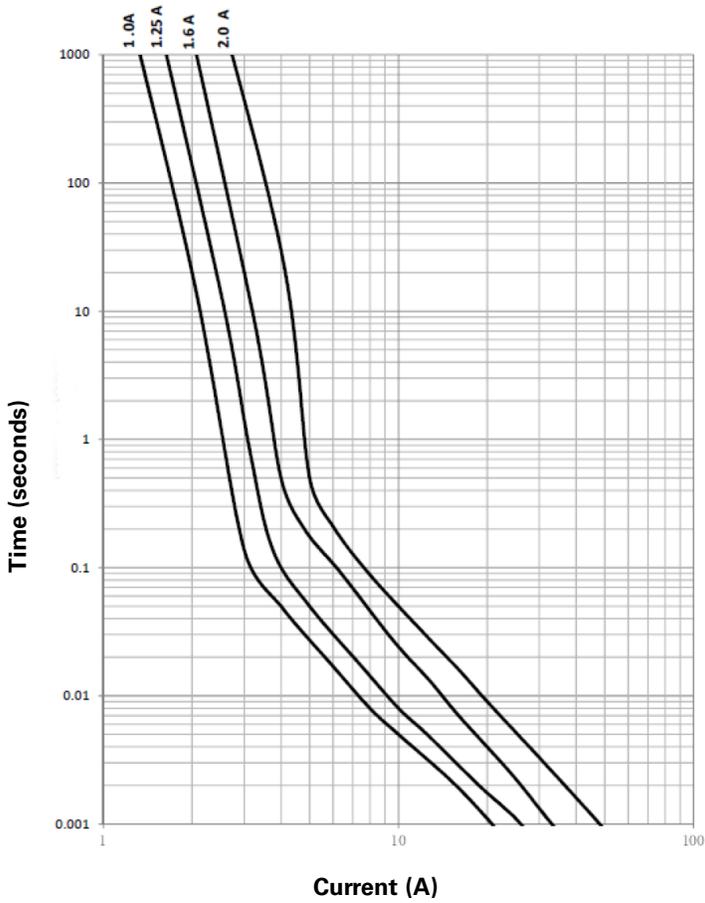


Dimension	millimeter
A	$330 \pm 1$
B	$2.5 \pm 0.2$
C	$13.5 \pm 0.2$
D	N/A
N	$100 \pm 0.5$
W1	$24.8 \pm 0.5$
W2	30.4 max
W3	N/A

### Temperature derating curve



### Current vs. time curve



Solder reflow profile

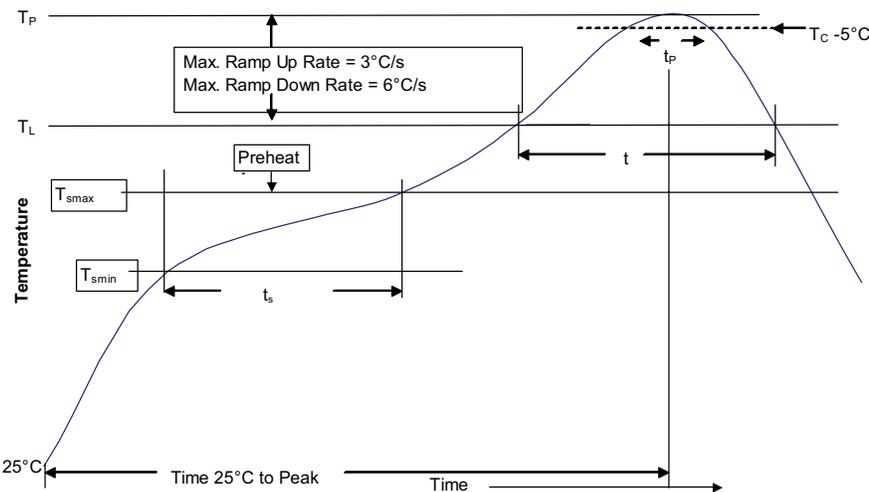


Table 1 - Standard SnPb solder ( $T_C$ )

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥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 mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 ( $T_L$ )	183 °C	217 °C
Time ( $t_L$ ) maintained above $T_L$	60-150 seconds	60-150 seconds
Peak package body temperature ( $T_p$ )*	Table 1	Table 2
Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_C$ )	20 seconds*	30 seconds*
Ramp-down rate ( $T_p$ to $T_L$ )	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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