

# POWR-SPEED® Fuse

## ESR Series High-Speed Square Body

Battery Protection Fuses • 1500 V Dc • Class aBat • 125 A



### Description

The Littelfuse Energy Storage Rack (ESR) series of fuses is designed specifically to protect battery racks in energy storage systems, inverters, and many other dc applications. The 1500 V dc high-speed square body fuse is extremely fast-acting to respond quickly to a range of fault currents to safeguard the battery module or other devices.

This Class aBat partial range fuse has superior short circuit protection and a low minimum breaking capacity (MBC)—from 300 % or 3 times the fuse’s rated current to 175 kA (250 kA self-certified)—to cover a range of over currents that traditional high-speed partial range fuses do not protect against.

The ESR fuse safely interrupts most faults in a battery storage system to avoid catastrophic failures and costly shutdowns.

### Features & Benefits

FEATURES	BENEFITS
<b>High dc interrupting rating</b>	Provides superior short-circuit protection and the ability to scale-up systems without the need to redesign the existing circuit protection, saving time and costs
<b>Low minimum breaking current</b>	Offers easy coordination with battery modules and reduces size and rating of dc contactors to save space and costs
<b>Extremely fast acting</b>	Delivers high-speed performance
<b>Low watt loss</b>	Maximizes efficiency by preventing energy loss and minimizing the wasted power of components
<b>Conforms to the IEC60269-7 battery standard</b>	Specifically design to safeguard evolving battery technologies with fuse circuit protection
<b>Compact NH 1XL size</b>	Saves space and offers design flexibility

### Applications

- Battery energy storage systems (BESSs)
  - Battery Protection Unit (BPU) and battery racks
- Power conversion systems
- Dc common bus systems
- Hybrid PV-BESS inverters

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### Specifications

<b>Voltage Rating</b>	1500 V dc
<b>Amperage Rating</b>	125 A
<b>Interrupting Rating</b>	175 kA UL (250 kA self-certified)
<b>Time Constant</b>	</= 3 ms
<b>Mounting</b>	Bolted-blade style, DIN-blade style
<b>Material</b>	Body: ceramic Contacts: plated copper (bladed)
<b>Applicable Standards</b>	UL 248-13, IEC 60269-7
<b>Environmental</b>	RoHS Compliant, REACH, Halogen Free
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Storage Temperature</b>	Up to +35 °C with relative humidity <65 %
<b>Country of Origin</b>	Mexico

### Certification & Compliance

<b>cURus</b>	cURus Recognized (File: E71611)
<b>CE</b>	ESR_UB_220411_0
<b>RoHS</b>	RoHS 2 Directive 2011/65/EU Directive (EU) 2015/863
<b>REACH</b>	Regulation (EC) 1907/2006
<b>UKCA</b>	UKCA-ESR_UB_220621_0

### Ordering Information

CASE SIZE	CATALOG NUMBER	ORDERING NUMBER	UPC	BOX QUANTITY
NH 1XL	ESR1XLDB0125	ESR1XLDB0125X	07945830630	1 pc/box
NH 1XL	ESR1XLUB0125	ESR1XLUB0125X	07945830629	1 pc/box

### Electrical Specifications

CASE SIZE	CATALOG NUMBER		AMPERE RATING (A)	VOLTAGE RATING (V)	INTERRUPTING RATING	MINIMUM BREAKING CAPACITY (A)	MELTING (PRE-ARC) I <sup>2</sup> T (A <sup>2</sup> S)	TOTAL CLEARING I <sup>2</sup> T (A <sup>2</sup> S) AT RATED VOLTAGE	WATTS LOSS AT 100 % RATED CURRENT (W)	AGENCY CERTIFICATION
	BOLTED BLADE (UB)	DIN BLADE (DB)		DC	DC			DC		cURus
NH 1XL	ESR1XLUB0125	ESR1XLDB0125	125	1500	175 kA (250 kA Self-certified)	375	2245	45000	53	•

# POWR-SPEED® Fuse

## ESR Series High-Speed Square Body

### Dimensions

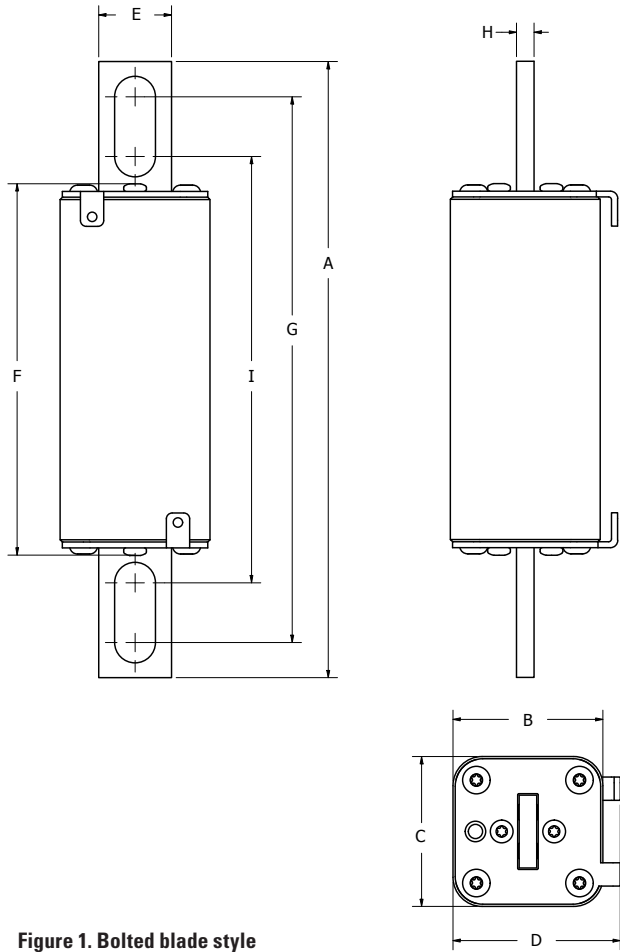


Figure 1. Bolted blade style

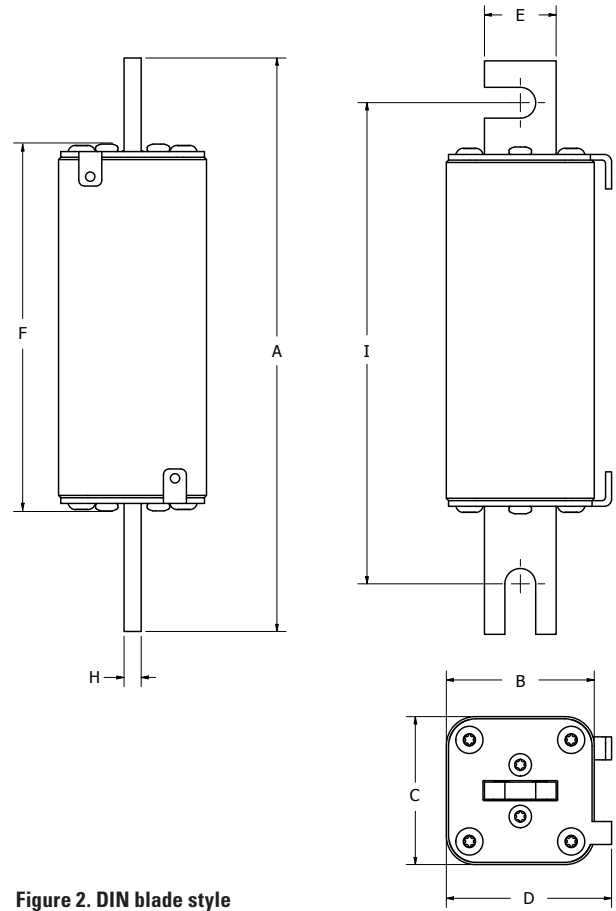


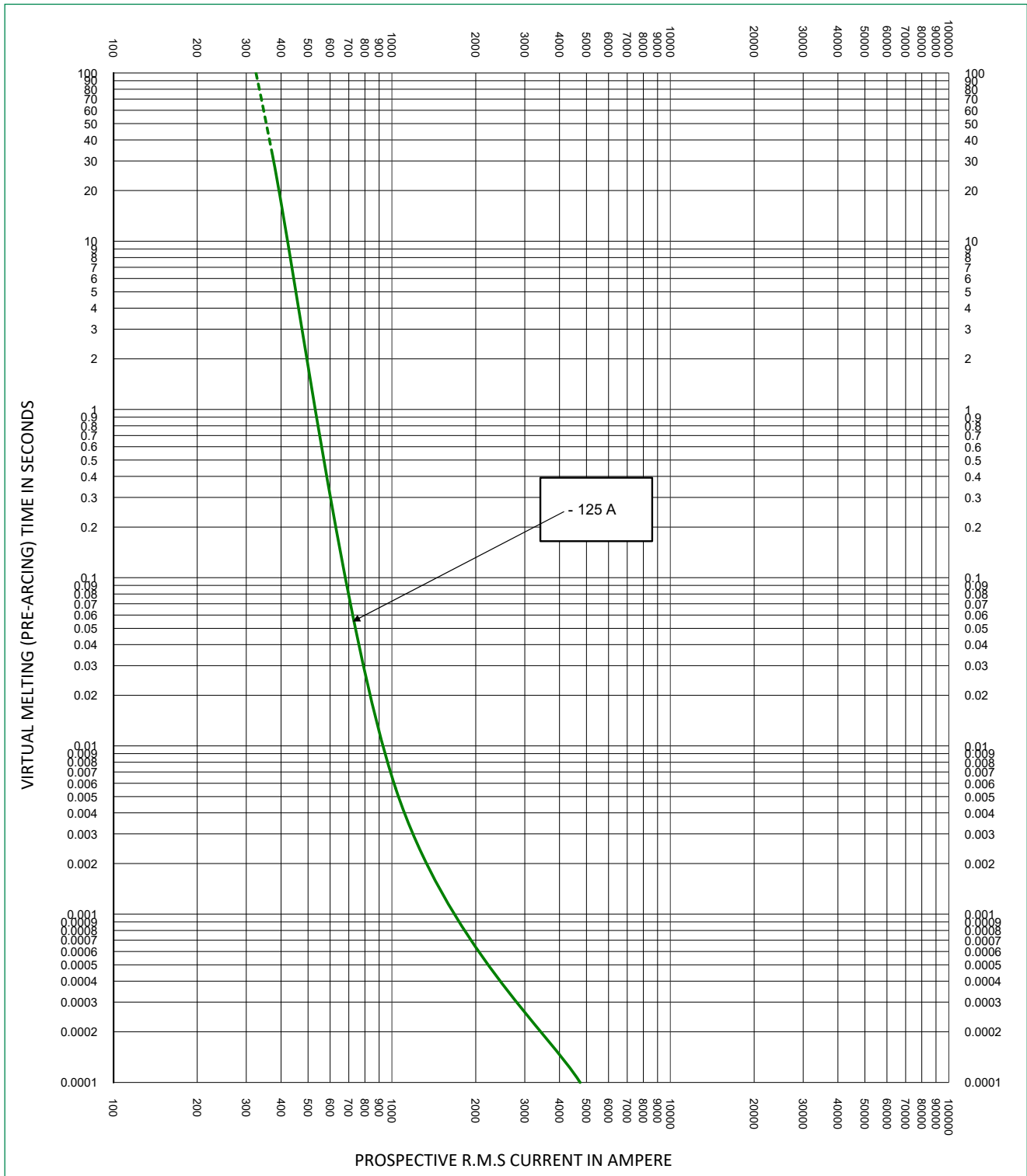
Figure 2. DIN blade style

DIMENSIONS MM (IN)													
CASE SIZE	MOUNTING STYLE	FIGURE	A	B	C	D	E	F	G	H	I	RECOMMENDED FASTENER	RECOMMENDED TORQUE
NH 1XL	BOLTED BLADE (UB)	1	211.7 (8.33)	51.5 (2.03)	51.5 (2.03)	57.5 (2.26)	25.0 (0.98)	127.7 (5.03)	187.5 (7.38)	6.0 (0.24)	146.5 (5.77)	12 (½)	64 Nm
NH 1XL	DIN BLADE (DB)	2	199.7 (7.86)	51.5 (2.03)	51.5 (2.03)	57.5 (2.26)	25.0 (0.98)	127.7 (5.03)	-	6.0 (0.24)	167.5 (6.59)	10 (3/8)	26 Nm

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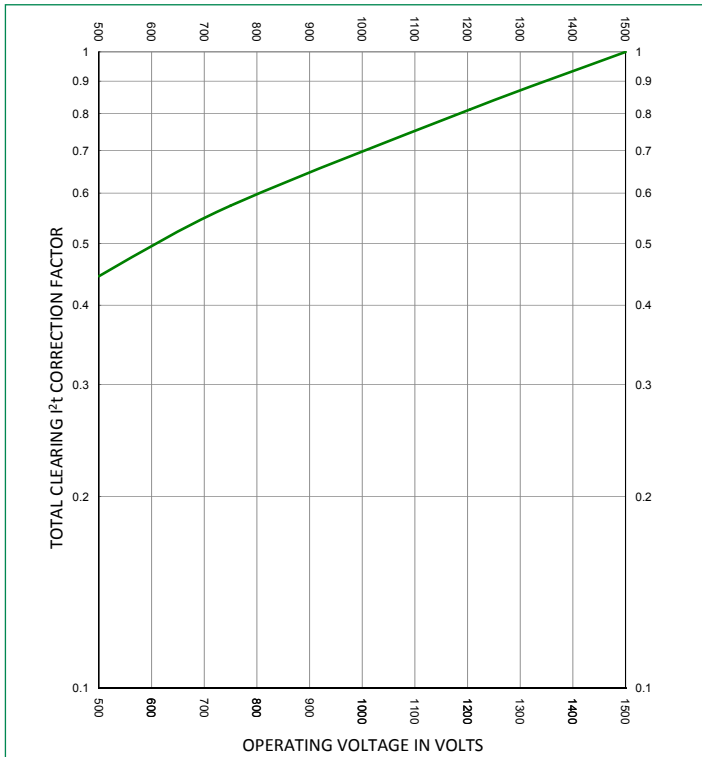
### Time Current Curve (1XL Case Size 125 A)



# POWR-SPEED® Fuse

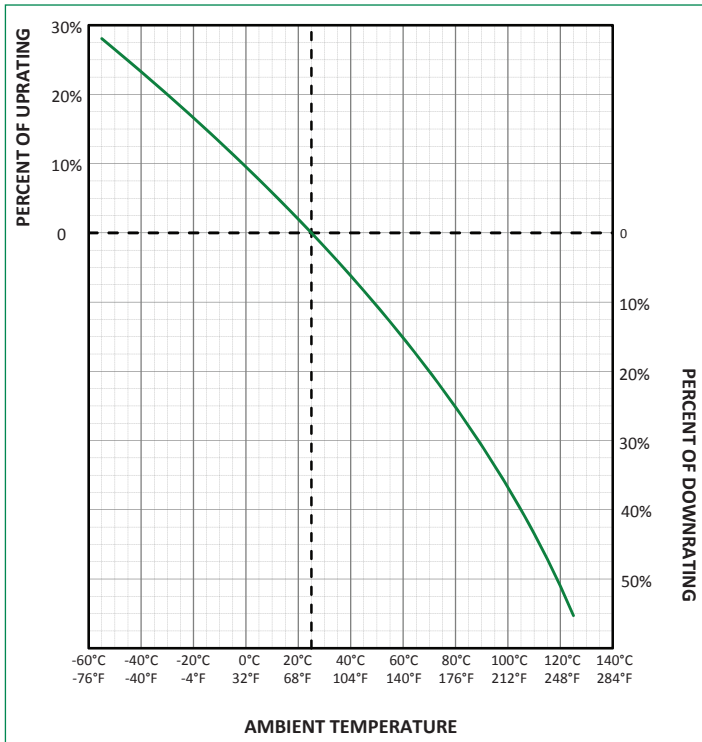
## ESR Series High-Speed Square Body

### Total Clearing I<sup>2</sup>T Correction Factor Curve (1XL)



### Temperature Derating Curve

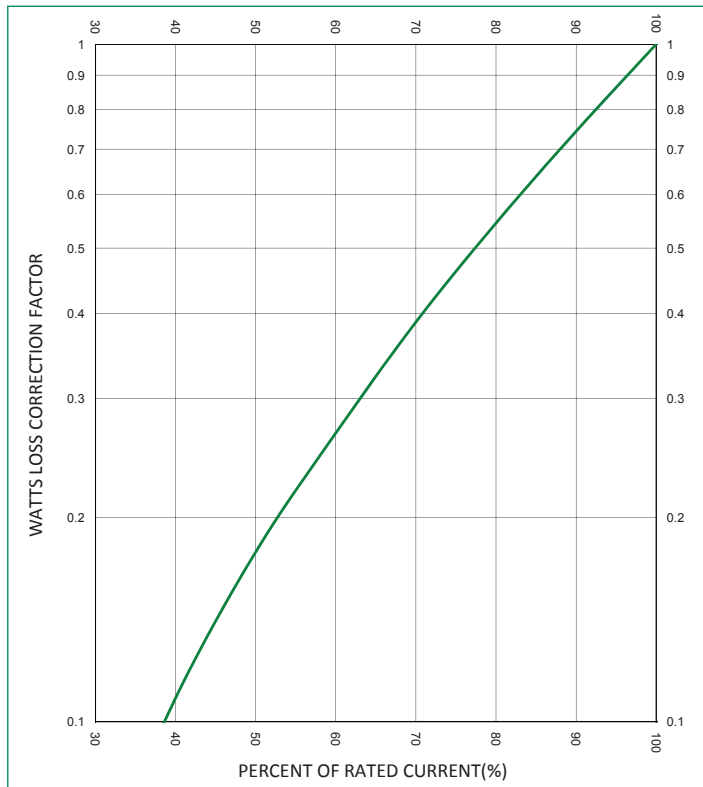
Ambient temperature: temperature of air immediately surrounding fuse



# POWR-SPEED® Fuse

## ESR Series High-Speed Square Body

### Watts Loss Correction Factor Curve



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