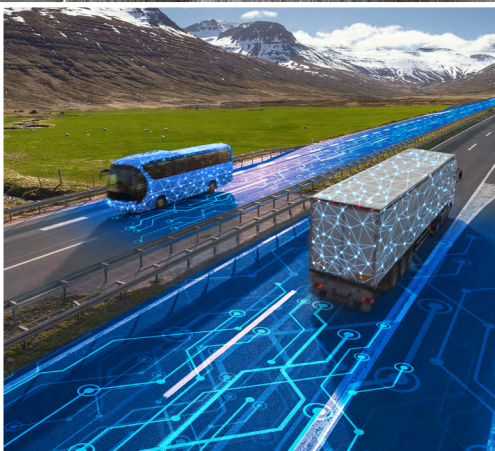


Eaton Bussman series

EV fuses



Powering Business Worldwide

Voltage	Commercial Vehicles	Sports Car	Luxury SUV	Luxury Sedan	Large SUV/ Pickup Truck	Sedan	Small SUV/ Crossover	Fuse Current	Application
501 Vdc - 1,000 Vdc								10A - 250A	Auxiliary Power / OBC Protection
Up to 500 Vdc								125A - 1,000A	Battery and Motor Protection / PDC / DC Fast Charging
								350A - 1,600A	Performance and Commercial Vehicles / Megawatt Charging



Scan to learn more



Advanced protection Engineered for performance

Eaton Bussmann® series EV fuses serve a critical role in the safety and reliability of electric vehicle systems. Purpose-built to meet the rigorous requirements of modern EV architecture, our fuses incorporate advanced technology and space-saving designs to optimize both performance and installation flexibility.

Our series of EV fuses offers a wide range of options, supporting voltages from 500V to 1,000V DC and current ratings between 10A and 1,600A to ensure safe, efficient operation. This versatility enables seamless integration into various applications, including passenger cars, commercial vehicles, and high-capacity battery systems.

What truly sets our EV fuses apart is our advanced simulation testing. With each simulation tailored to the specific driving profiles and conditions of the application, our experts ensure each fuse is perfectly matched for optimal performance and safety. This rigorous process validates the proper fuse size to ensure reliable performance across a diverse range of driving scenarios - delivering peace of mind and long-term value to every customer.

Eaton Bussmann series EV fuses are engineered to safeguard the future of electric mobility, providing advanced protection, efficiency, and flexibility for every journey.

- **Flexible design:** Allows for tailored solutions that ensure optimal performance and safety across a diverse range of EV applications
- **Compact, high-speed design:** Reduces weight with rapid-acting fuses available in various case sizes and diameters
- **Traceability and quality assurance:** Features unique serial numbers and date codes to ensure identification and quality control
- **High interrupting rating:** Offers advanced protection for high-capacity battery packs operating at increased power levels
- **IATF-certified manufacturing:** Ensures consistent quality, technical cleanliness, and industry-leading reliability from certified production facilities
- **Reliable overload protection:** Provides backup to battery management systems by operating dependably at overloads as low as 200%.
- **Scalable for high current demands:** Supports parallel applications to increase ampacity within recommended sizing guidelines
- **Temperature & altitude effects:** Operates from -40 °C to 100 °C; current ratings are based on 20°C; higher ambient temperatures and altitudes above 2000 m require current derating
- **Transportation protection:** Fuses must be shielded from moisture, severe vibration, and impact during transport to maintain performance and reliability

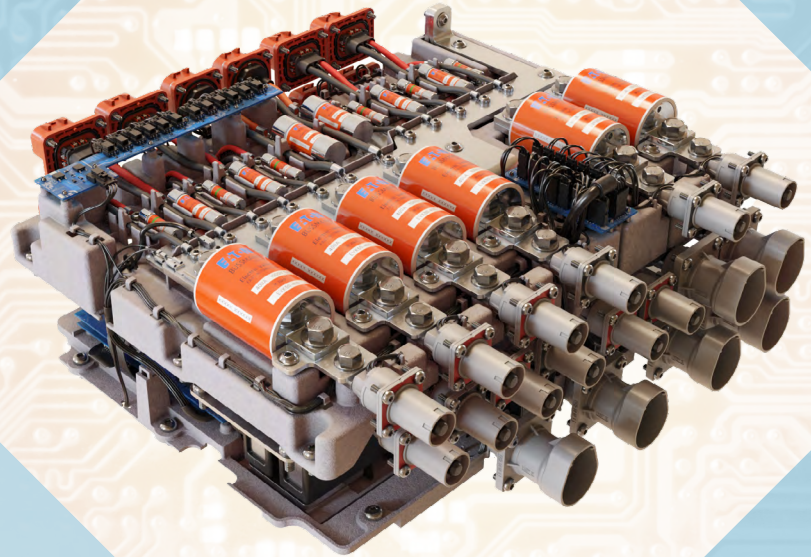


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Auxiliary and on-board charger protection

- EVR 10 - 25 mm fuses
- EVPR 10 mm fuses
- EVK 10 mm fuses
- EVKR 10-25 mm fuses
- EVK 22 mm fuses



As featured in Eaton's FLEX PDU

This document is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Eaton reserves the right, without notice, to change design or construction of any products or discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this document. Once a product has been selected, it should be tested by the user in all possible applications. The information contained in this document is correct at the time of publication, but we reserve the right to supply products differing in construction or performance.

EVR 10 mm fuses



Technical data

Rated voltage	500V dc
Rated current	30A, 40A, 50A
Max. breaking capacity	20kA
Min. breaking capacity	200% of rated current
Shock and vibration	ISO 16750-3 CV use case
Environmental protection	IP69 & IP6K9K
Time constant	1.5 ~ 2.5 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Shock and vibration	ISO 16750-3 CV use case
Environmental protection	IP69 & IP6K9K

Standards / agency information

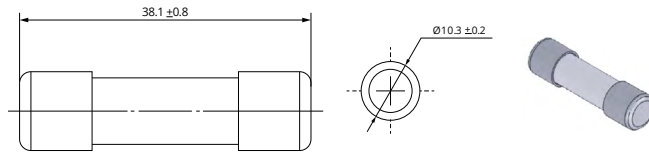
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - GB/T31465.6
 - ISO8820
 - JASO D622

Catalog SKUs

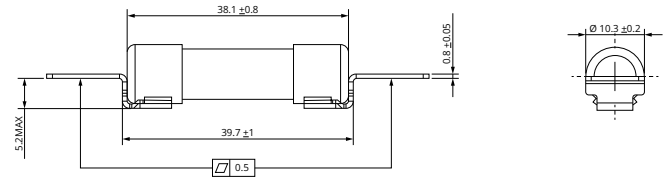
Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR10-30	30A	10/box	NA	0.012	-40°C to +85°C	NA
EVR10-30-T	30A	270/box	M5	0.012	-40°C to +85°C	4.5 ± 1 Nm
EVR10-30-B	30A	270/box	M5	0.012	-40°C to +85°C	4.5 ± 1 Nm
EVR10-30-1P	30A	180/box	NA	0.012	-40°C to +85°C	NA
EVR10-40	40A	10/box	NA	0.012	-40°C to +85°C	NA
EVR10-40-T	40A	270/box	M5	0.012	-40°C to +85°C	4.5 ± 1 Nm
EVR10-40-B	40A	270/box	M5	0.012	-40°C to +85°C	4.5 ± 1 Nm
EVR10-40-1P	40A	180/box	NA	0.012	-40°C to +85°C	NA
EVR10-50	50A	10/box	NA	0.012	-40°C to +85°C	NA
EVR10-50-T	50A	270/box	M5	0.012	-40°C to +85°C	4.5 ± 1 Nm
EVR10-50-B	50A	270/box	M5	0.012	-40°C to +85°C	4.5 ± 1 Nm
EVR10-50-1P	50A	180/box	NA	0.012	-40°C to +85°C	NA

Dimensions (mm):

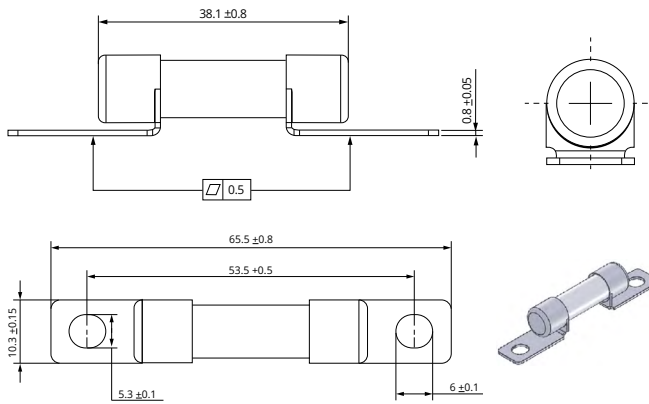
EVR10-XX



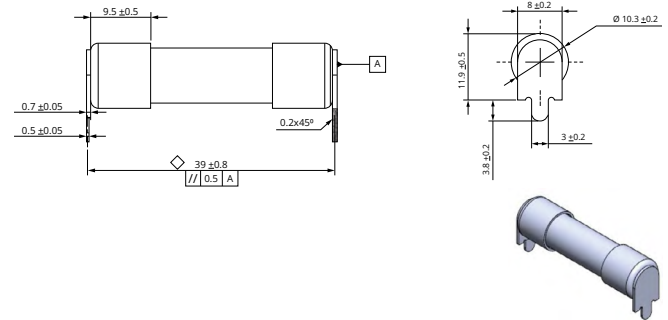
EVR10-XX-B



EVR10-XX-T



EVR10-XX-1P

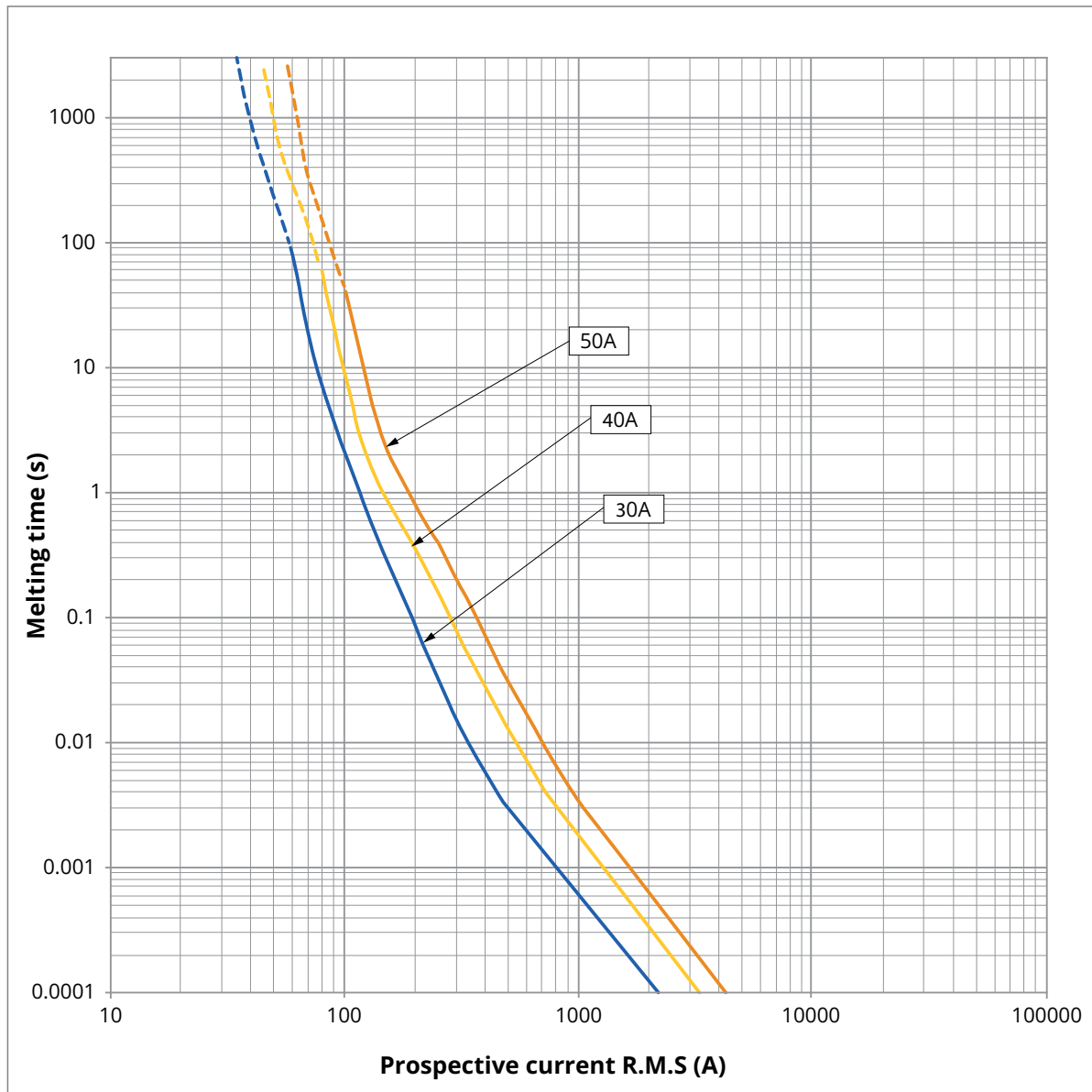


Technical parameters

Part number	Voltage rating (Vdc)	Current rating (A)	Pre-arcing I ² t (A ² s)	Total I ² t (A ² s)	Power loss @ In (W)
EVR10-30	500	30	480	820	6
EVR10-40	500	40	1,080	1,800	8
EVR10-50	500	50	1,800	3,600	11

Auxiliary and on-board charger protection

Time current curve



For more information, please contact:

evprotection@eaton.com

EVR 20 mm fuses



Technical data

Rated voltage	500Vdc
Rated current	50A – 150A
Max. breaking capacity	20kA
Min. breaking capacity	400% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

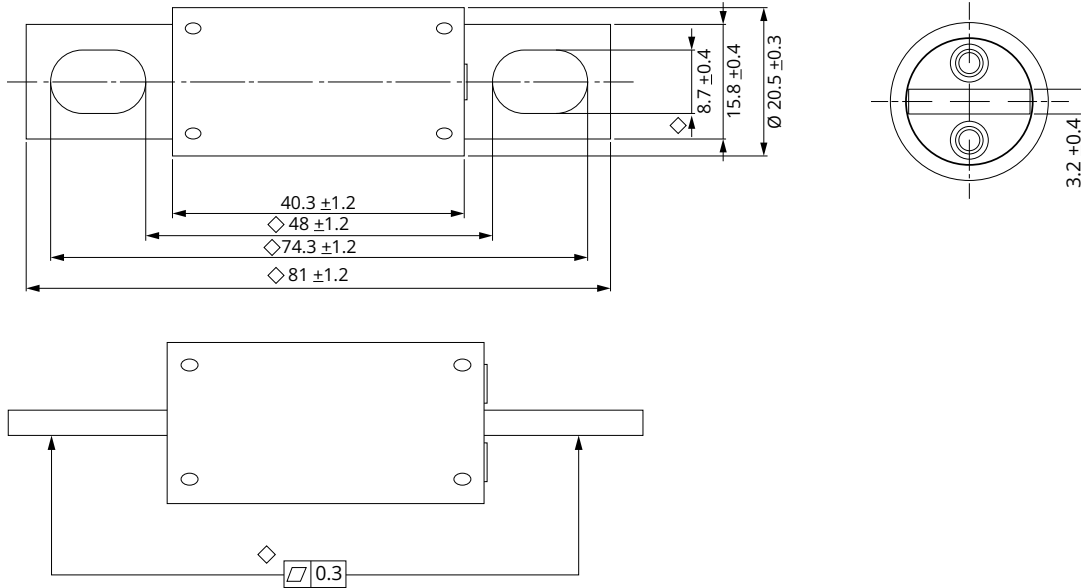
- RoHS / ELV /REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR20-50	50A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm
EVR20-60	60A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm
EVR20-70	70A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm
EVR20-80	80A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm
EVR20-100	100A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm
EVR20-125	125A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm
EVR20-150	150A	200/box	M8	0.054	-40°C to +85°C	12±1 Nm

Auxiliary and on-board charger protection

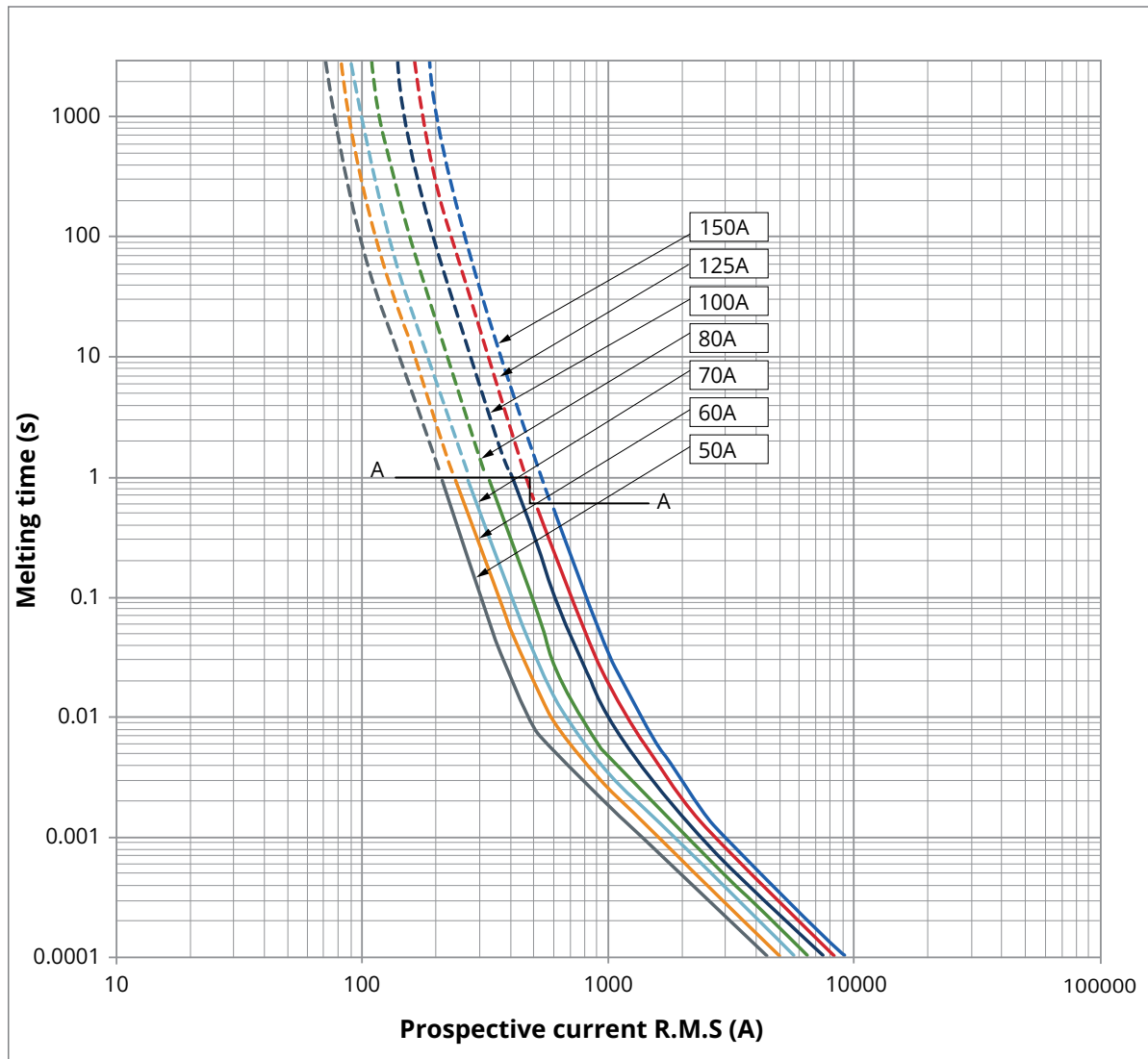
Dimensions (mm):



Technical parameters

Part number	Voltage rating (Vdc)	Current rating (A)	Pre-arcing I ² t	Total I ² t	Power loss @ 0.5 I _n (W)	Power loss @ I _n (W)
EVR20-50	500Vdc	50	1,080	4,540	3	13
EVR20-60	500Vdc	60	1,510	6,400	3	16
EVR20-70	500Vdc	70	2,170	9,100	4	18
EVR20-80	500Vdc	80	2,710	11,400	4	21
EVR20-100	500Vdc	100	4,320	18,100	5	26
EVR20-125	500Vdc	125	6,750	28,400	7	32
EVR20-150	500Vdc	150	8,670	36,400	9	41

Time current curve



For more information, please contact:

evprotection@eaton.com

EVR 25 mm fuses



Technical data

Rated voltage	500Vdc
Rated current	150A – 250A
Max. breaking capacity	20kA
Min. breaking capacity	300% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

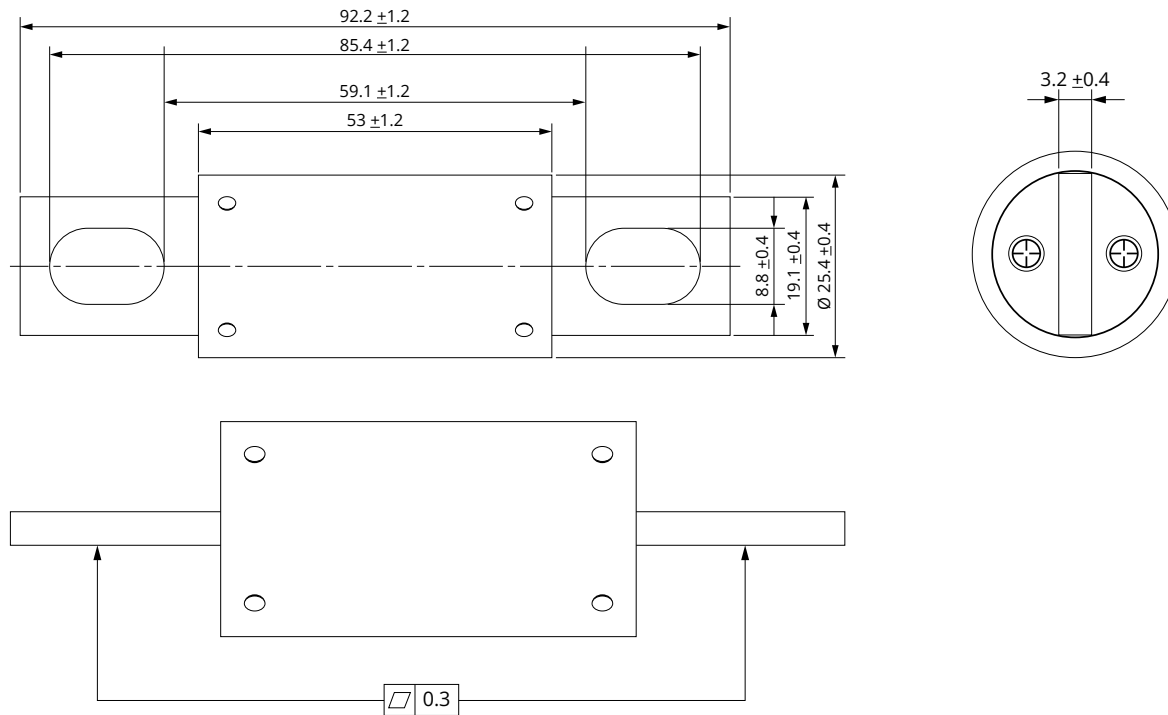
Standards / agency information

- RoHS / ELV /REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR25-150	150A	100/box	M8	0.125	-40°C to +85°C	12±1 Nm
EVR25-175	175A	100/box	M8	0.125	-40°C to +85°C	12±1 Nm
EVR25-200	200A	100/box	M8	0.125	-40°C to +85°C	12±1 Nm
EVR25-225	225A	100/box	M8	0.125	-40°C to +85°C	12±1 Nm
EVR25-250	250A	100/box	M8	0.125	-40°C to +85°C	12±1 Nm

Dimensions (mm):

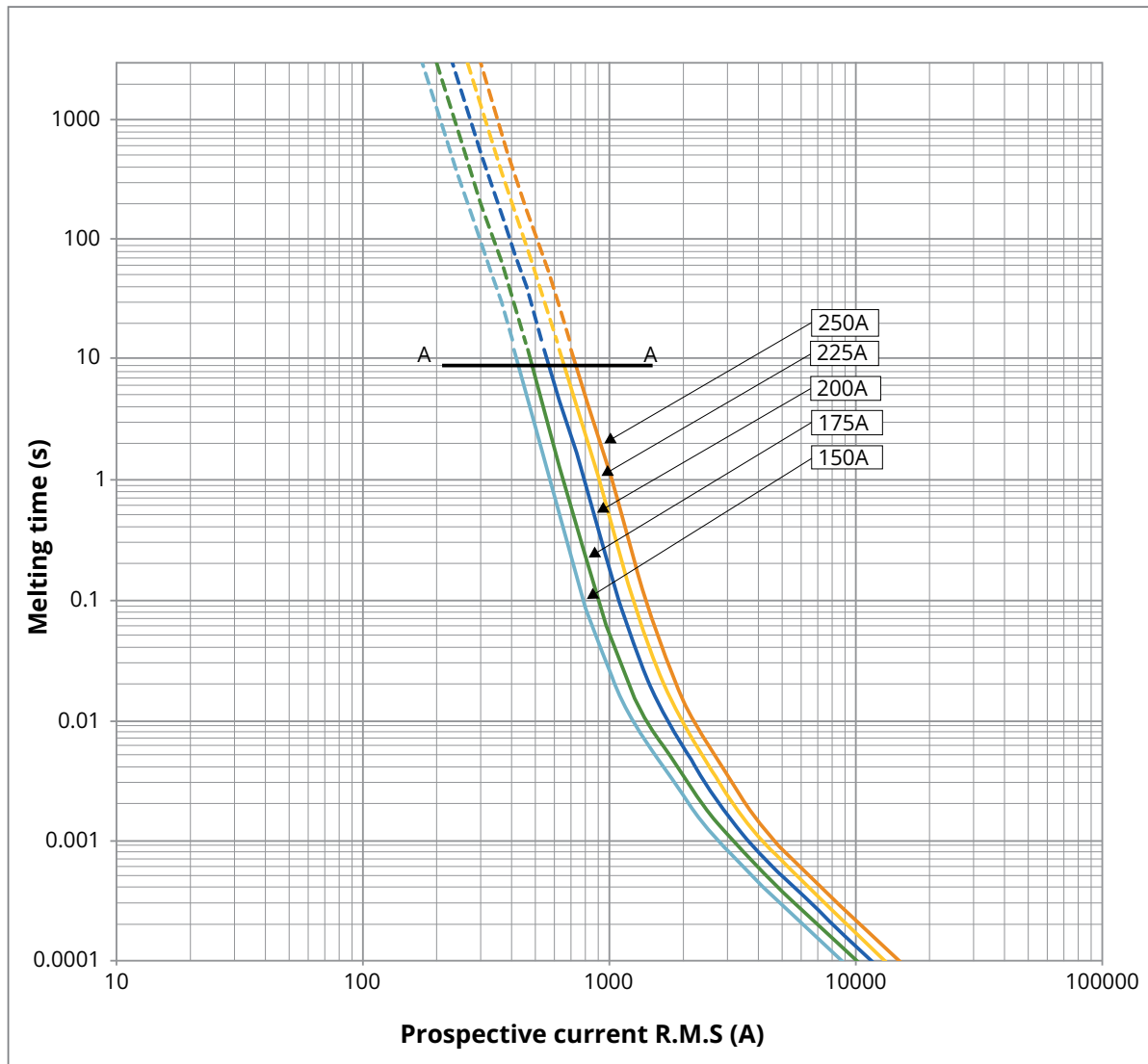


Technical parameters

Part number	Voltage rating (Vdc)	Current rating (A)	Pre-arcing I^2t	Total I^2t	Power loss (W)	Power loss @ 0.5 I_n (W)
EVR25-150	500Vdc	150A	6,750	20,250	31	6
EVR25-175	500Vdc	175A	9,720	29,200	35	7
EVR25-200	500Vdc	200A	13,230	39,700	36	7
EVR25-225	500Vdc	225A	17,280	51,800	37	8
EVR25-250	500Vdc	250A	21,870	65,600	41	8

Auxiliary and on-board charger protection

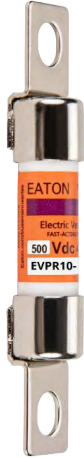
Time current curve



For more information, please contact:

evprotection@eaton.com

EVPR 10 mm fuses



Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

- RoHS / ELV /REACH compliant
- Designed to standards (reference)
 - GB/T31465
 - ISO8820
 - Operation Class EV

Technical data

Rated voltage	850Vdc
Rated current	30A, 40A, 50A
Breaking capacity	20kA
Time constant	2 ± 0.5 ms

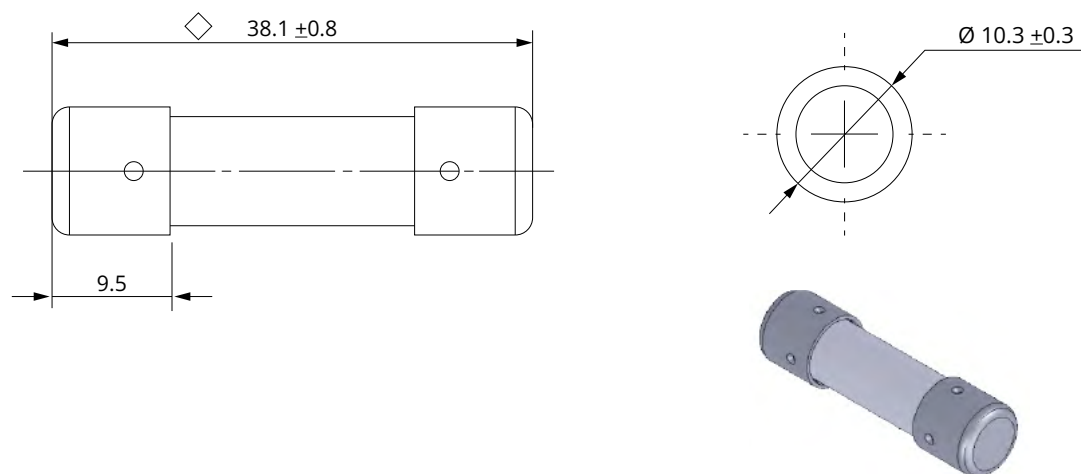
Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVPR10-30	30A	10/box	M5	NA	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-30-T	30A	270/box	M5	0.0120 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-30-B	30A	70/box	M5	0.0115 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-30-1P	30A	180/box	M5	0.0100 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-40	40A	10/box	M5	NA	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-40-T	40A	270/box	M5	0.0120 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-40-B	40A	70/box	M5	0.0115 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-40-1P	40A	180/box	M5	0.0100 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-50	50A	10/box	M5	NA	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-50-T	50A	270/box	M5	0.0120 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-50-B	50A	70/box	M5	0.0115 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm
EVPR10-50-1P	50A	180/box	M5	0.0100 ± 0.0010	-40°C to +85°C	4.5 ± 1 Nm

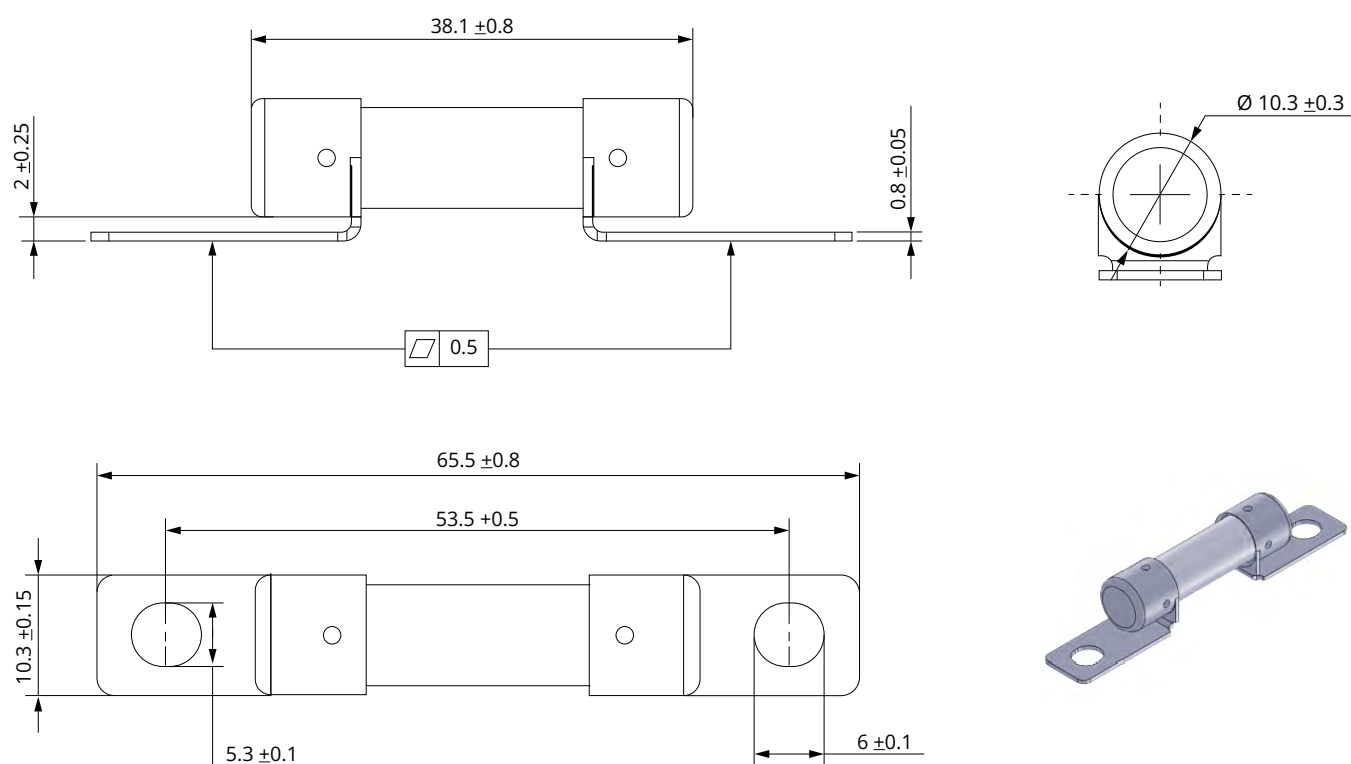
Auxiliary and on-board charger protection

Dimensions (mm):

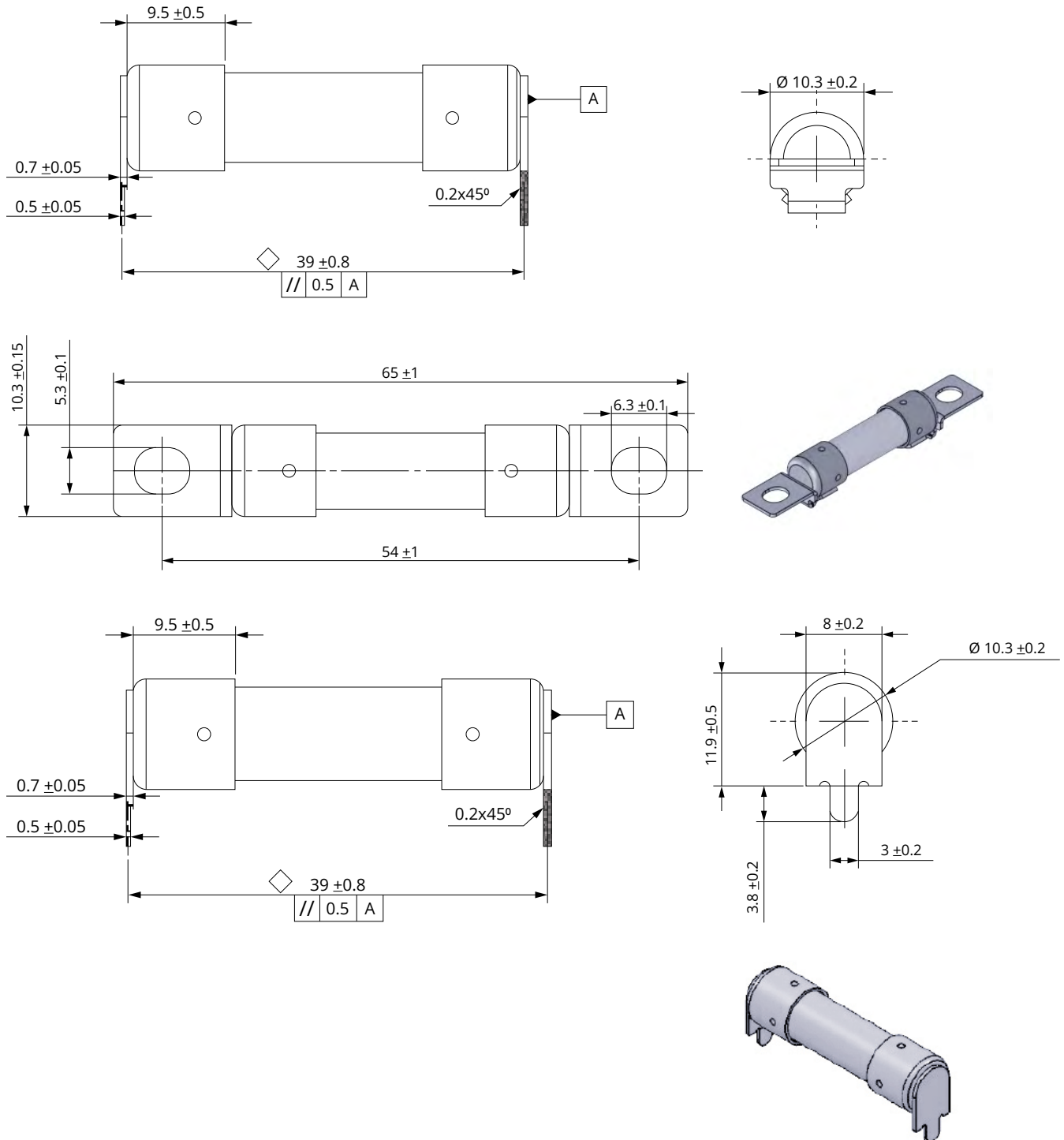
EVPR10-XX



EVPR10-XX-T



Dimensions (mm):

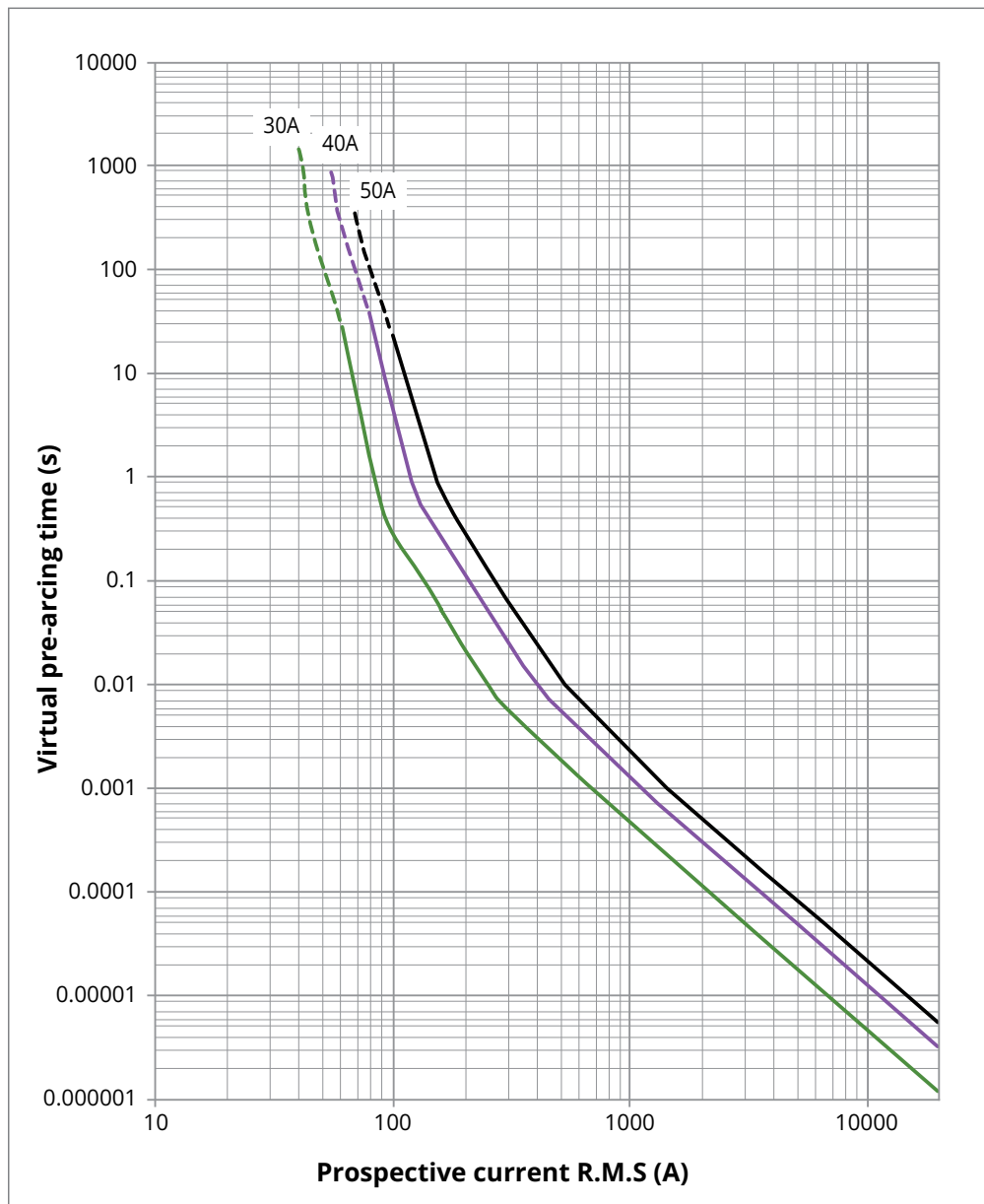


Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (A ² s)	Total I^2t (A ² s)	Power loss (W)
EVPR10-30	850Vdc	30A	480	1,180	8.6
EVPR10-40	850Vdc	40A	1,268	3,117	11.5
EVPR10-50	850Vdc	50A	2,168	5,330	14.4

Auxiliary and on-board charger protection

Time current curve



For more information, please contact:

evprotection@eaton.com

EVK 10 mm fuses



Features

- Complies with international and field EV application standards.
- High voltage rating enables efficient and economical system design for high-voltage battery packs.
- High interrupting rating supports long-range and fast-acceleration EV battery systems.

Standards / agency information

- Designed to standards (reference)
 - UL 248-20
 - ISO 8820-8
 - JASO D622
- Manufactured under
 - IATF 16949 / VDA 6.3 automotive quality system
- RoHS compliant
- REACH declaration available upon request

Technical data

Rated voltage	1000Vdc
Rated current	15-600A
Max. breaking capacity	25 kA
Min. breaking capacity	• $\leq 200A$: $1.35 \times I_n$ • $> 200A$: $2 \times I_n$

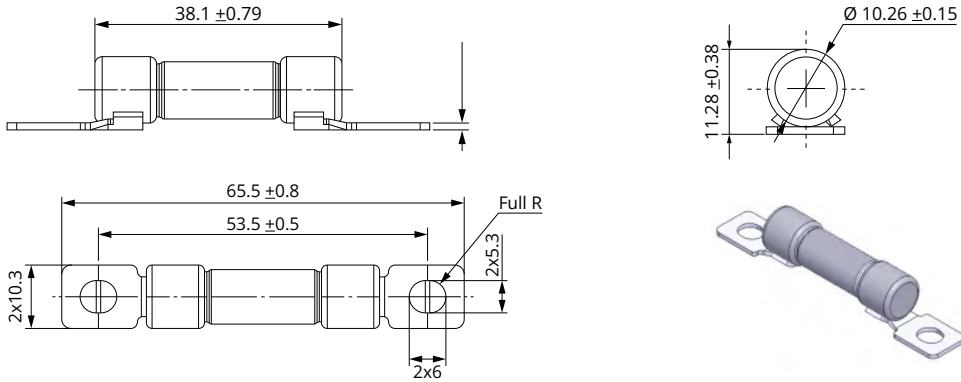
Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVK10-XX-T	15A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-T	20A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-T	25A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-T	30A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-1P-C	15A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-1P-C	20A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-1P-C	25A	270/box	M5	0.01	-40°C to +85°C	4.5±1
EVK10-XX-1P-C	30A	270/box	M5	0.01	-40°C to +85°C	4.5±1

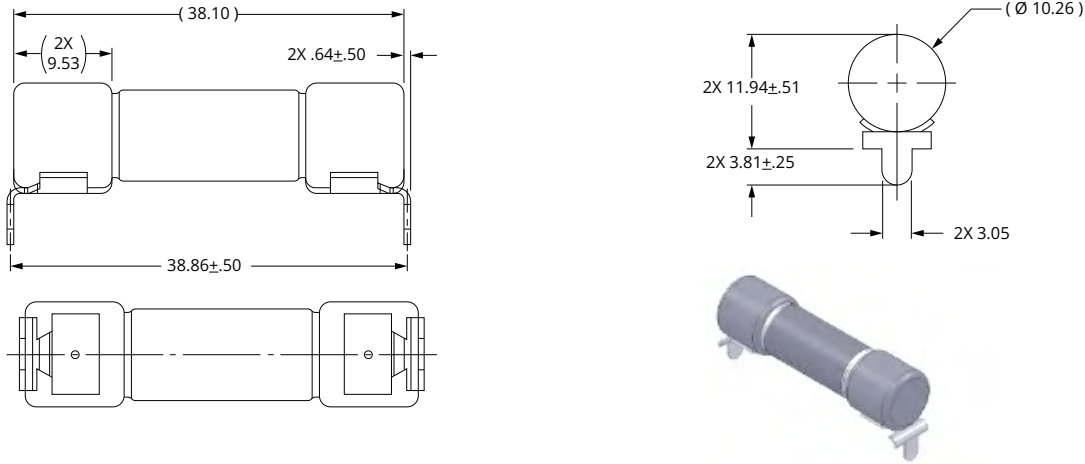
Auxiliary and on-board charger protection

Dimensions (mm):

EVK10-xx-T

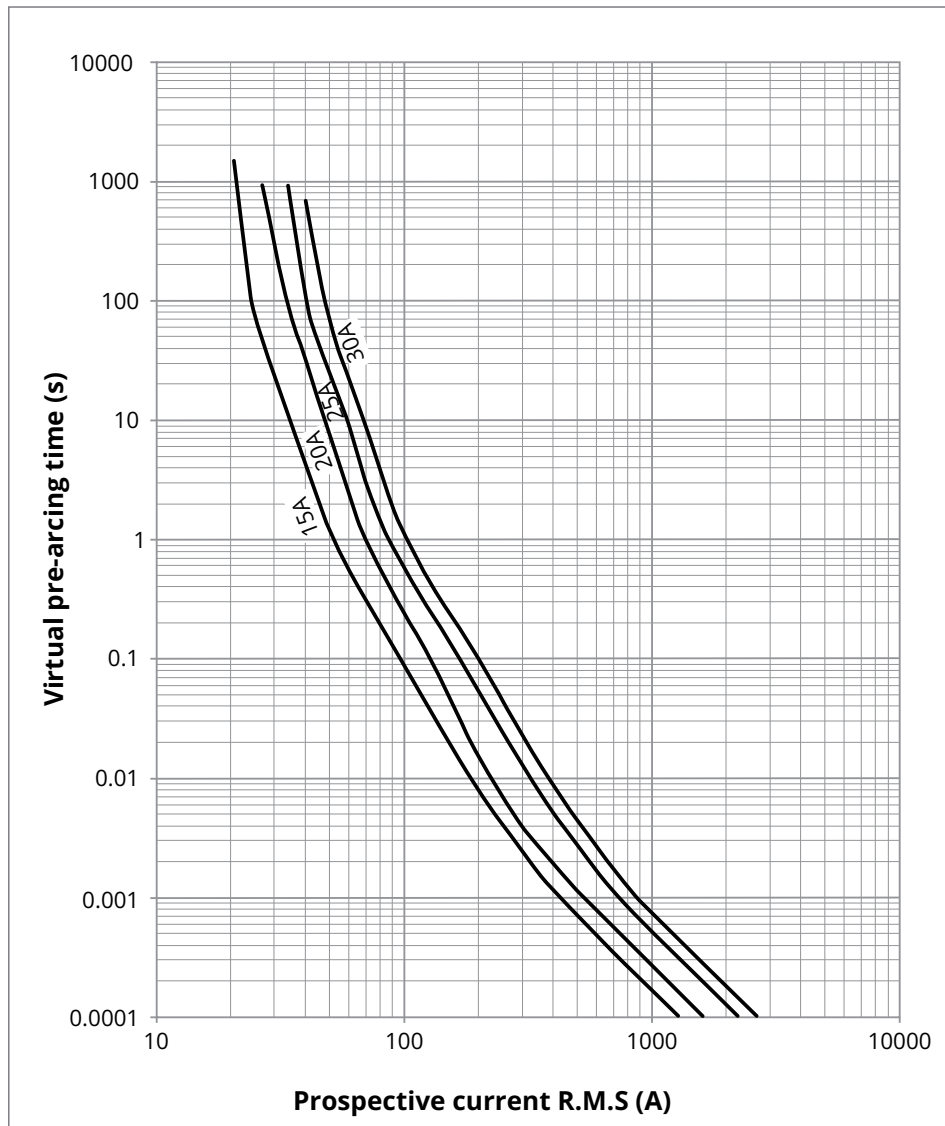


EVK10-xx-1P-C



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I ² t (A ² s)	Total I ² t (A ² s)	Power loss @ 1.0 I _n (W)	Power loss @ 0.5 I _n (W)
EVK10-XX-T	1000Vdc	15A	120	700	2.8	0.6
EVK10-XX-1P-C	1000Vdc	20A	227	1200	3.7	0.7
	1000Vdc	25A	480	2200	4.0	0.8
	1000Vdc	30A	677	3400	4.9	1.0

Time current curve

For more information, please contact:

evprotection@eaton.com

EVKR 10 mm fuses



Technical data

Rated voltage	1000Vdc
Rated current	20A, 25A, 30A, 40A, 50A
Max. breaking capacity	20kA
Min. breaking capacity	200%In (20A-30A), 300%In (40A-50A)

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

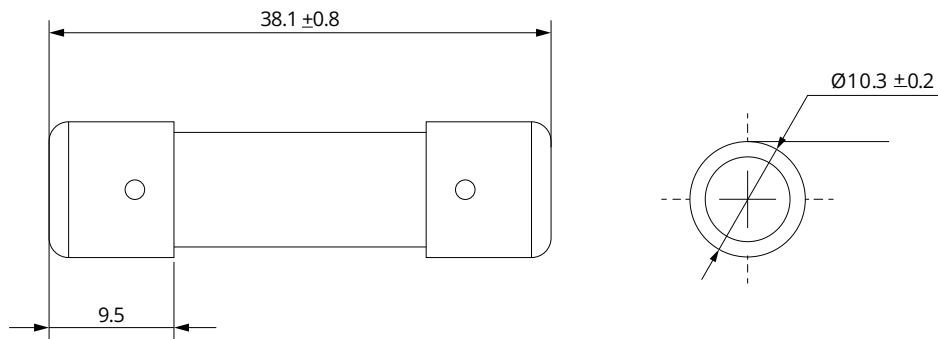
- RoHS / ELV /REACH compliant
- H₂O 12.5ppm-96h IEC 68-2-43 Kd
- SO₂ 25ppm-504h IEC 68-2-42 Kd
- Designed to standards (reference)
 - GB/T31465
 - ISO8820

Catalog SKUs

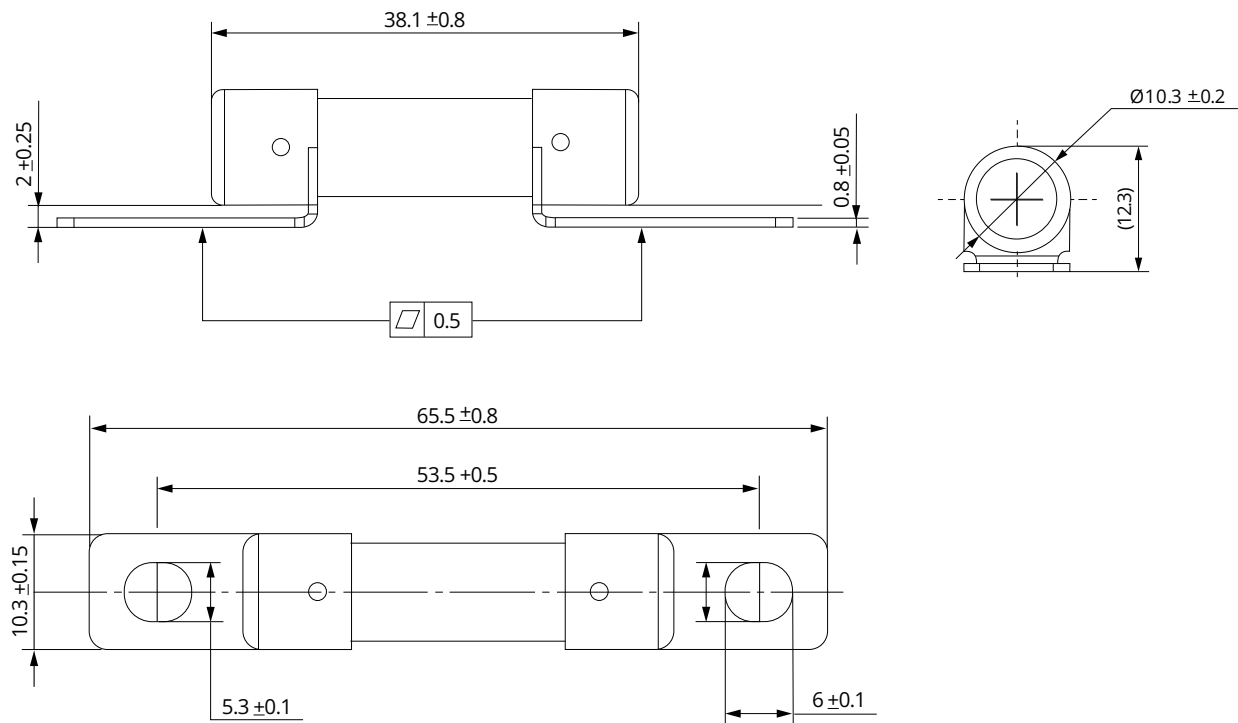
Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR10-20	20A	10/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-20-T	20A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-20-B	20A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-20-1P	20A	180/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-25	25A	10/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-25-T	25A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-25-B	25A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-25-1P	25A	180/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-30	30A	10/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-30-T	30A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-30-B	30A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-30-1P	30A	180/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-40	40A	10/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-40-T	40A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-40-B	40A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-40-1P	40A	180/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-50	50A	10/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-50-T	50A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-50-B	50A	270/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm
EVKR10-50-1P	50A	180/box	M5	0.01	-40°C to +85°C	4.5 ±1 Nm

Dimensions (mm):

EVKR10-XX



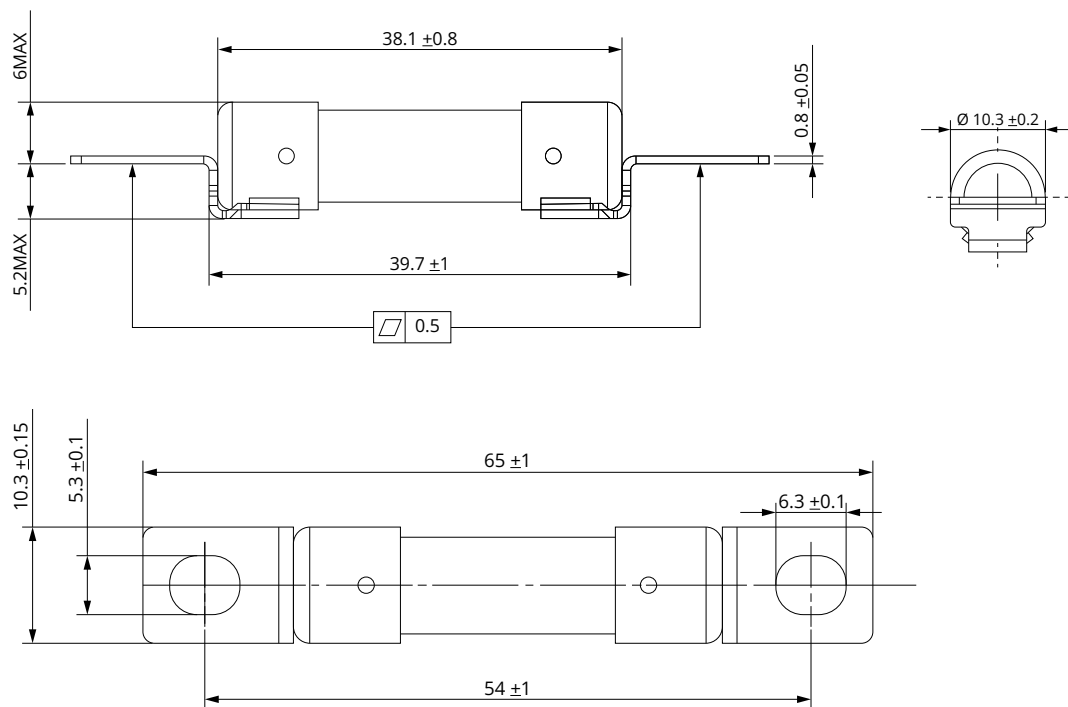
EVKR10-XX-T



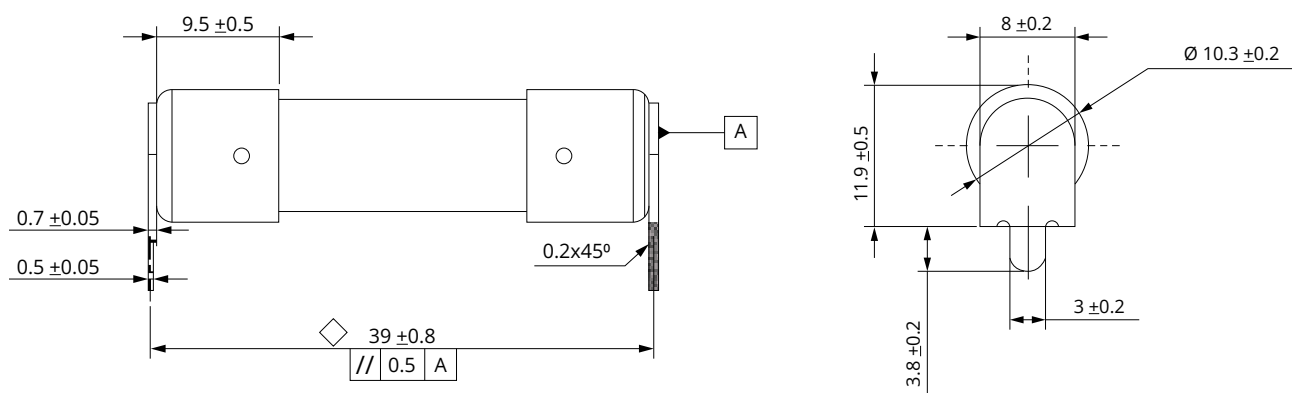
Auxiliary and on-board charger protection

Dimensions (mm):

EVKR10-XX-B



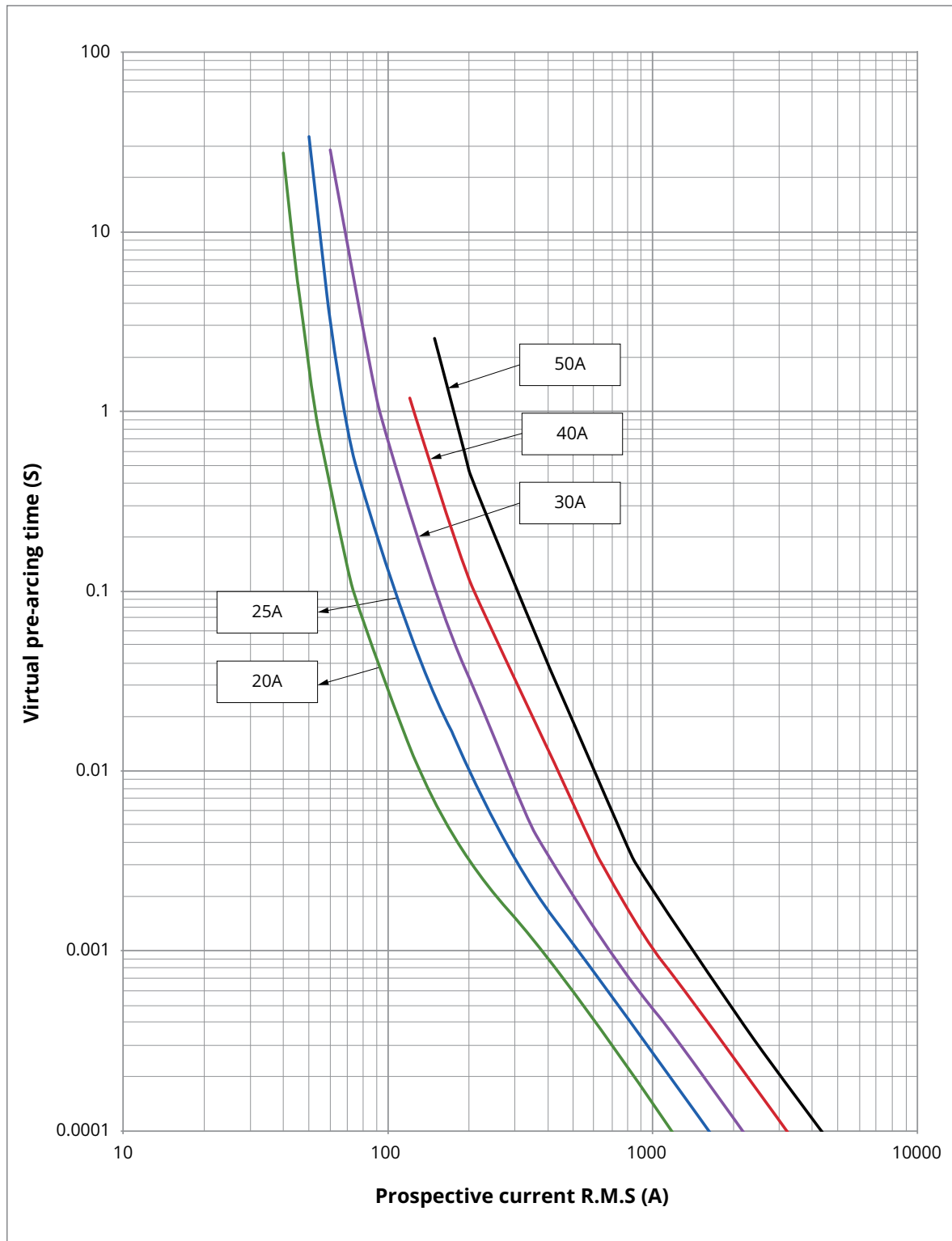
EVKR10-XX-1P



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (A ² s)	Total I^2t (A ² s)	Power loss (W)	Power loss @ 0.5 In (W)
EVKR10-20	1000Vdc	20A	120	440	8.8	1.5
EVKR10-25	1000Vdc	25A	270	990	9.0	1.5
EVKR10-30	1000Vdc	30A	480	1760	10.6	1.8
EVKR10-40	1000Vdc	40A	1027	3080	13.1	2.2
EVKR10-50	1000Vdc	50A	1920	5761	15.5	2.6

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 14 mm fuses



Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Technical data

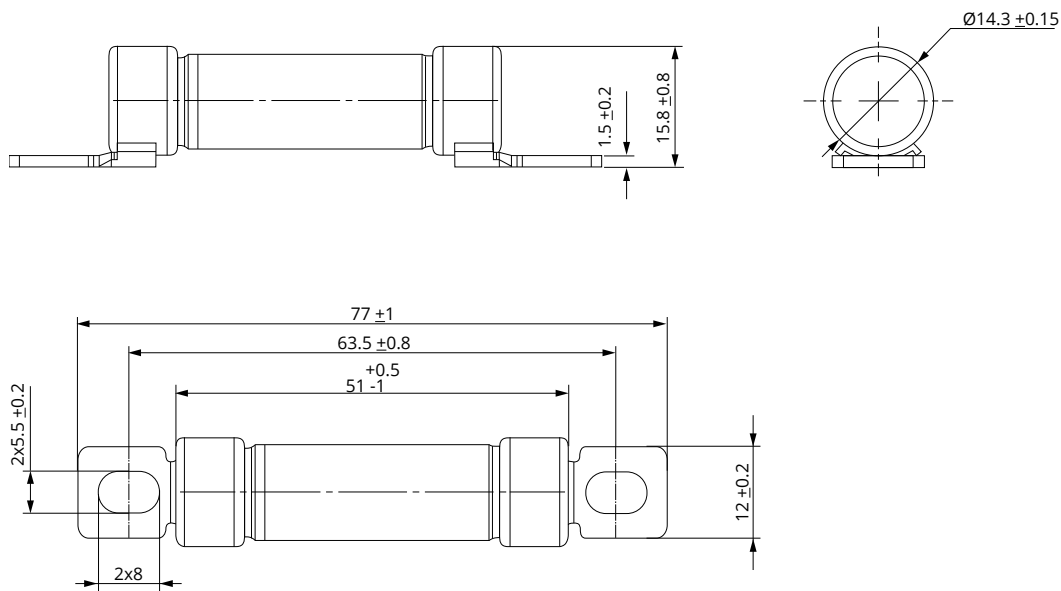
Rated voltage	1000Vdc
Rated current	35A – 50A
Max. breaking capacity	25kA
Min. breaking capacity	200% of rated current
Time constant	Not specified in this datasheet

Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8
 - GB/T 31465.6

Catalog SKUs

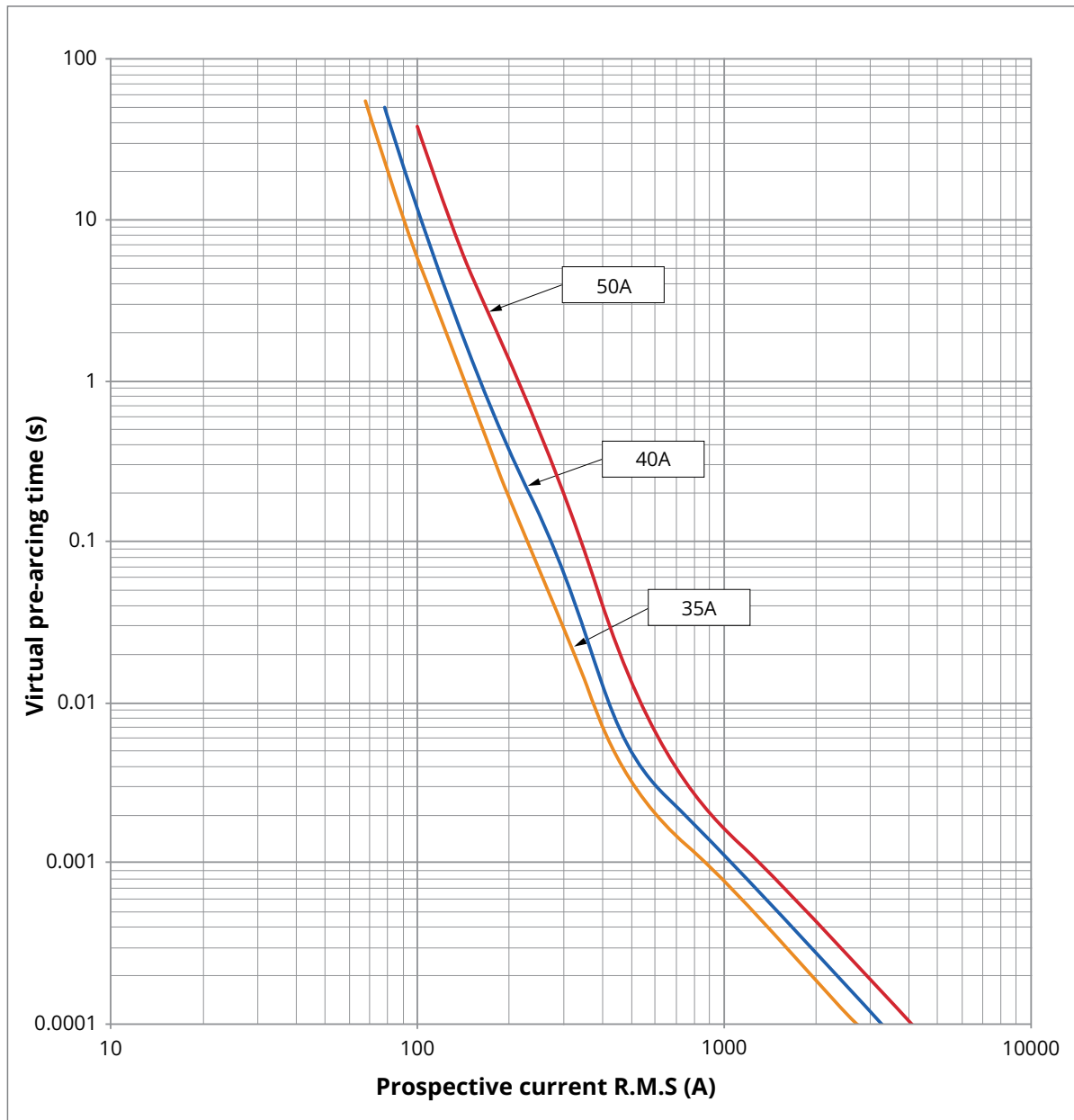
Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR14-35-T	35A	100/box	M8	0.125	–40°C to +85°C	12±1 Nm
EVKR14-40-T	40A	100/box	M8	0.125	–40°C to +85°C	12±1 Nm
EVKR14-50-T	50A	100/box	M8	0.125	–40°C to +85°C	12±1 Nm

Dimensions (mm):**Technical parameters**

Part number	Voltage rating (Vdc)	Current rating (A)	Pre-arcing I^2t (A ² s)	Total I^2t (A ² s)	Power loss at in (W)	Power loss at 0.6In (W)
EVKR14-35-T	1000	35	750	3750	8	2.3
EVKR14-40-T	1000	40	1080	5401	9.6	2.4
EVKR14-50-T	1000	50	1688	8438	12.6	3

Auxiliary and on-board charger protection

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 25 mm fuses



Technical data

Rated voltage	1000Vdc
Rated current	70A / 80A / 90A / 100A
Max. breaking capacity	50kA
Min. breaking capacity	300%I _n

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

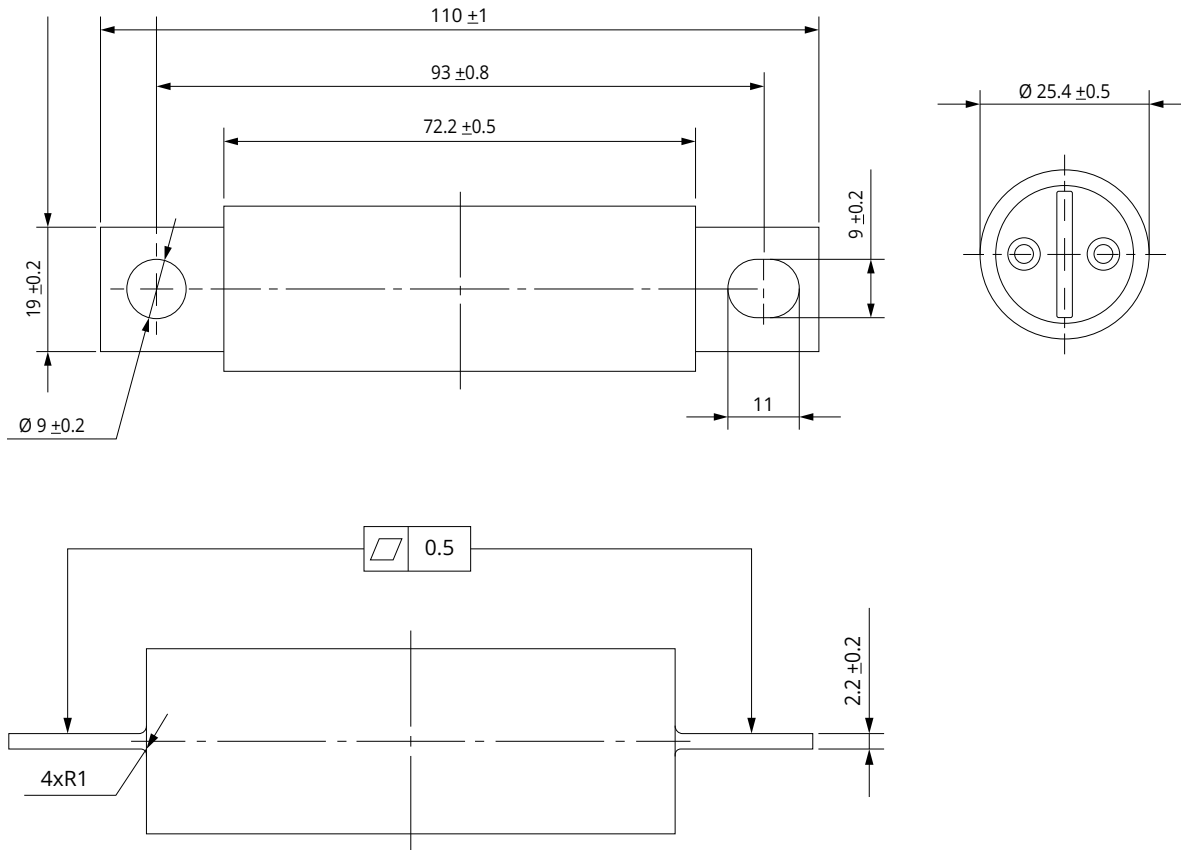
- RoHS / ELV / REACH compliant
- H₂O 12.5ppm-96h IEC 68-2-43 Kd
- SO₂ 25ppm-504h IEC 68-2-42 Kd
- Designed to standards (reference)
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR25-70	70A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm
EVKR25-80	80A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm
EVKR25-90	90A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm
EVKR25-100	100A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm

Auxiliary and on-board charger protection

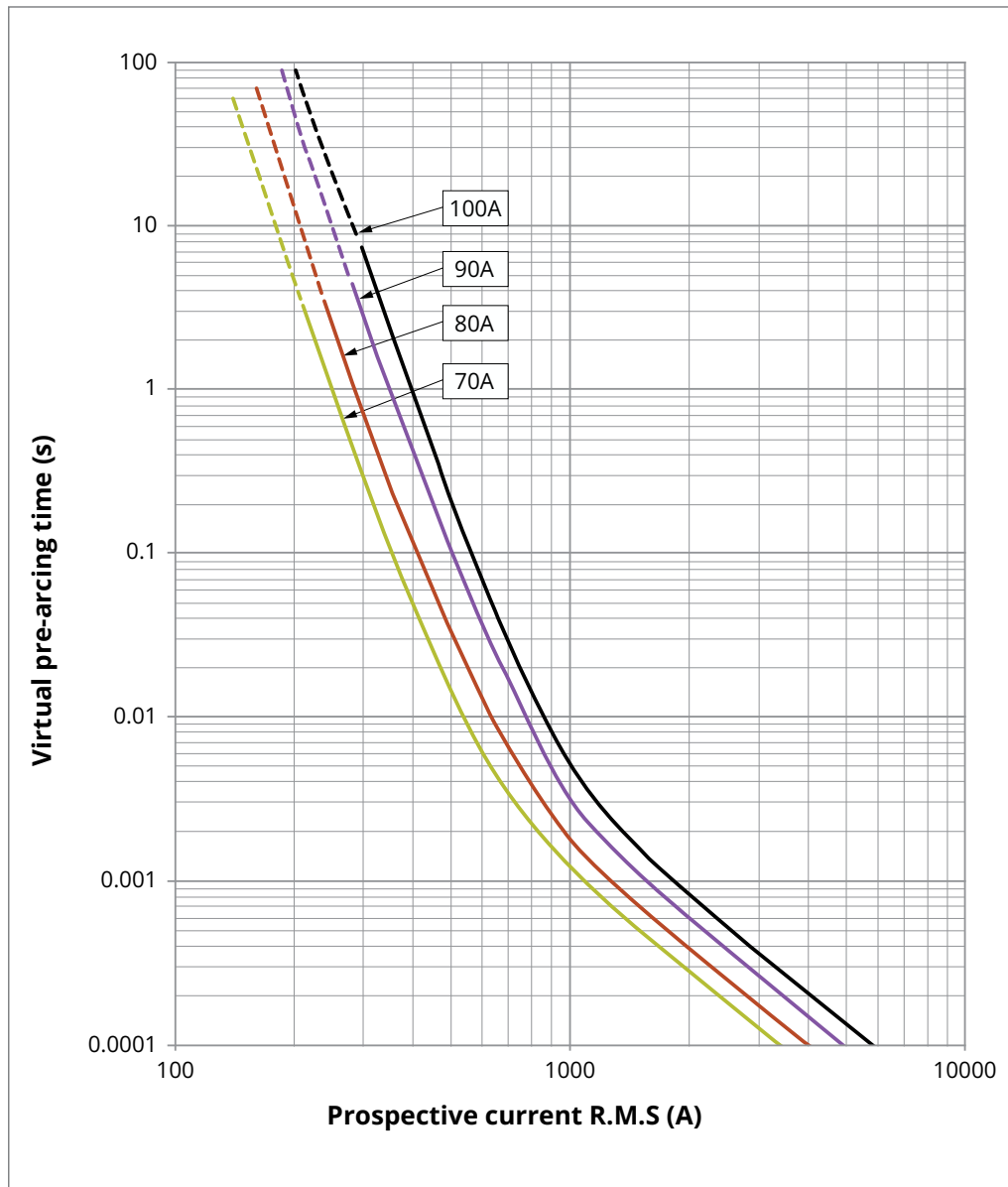
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @ 0.5 In (W)
EVKR25-70	1000Vdc	70A	1.1	7.6	28.1	4.5
EVKR25-80	1000Vdc	80A	1.6	9.6	33.6	5.4
EVKR25-90	1000Vdc	90A	2.4	13.4	31.9	5.1
EVKR25-100	1000Vdc	100A	3.3	16.5	33.6	5.4

Time current curve



For more information, please contact:

evprotection@eaton.com

EVK 22 mm fuses



Features

- High voltage rating enables efficient and economical system design for high-voltage battery packs.
- High interrupting rating supports long-range and fast-acceleration EV battery systems.

Standards / agency information

- Designed to Standards (reference):
 - UL 248-20
 - ISO 8820-8
 - JASO D622
- Manufactured under:
 - IATF 16949 / VDA 6.3 automotive quality system
- RoHS compliant
- REACH declaration available upon request

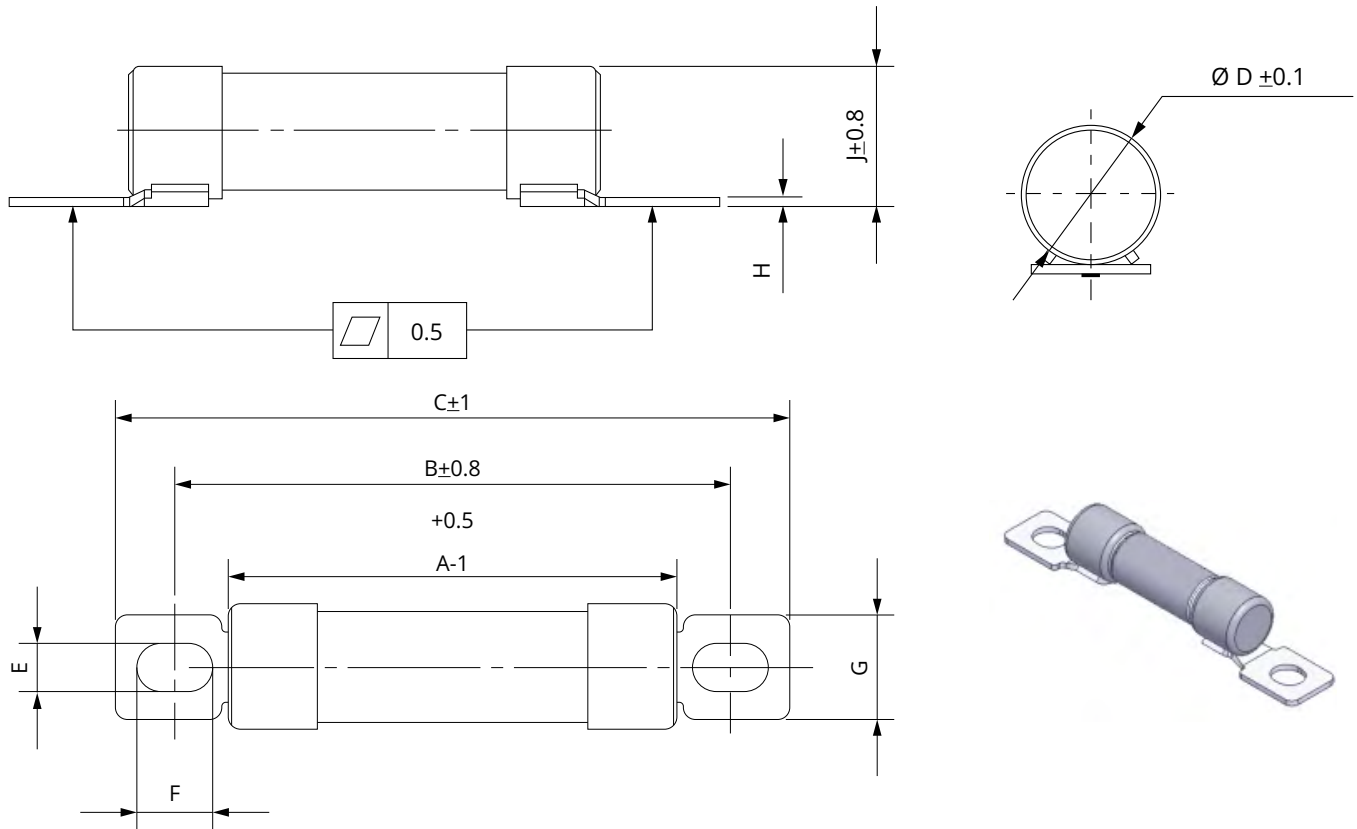
Technical data

Rated voltage	1000Vdc
Rated current	15-600A
Max. breaking capacity	25 kA
Min. breaking capacity	≤200A: 1.35 x I _n >200A: 2 x I _n

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVK22-XX-T	60	100/box	M6	NA	-40°C to +85°C	9±1
EVK22-XX-T	70	100/box	M6	NA	-40°C to +85°C	9±1
EVK22-XX-T	80	100/box	M6	NA	-40°C to +85°C	9±1

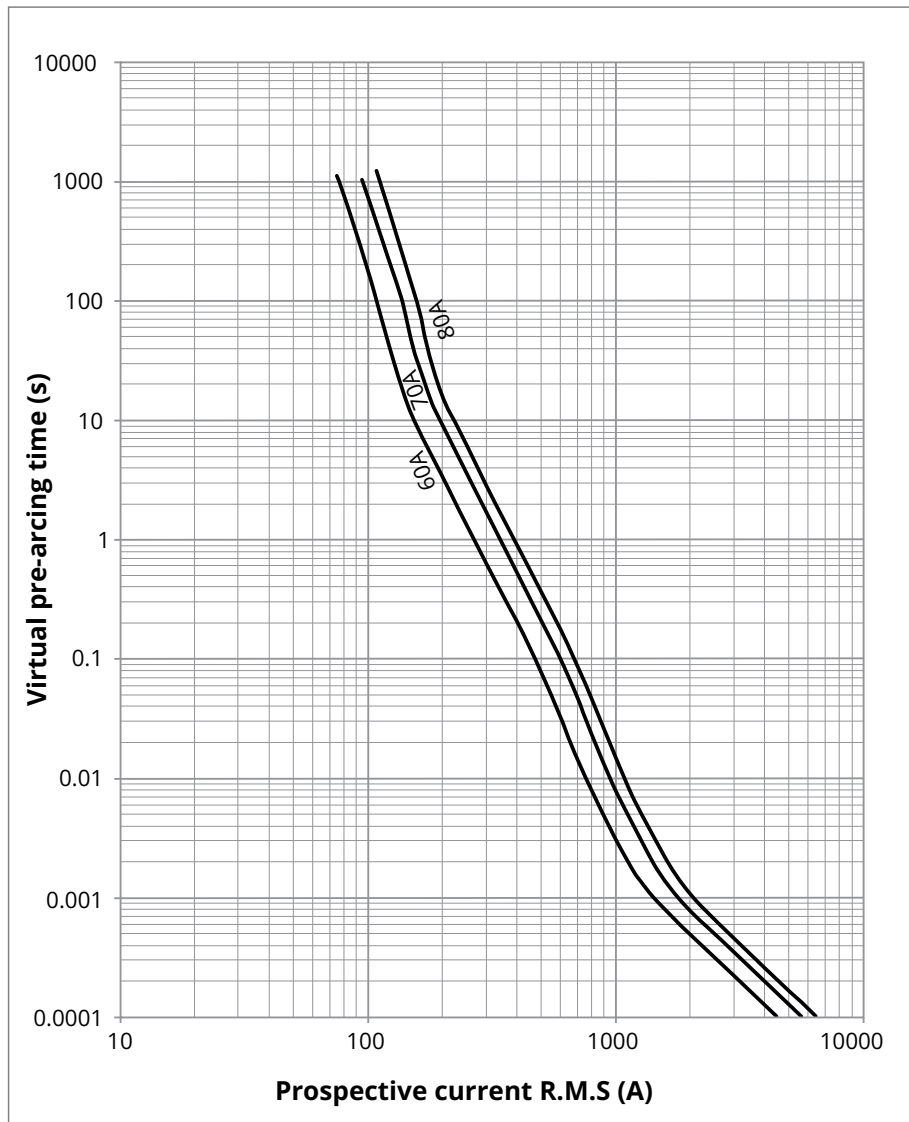
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (A ² s)	Total I^2t (A ² s)	Power Loss @ 1.0 In (W)	Power loss @ 0.5 In (W)
EVK22-XX-T	1000Vdc	60A	3000	15000	12.2	2.4
	1000Vdc	70A	4688	23400	13.4	2.7
	1000Vdc	80A	6050	30200	15.9	3.2

Time current curve

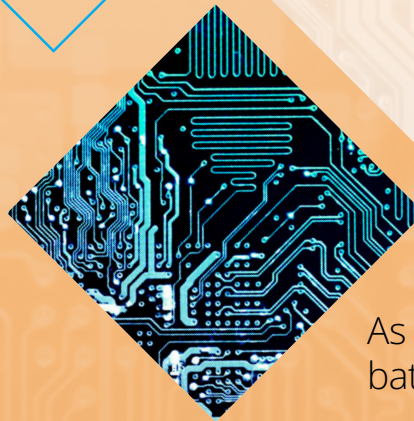
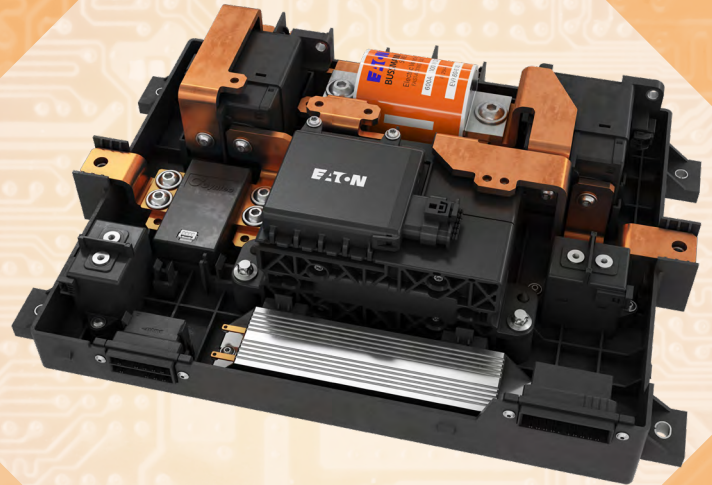


For more information, please contact:

evprotection@eaton.com

Battery and motor protection

- EVR 30 - 60 mm fuses
- Pyro fuses
- EVKR 30 - 60 mm fuses



As featured in Eaton's
battery disconnect unit

This document is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Eaton reserves the right, without notice, to change design or construction of any products or discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this document. Once a product has been selected, it should be tested by the user in all possible applications. The information contained in this document is correct at the time of publication, but we reserve the right to supply products differing in construction or performance.

EVR 30 mm fuses



Technical data

Rated voltage	500V dc
Rated current	200A – 400A
Max. breaking capacity	20kA
Min. breaking capacity	300% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

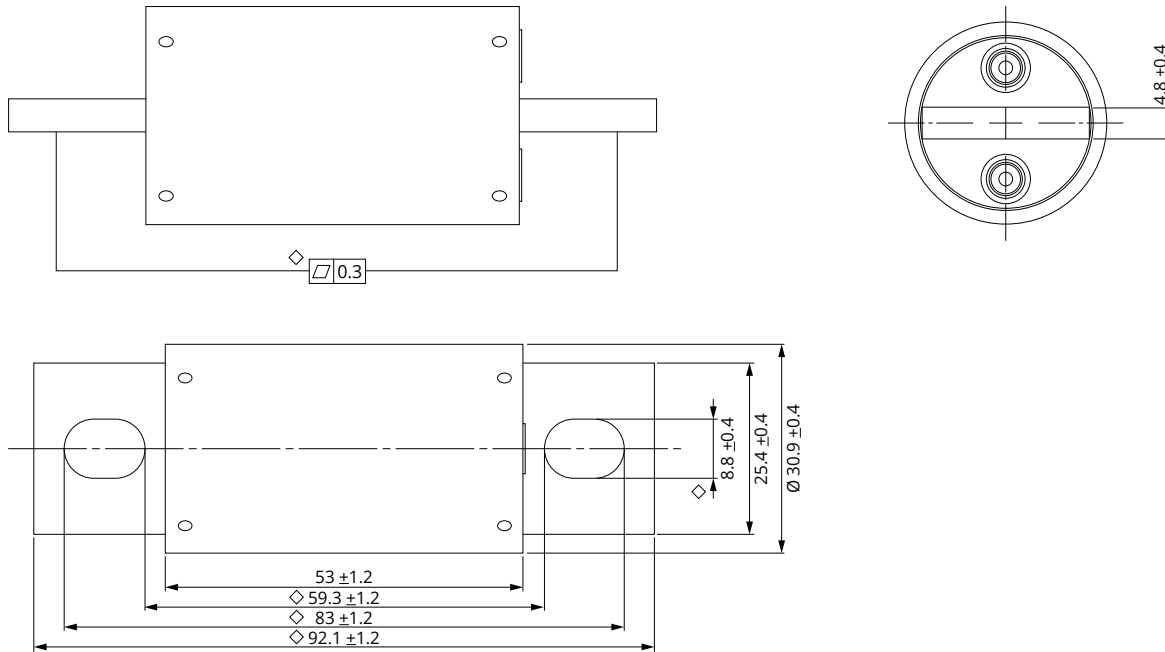
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR30-200	200A	100/box	M8	0.16	-40°C to +85°C	12±1 Nm
EVR30-225	225A	100/box	M8	0.16	-40°C to +85°C	12±1 Nm
EVR30-250	250A	100/box	M8	0.16	-40°C to +85°C	12±1 Nm
EVR30-300	300A	100/box	M8	0.16	-40°C to +85°C	12±1 Nm
EVR30-350	350A	100/box	M8	0.16	-40°C to +85°C	12±1 Nm
EVR30-400	400A	100/box	M8	0.16	-40°C to +85°C	12±1 Nm

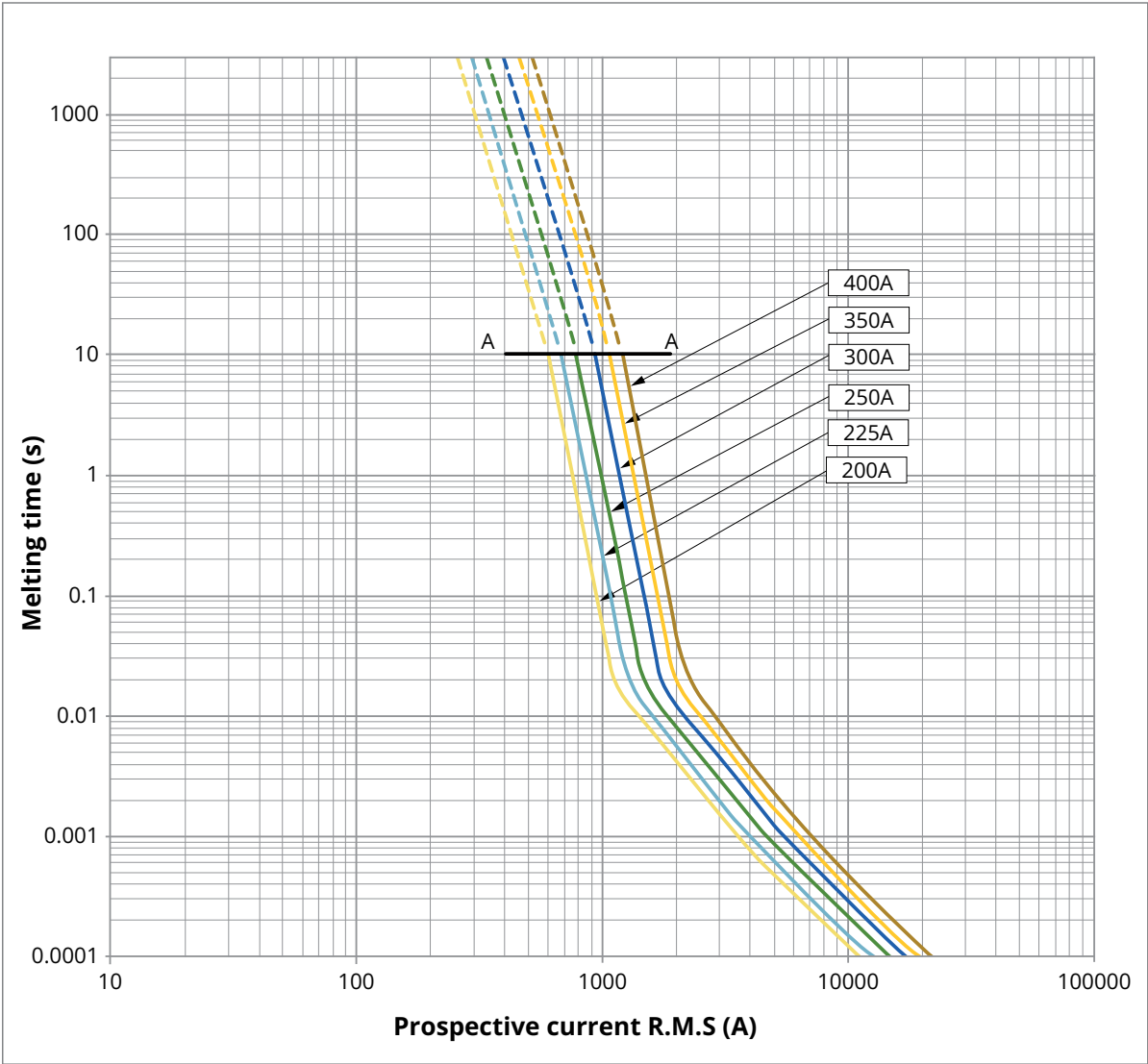
Dimensions (mm):



Technical Parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t	Total I^2t	Power loss (W)	Power loss @0.5 in (W)
EVR30-200	500Vdc	200A	12,300	34,450	33	7
EVR30-225	500Vdc	225A	14,440	40,400	34	7
EVR30-250	500Vdc	250A	19,220	53,800	40	8
EVR30-300	500Vdc	300A	25,670	71,900	46	9
EVR30-350	500Vdc	350A	38,880	108,900	51	10
EVR30-400	500Vdc	400A	49,210	137,800	59	12

Time current curve



For more information, please contact:

evprotection@eaton.com

EVR 40 mm fuses



Technical data

Rated voltage	500V dc
Rated current	350A – 600A
Max. breaking capacity	50kA
Min. breaking capacity	200% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

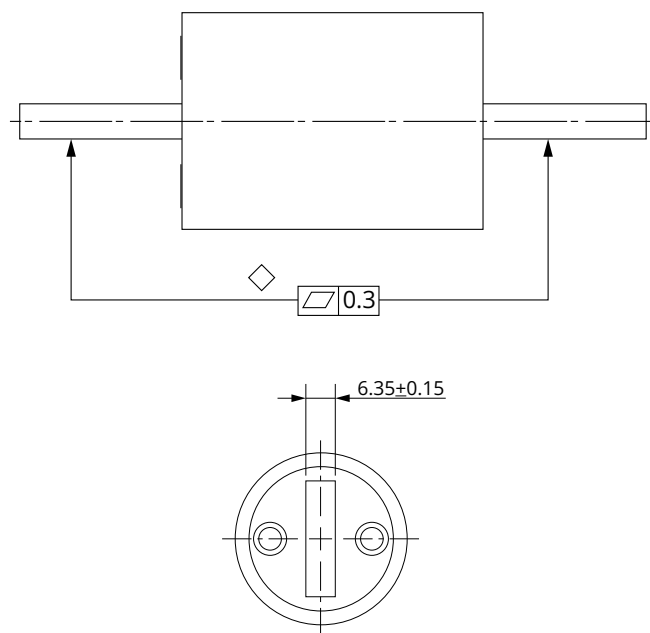
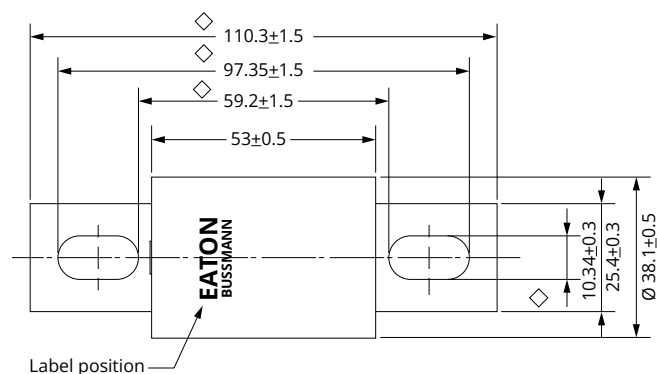
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016
 - GB/T 13539.1-2015

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR40-350	350A	60/box	M8	0.23	-40°C to +85°C	12±1 Nm
EVR40-400	400A	60/box	M8	0.23	-40°C to +85°C	12±1 Nm
EVR40-450	450A	60/box	M8	0.23	-40°C to +85°C	12±1 Nm
EVR40-500	500A	60/box	M8	0.23	-40°C to +85°C	12±1 Nm
EVR40-550	550A	60/box	M8	0.23	-40°C to +85°C	12±1 Nm
EVR40-600	600A	60/box	M8	0.23	-40°C to +85°C	12±1 Nm

Battery and motor protection

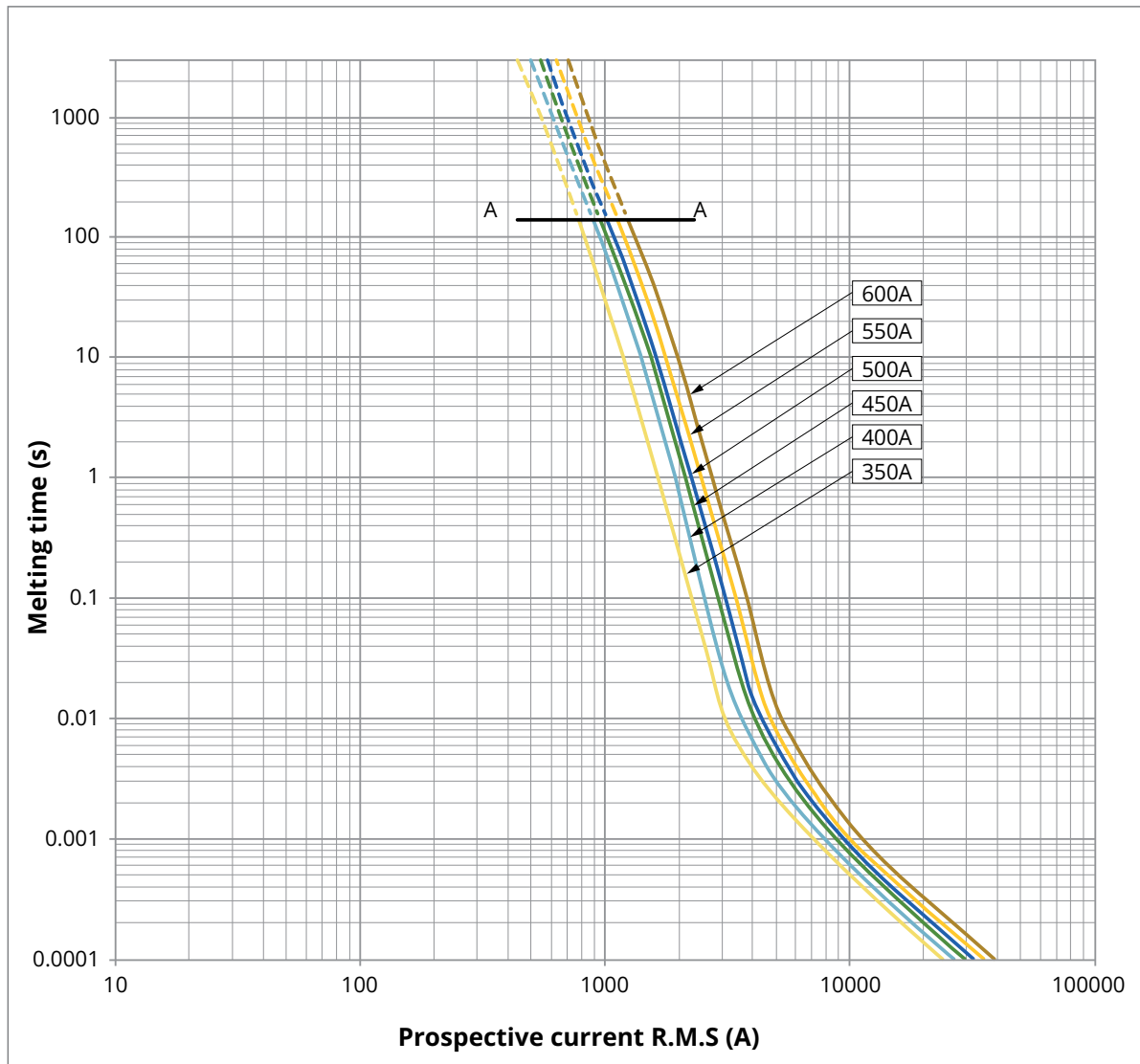
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I ² t	Total I ² t	Power loss (W)	Power loss @0.5 In (W)
EVR40-350	500Vdc	350A	49,210	182,100	54	11
EVR40-400	500Vdc	400A	69,130	255,800	59	12
EVR40-450	500Vdc	450A	87,490	323,700	66	13
EVR40-500	500Vdc	500A	108,010	399,600	73	15
EVR40-550	500Vdc	550A	119,080	440,600	84	17
EVR40-600	500Vdc	600A	147,020	544,000	90	18

Time current curve



For more information, please contact:

evprotection@eaton.com

EVR 50 mm fuses



Technical data

Rated voltage	500V dc
Rated current	550A – 800A
Max. breaking capacity	50kA
Min. breaking capacity	200% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

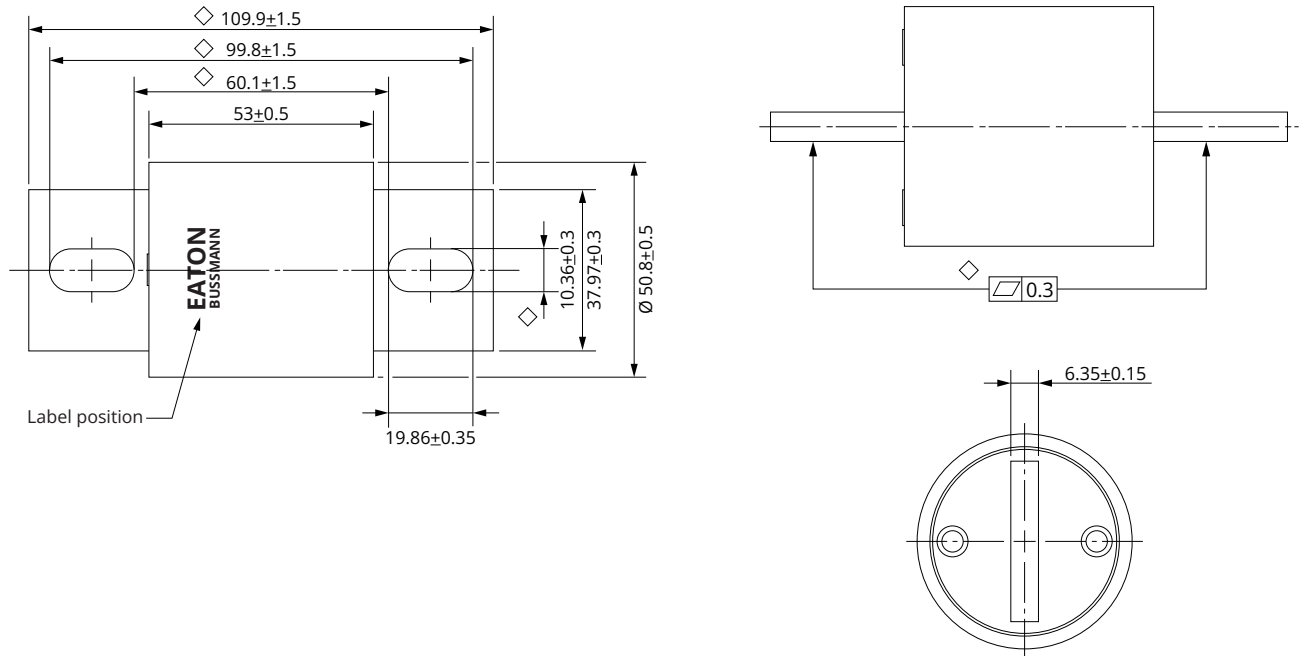
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR50-550	550A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm
EVR50-600	600A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm
EVR50-700	700A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm
EVR50-800	800A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm

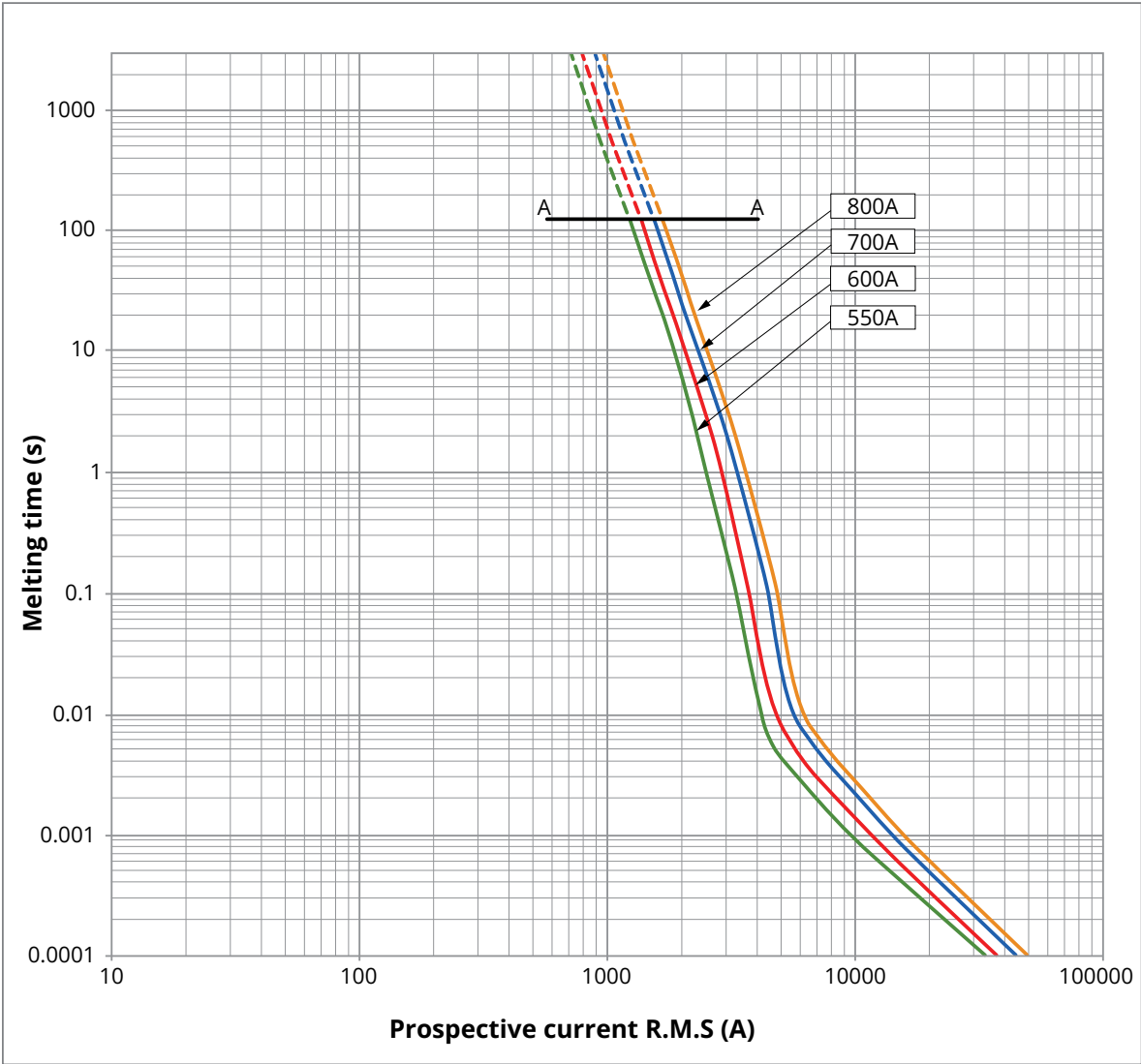
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I ² t	Total I ² t	Power loss (W)	Power loss @0.5 in (W)
EVR50-550	500Vdc	550A	122,890	405,500	83	17
EVR50-600	500Vdc	600A	136,700	451,100	93	19
EVR50-700	500Vdc	700A	196,850	649,600	106	21
EVR50-800	500Vdc	800A	243,030	802,000	124	25

Time current curve



For more information, please contact:

evprotection@eaton.com

EVR 60 mm fuses



Technical data

Rated voltage	500V dc
Rated current	700A – 1000A
Max. breaking capacity	50kA
Min. breaking capacity	200% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

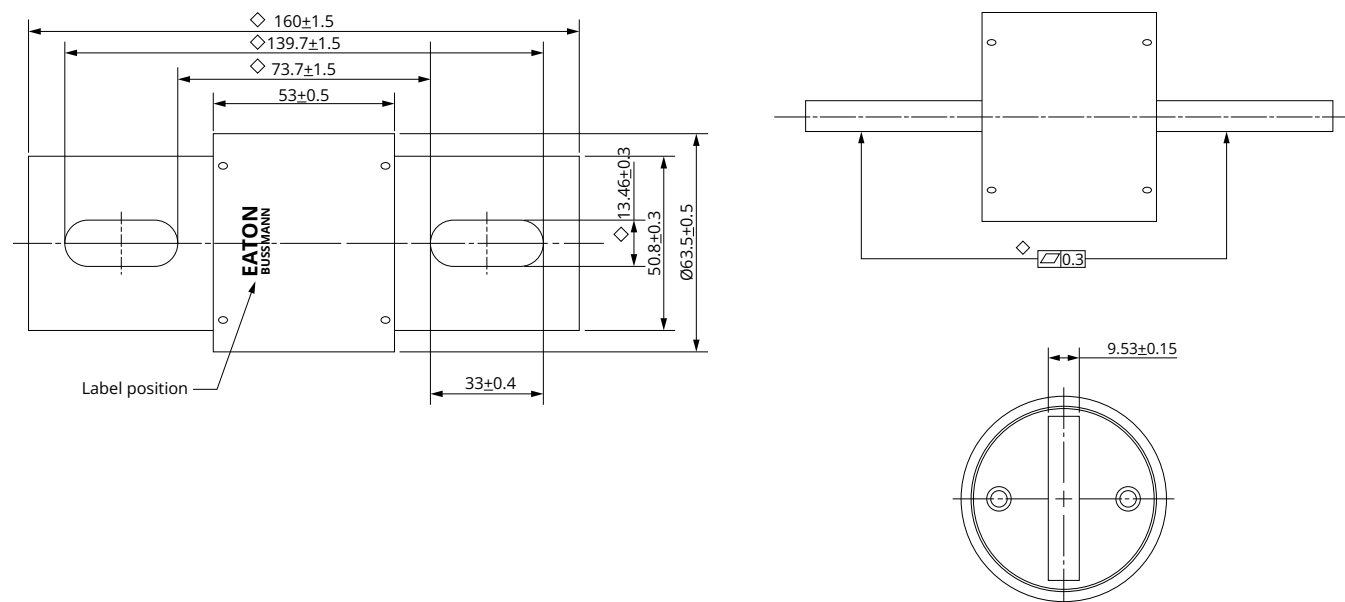
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR60-700	700A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm
EVR60-800	800A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm
EVR60-900	900A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm
EVR60-1000	1000A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm

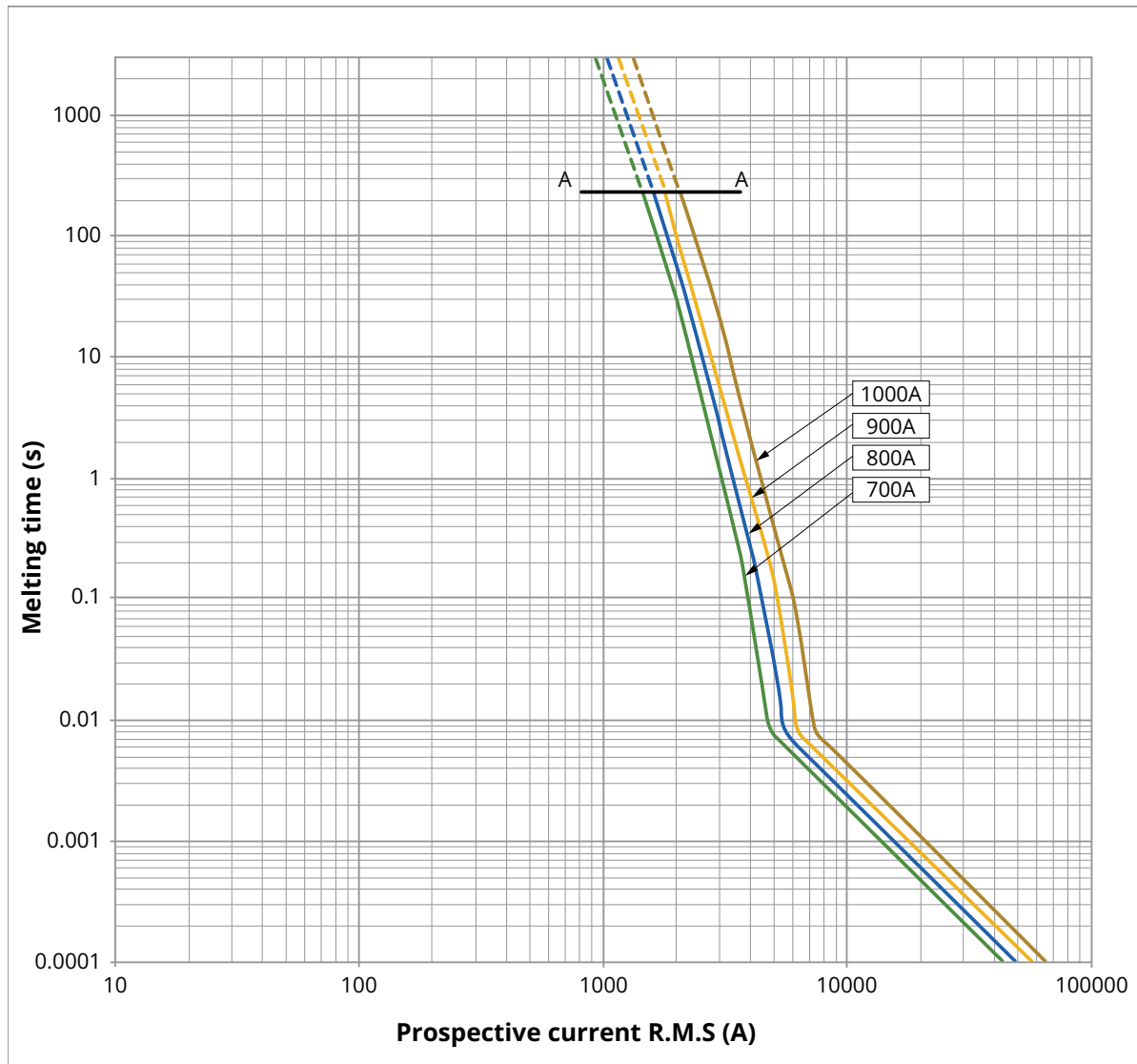
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t	Total I^2t	Power loss (W)	Power loss @0.5 in (W)
EVR60-700	500Vdc	700A	225,140	743,000	89	18
EVR60-800	500Vdc	800A	271,140	894,700	106	21
EVR60-900	500Vdc	900A	349,960	1,154,900	118	24
EVR60-1000	500Vdc	1000A	432,050	1,425,800	131	26

Time current curve



For more information, please contact:

evprotection@eaton.com

Dual trigger and single trigger fuse (EBPS50F40A and EBPS65F40)



Technical data

External triggering connector type	AK-2 code
Initiator resistance	$2 \pm 0.3 \Omega$
Triggering pulse current	$\geq 1.75 \text{ A} \& 0.5 \text{ ms}$ or $\geq 1.2 \text{ A} \& 2.0 \text{ ms}$
Current increase	$I_{tr} \geq 1 \text{ A}/\mu\text{s}$
No-triggering current	$< 0.4 \text{ A} \& 10 \text{ s}$
Recommended diagnostic current	$\leq 10 \text{ mA}$

Triggering

EBPS65F40	External
EBPS50F40A	External + Active

Breaking capacity

16 kA at 20 μH	16kA @500Vdc & 20 μH
16 kA at 20 μH	16kA @500Vdc & 20 μH

Operating time

EBPS65F40	$< 2 \text{ ms}$
EBPS50F40A	$< 2 \text{ ms}$ or $< 2 \text{ ms} + \text{C-T curve}$

Busbar resistance

EBPS65F40	$< 50 \mu\Omega$
EBPS50F40A	$< 70 \mu\Omega$

Isolation (busbar vs triggering connector)	100M Ω
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Busbar resistance after operation	$\geq 2 \text{ M}\Omega$
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Recommended wiring	150 mm ² (For smaller cross section, please contact us)
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Operating and storage temperature range	-40°C to 85°C (-40°F to 185°F) (contact us for extended temperature range)
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Features

- The EV pyro fuses effectively disconnect the busbars and safeguard against mechanical or electrical faults with two trigger options.
- Active trigger option (F40): will prohibit current flow whenever the Battery-Management-System (BMS) detects a fault.
- Dual trigger option (F40A): can be triggered by the BMS and has a self-triggering function that protects EV systems independently of the BMS signal, adding another layer of protection.
- Interruption of high short-circuit currents less than 1.5 ms after receiving the external signal.
- Applications for 400V and 800V architectures, the short-circuit withstand is as high as 20kA @ 20 μH Rated at 400A continuous, charging profiles up to 700A for several minutes are possible.
- Rugged design with high seal protection against water and dust, ensuring durability in the harshest conditions within the electrical system.

Standards / agency information

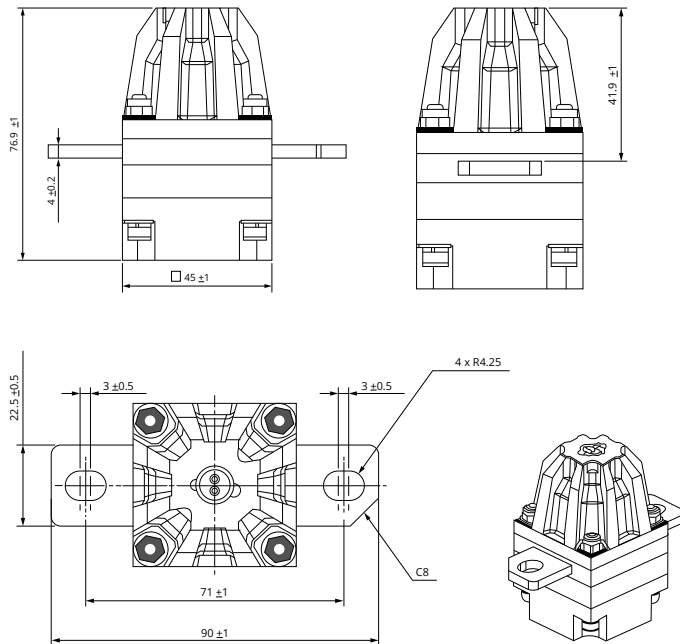
- Initiator: Qualified acc. to AK-LV 16 & USCAR 28
- Transport hazard classification: Qualified as Class 9 acc. to
 - ST/SG/AC.10/11/Rev.7
 - ST/SG/AC.10/1/Rev.22
- Additional features:
 - IP65 protection level
 - UL94-V0 for plastic parts

Catalog SKUs

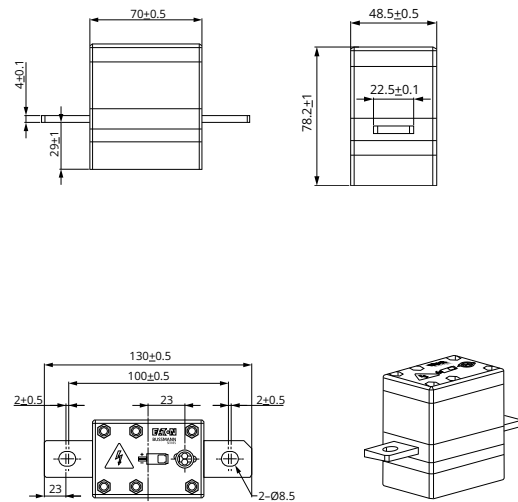
Part number	Configuration	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EBPS65F40	Active Trigger	400A	36 per box	M8	277	-40°C to $+85^\circ\text{C}$	12 $\pm$ 1Nm
EBPS50F40A	Dual Trigger	400A	24 per box	M8	449	-40°C to $+85^\circ\text{C}$	12 $\pm$ 1Nm

Dimensions (mm):

EBPS65F40



EBPS50F40A

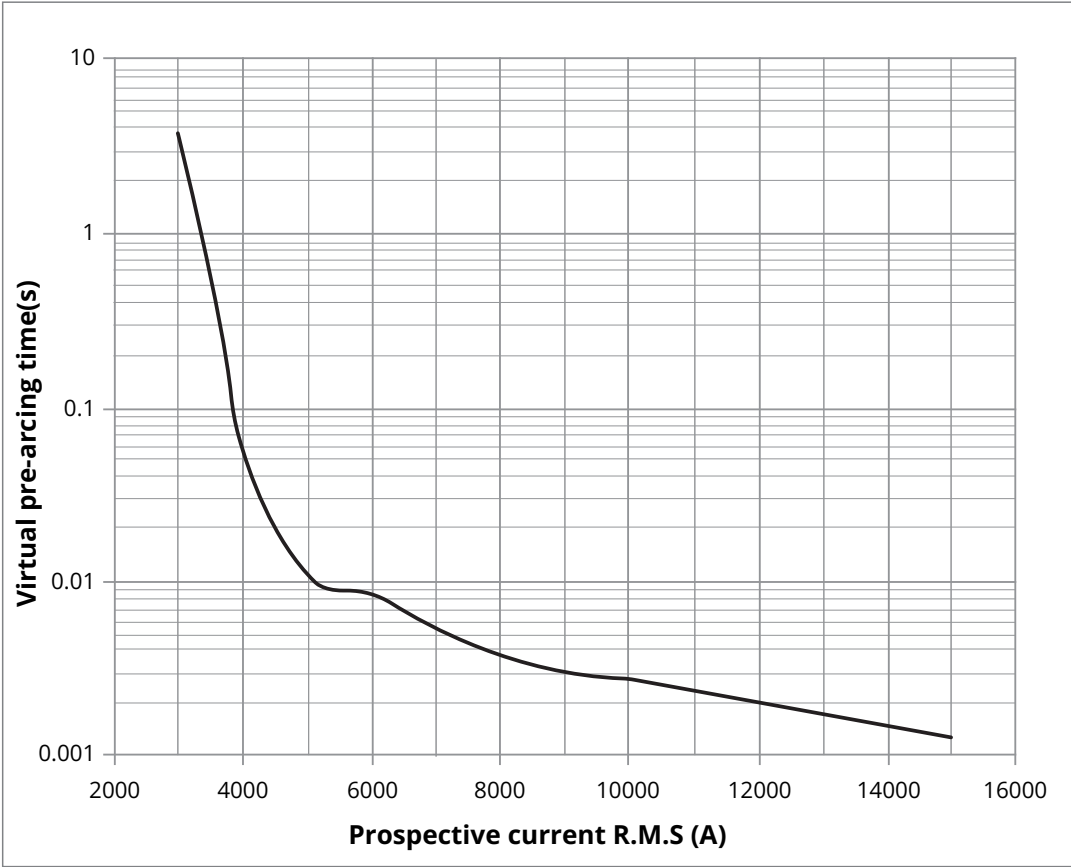


Technical parameters

Part number	Voltage rating	Current rating	Power loss (W)	Power loss @ 0.5 in (W)	Breaking capacity	Busbar resistance	Isolation resistance
EBPS65F40	500Vdc	400A	89	18	16kA @ 500Vdc	<50 µΩ	100 MΩ
EBPS50F40A	500Vdc	400A	83	17	16kA @ 500Vdc	<70 µΩ	100 MΩ

Electrical characteristics

Internal arc triggering pyro C-T curve



For more information, please contact:

evprotection@eaton.com

EVKR 25 mm fuses



Technical data

Rated voltage	1000V dc
Max. breaking capacity	50kA
Min. breaking capacity	300% I _n

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

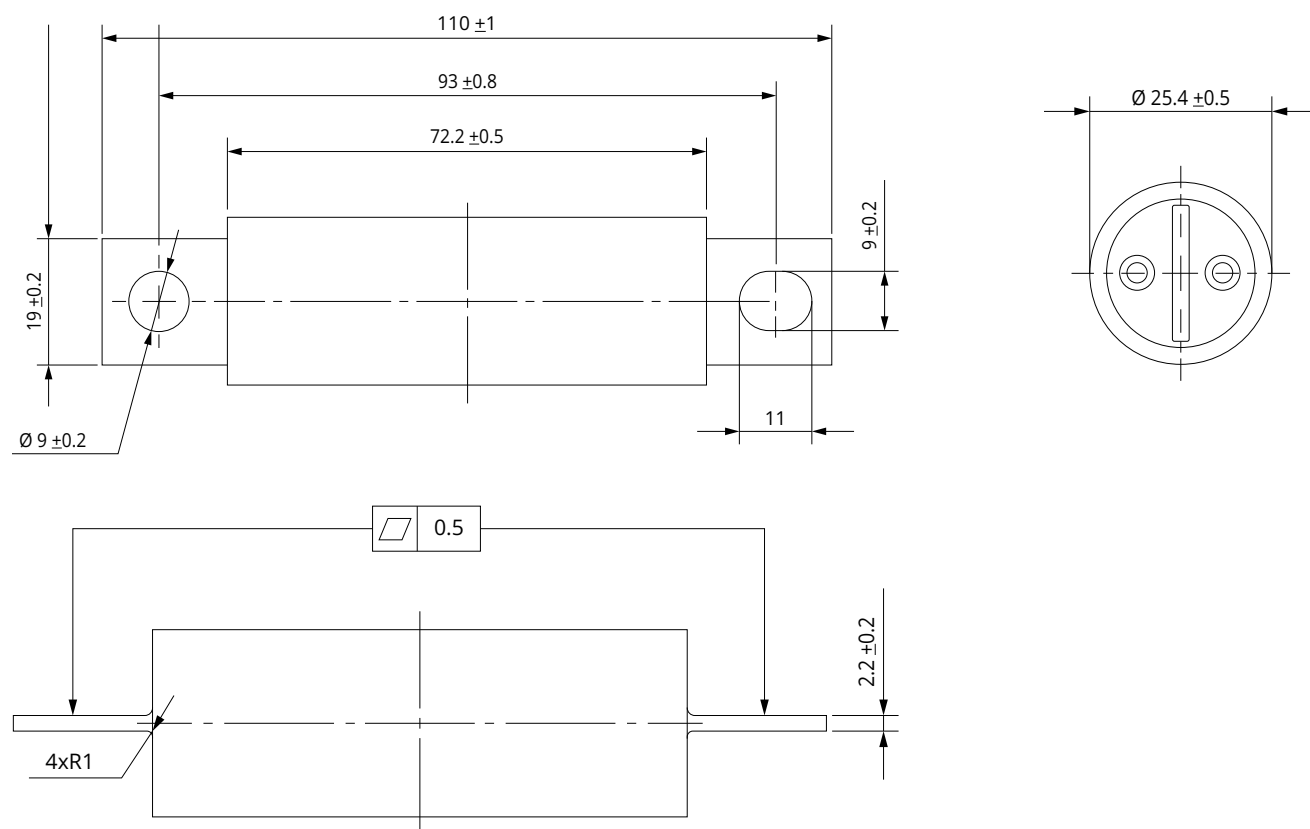
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR25-70	70A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm
EVKR25-80	80A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm
EVKR25-90	90A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm
EVKR25-100	100A	80/box	M8	0.098	-40°C to +85°C	12±1 Nm

Battery and motor protection

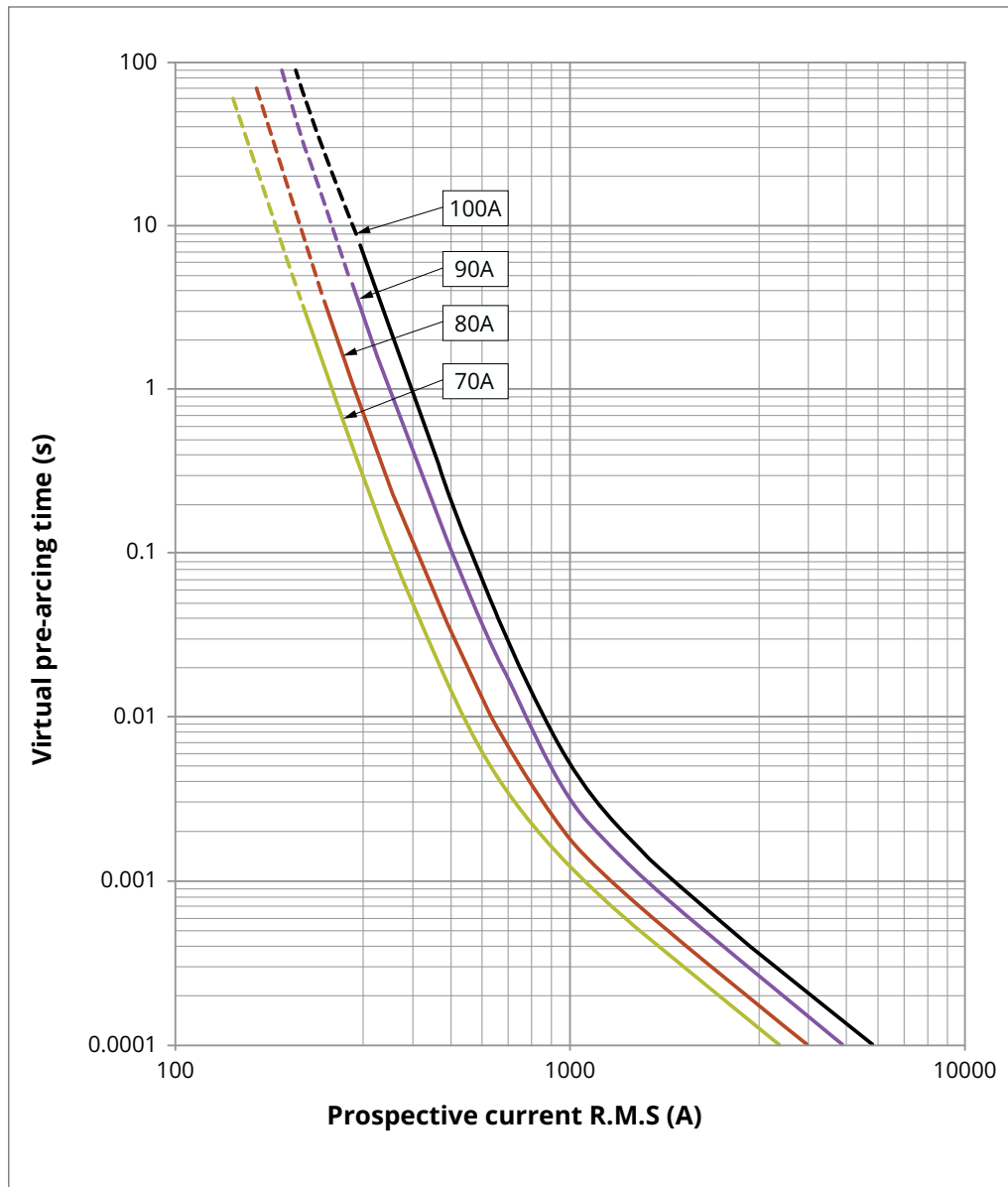
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @ 0.5 in (W)
EVKR25-70	1000Vdc	70A	1.1	7.6	28.1	4.5
EVKR25-80	1000Vdc	80A	1.6	9.6	33.6	5.4
EVKR25-90	1000Vdc	90A	2.4	13.4	31.9	5.1
EVKR25-100	1000Vdc	100A	3.3	16.5	33.6	5.4

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 30 mm fuses



Technical data

Max. breaking capacity	50kA
Min. breaking capacity	400% I _n

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

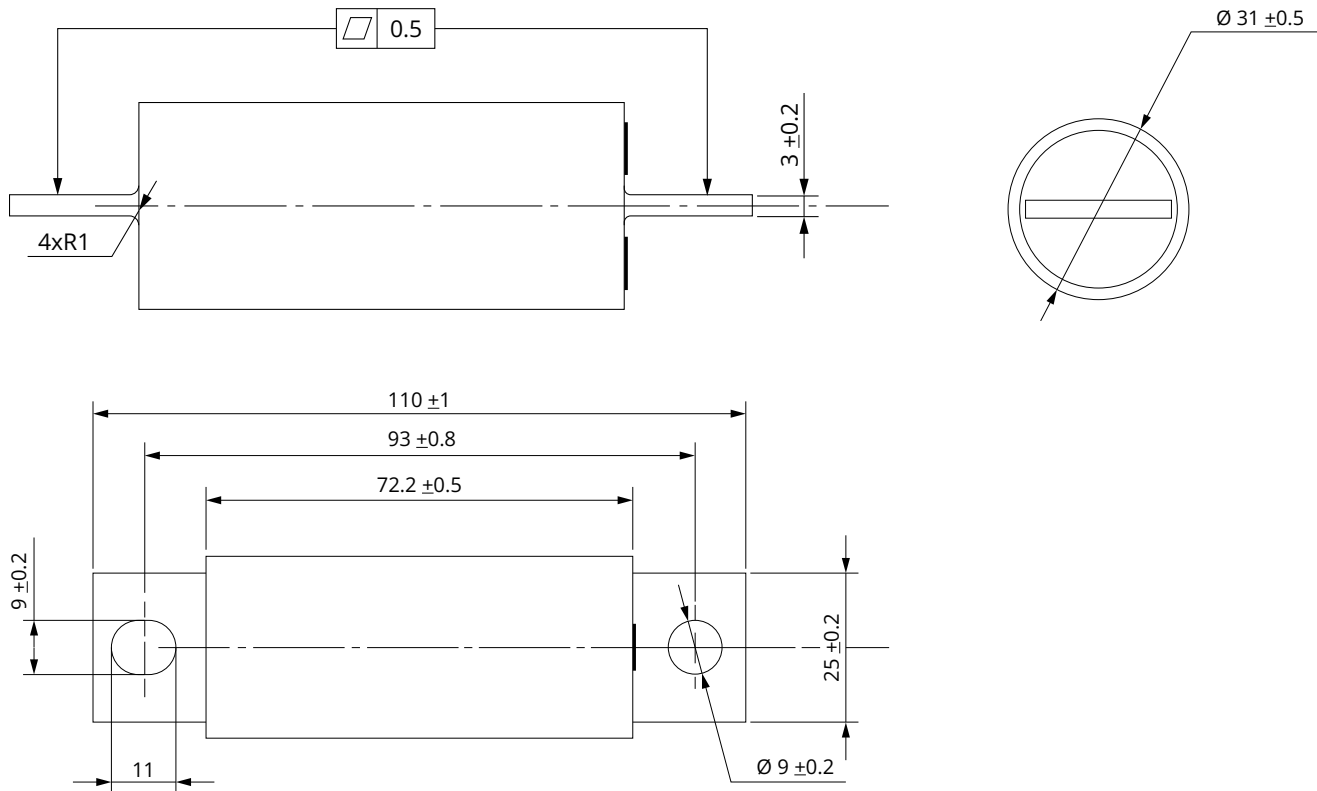
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR30-125	125A	80/box	M8	0.158	-40°C to +85°C	12±1 Nm
EVKR30-150	150A	80/box	M8	0.158	-40°C to +85°C	12±1 Nm
EVKR30-175	175A	80/box	M8	0.158	-40°C to +85°C	12±1 Nm
EVKR30-200	200A	80/box	M8	0.158	-40°C to +85°C	12±1 Nm

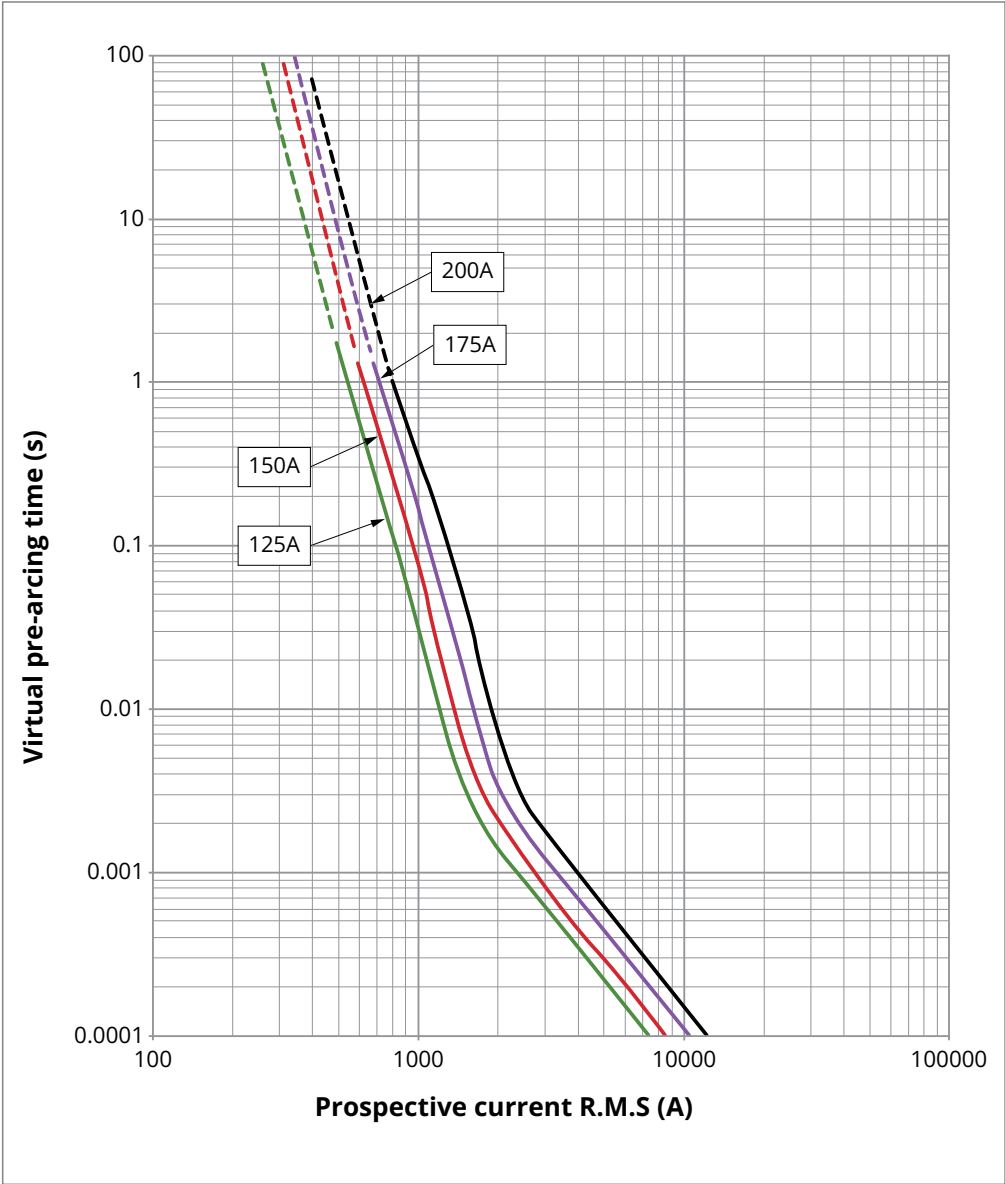
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @ 0.5 in (W)
EVKR30-125	1000Vdc	125A	5.5	31.2	45.4	7.3
EVKR30-150	1000Vdc	150A	7.4	42.4	57.2	9.1
EVKR30-175	1000Vdc	175A	11	62.6	62.9	10.1
EVKR30-200	1000Vdc	200A	15.2	86.6	69.8	11.2

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 40 mm fuses



Technical data

Max. breaking capacity	50kA
Min. breaking capacity	300% I _n

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

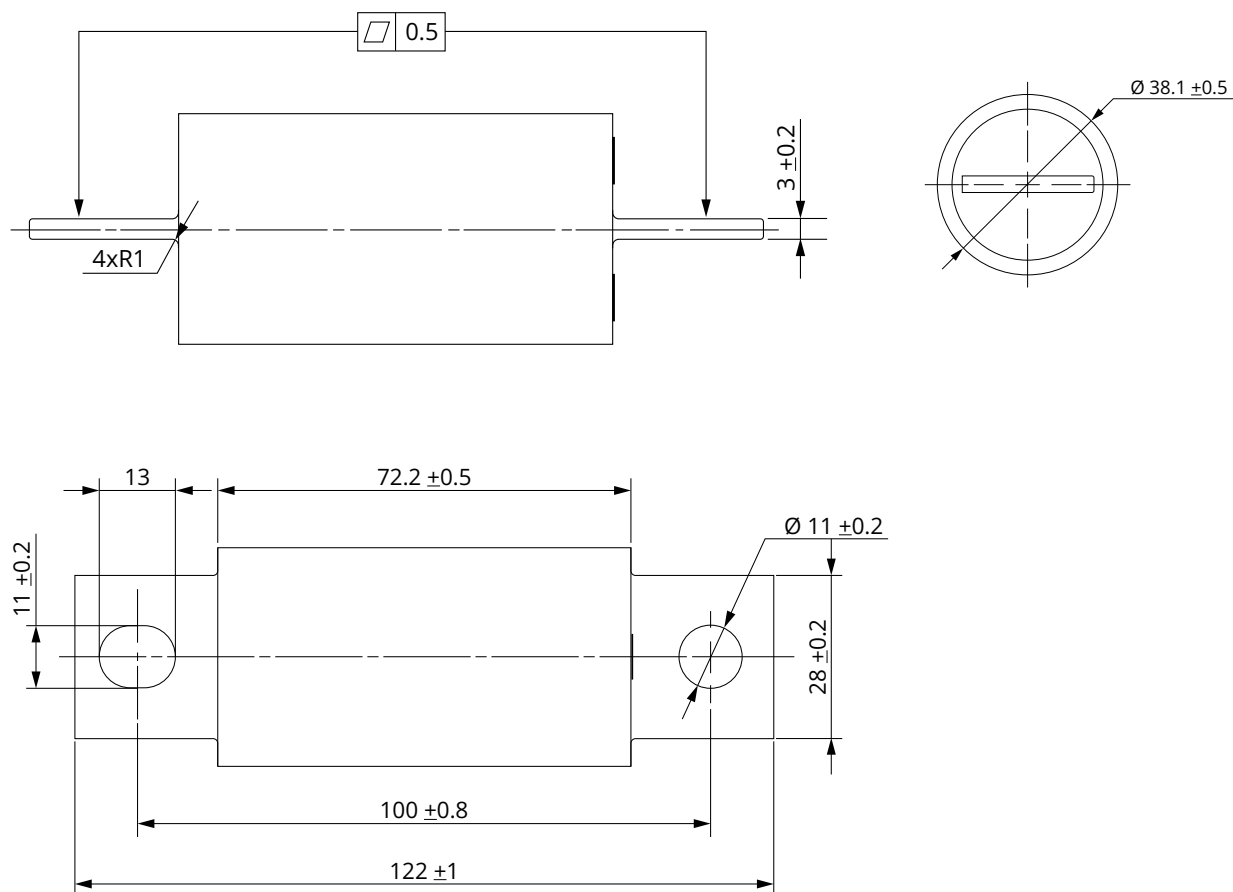
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR40-225	225A	42/box	M10	0.24	-40°C to +85°C	20±1 Nm
EVKR40-250	250A	42/box	M10	0.24	-40°C to +85°C	20±1 Nm
EVKR40-275	275A	42/box	M10	0.24	-40°C to +85°C	20±1 Nm
EVKR40-300	300A	42/box	M10	0.24	-40°C to +85°C	20±1 Nm

Battery and motor protection

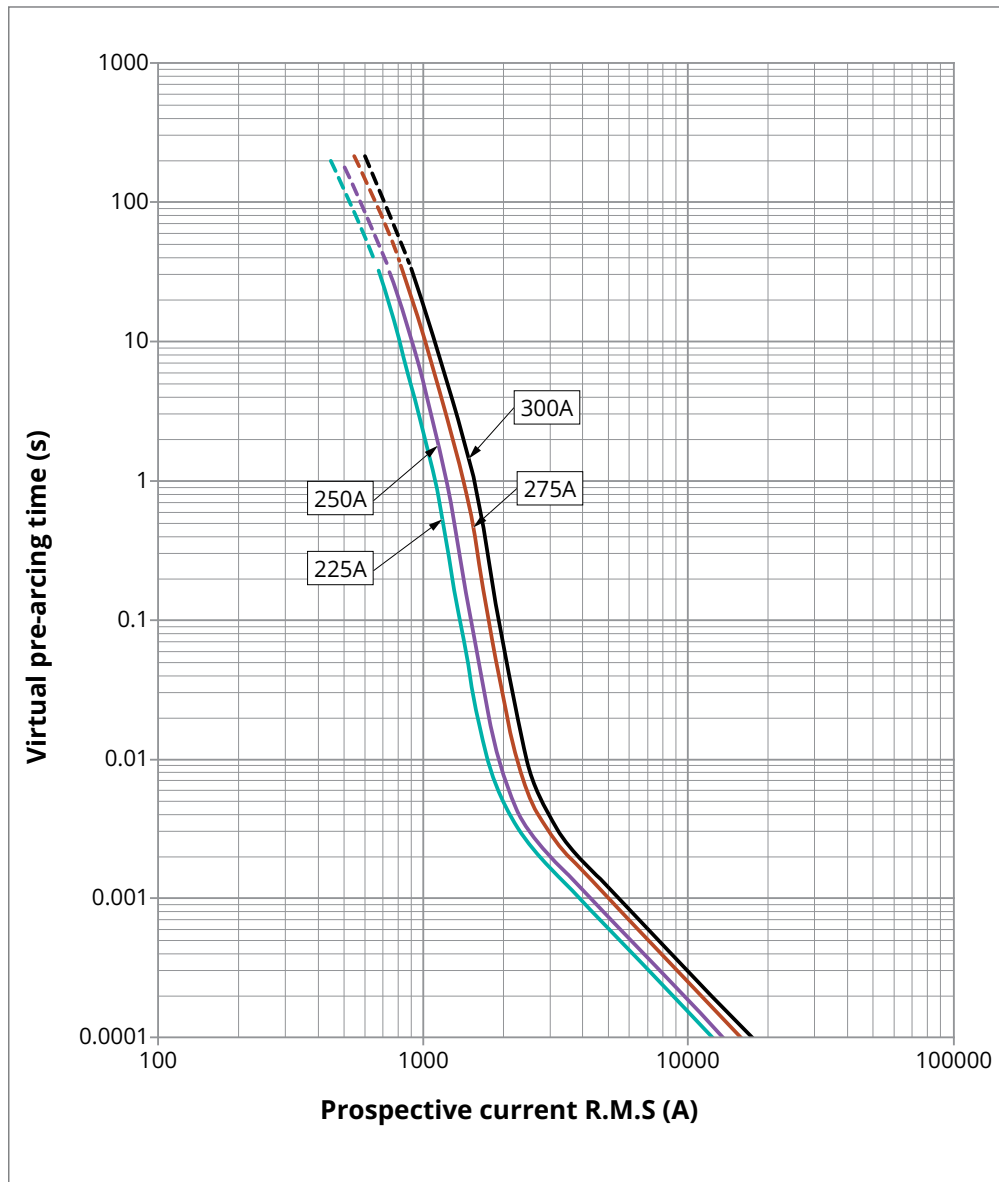
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @0.5 in (W)
EVKR40-225	1000Vdc	225A	15.2	56.2	71.7	11.5
EVKR40-250	1000Vdc	250A	18.4	68	77.3	12.4
EVKR40-275	1000Vdc	275A	25	92.6	80.2	12.8
EVKR40-300	1000Vdc	300A	29.8	110.2	90.7	14.5

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 50 mm fuses



Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

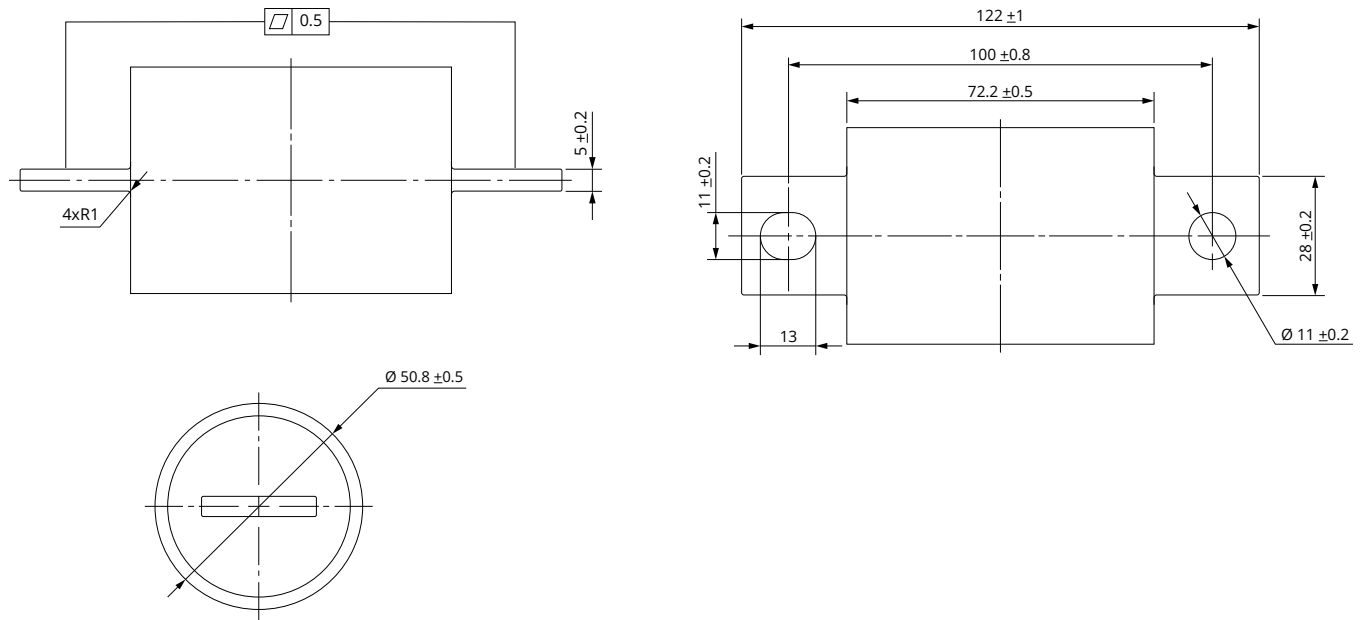
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO8820-8
 - GB/T 31465.6

Technical data

Max. breaking capacity	50kA
Min. breaking capacity	300% I _n

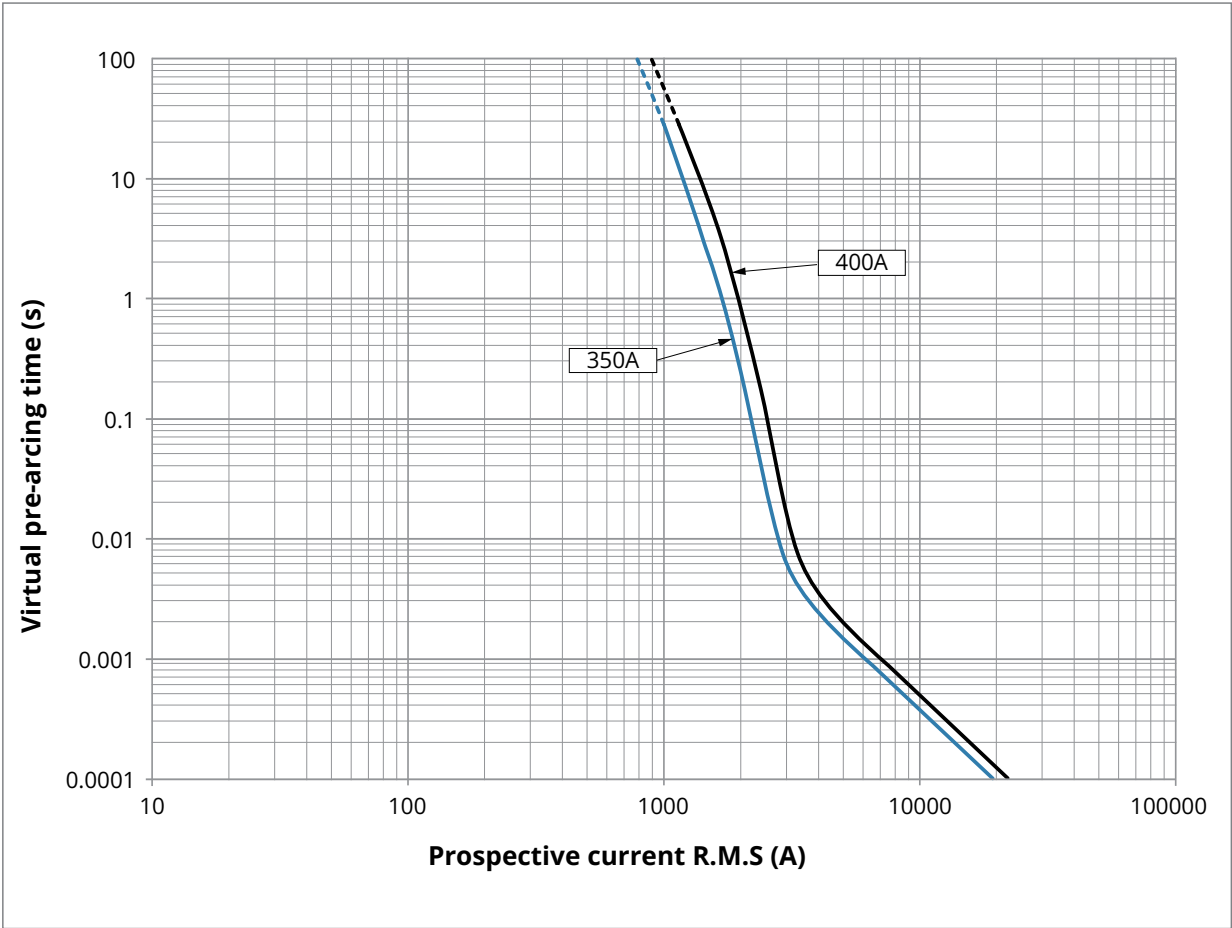
Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR50-350	350A	22/box	M10	0.402	-40°C to +85°C	20±1 Nm
EVKR50-400	400A	22/box	M10	0.402	-40°C to +85°C	20±1 Nm

Dimensions (mm):**Technical parameters**

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @0.5 in (W)
EVKR50-350	1000Vdc	350A	37.7	131.9	120.1	19.2
EVKR50-400	1000Vdc	400A	49.2	172.2	138.2	22.1

Time current curve



For more information, please contact:
evprotection@eaton.com

EVKR 60 mm fuses



Technical data

Max. breaking capacity	25kA
Min. breaking capacity	See technical table

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

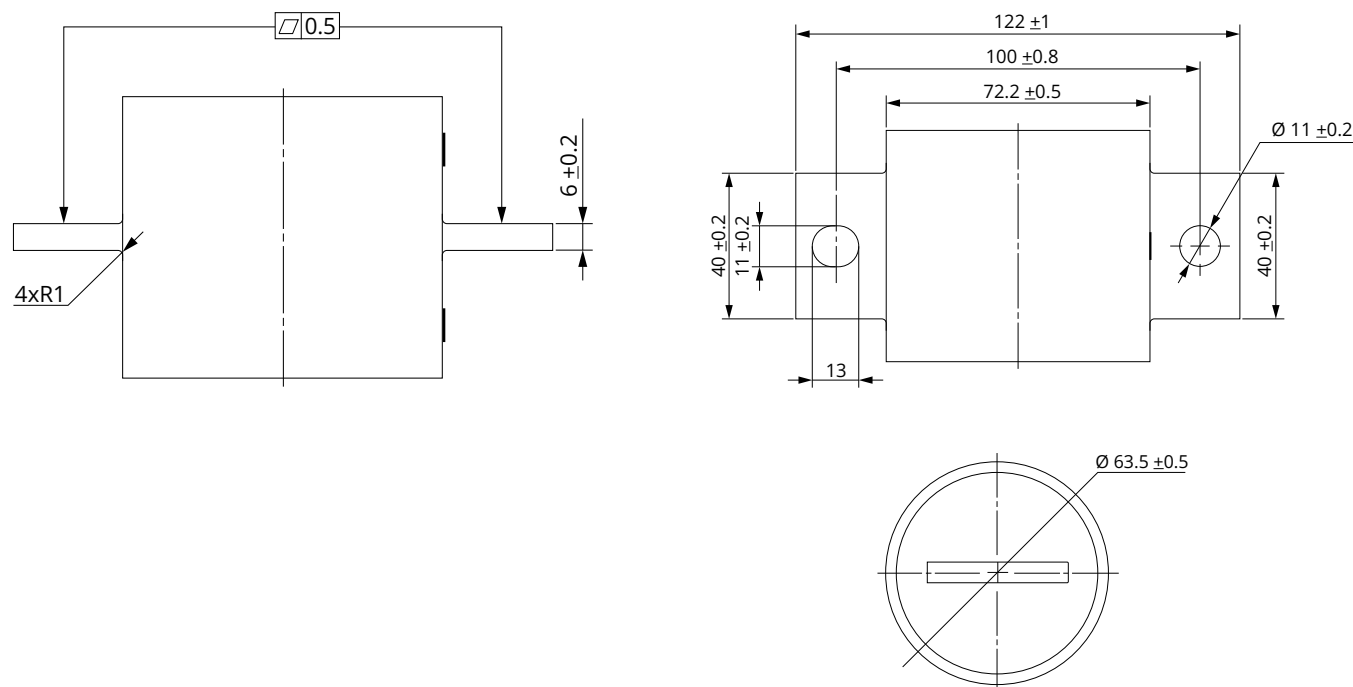
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - JASO D622
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR60-450	450A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-500	500A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-550	550A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-600	600A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-700	700A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm

Battery and motor protection

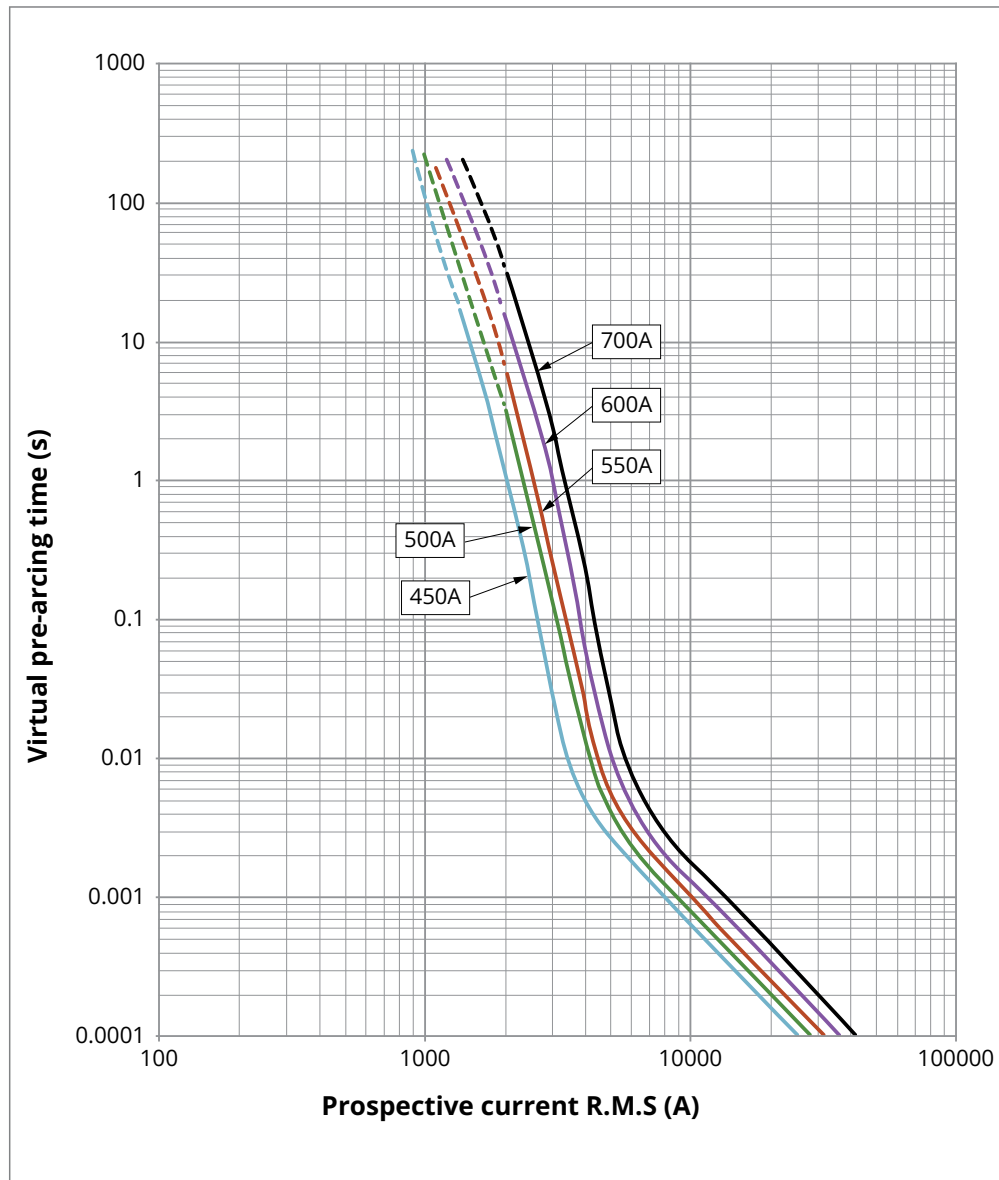
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @ 0.5 in (W)	Min. breaking capacity (A)
EVKR60-450	900Vdc	450A	64.7	174.8	142	22.7	1350
EVKR60-500	900Vdc	500A	77	208	164.5	26.3	2000
EVKR60-550	900Vdc	550A	100.6	271.7	170	27.3	2000
EVKR60-600	900Vdc	600A	136.9	370	171	27.4	2000
EVKR60-700	900Vdc	700A	178.9	483	208.3	33.3	2100

Time current curve



For more information, please contact:

evprotection@eaton.com

DC fast charging

- EVR 50 - 60 mm fuses
- EVKR 50 - 60 mm fuses



As featured in Eaton's electric vehicle charging infrastructure

This document is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Eaton reserves the right, without notice, to change design or construction of any products or discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this document. Once a product has been selected, it should be tested by the user in all possible applications. The information contained in this document is correct at the time of publication, but we reserve the right to supply products differing in construction or performance.

EVR 50 mm fuses



Technical data

Max. breaking capacity	50kA
Min. breaking capacity	200% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

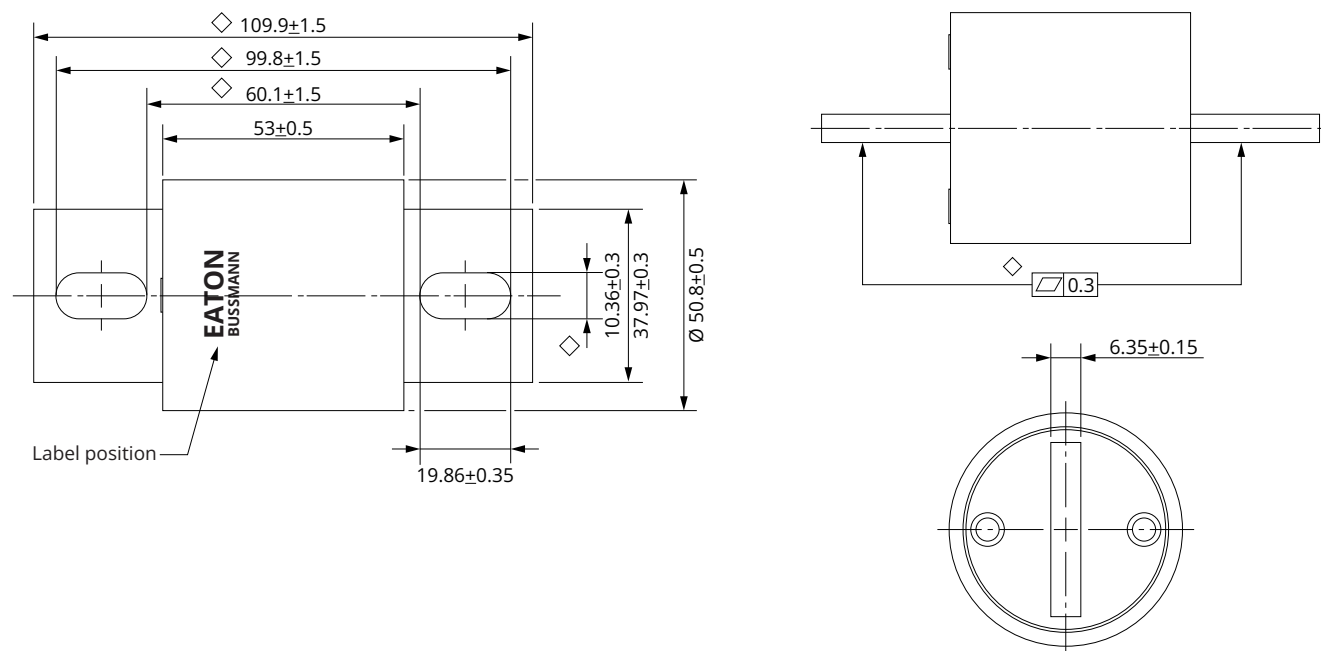
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-2016

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR50-550	550A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm
EVR50-600	600A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm
EVR50-700	700A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm
EVR50-800	800A	30/box	M8	0.42	-40°C to +85°C	12±1 Nm

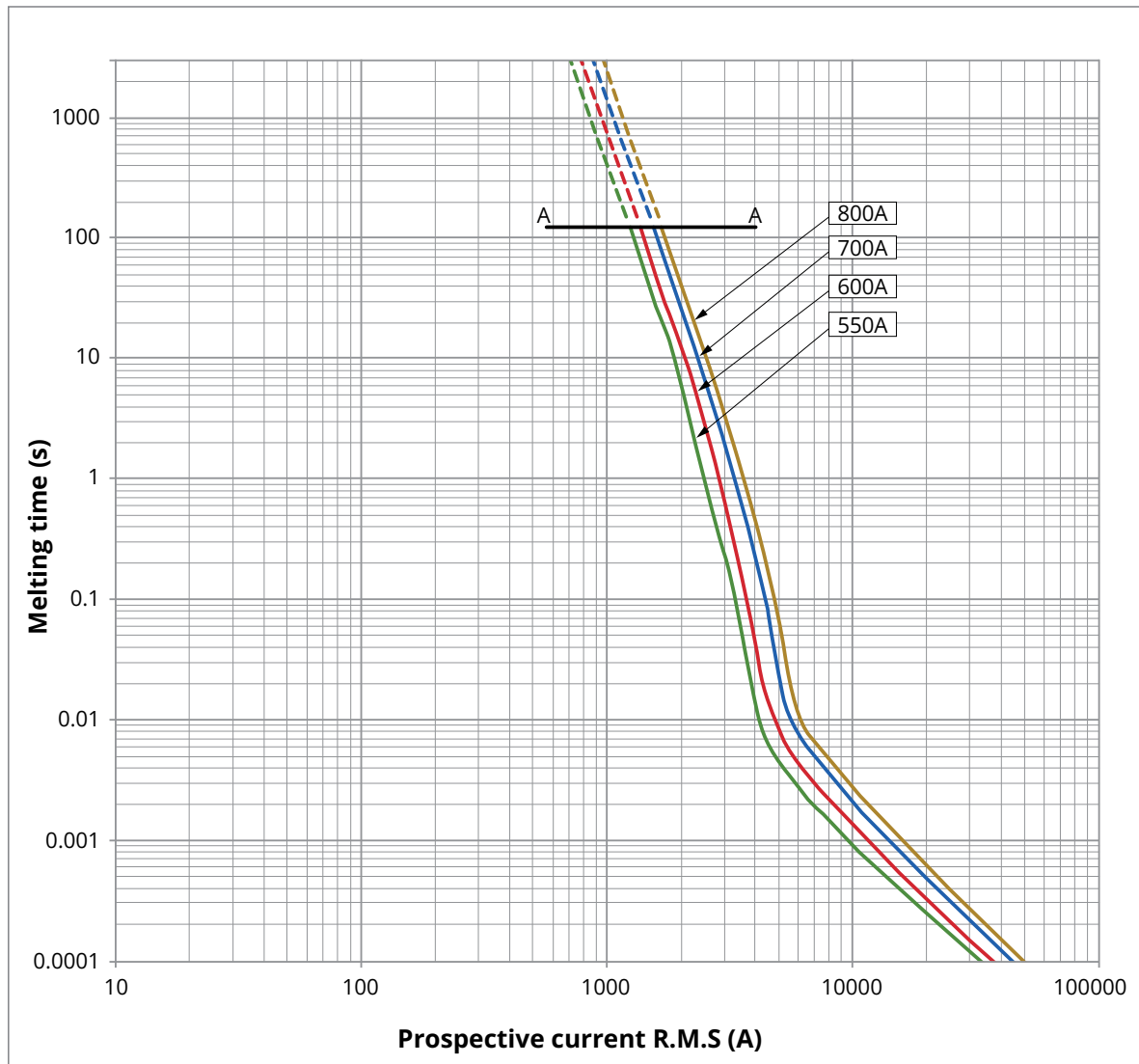
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I ² t	Total I ² t	Power loss (W)	Power loss @0.5 in (W)
EVR50-550	500Vdc	550A	122,890	405,500	83	17
EVR50-600	500Vdc	600A	136,700	451,100	93	19
EVR50-700	500Vdc	700A	196,850	649,600	106	21
EVR50-800	500Vdc	800A	243,030	802,000	124	25

Time current curve



For more information, please contact:

evprotection@eaton.com

EVR 60 mm fuses



Technical data

Max. breaking capacity	50kA
Min. breaking capacity	200% of rated current
Time constant	1 ~ 3 ms

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

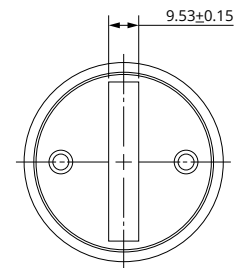
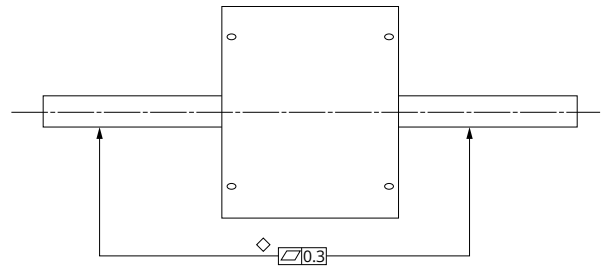
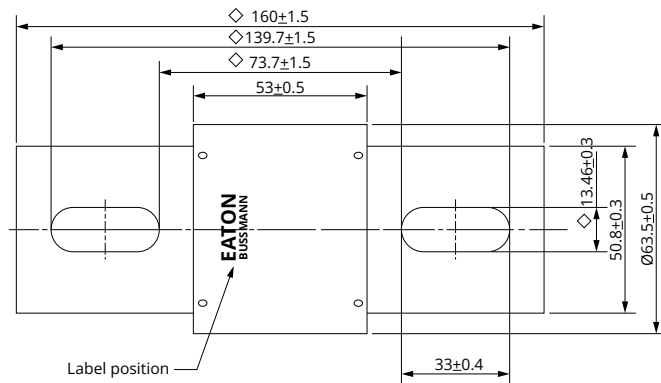
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO 8820-8-2012
 - GB/T 31465.1-2015
 - GB/T 31465.6-2017
 - GB/T 13539.1-2015
 - GB/T 13539.4-201

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVR60-700	700A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm
EVR60-800	800A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm
EVR60-900	900A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm
EVR60-1000	1000A	14/box	M10	0.85	-40°C to +85°C	20 +10%/0 Nm

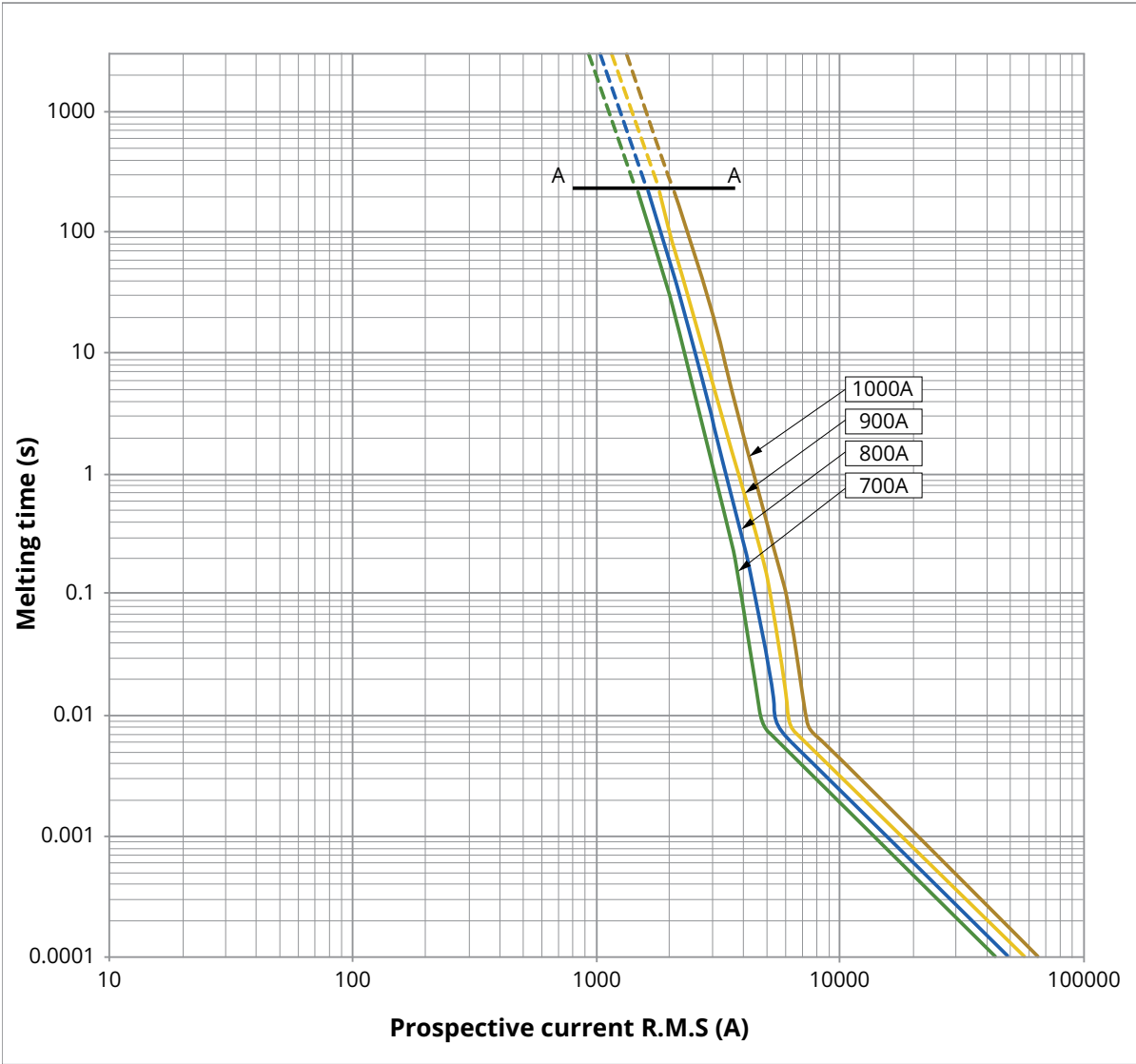
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I ² t	Total I ² t	Power loss (W)	Power loss @0.5 in (W)
EVR60-700	500Vdc	700A	225,140	743,000	89	18
EVR60-800	500Vdc	800A	271,140	894,700	106	21
EVR60-900	500Vdc	900A	349,960	1,154,900	118	24
EVR60-1000	500Vdc	1000A	432,050	1,425,800	131	26

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 50 mm fuses



Technical data

Max. breaking capacity	50kA
Min. breaking capacity	300% I _n

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

Standards / agency information

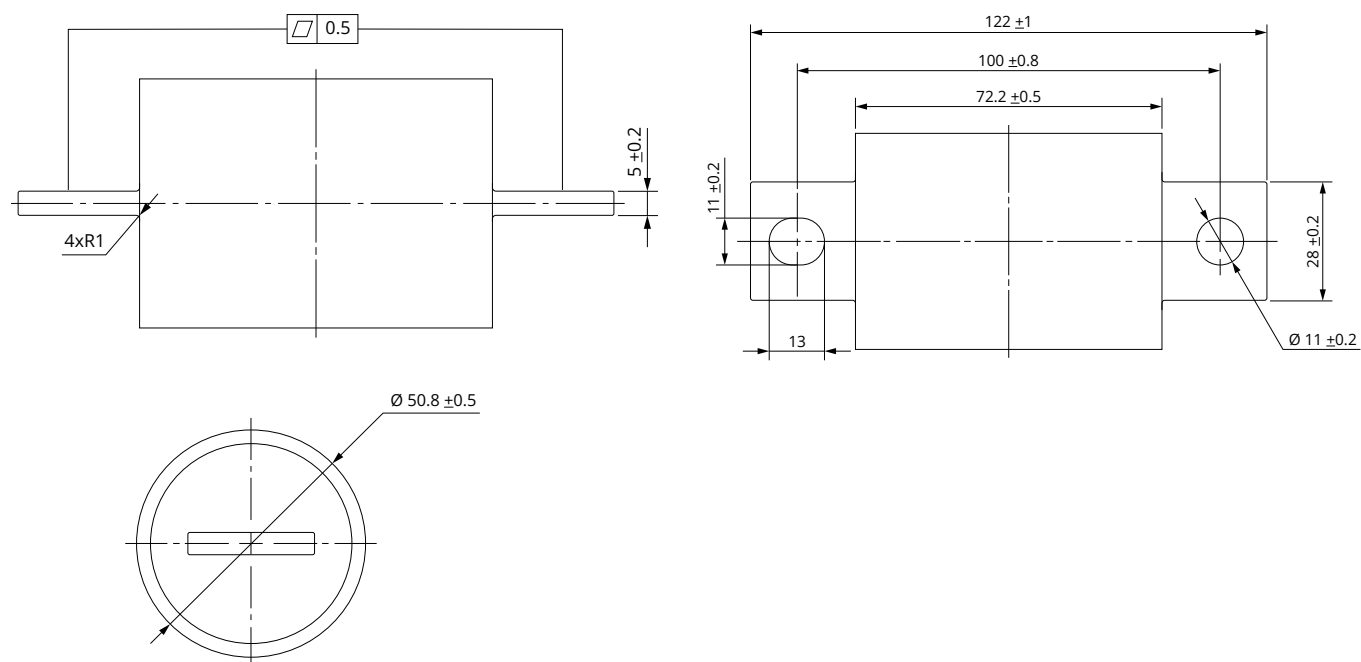
- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR50-350	350A	22/box	M10	0.402	-40°C to +85°C	20±1 Nm
EVKR50-400	400A	22/box	M10	0.402	-40°C to +85°C	20±1 Nm

DC fast charging

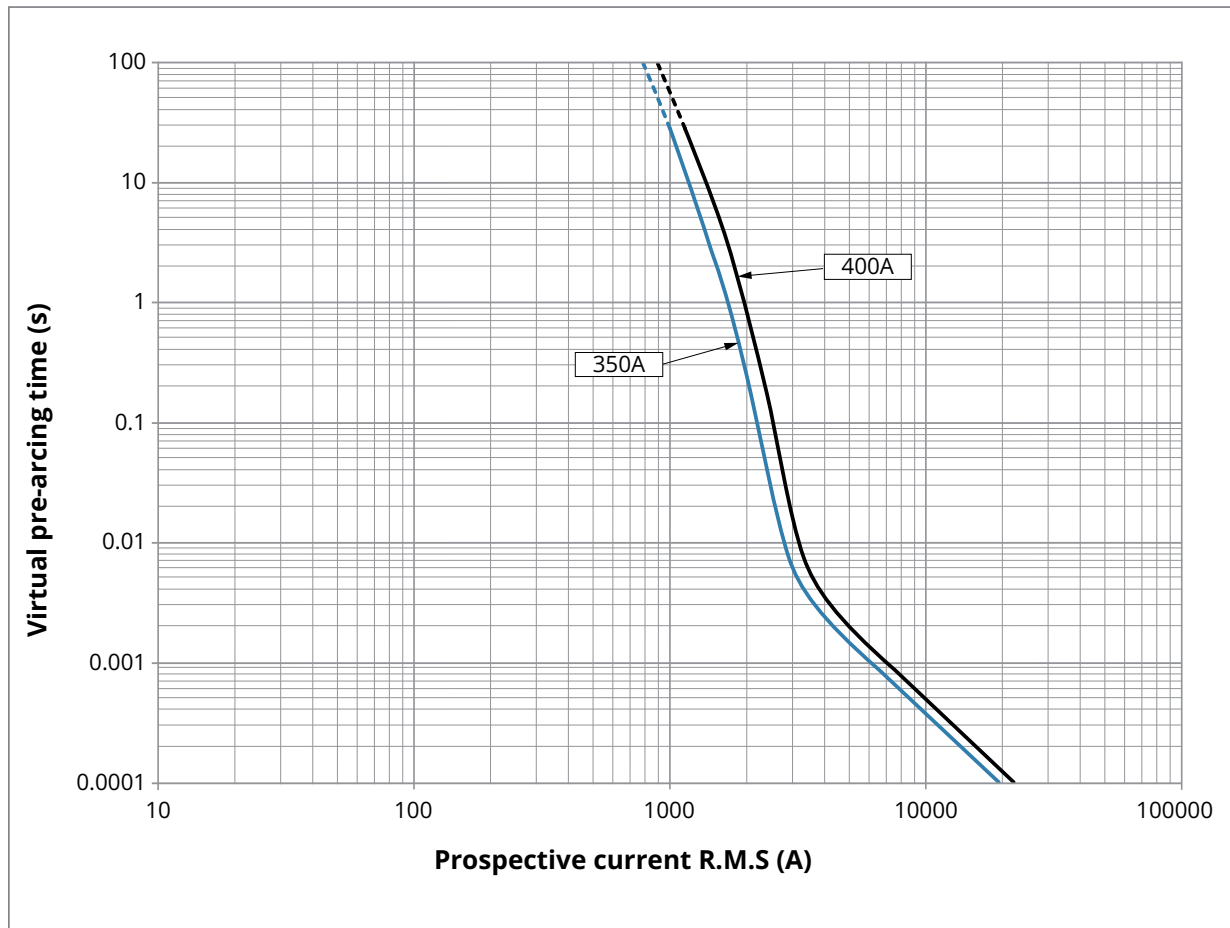
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @ 0.5 in (W)
EVKR50-350	1000Vdc	350A	37.7	131.9	120.1	19.2
EVKR50-400	1000Vdc	400A	49.2	172.2	138.2	22.1

Time current curve



For more information, please contact:

evprotection@eaton.com

EVKR 60 mm fuses



Technical data

Max. breaking capacity	25kA
Min. breaking capacity	See technical table

Features

- Higher voltage rating provides overall system efficiency using smaller, more economical conductors while meeting the needs of higher voltage battery packs.
- Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

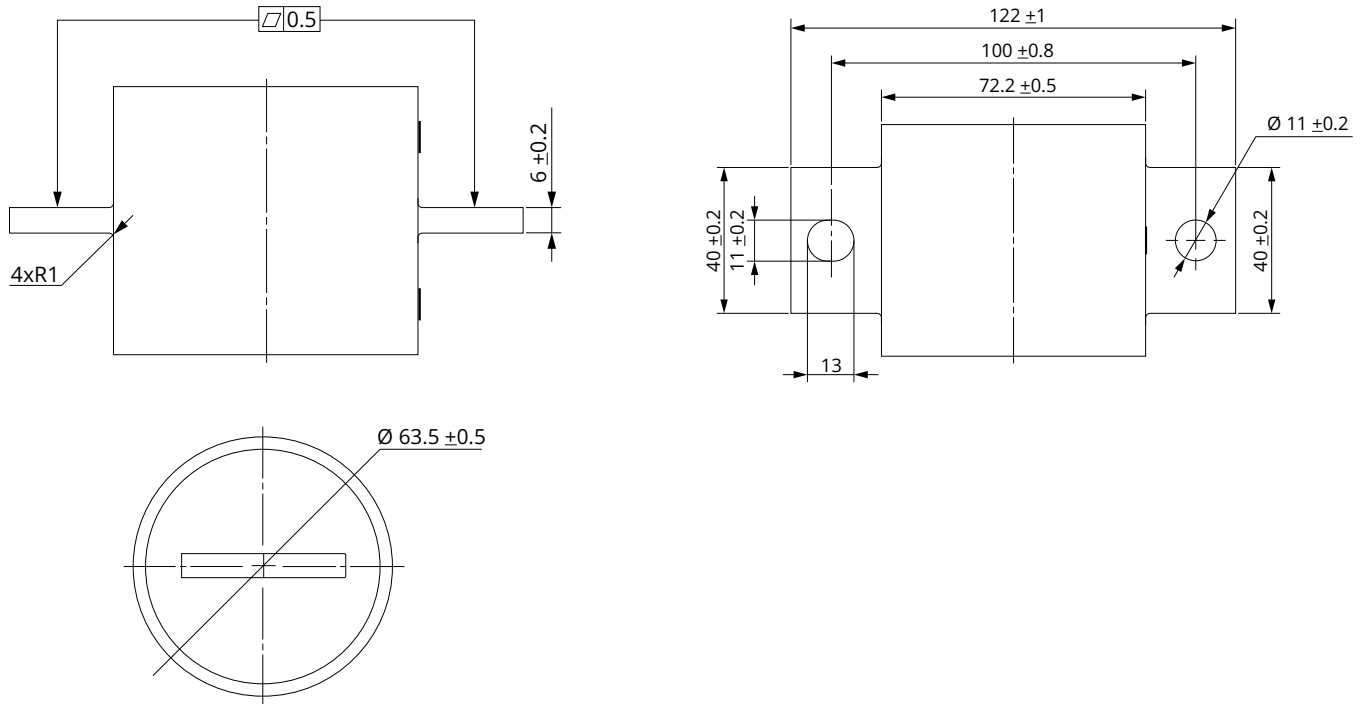
Standards / agency information

- RoHS / ELV / REACH compliant
- Designed to standards (reference)
 - JASO D622
 - ISO8820-8
 - GB/T 31465.6

Catalog SKUs

Part number	Amperage	Packaging qty	Screw type	Weight (kg)	Storage temp	Torque limits
EVKR60-450	450A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-500	500A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-550	550A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-600	600A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm
EVKR60-700	700A	22/box	M10	0.685	-40°C to +85°C	20±1 Nm

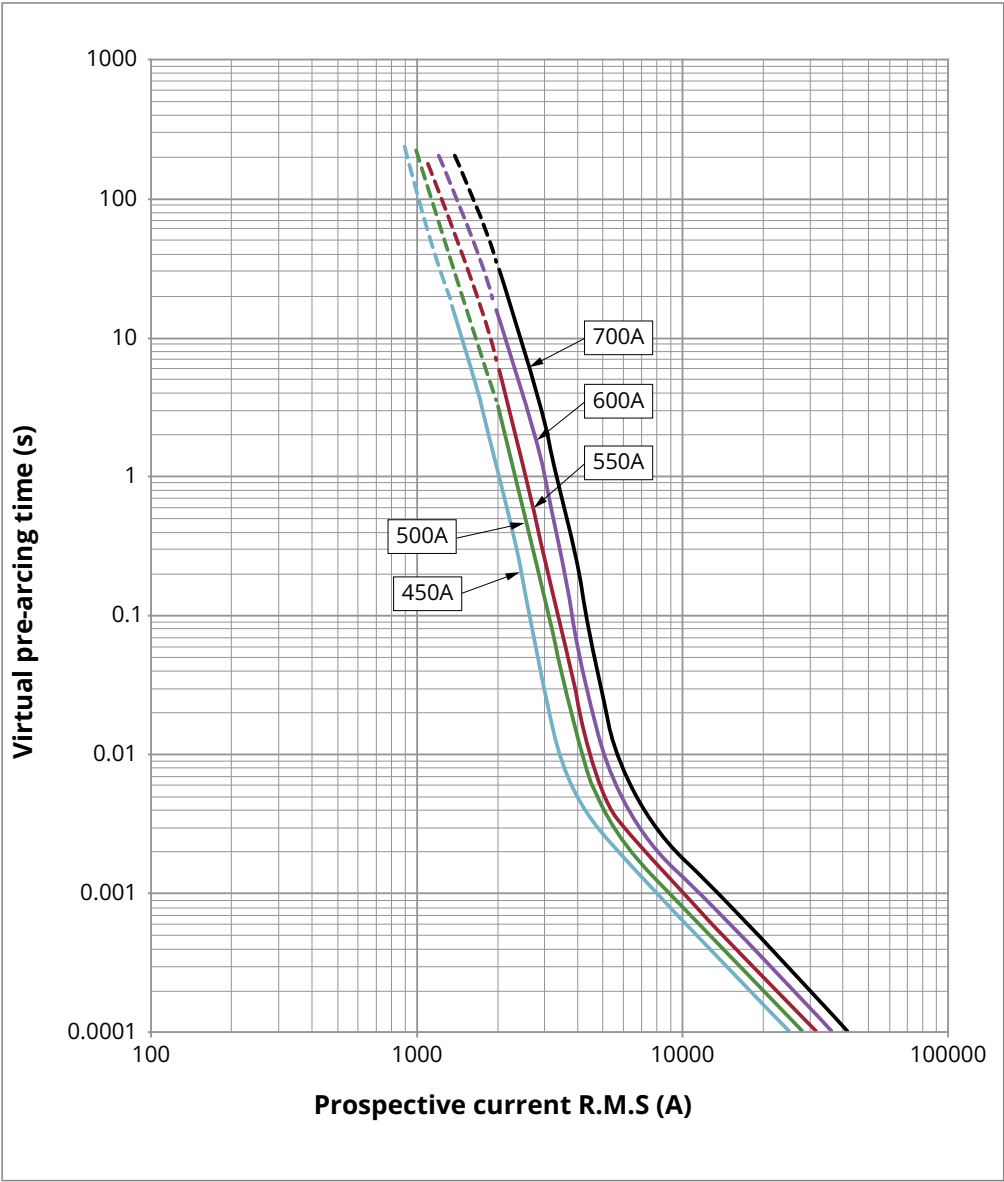
Dimensions (mm):



Technical parameters

Part number	Voltage rating	Current rating	Pre-arcing I^2t (kA ² s)	Total I^2t (kA ² s)	Power loss (W)	Power loss @ 0.5 in (W)	Min. breaking capacity (A)
EVKR60-450	900Vdc	450A	64.7	174.8	142	22.7	1350
EVKR60-500	900Vdc	500A	77	208	164.5	26.3	2000
EVKR60-550	900Vdc	550A	100.6	271.7	170	27.3	2000
EVKR60-600	900Vdc	600A	136.9	370	171	27.4	2000
EVKR60-700	900Vdc	700A	178.9	483	208.3	33.3	2100

Time current curve



For more information, please contact:

evprotection@eaton.com

Megawatt charging

- EV Truck square fuses



As featured in Eaton's Megawatt charging system

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EV Truck square fuses



- Low power dissipation for enhanced efficiency.
- Engineered to withstand load cycling, thermal shock, and commercial vehicle vibration (for parts attached to sprung masses) [ISO 16750-3:2012, 4.1.2.7 Test VII].
- Produced under the IATF 16949 quality system, ensuring safety and reliability for your application.

Fuse body size	Size 2
Approximate weight	740g
Tag type	Bolted M8

Standards / agency information

- Designed to standards (reference)
 - ISO 16750-3:2012
- Produced under the IATF 16949 quality system

Technical data

Breaking capacity	1000Vdc DC 2 ms
Max. breaking capacity	100kA
Min. breaking capacity	TBD
Time constant	L/R = 2 ms

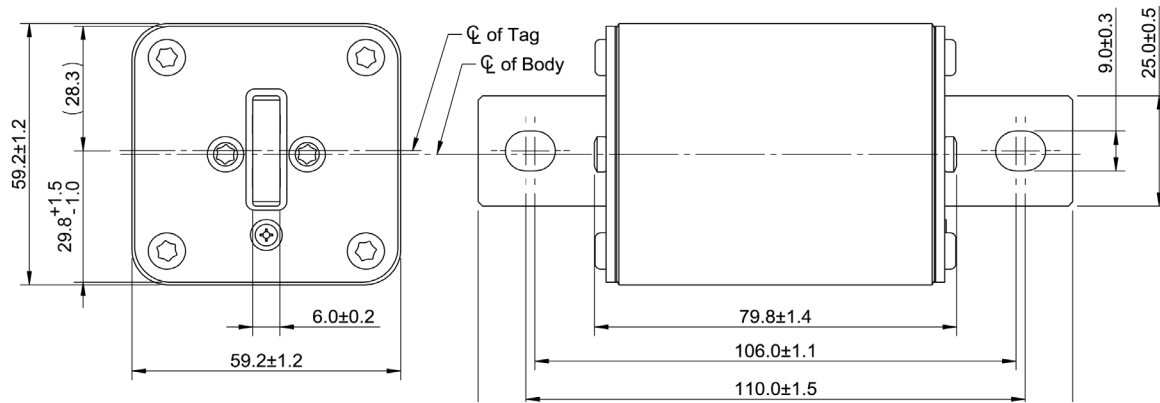
Features

- New bolt-on tags are suitable for adequate heat transfer and suits space restrictions.
- High-speed operation with superior current limiting under short-circuit conditions, reducing peak currents and protecting system contactors from damage.

Catalog SKUs

Fuse family reference	Part number B-sample	Amperage	Packaging qty	Screw Type	Weight (kg)	Storage Temp	Torque Limits
EVHD 600	DVKASQ2U600-00AH	600A	3/box	M8	740g	-40°C to +85°C	30 Nm with locking nut
EVHD 700	DVKASQ2U700-00AH	700A	3/box	M8	740g	-40°C to +85°C	30 Nm with locking nut
EVHD 800	DVKASQ2U800-00AH	800A	3/box	M8	740g	-40°C to +85°C	30 Nm with locking nut
EVHD 900	DVKASQ2U900-00AH	900A	3/box	M8	740g	-40°C to +85°C	30 Nm with locking nut

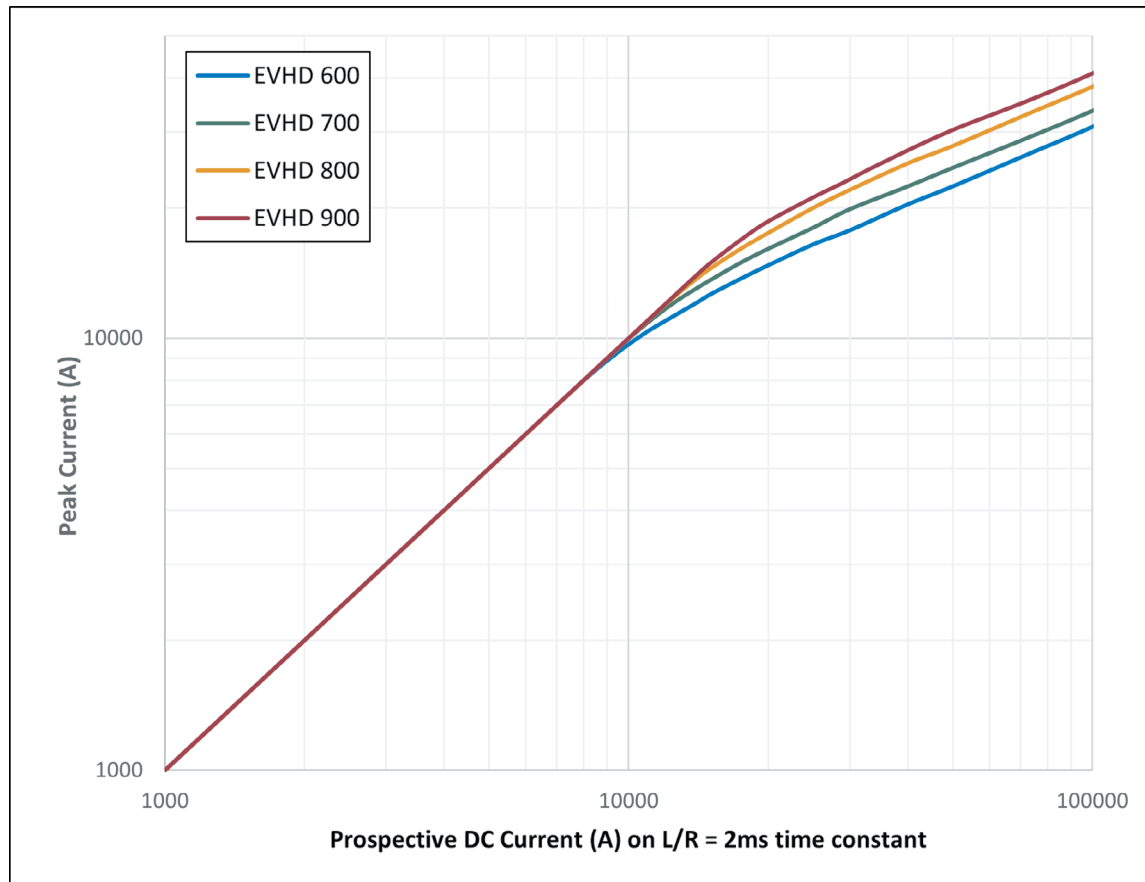
Dimensions (mm):



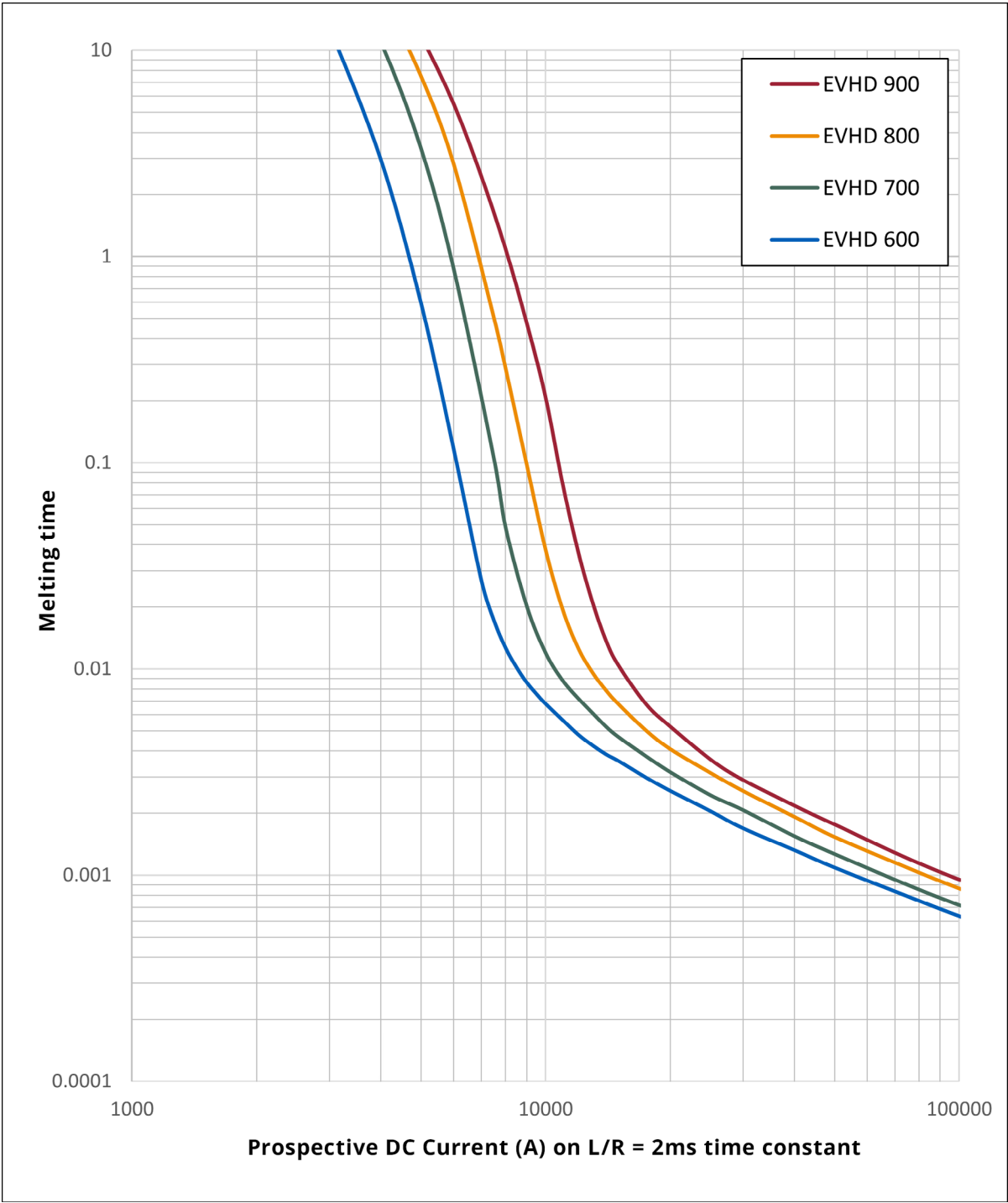
Technical parameters

Fuse family reference	Part number B-sample	Voltage rating	Current rating	Pre-arcing I^2t (A ² s)	Total clearing I^2t (A ² s)	Power loss @ 0.5 I_n (W)	Power loss @ I_n (W)	Test busbar size (mm ²)
EVHD 600	DVKASQ2U600-00AH	1000Vdc	600A	94,000	690,000	16.8	99.2	500
EVHD 700	DVKASQ2U700-00AH	1000Vdc	700A	139,000	940,000	18.8	112.4	500
EVHD 800	DVKASQ2U800-00AH	1000Vdc	800A	1,370,000	1,370,000	19.6	116.4	500
EVHD 900	DVKASQ2U900-00AH	1000Vdc	900A	1,920,000	1,920,000	21.3	122.0	630

Cut-off curve



Time current curve



For more information, please contact:
evprotection@eaton.com

Rated current dimensioning factors

The fuse's rated current is the RMS current it can continuously carry without degrading or exceeding the applicable temperature rise limits under well defined and steady-state conditions. Many conditions can effect the current carrying capability a fuse and to prevent premature ageing.

Part 1 — Basic selection

This part covers the basic selection criteria for only the fuse's rated current and not the influence from overload and cyclic loading.

The actual RMS steady-state load current passing through the fuse should be lower or equal to the calculated maximum permissible load current called I_b .

$$I_b = I_n \times K_t \times K_e \times K_v \times K_f \times K_a \times K_x$$

I_b	The max permissible continuous RMS load current*
I_n	Rated current of a given fuse
K_t	Ambient temp. correction factor per Fig. 1
K_e	Thermal connection factor per Fig. 2
K_v	Cooling air correction factor per Fig. 3
K_f	Frequency correction factor per Fig. 4
K_a	Correction for high altitude
K_b	Fuse load constant. For fuses with porcelain body it is normally 1.0 (see data sheet) For fiber body fuses the factor is normally 0.8

***NB:** For any periods of 10 minutes duration or more the RMS-value of the load current should not exceed this.

The maximum current density of the busbars on which the fuses are mounted should be 1.3A/mm² (IEC 60269 part 4 defines 1.0 to 1.6/mm²). If the busbars carry a current density more than this then the fuse should be derated.

For example, a 200A square body fuse is mounted onto a busbar with a cross sectional area of 120mm². For a 200A fuse the minimum cross sectional area of the busbar to meet the 1.3A/mm² requirement should be 154mm² (200A/1.3A/mm²). As the actual busbar size is only 78 percent (120mm²/154mm²) of the recommended size, the fuse must be derated.

If two connections are not equal, the respective K_e factor can be found using the following formula: $(K_1 + K_2)/2$.

Fuse mounting inside the box etc., will reduce the convection cooling compared with the IEC conditions.

An additional K_e factor should be chosen here based on judgement. Often, box mounted fuses are given an additional K_e factor of 0.8.

When fuses are used at high altitudes there is reduced cooling effect on the fuse as the density of the atmosphere reduces.

Correction K_a should be applied to the fuse's continuous rating when the application is above 2000m:

$$I = I_n \times \left(1 - \left(\frac{h - 2000}{100} \times \frac{0.5}{100}\right)\right)$$

Where:

I = Current rating at high altitude

I_n = Rated current of a given fuse

h = Altitude in meters.

Power loss curve

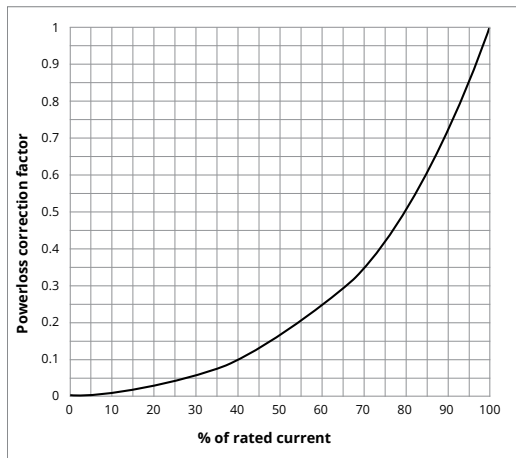


Figure 1.

Temperature derating curve

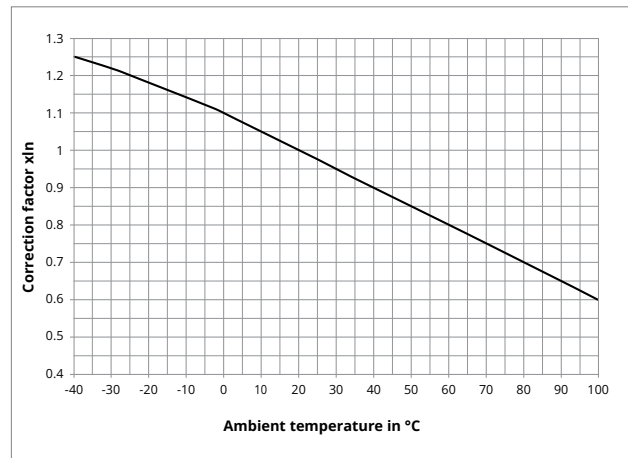


Figure 2. This curve shows the influence of the ambient temperature on the fuse's current-carrying capability.

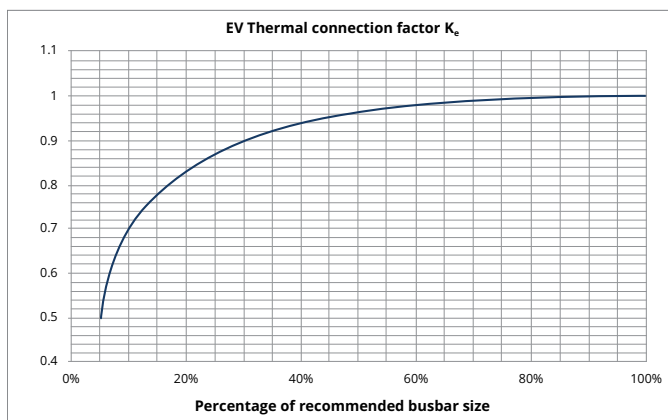


Figure 3.

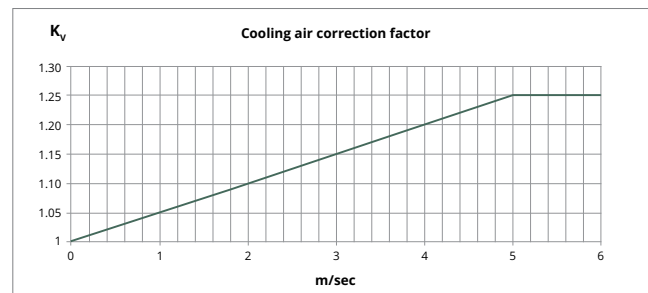


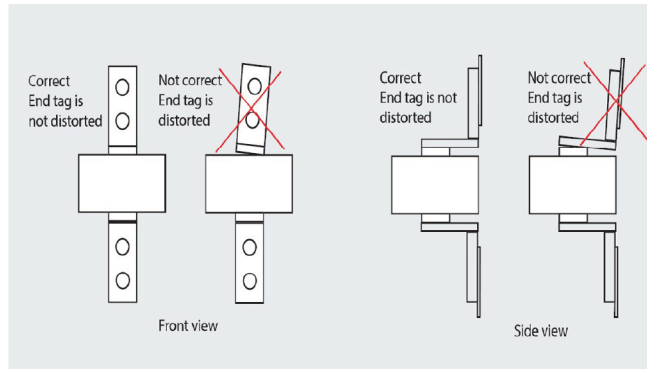
Figure 4. The curve shows the influence of forced air cooling on the fuse.

Installation, service, maintenance, environmental and storage issues

Mounting alignment

Eaton's Bussmann series high speed fuses are generally supplied in a ready-to-install condition.

Excessive tension, compression and torque from misalignment between fuse and busbars (see example below) should be avoided. If possible, mounting should start with the fuse followed by the necessary adjustment and tolerance utilization of busbar components.



Storage

Fuses should be stored in a dry warehouse or shelf, keep away from water. The storage temperature of the products is -40°C to $+85^{\circ}\text{C}$, the relative humidity is less than 70%, and there is no condensation. In addition, they must be stored in a non corrosive environment. Any fuse submerged in water or sprayed can no longer be used, and any fuse exposed to fire or other forms of overheating can no longer be used.

Surface material

The electrical conducting metal parts of Eaton's Bussmann series high speed fuses are usually plated to maintain an acceptable surface condition. Tin is the most common material for the fuse contacts today.

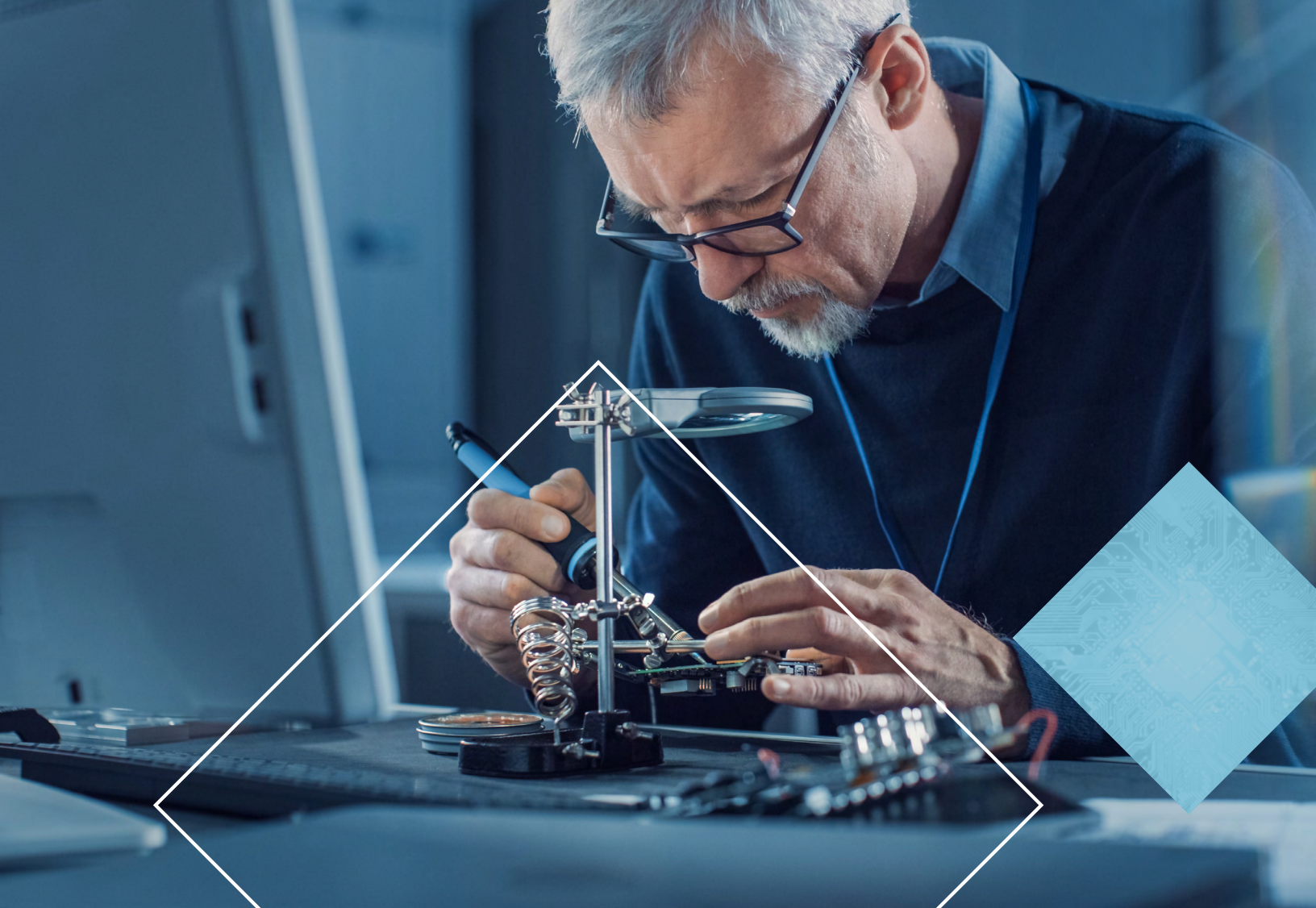
This plating provides an excellent electrical and thermal interface with holders or cables/busbars of either pure copper or copper/aluminum plated with tin/nickel or silver.

Many tests and more than 30 years of experience have shown that a tin, nickel or silver-plated surface is both mechanically and electrically stable in the entire temperature high speed fuse temperature range (typical maximum temperature rise of 130°C).

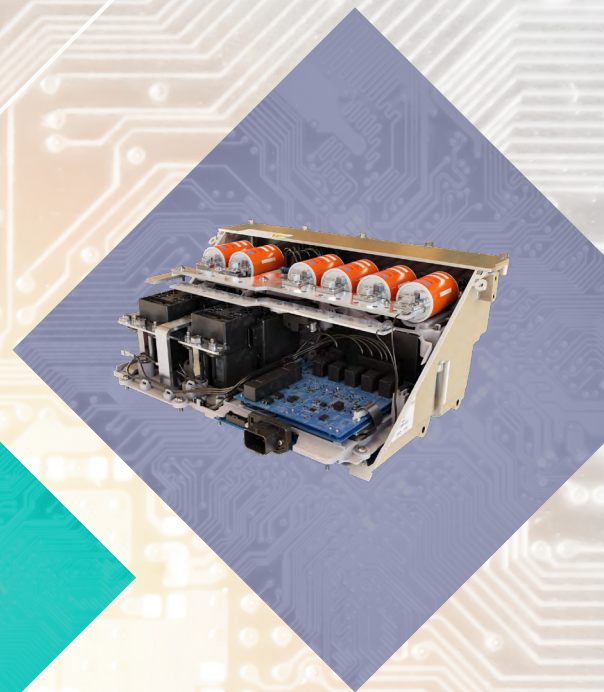
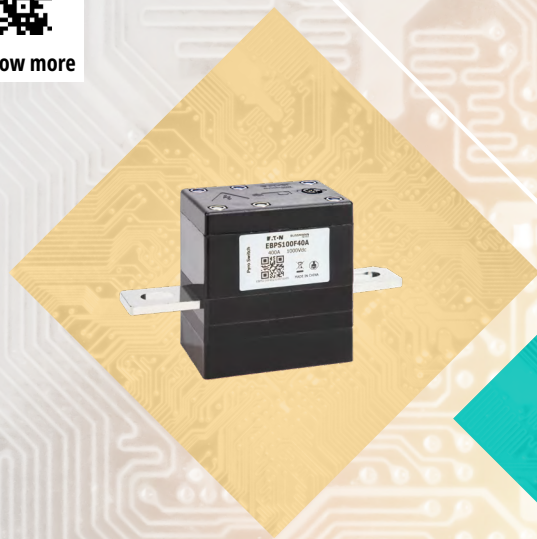
Temperature

Operating ambient temp -40°C to $+100^{\circ}\text{C}$

When the fuse operates above 20°C , the rated current need additional correction.



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