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# Protection for Photovoltaic Applications Made Simple

## Application Specific CUBEFuse Delivers Superior Photovoltaic Protection with up to a 70% Smaller Footprint

- Fast-acting protection specifically designed for low-fault current conditions that occur in PV systems
- Finger-safe feature minimizes exposure to live parts, reducing hazard to personnel
- UL 2579 Listed for use in 600Vdc photovoltaic systems
- Demonstrated performance in extreme temperature cycling conditions, ranging from -40°C through 90°C
- Integral use with the CUBEFuse holder minimizes panel space by up to 70%



**Catalog Symbol:** PVCF\_RN

**Fast-Acting Fuse:** 6 minutes maximum clearing time at 200% rated current for 35 to 60A fuse  
8 minutes maximum clearing time at 200% rated current for 70 to 100A fuse

**Ratings:**

Volts — 600Vdc (or less)  
Amps — 35-100A  
IR — 50kA DC (UL & CSA)

**Agency Information:**

- UL Listed Fuse: Guide JFGA, File E335324
- CSA component certified C22.2

**Other Ratings/Specifications:**

**Watts Loss at Rated Current:** PVCF35RN: 5.45W  
PVCF60RN: 7.27W  
PVCF100RN: 11.50W

**Operating and Storage Temperature Range:** -40 to 90°C

**Material Specifications:**

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

**Installation:**

Fits Standard Class CF holders as listed in the table below

**Application:**

- Photovoltaic Systems:
  - Combiner Boxes
  - Re-combiner Boxes
  - DC Safety Switches

**Catalog Numbers (amp rating)**

Non-Indicating Photovoltaic CUBEFuse				
PVCF35RN	PVCF45RN	PVCF60RN	PVCF80RN	PVCF100RN
PVCF40RN	PVCF50RN	PVCF70RN	PVCF90RN	

**CUBEFuse Holders**

Catalog Numbers (amps)	Fits Fuse Holder	
	TCFH60N	TCFH100N
Non-Indicating		
PVCF35RN	X	X
PVCF40RN	X	X
PVCF45RN	X	X
PVCF50RN	X	X
PVCF60RN	X	X
PVCF70RN		X
PVCF80RN		X
PVCF90RN		X
PVCF100RN		X

**Protection for Many PV Applications**

Cooper Bussmann is committed to developing products that offer superior protection to PV installations.

The PVCF\_RN fuse is just one of many innovative products that can be applied in many areas and offers operators, integrators, contractors and distributors the best protection available.

The result is that personnel, equipment and the environment all receive a higher level of protection that optimizes system performance throughout the entire life cycle of installation.

**Features and Product Benefits**

- Maximize uptime and reliability using fuses designed and listed to UL 2579: Low Voltage Fuses- Fuses for 600Vdc Photovoltaic Systems
- Fast-acting protection specifically designed for low-fault current conditions that occur in PV systems
- Maximize return on investment with fuses proven to withstand harsh temperatures; demonstrated performance in extreme temperature cycling conditions, ranging from -40°C through 90°C
- Simplify compatibility with readily available industry standard Class CF holders while minimizing panel space by up to 70%
- Proven to clear faults faster than the UL requirement
- Minimal energy consumption leading to increased efficiency
- Ampacity rejecting holders help prevent overfusing
- Finger-safe feature minimizes exposure to live parts, reducing hazard to personnel

**CUBEFuse Holders**



All 100 and 60A CUBEFuse holders can dovetail together for the required number of poles with the smallest footprint possible compared to Class J solutions. See CUBEFuse holder Data Sheet 9007

## Fuse Holders for Low-Peak® CUBEFuse® Finger-Safe, 1-100A, 600Vac/300Vdc



**Catalog Symbols:** TCFH30N (1-30A)  
TCFH60N (1-60A)  
TCFH100N (1-100A)

**Construction:** Finger-safe

**Mounting:** DIN Rail or panel mount

**Ampacities:** TCFH30N - holds any 1-30A CUBEFuse  
TCFH60N - holds any 1-60A CUBEFuse  
TCFH100N - holds any 1-100A CUBEFuse

**Voltage Rating:** 600Vac/300Vdc

**Withstand Rating:** 300kA RMS Sym. (UL)  
200kA RMS Sym. (CSA)  
100kA DC (UL & CSA)

**Agency Information:**

- UL Listed Fuse Holder: Guide IZLT, File E14853
- CSA Certified Fuse Holder: Class 6225-01, File 47235
- CE compliance for the European Union low voltage directive

**Operating and Storage Temperature Range:** 14 to 149°F(-10 to 65°C)

**Material Specifications:**

- Holder case: Glass filled PBT
- Interface clips: Copper alloy
- Interface clip plating: Tin
- Terminals: Steel
- DIN Rail spring: Stainless steel

**Features and Product Benefits**

- Holder for the world's first finger-safe power fuse system.
- Holder and CUBEFuse together deliver Class CF and Class J fuse performance with dual-element, time-delay and current limiting operation. See Data Sheet 9000 for indicating and non-indicating CUBEFuse performance characteristics.
- Smallest fuse and holder footprint of any class fuse installation including Class J, CC, T and RK.
- DIN Rail or panel mount for easy installation.
- Holders dovetail together to easily achieve the required number of poles.
- All holders (TCFH30N, TCFH60N and TCFH100N) dovetail together to permit mixing ampacities.
- All holders accept equal and lower amp rated TCF\_ indicating and TCF\_RN non-indicating CUBEFuse - no need for a fuse reducer.
- Dual wire rated terminals for wiring ease.
- High 300kA withstand rating stands up to high fault currents.

**Conductors/Wire Range - 75°C Cu Wire Only**

Holder/ Ampacity	No. of Poles*	Single Wire	Dual Wire
TCFH30N	1	18 to 8 AWG	18 to 10 AWG
TCFH60N	1	18 to 4 AWG	18 to 6 AWG
TCFH100N	1	18 to 1 AWG	6 AWG

\* Holders dovetail together to achieve the desired number of poles for the application.

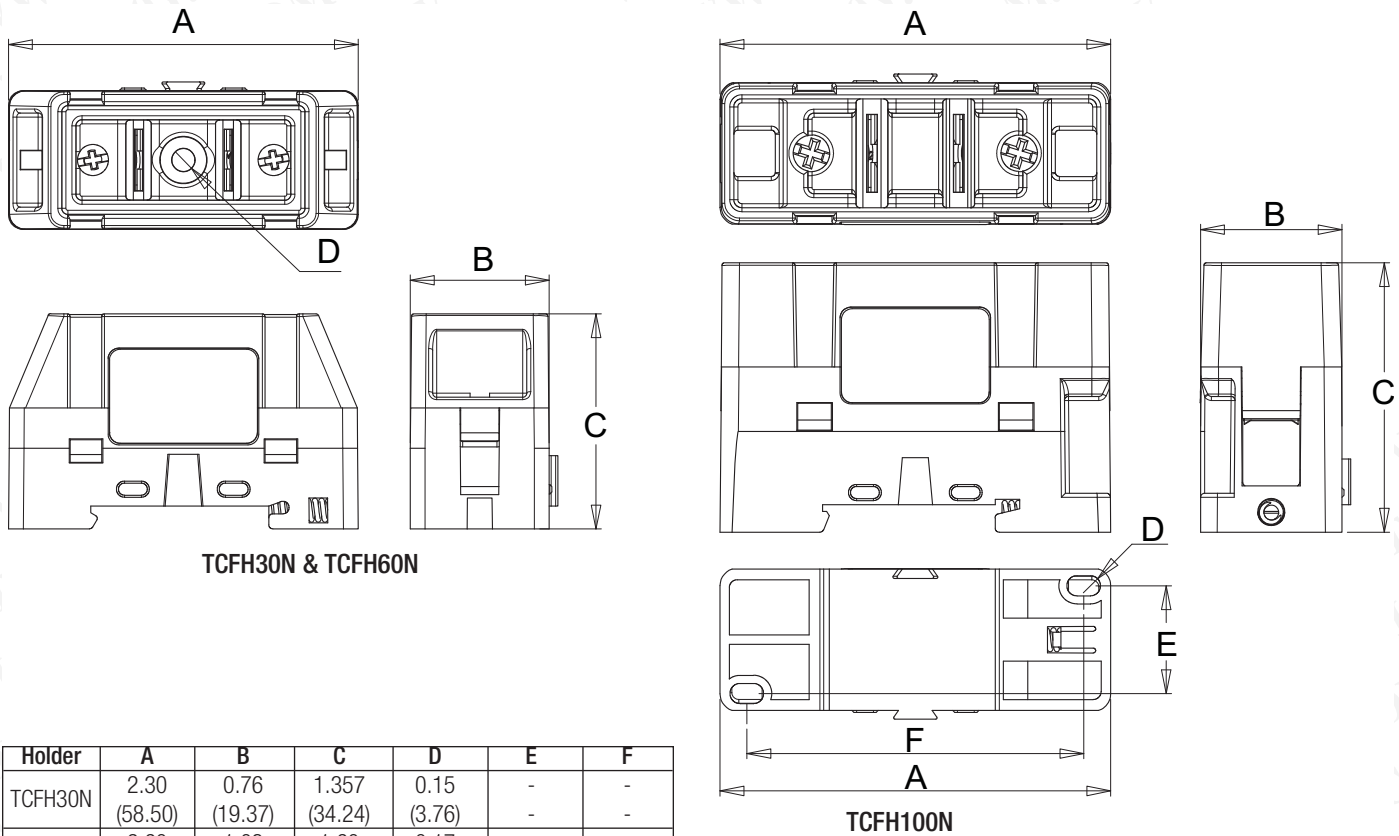
**Carton Quantity and Weight**

Part Number	Carton Qty.	Weight Per Carton	
		lbs	kg
TCFH30N	12	2.42	1.10
TCFH60N	12	2.57	1.17
TCFH100N	6	1.38	0.63

**Terminal Torque Ratings by Conductor and Holder Size (75°C Cu only)**

TCFH30N		TCFH60N		TCFH100N	
Single	Dual	Single	Dual	Single	Dual
10-8 AWG 25lb-in	18-10 AWG 25lb-in	18-10 AWG 20lb-in	18-10 AWG 20lb-in	18-10 AWG 25lb-in	6 AWG 45lb-in
18-12 AWG 20lb-in		8-4 AWG 35lb-in	8-6 AWG 35lb-in	8-1 AWG 40lb-in	

## TCFH Dimensions – in (mm)



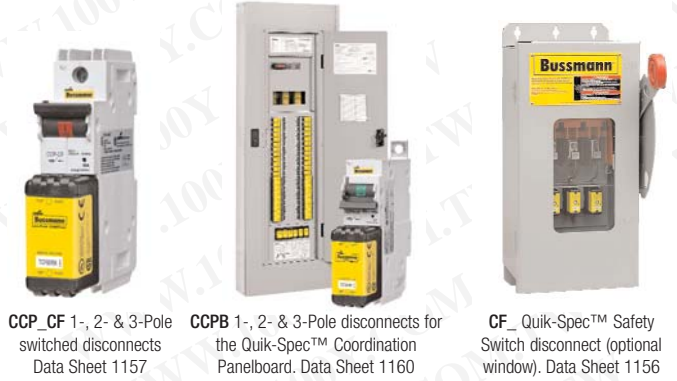
Holder	A	B	C	D	E	F
TCFH30N	2.30 (58.50)	0.76 (19.37)	1.357 (34.24)	0.15 (3.76)	-	-
TCFH60N	2.60 (66.12)	1.03 (26.23)	1.60 (40.64)	0.17 (4.34)	-	-
TCFH100N	2.91 (73.81)	1.05 (26.74)	2.01 (50.93)	0.15 (3.81)	0.80 (20.39)	2.51 (63.65)

## CUBEFuse Availability and Applications

The indicating Low-Peak® CUBEFuse® (TCF\_) and non-indicating Low-Peak CUBEFuse (TCF\_RN) are available in amp ratings from 1-100A. See Data Sheet 9000. The CUBEFuse is also used in these other Cooper Bussmann® circuit protection solutions.



TCF\_ Indicating and TCF\_RN non-indicating CUBEFuse. Data Sheet 9000



CCP\_CF 1-, 2- & 3-Pole switched disconnects Data Sheet 1157  
 CCPB 1-, 2- & 3-Pole disconnects for the Quik-Spec™ Coordination Panelboard. Data Sheet 1160  
 CF Quik-Spec™ Safety Switch disconnect (optional window). Data Sheet 1156

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