1145HVA

Automotive high voltage fast-acting brick fuse

Product features

- Automotive grade qualified*
- 11 x 5.0 x 5.0 mm surface mount package
- High voltage fast-acting brick fuse
- 500 Vdc voltage rating
- Ceramic tube, silver plated cap construction
- Moisture sensitivity level (MSL): 1

*Meets Eaton's internal AEC-Q200 test plan

Applications

Primary and secondary circuit protection:

- Stationary and on-board electric vehicle battery systems
- Electric vehicle power distribution units (Sensing lines)
- xEV powertrains
- 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

Agency information

cURus Recognition file number:
E19180, Guide JDYX2

Environmental compliance

HALOGEN HF FREE

RoHS

Ordering part number

TR- 1145HVA 1-25 -R

- Packaging code
- Family code
- Ampere rating
- RoHS compliant

Packaging prefix

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

Powering Business Worldwide

Electrical characteristics

Amp Rating	125% In minimum	200% In maximum	1000% In maximum
1 A ~ 5 A	1 hour	120 seconds	1 second

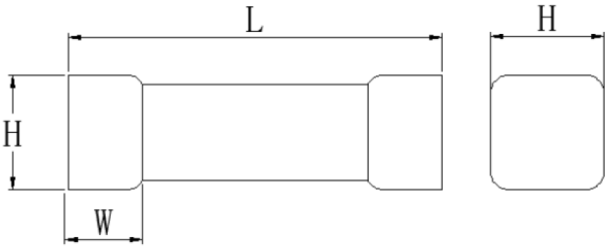
Product specifications

Part number	Current rating (A)	Voltage rating (Vac)	Voltage rating (Vdc)	Interrupting rating @ rated voltage[1] (A) Vac	Interrupting rating @ rated voltage[1] (A) Vdc	Typical resistance[2] (mΩ)	Typical voltage drop (mV)	Typical pre-arcing[3] I²t (A²s)	Part marking
1145HVA1-R	1	350	500 350	100	100 A @ 500 Vdc 1500 A @350 Vdc	200	220	0.50	1
1145HVA1-25-R	1.25	350	500 350	100	100 A @ 500 Vdc 1500 A @ 350 Vdc	160	210	0.95	1.25
1145HVA1-6-R	1.6	350	500 350	100	100 A @ 500 Vdc 1500 A @ 350 Vdc	100	190	2.3	1.6
1145HVA2-R	2	350	500 350	100	100 A @ 500 Vdc 1500 A @ 350 Vdc	80	185	4.1	2
1145HVA2-5-R	2.5	350	500 350	100	100 A @ 500 Vdc 1500 A @ 350 Vdc	40	120	2.6	2.5
1145HVA3-15-R	3.15	350	500 350	100	100 A @ 500 Vdc 1500 A @ 350 Vdc	31.5	140	3.3	3.15
1145HVA4-R	4	350	450 125	100	100 A @ 450 Vdc 1500 A @ 125 Vdc	24.5	140	5.5	4
1145HVA5-R	5	350	450 125	100	100 A @ 450 Vdc 1500 A @ 125 Vdc	17.5	130	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)
2.DC Cold Resistance are measured at <10% of rated current in ambient temperature of +25 °C
3.Typical Pre-arcing I^2t are measured at 10In Current, DC battery bank

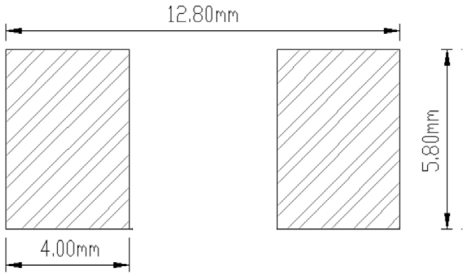
Dimensions- mm

Drawing not to scale



Rating	L	W	H
1 A ~ 5 A	11.2 ± 0.50	2.8 ± 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

1145HVA is also compatible with Littelfuse LF885 pad layout; pad size 7.23 mm x 5.26 mm

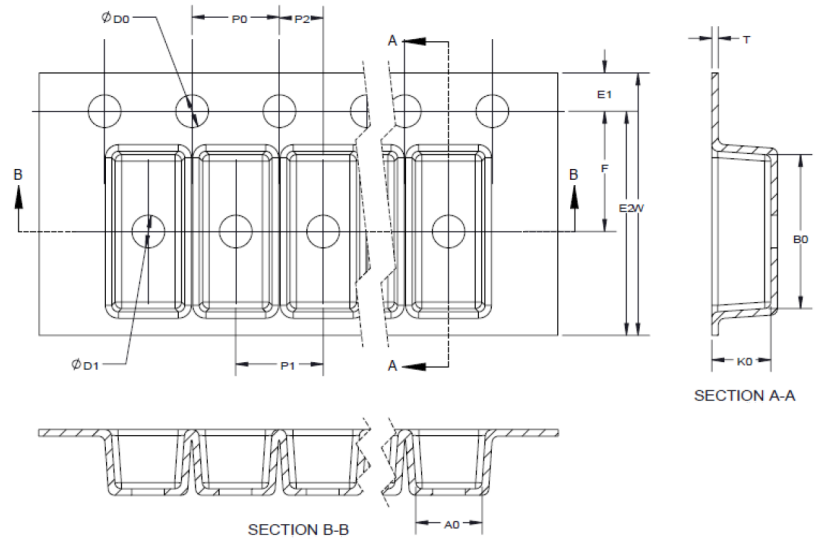
General specifications

Operating temperature: -55 °C to +125 °C with proper derating factor applied
Automotive grade qualified*
Temperature cycling: MIL-STD-202 method 107, -55 °C/+125 °C, number of cycles 1000, maximum transfer time 20 seconds, dwell time15 minutes air-air.
Humidity bias: MIL-STD-202 method 103, 1000 hours +85 °C/85%RH, 10% of operating power
High temperature operating life: MIL-STD-202 method 108, condition D steady state TA=+125 °C at 50% rated current
Mechanical shock: MIL-STD-202 method 213, Figure 1 of Method 213, condition C 100 g, 6 ms
Vibration: MIL-STD-202 method 204, 20 g's for 20 minutes, 12 cycles each of 3 orientations. test from 10-2000 Hz
Solderability test: J-STD-002, method B1, steam aging 1 hour, solder temperature +255±5 °C, solder immersion time 5s
Board flex: AEC-Q200-005, appendix 2 note: 2 mm (min)
Terminal strength (SMD): AEC-Q200-006, appendix 1, force of 1.8 kg for 60 seconds
High temperature exposure: MIL-STD-202, method 108, +125 °C without power, 1000 hours
ESD: AEC-Q200-002 or ISO/DIS10605, Per AEC-Q200-002 or ISO/DIS10605

* Meets Eaton's internal AEC-Q200 test plan

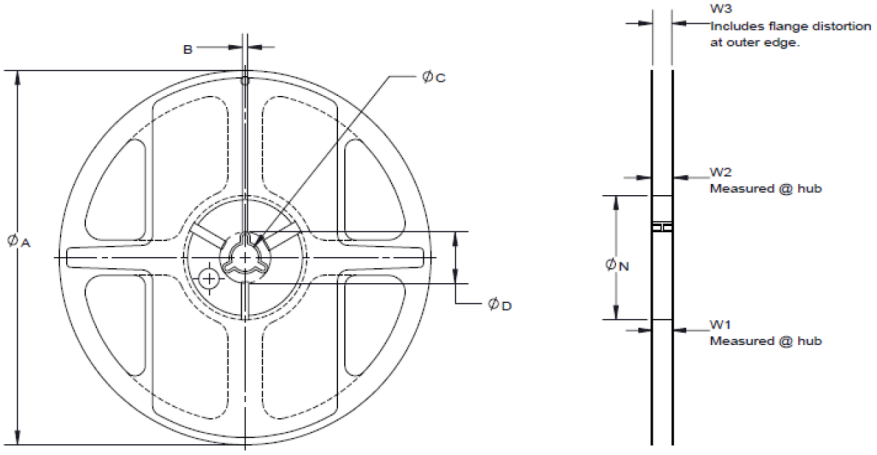
Packaging information - mm

1000 parts per 13" diameter reel (EIA-481 compliant)



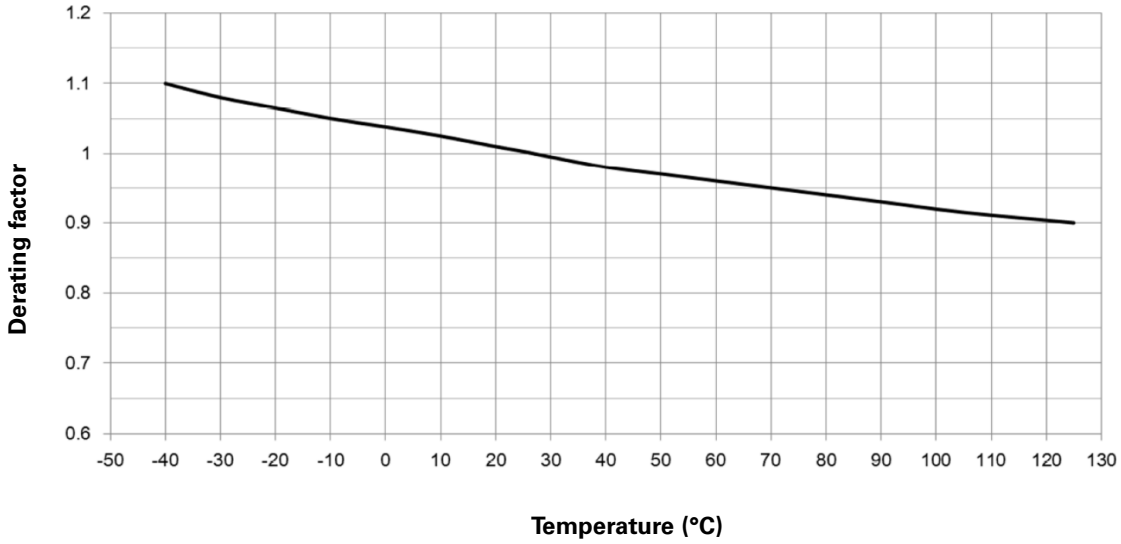
Dimension	millimeter
W	24.00
F	11.50
E1	1.75
E2	N/A
P0	4.00
P1	8.00
P2	2.00
DO	1.50
D1	1.50
A0	4.85
B0	12.75
K0	4.90
T	0.40

Reel dimension- mm

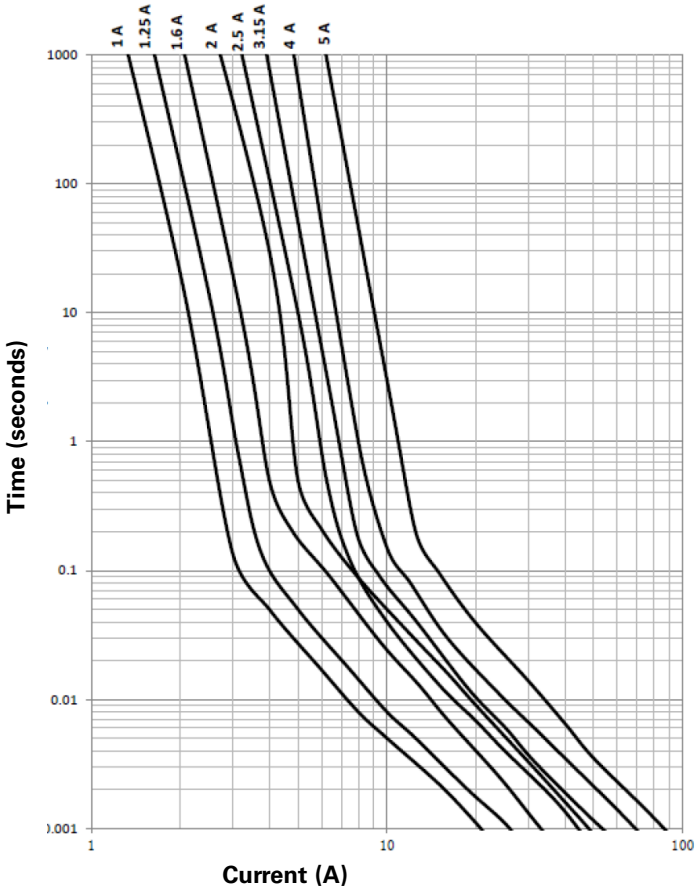


Dimension	millimeter
A	330 ± 1
B	2.5 ± 0.2
C	13.5 ± 0.2
D	N/A
N	100 ± 0.5
W1	24.8 +-0.5
W2	30.4 max
W3	N/A

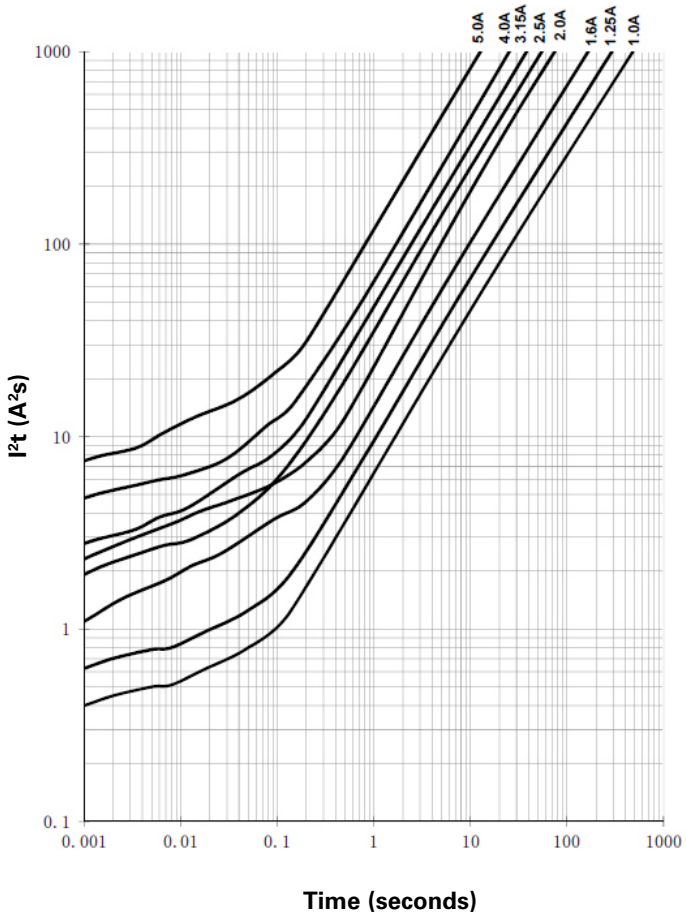
Temperature derating curve



Current vs. time curve



I²t vs. time curve



Solder reflow profile

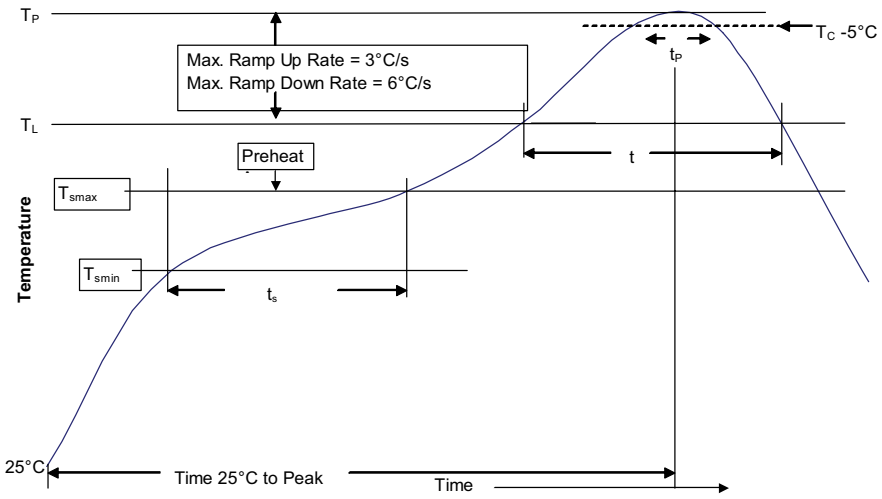


Table 1 - Standard SnPb solder (T_C)

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 (T_L) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 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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