

UL489 or UL1077?

What are your Circuit Protection Requirements?

An understanding of circuit types and circuit protection products is critical to ensure their proper application.
See NEC Sections 100, 430 and 409 for definitions.

The proper sizing of an overcurrent protection device is the responsibility of the customer and should be determined using the application standards of the NEC (National Electric Code), CEC (Canadian Electrical Code) or other applicable standards. Per fine print note of 2008 NEC Section 100 "A current in excess of rating may be accommodated by certain equipment and conductors for a given set of conditions. Therefore, the rules for overcurrent protection are specific for particular situations."

UL489 Branch Protection



UL1077 Supplementary Protection



What You Need to Know and Look For In Specifications

Certifications – Standards – Acceptance

UL489 Branch Protection

- UL489 Listed or Recognized
- CSA C22.2 No. 5
- International ratings available depending on breaker type

UL1077 Supplementary Protection

- UL Recognized under UL1077
- CSA 22.2 No. 285
- IEC 60947-2 or IEC 898

Function

- Opens automatically on Overload and Short Circuit when properly applied within its ratings
- Protects wire and cable against Overload and Short Circuit
- Opens automatically on Overload and Short Circuit
- Provides additional equipment protection where branch circuit protection is already provided or not required
- Not suitable for the protection of branch circuit conductors

Applications

- Branch circuit protection in control panels, panelboards, switchboards and motor control centers
- Motor overload and motor short circuit protection (UL489 Recognized motor circuit protectors) for control panels and motor control centers
- Used within appliances or other electrical equipment such as control circuits, control power transformers, relays, PLC I/O points and lighting circuits
- Ideal replacement for fuses that are applied as supplementary protection

Features

- Bolted down or DIN-rail mounted
- External handle mechanisms available
- Field mounted accessories
- Stand alone branch circuit protection
- Various levels of protection (curve type)
- High voltage and interruption levels (up to 100 kAIC @ 480V)
- DIN-Rail mounted
- Field mounted accessories
- Current limiting
- Various levels of protection (curve type)
- 10 kAIC @ 240 VAC
- 6 kAIC @ 277 VAC and 5 kAIC @ 480 VAC
- 10 kAIC @ 65 VDC

kAIC = thousands of Amps interrupt capacity

Summary

A Supplementary Protector can't Be used for Branch Circuit Protection.
Understanding the difference between Branch Circuit Protection and Supplementary Protection helps to ensure their proper use.

Edison Fuses – Small Dimension Fast-Acting ABC



Applications

Supplemental protection for electronic applications

ABC Specifications

Voltage Rating: ABC - See table below

Ampere Rating: 0.5 - 30 Amps

Interrupting Rating: See table below

Agency Approvals

- UL Listed product meets standard 248-14
- UL Listed Guide and File numbers (ABC 0.5-15A): JDYX and E19180
- UL Recognition Guide and File numbers (ABC 20-30A): JDYX2 and E19180
- CSA Certification Record No: 053787, Class No: 1422 01 and 1422 30

Features

- Compact dimensions 1/4" x 1-1/4", (6.3 mm x 32 mm)
- Ceramic tube construction
- Fast-acting
- Fit on our DN-F6 fuse terminal blocks sold in Wiring Solutions section of this catalog

Environmental Data

- Shock: 0.5A - MIL-STD-202, Method 213, Test Condition I; 1A thru 30A - MIL-STD-202, Method 207, (HI Shock)
- Vibration: 0.5A thru 30A - MIL-STD-202, Method 204, Test Condition C (except 5g, 500 HZ)

ABC Small Dimension Fast-Acting Fuses											
Part Number	AMP Rating	Rated Voltage		AC Interrupting Rating*		DC Interrupting Rating*	Melting I^2t **	Voltage Drop***	Pcs/Pkg	Package Weight (lb.)	Price
		AC Max	DC Max	250V	125V						
ABC-5	0.5	250V	125V	35A	10000A	10000A	0.19	0.51	5	0.045	<--->
ABC-75	0.75						0.8	0.42			<--->
ABC1	1						1.4	0.35			<--->
ABC2	2						4.2	0.35			<--->
ABC3	3						19.5	0.25			<--->
ABC4	4						29.1	0.25			<--->
ABC5	5						16.4	0.23			<--->
ABC6	6						31.6	0.24			<--->
ABC7	7			109.3	0.17	<--->					
ABC8	8			111.9	0.17	<--->					
ABC10	10			215.6	0.15	<--->					
ABC12	12			750A	1000A	129.6	0.11	<--->			
ABC15	15					200.2	0.12	<--->			
ABC20	20			400A	400A	550.8	0.13	<--->			
ABC25	25	—	839.3	0.12		<--->					
ABC30	30	125V	—	—	1429	0.14	<--->				

* Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 198L.

** Typical Melting I^2t (A²sec) – measured at listed interrupting rating and rated voltage (at 70% to 80% power factor on AC).

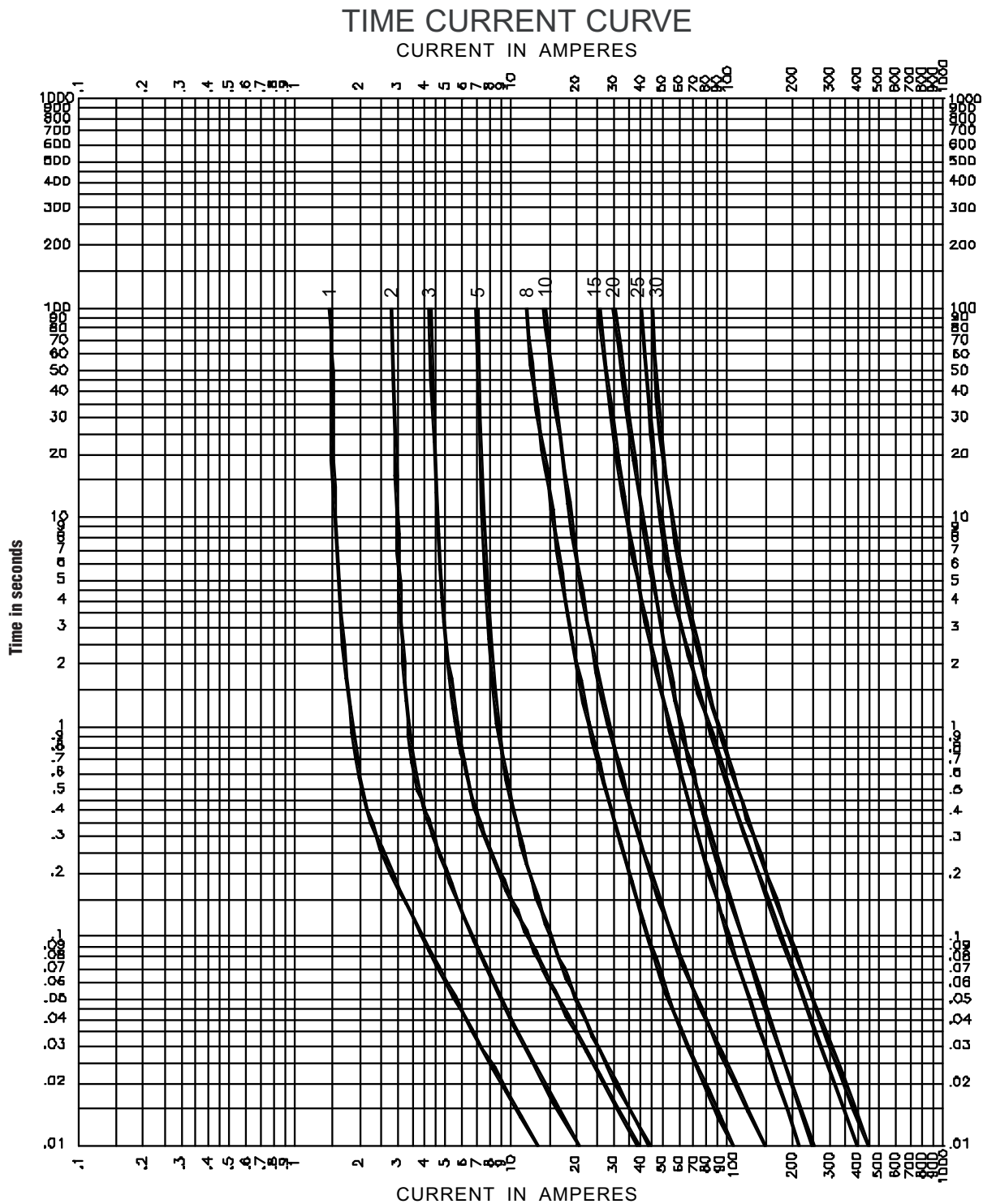
*** Typical Voltage Drop – measured at 25°C ± 3°C ambient temperature at rated current.

For mounting and wiring ABC fuses, see our DN-F6 Series fuse blocks in the Terminal Blocks and Wiring Solutions section.

CROSS REFERENCE

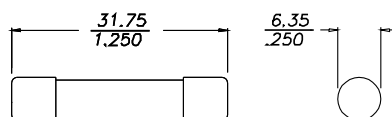
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BBC	ABC	GAB	314

Edison Fuses – Small Dimension Fast-Acting ABC



Dimensions

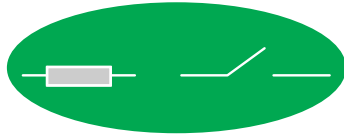
(mm/inches)



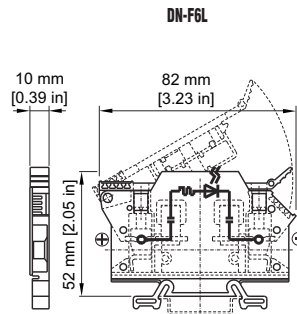
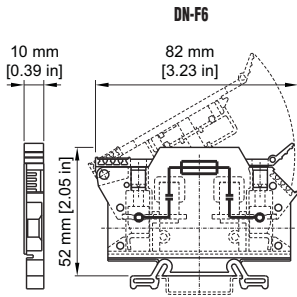
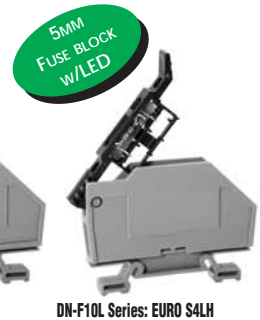
ABC Electrical Characteristics

Rated Current	% of Amp Rating	Opening Time
0.5 to 30 Amps	100	4 hours minimum
	135	60 minutes maximum
	200	120 seconds maximum

Fuse Terminal Blocks



Fuse blocks are available for 1/4", 5 mm, Class CC and midget size fuses, either with or without a blown fuse LED. LED fuse blocks are polarity sensitive. The hinge side is positive.



	Part Number	Pcs/Pkg	Price/Pkg	Part Number	Pcs/Pkg	Price/Pkg	Part Number	Pcs/Pkg	Price/Pkg	Part Number	Pcs/Pkg	Price/Pkg
Gray Term Blk	DN-F6	25	<-->	-	-	-	DN-F10	50	<-->	-	-	-
12-24VAC/DC*	-	-	-	DN-F6L24	10	<-->	-	-	-	DN-F10L24	10	<-->
110VAC/DC*	-	-	-	DN-F6L110	10	<-->	-	-	-	DN-F10L110	10	<-->
220VAC/DC*	-	-	-	DN-F6L220	10	<-->	-	-	-	DN-F10L220	10	<-->

Fuse Terminal Blocks Specifications

UL Approval **	600V 30A 20-6 AWG	600V 30A 20-6 AWG	300V 15A 24-10 AWG	300V 15A 24-10 AWG
CSA Approval	600V 30A 18-6 AWG	600V 30A 18-6 AWG	300V 8A 18-12 AWG	300V 8A 18-12 AWG
VDE Approval	750V 8A -	750V 8A -	500V 8A 4mm ²	500V 8A 4mm ²
CE Conformity	CE 23/20, CE 23/21	CE 23/20, CE 23/21	CE 23/20, CE 23/21	CE 23/20, CE 23/21
Agency File #	E179129, LR84816	E179129, LR84816	E179129, LR84816	E179129, LR84816
Wire Strip Length	0.47" (12mm)	0.47" (12mm)	0.39" (10mm)	0.39" (10mm)
Tightening Torque	18.0 lb-in (2.0Nm)	18.0 lb-in (2.0Nm)	5.5 lb-in (0.6Nm)	5.5 lb-in (0.6Nm)
Density	30 pcs./ft. (100/m)	30 pcs./ft. (100/m)	30 pcs./ft. (100/m)	30 pcs./ft. (100/m)
Fuse Size (not supplied)	1 1/4" X 1/4"	1 1/4" X 1/4"	5x20mm-5x25mm	5x20mm-5x25mm
Indicator Type	Non-indicating	LED blown fuse indicator	Non-indicating	LED blown fuse indicator
Operating Temperature	Ambient air temperature: -13°F to 104°F (-25°C to 40°C) Relative humidity: 50% max at 104°F (40°C); 90% max at 68°F (20°C)			
SCCR	10 kA per Table SB4.1, 2009, UL 508A, Maximum short circuit current rating for unmarked components			

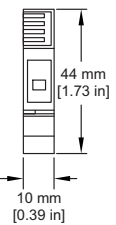
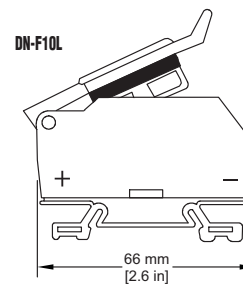
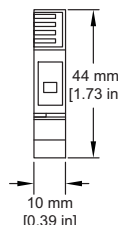
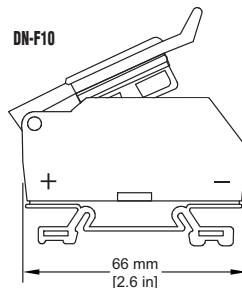
Notes: * Working voltage ** For copper wire only

Accessories

	Part Number	Pcs/Pkg	Price/Pkg
35 mm DIN Rail	DN-R35S1 (7.5 mm) or DN-R35HS1 (15 mm)	10	various
	DN-R35S1-2 (7.5 mm) or DN-R35HS1-2 (15 mm)	2	various
End Bracket	DN-EB35	50	<-->
	DN-EB35MN	20	<-->
	DN-EB35-A or DN-QEB35	50	various
	DN-EB35-A-10 or DN-QEB35-10	10	various
End Cover	Included		
Marking Tags	DN-L*/DN-LT** series	500/100	various
Angled Support Bracket	DN-ASB1	50	<-->

Notes: * On lever arm, ** On terminal body

For more information on accessories, see the DINnectors Accessories section of this chapter.



Note: DN-F6 series fuse holders will accommodate the following AutomationDirect fuses: ABC, AGC, MDA and MDL.

DN-F10 series fuse holders will accommodate the following AutomationDirect fuses: GMA, GMC, S500, and S506.

Edison Fuses – Accessories



FP2



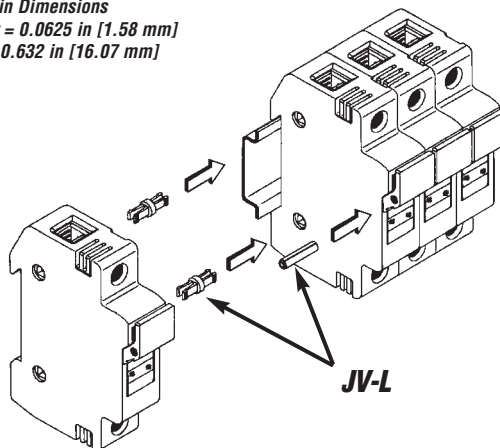
JV-L

Accessories			
Part Number	Description	Pcs/Pkg	Price
FP-2	Fuse puller for fuse dia. 13/32" - 13/16". Fuse type: 0-60A, 250V; 0-30A, 600V	1	<--->
JV-L* (Not Field Installable)	Multi-pole connection kit to connect new design multiple Class CC and Midget Class fuse holders together. Kit consists of 6 connectors and 3 handle pins to connect up to 4 fuse holders.		<--->

Note: Will not work with retired design fuse holders shipped before November 1, 2009.

**Roll pin punch or installation tool is required to install handle pins (Tool not sold by Automationdirect.com).*

Handle Pin Dimensions
 Diameter = 0.0625 in [1.58 mm]
 Length = 0.632 in [16.07 mm]



Edison Cross Reference Guide

CROSS REFERENCE GUIDE By manufacturers type reference or series number. Ampere ratings must be added for ordering purposes.								
FUSE TYPE		VOLT	EDISON	BRUSH/ DORMAN	BUSSMANN	MERSEN / GOULD	GEC/CEFCO	LITTELFUSE
UL CLASS CURRENT LIMITING FUSES (CSA CLASS)								
CC (HRCI-CC)	Time-Delay	600	EDCC	–	LP-CC	ATDR	–	CCMR
	Time-Delay	600	HCTR	–	FNQ-R	ATQR	–	KLDR
	Fast-Acting	600	HCLR	HCLR	KTK-R	ATMR	CTK-R	KLKR
RK1	Time-Delay Dual Element	250	LENRK	–	LPN-RK-SP	A2DR	–	LLNRK
		600	LESRK	–	LPS-RK-SP	A6DR	–	LLSRK
RK5	Time-Delay Dual Element	250	ECNR	–	FRN-R	TR	–	FLNR
		600	ECSR	–	FRS-R	TRS	–	FLSR
J	Time-Delay Dual Element	600	JDL	–	LPJ	AJT	–	JTD
	High-Speed AC Drive	600	JHL	–	DFJ	HSJ	–	–
T	Extremely Fast-Acting	300	TJN	–	JJN	A3T	–	JLLN
		600	TJS	–	JJS	A6T	–	JLLS
UL CLASS GENERAL PURPOSE FUSES								
Midget	Fast-Acting	600	MCL	MCL	KTK	ATM	CTK	KLK
		250	MOL	MOL	BAF/BAN	OTM	–	BLF
	Time-Delay	500	MEQ	MEQ	FNQ	ATQ	–	FLQ
		250	MEN	MEN	FNM	TRM	–	FLM
1/4"x1/4" Ceramic	Fast-Acting	250/125	ABC	ABC	ABC	GAB	–	314
		1/4"x1/4" Glass	250/32	AGC	AGC	AGC	GGC	–
1/4"x1/4" Ceramic	Time-Delay	250	MDA	MDA	MDA	–	–	326
		1/4"x1/4" Glass	250/32	MDL	MDL	MDL	GDL	–
5x20 mm Glass	Fast-Acting	250/125	GMA	GMA	GMA	GGM	–	235
	Medium Time-Delay	250/125	GMC	GMC	GMC	GSC	–	–
5x20 mm Glass	Fast-Acting	250	S500	BDB	GDB	GSB	–	217
	Time-Delay	250	S506	BDC	GDC	GDG	–	218
Fuse Puller								
Fuse Puller FP-2		–	old - 38072 new - FP-2	–	FP-2	–	–	–