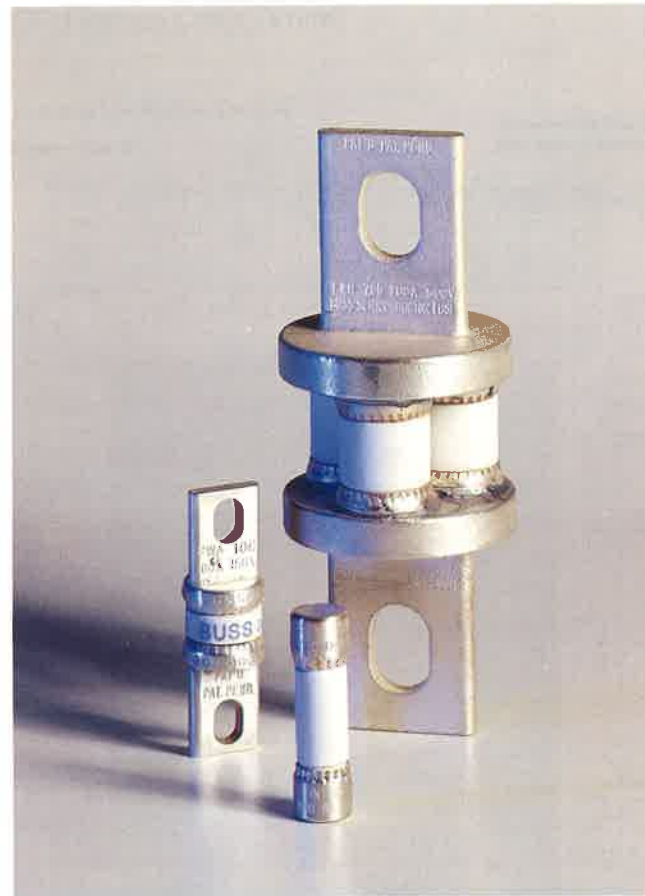


Semiconductor Fuses



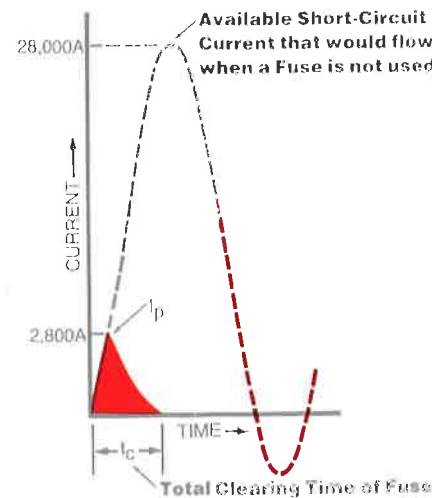
VOLTAGE RATINGS (Full Voltage or Less):
 FWA Series—150V AC; 200V DC
 FWX Series—250V AC; 300V DC
 FWH Series—500V AC; 500V DC
 FWP and FBP Series—700V AC; 700V DC
CURRENT RATINGS: 1 to 1000 Amperes.
INTERRUPTING RATING: 200,000 Amperes RMS Symmet.
CURRENT LIMITATION: Ultra-High Degree.
 I^2t LET-THRU: Very Low.
U.L. RECOGNIZED: (FWA—15-600A); (FWX—15-800A); (FWH, FWP and FBP—15-1000A); other Series pending completion of U.L. action).
CONSTRUCTION: Patented design. Totally inorganic, non-degradable materials for reliability at high temperatures. High thermal conductivity, ceramic tubes with revolver-like cylindrical chambers for isolation of multiple fuse links. Provide high-performance, a-c or d-c operation.
MOUNTING: Bolt holes spaced for dimensional compatibility with most existing mount configurations and Buss fuse blocks. Buss high-performance, FW Series Semiconductor Fuses are generally mounted directly to bus bars. For fuseblock mounting, See Section 8.
APPLICATION DATA—See Buss Bulletin SCF.

The small mass and very low, transient, thermal capacity of the thin semiconductor chip requires the use of an over-current protective device which is ultra fast-acting and limits short-circuit peak current to a very low value. Buss

Semiconductor Fuses are so designed. They prevent large destructive excursions of heat energy from being impressed upon diodes, SCR's and other semiconductor devices. They isolate faults in parallel branches. Buss Semiconductor Fuses give high performance protection. They have been designed for maximum reliability.



Ultra High Degree of Current Limitation and Low I^2t .
 The heat energy of even low-level fault currents can quickly destroy a semi-conductor device. As shown in the illustration below, the Buss FW type fuse limits peak let-thru current to a level which is a fraction of the potential available short-circuit peak current. In this typical case, the peak let-thru current of the fuse is only 2,800 amperes instead of 28,000 amperes peak current that would occur if there were not current limiting action. The immensely fast speed-of-response to build-up of short-circuit current and the quickly decaying short-circuit current as the fuse suppresses internal arcing together can limit the I^2t let-thru to values substantially lower than the I^2t withstand of the semiconductor device.

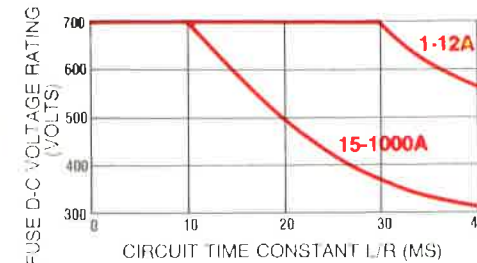


Current Limiting Effect of Fuse.

Full Line For Optimum Selection
 FW Series Semiconductor Fuses are available in four a-c voltage ratings; 150V, 250V, 500V and 700V. Current ratings cover the full range of 1 to 1000 amperes. Performance characteristics of the FWP and FBP 700 volt Series fuses are the same; however, the dimensional size of the FBP Series is smaller than the FWP Series and thus provides greater economy of space. Fuses can be applied at their full voltage rating or any lesser voltage. For instance, it may be desirable to use 700 volt (FWP Series) units in 500 volt circuits, etc.

AC or DC Application

DC voltage ratings are the same or higher than a-c ratings. For instance, the 700 volt FWP Series fuses can be applied at 700 volts AC or, if the overcurrent L/R time constant of the DC circuit is 10 milliseconds or less, at 700 volts DC. Practically, circuits of most applications do have a time constant of 10 ms or less. However, for circuits with longer time constants, derating curves such as the one shown, permit the determination of the appropriate d-c voltage rating.



DC voltage rating versus circuit time constant (Overcurrent L/R in milliseconds). (Curves shown apply to the 700V FWP Series).

Buss FW Series Fuses Will Interrupt Any AC Overcurrent Above Their Ampere Rating . . . They are Full Range AC Fuses.

Ampere And Voltage Ratings—Semiconductors

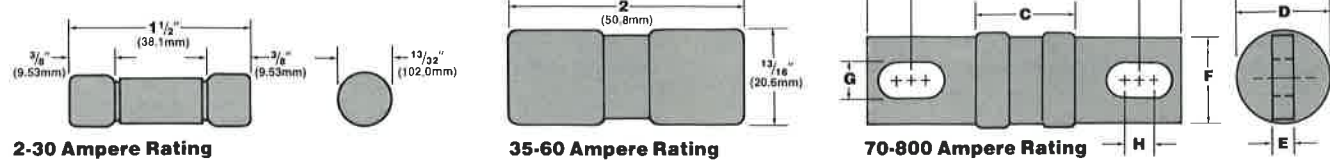
150 Volts	250 Volts	500 Volts	700 Volts	700 Volts
FWA	FWX	FWH	FWP	FBP
—	FWX-1	FWH-1	FWP-1	—
FWA-2	FWX-2	FWH-2	FWP-2	—
—	FWX-3	FWH-3	FWP-3	—
FWA-3	FWX-4	FWH-4	FWP-4	—
FWA-5	FWX-5	FWH-5	FWP-5	—
FWA-6	FWX-6	FWH-6	FWP-6	—
FWA-7	FWX-7	FWH-7	FWP-7	—
FWA-8	FWX-8	FWH-8	FWP-8	—
FWA-10	FWX-10	FWH-10	FWP-10	—
FWA-12	FWX-12	FWH-12	FWP-12	—
FWA-15	FWX-15	FWH-15	FWP-15	FBP-15
FWA-20	FWX-20	FWH-20	FWP-20	FBP-20
FWA-25	FWX-25	FWH-25	FWP-25	FBP-25
FWA-30	FWX-30	FWH-30	FWP-30	FBP-30
FWA-35	FWX-35	FWH-35	FWP-35	FBP-35
FWA-40	FWX-40	FWH-40	FWP-40	FBP-40
—	—	—	FWP-45	FBP-45
FWA-50	FWX-50	FWH-50	FWP-50	FBP-50
FWA-60	FWX-60	FWH-60	FWP-60	FBP-60
FWA-70	FWX-70	FWH-70	FWP-70	FBP-70
FWA-80	FWX-80	FWH-80	FWP-80	FBP-80
FWA-90	FWX-90	FWH-90	FWP-90	FBP-90
FWA-100	FWX-100	FWH-100	FWP-100	FBP-100
FWA-125	FWX-125	FWH-125	FWP-125	FBP-125
FWA-150	FWX-150	FWH-150	FWP-150	FBP-150
FWA-175	FWX-175	FWH-175	FWP-175	FBP-175
FWA-200	FWX-200	FWH-200	FWP-200	FBP-200
—	FWX-225	—	—	—
FWA-250	FWX-250	FWH-250	FWP-250	FBP-250
FWA-300	FWX-300	FWH-300	FWP-300	FBP-300
FWA-350	FWX-350	FWH-350	FWP-350	FBP-350
FWA-400	FWX-400	FWH-400	FWP-400	FBP-400
FWA-450	FWX-450	FWH-450	FWP-450	FBP-450
FWA-500	FWX-500	FWH-500	FWP-500	FBP-500
FWA-600	FWX-600	FWH-600	FWP-600	FBP-600
FWA-700	FWX-700	FWH-700	FWP-700	FBP-700
FWA-800	FWX-800	FWH-800	FWP-800	FBP-800
—	FWX-HP-700	—	—	—
—	FWX-HP-800	—	—	—
—	FWX-HP-900	FWH-900	FWP-900	FBP-900
—	FWX-HP-1000	FWH-1000	FWP-1000	FBP-1000

Carton Quantity And Weight (Semiconductor Fuses)

Voltage	Cat. Symbol	Ampere Rating	Ctn. Qty.	Wt. Per Ctn.	
				Lbs.	Kg
150	FWA	2-30	10	0.19	0.086
		35-60	10	1.26	0.571
		70-100	10	1.30	0.590
		125-400	1	0.17	0.077
		450-600	1	0.35	0.159
		700-800	1	0.50	0.227
250	FWX	1-30	10	0.56	0.254
		35-60	10	1.19	0.540
		70-100	10	1.58	0.717
		125-200	1	0.20	0.091
		250-400	1	0.28	0.127
		450-600	1	0.36	0.163
500	FWH	700-800	1	0.50	0.227
		800-1000	1	2.62	1.188
		1-30	10	0.56	0.254
		35-60	10	1.40	0.635
		70-100	1	0.19	0.086
		125-200	1	0.28	0.127
700	FWP	250-400	1	0.48	0.218
		450-600	1	0.69	0.313
		700-800	1	1.62	0.735
		900-1000	1	8.00	3.629
		1-30	10	0.56	0.254
		35-60	10	0.87	0.395
700	FBP	70-100	1	0.38	0.172
		125-200	1	0.48	0.218
		250-400	1	1.15	0.522
		450-600	1	2.62	1.188
		700-800	1	3.56	1.615
		900-1000	1	6.31	2.862
700	FBP	15-30	10	0.56	0.254
		35-60	10	0.72	0.326
		70-100	1	0.28	0.127
		125-200	1	0.49	0.222
		250-400	1	1.19	0.540
		450-600	1	2.13	0.966
700-800	1	4.19	1.901		
900-1000	1	6.0	2.722		

Semiconductor Fuses

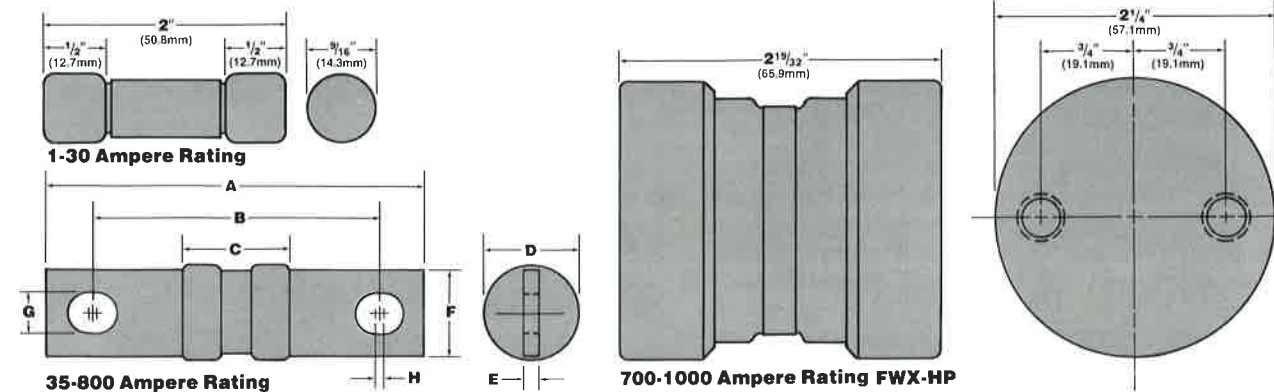
FWA Series (150 Volts) 2 to 800 Amperes



FWA 70-800 Ampere Rating

Ampere Rating	Dimensions in Inches								Dimensions in Millimeters							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
70-100	2 ²¹ / ₃₂	2 ³ / ₁₆	2 ⁷ / ₃₂	1 ³ / ₁₆	3 ¹ / ₁₆	3 ³ / ₁₆	5 ¹ / ₁₆	9 ¹ / ₁₆	67.5	52.0	21.4	20.6	4.76	19.1	7.94	3.6
125-400	2 ²¹ / ₃₂	2 ³ / ₁₆	2 ⁷ / ₃₂	1	3 ¹ / ₁₆	7 ¹ / ₁₆	5 ¹ / ₁₆	9 ¹ / ₁₆	67.5	52.0	21.4	25.4	4.76	22.2	7.94	
400-600	3 ¹ / ₂	2 ⁷ / ₁₆	2 ⁷ / ₃₂	1 ¹¹ / ₃₂	1 ¹ / ₄	1	1 ¹³ / ₃₂	1 ¹ / ₁₆	88.9	62.0	21.4	34.1	6.35	25.4	10.3	1.6
700-800	3 ¹ / ₂	2 ⁷ / ₁₆	3 ¹ / ₃₂	1 ¹⁹ / ₃₂	1 ¹ / ₄	1	1 ¹³ / ₃₂	1 ¹ / ₁₆	88.9	62.0	24.6	40.5	6.35	25.4	10.3	

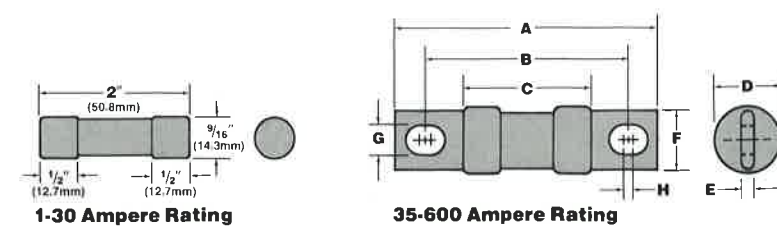
FWX Series (250 Volts) 1 to 1000 Amperes



FWX 35-600 Ampere Rating

Ampere Rating	Dimensions in Inches								Dimensions in Millimeters							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
35-60	3 ³ / ₁₆	2 ⁷ / ₁₆		1 ³ / ₁₆	1 ¹ / ₈	2 ³ / ₃₂	1 ¹ / ₃₂		81.0	61.9		20.6	3.18	18.3	8.73	
70-100	3 ¹ / ₁₆	2 ³ / ₈		1 ³ / ₁₆	3 ¹ / ₁₆	3 ³ / ₁₆	5 ¹ / ₁₆		79.4	60.3		20.6	4.76	19.1	7.94	
125-200	3 ¹ / ₈	2 ³ / ₈	2 ⁷ / ₃₂	1	3 ¹ / ₁₆	7 ¹ / ₁₆	5 ¹ / ₁₆	1 ¹ / ₁₆	79.4	60.3	21.4	25.4	4.76	22.2	7.94	1.59
225-300	3 ²⁷ / ₃₂	2 ²⁹ / ₃₂		1	1 ¹ / ₄	7 ¹ / ₈	1 ¹³ / ₃₂		97.6	70.6		25.4	6.35	22.2	10.3	
350-600	3 ²⁷ / ₃₂	2 ²⁹ / ₃₂		1 ¹¹ / ₃₂	1 ¹ / ₄	1	1 ¹³ / ₃₂		97.6	70.6		34.1	6.35	25.4	10.3	
700-800	3 ²⁷ / ₃₂	2 ²⁹ / ₆₄	1 ¹ / ₈	1 ⁶³ / ₆₄	1 ¹ / ₄	1 ¹ / ₄	1 ⁵ / ₃₂	1 ¹⁷ / ₆₄	97.6	40.9	25.4	50.4	6.35	31.8	11.9	6.7

FWH Series (500 Volts) 1 to 1000 Amperes

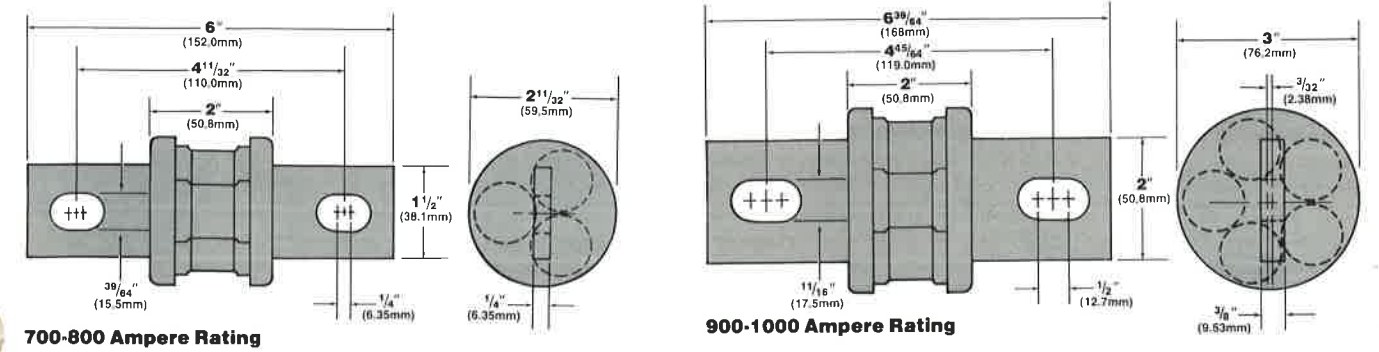


FWH 35-600 Ampere Rating

Ampere Rating	Dimensions in Inches								Dimensions in Millimeters							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
35-60	3 ³ / ₁₆	2 ¹⁵ / ₃₂	1 ³⁵ / ₆₄	1 ³ / ₁₆	1 ¹ / ₈	2 ³ / ₃₂	1 ¹ / ₃₂	1 ¹ / ₈	81.0	62.7	39.3	20.6	3.18	18.3	8.73	3.18
70-100	3 ⁵ / ₈	2 ¹¹ / ₁₆	1 ³⁵ / ₆₄	1 ³ / ₁₆	1 ¹ / ₈	3 ¹ / ₄	1 ¹¹ / ₃₂	1 ¹¹ / ₃₂	92.1	68.3	39.3	20.6	3.18	19.1	8.73	8.73
125-200	3 ⁵ / ₈	2 ⁵ / ₈	1 ⁹ / ₁₆	1	3 ¹ / ₁₆	1	1 ¹¹ / ₃₂	1 ¹ / ₄	92.1	66.7	39.7	25.4	4.76	25.4	8.73	6.35
250-400	4 ¹¹ / ₃₂	3 ³ / ₃₂	2 ³ / ₃₂	1 ²¹ / ₆₄	1 ¹ / ₄	1	1 ¹³ / ₃₂	1 ¹¹ / ₃₂	110	78.6	53.2	33.7	6.35	25.4	10.3	8.73
450-600	4 ¹⁵ / ₃₂	3 ¹⁷ / ₆₄	2 ³ / ₃₂	1 ¹⁹ / ₃₂	1 ¹ / ₄	1 ¹ / ₄	1 ¹⁵ / ₃₂	1 ¹⁵ / ₆₄	114	83.0	53.2	40.5	6.35	31.8	11.9	5.95

(Data continued on next page.)

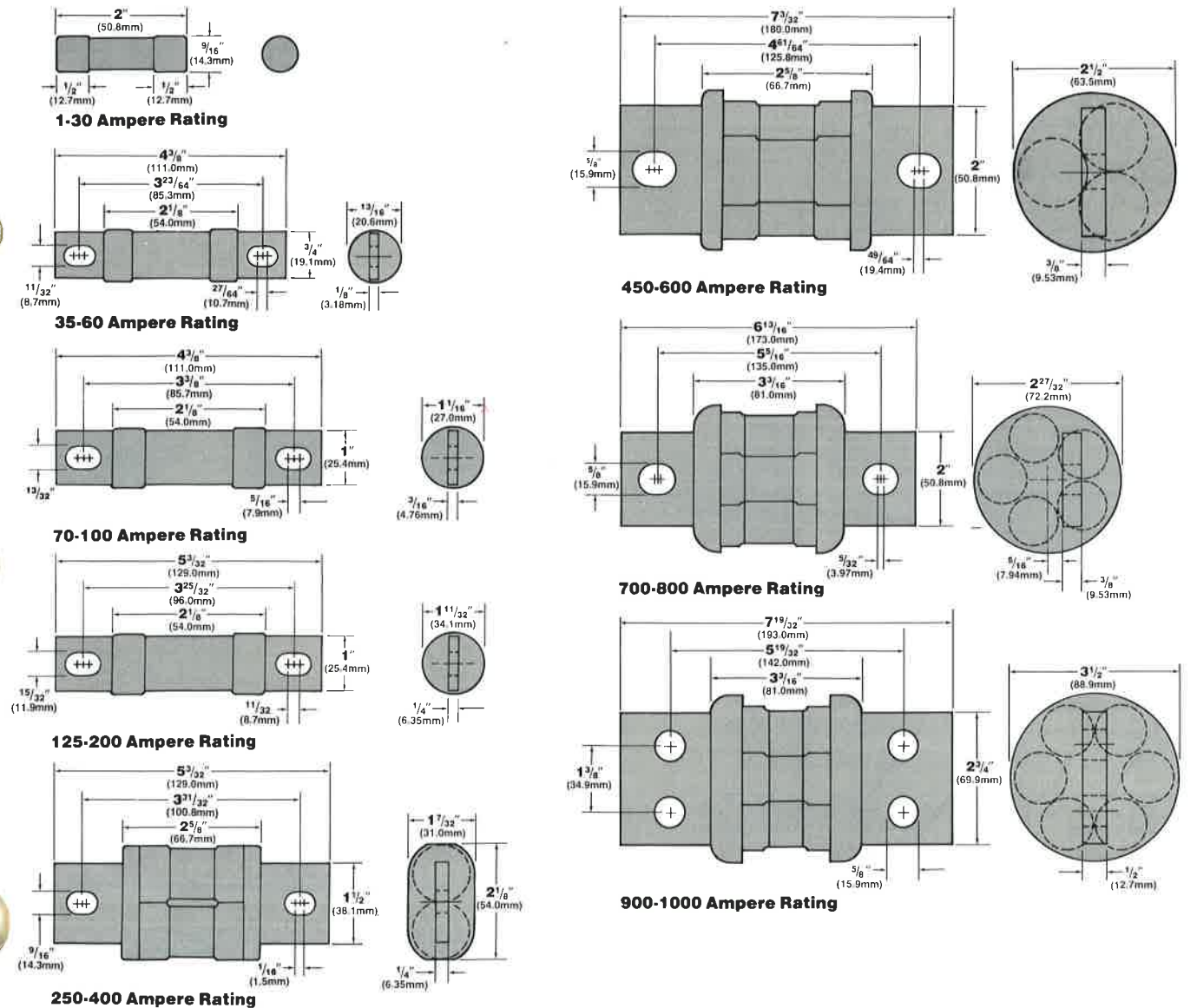
FWH Series (500 Volts) 1 to 1000 Amperes (cont.)



700-800 Ampere Rating

900-1000 Ampere Rating

FWP Series (700 Volts) 1 to 1000 Amperes



1-30 Ampere Rating

35-60 Ampere Rating

70-100 Ampere Rating

125-200 Ampere Rating

250-400 Ampere Rating

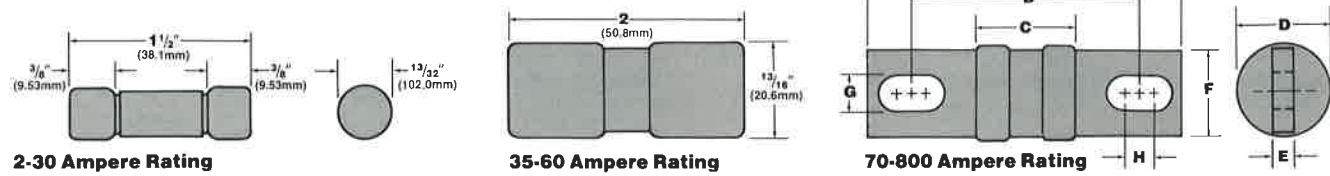
450-600 Ampere Rating

700-800 Ampere Rating

900-1000 Ampere Rating

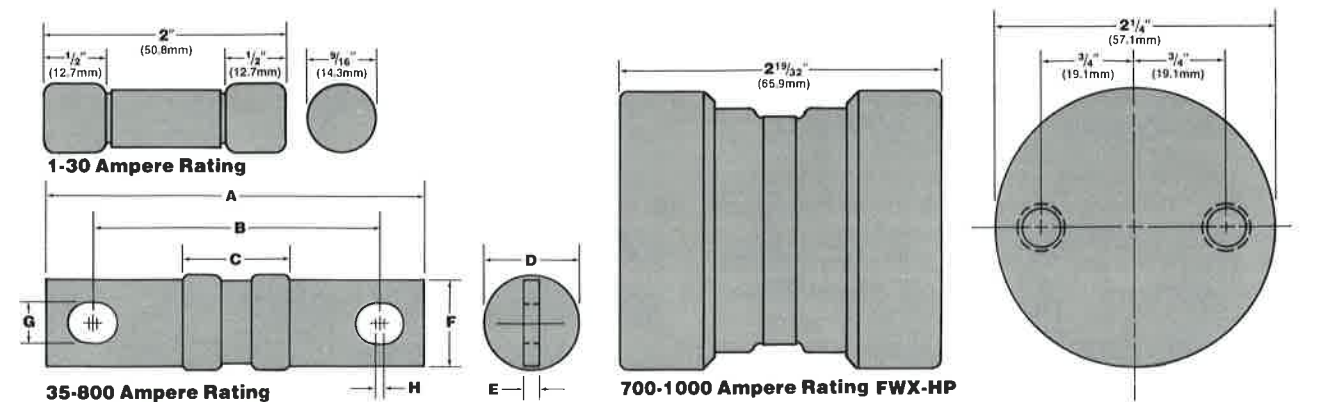
Semiconductor Fuses

FWA Series (150 Volts) 2 to 800 Amperes



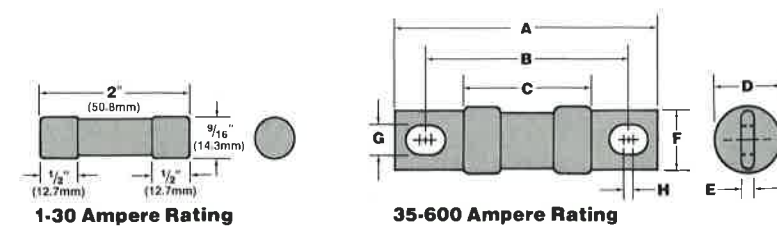
Ampere Rating	Dimensions in Inches								Dimensions in Millimeters							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
2-30	1 1/2"	3/8"	3/8"	1 1/2"	13/32"				38.1	9.53	9.53	38.1	102.0			
35-60	2"								50.8							
70-800																

FWX Series (250 Volts) 1 to 1000 Amperes



Ampere Rating	Dimensions in Inches								Dimensions in Millimeters							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
1-30	1 1/2"	1/2"	1/2"	1 1/2"	9/16"				38.1	12.7	12.7	38.1	14.3			
35-800	2"								50.8							
700-1000																

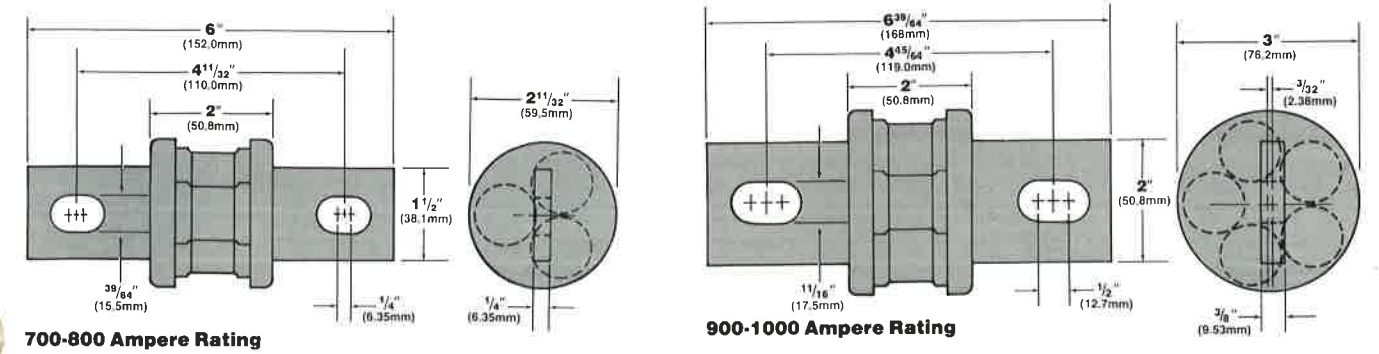
FWH Series (500 Volts) 1 to 1000 Amperes



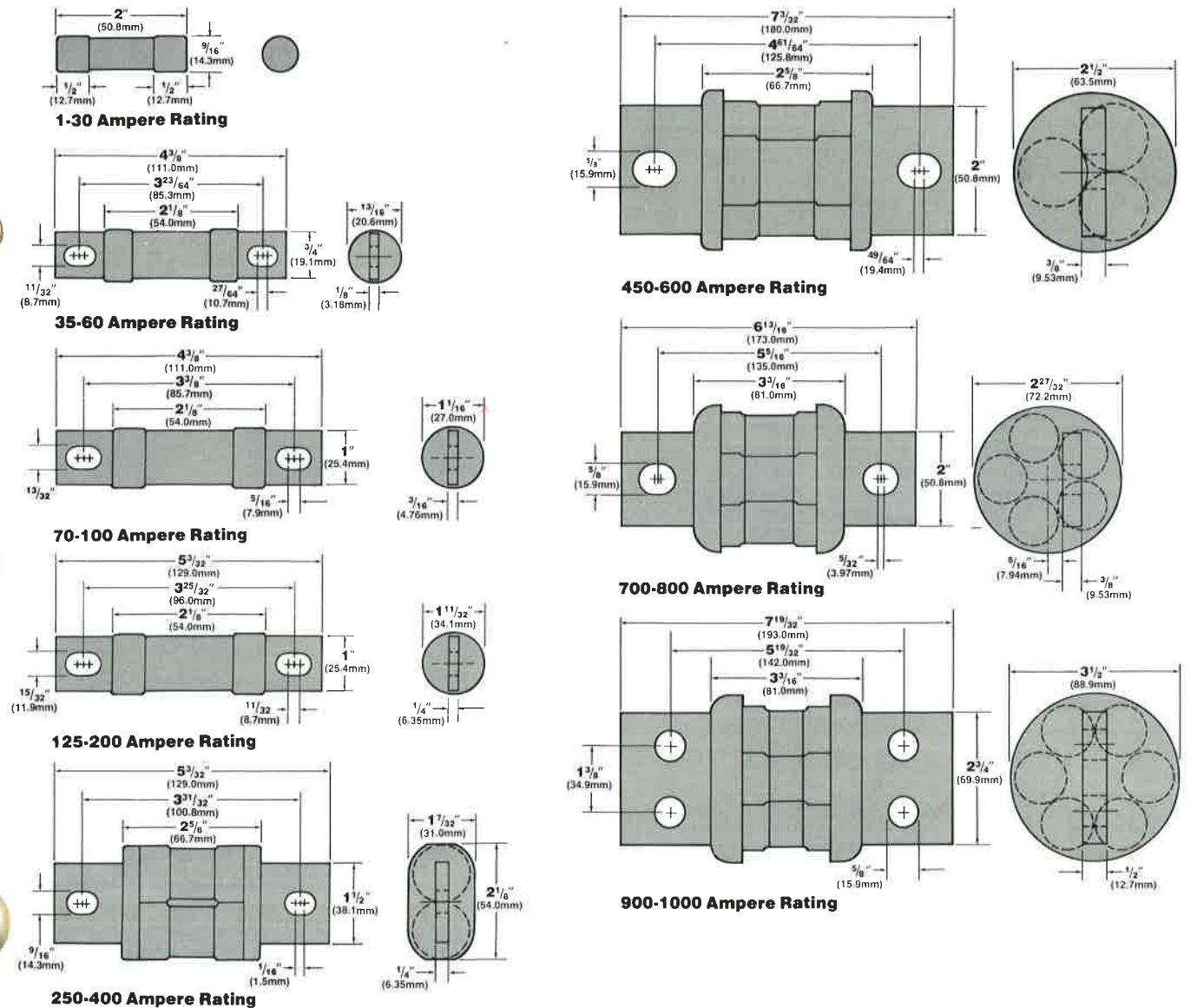
Ampere Rating	Dimensions in Inches								Dimensions in Millimeters							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
1-30	1 1/2"	1/2"	1/2"	1 1/2"	9/16"				38.1	12.7	12.7	38.1	14.3			
35-600	2"								50.8							

(Data continued on next page.)

FWH Series (500 Volts) 1 to 1000 Amperes (cont.)

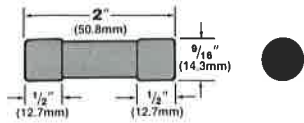


FWP Series (700 Volts) 1 to 1000 Amperes

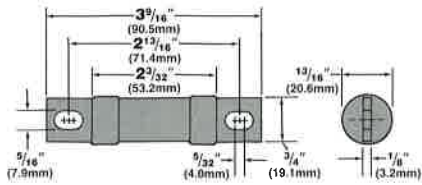


Semiconductor Fuses

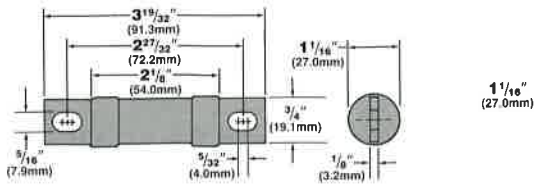
FBP Series (700 Volts) 15 to 1000 Amperes



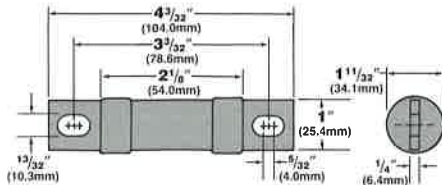
15-30 Ampere Rating



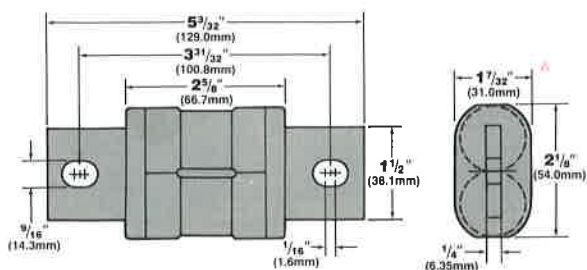
35-60 Ampere Rating



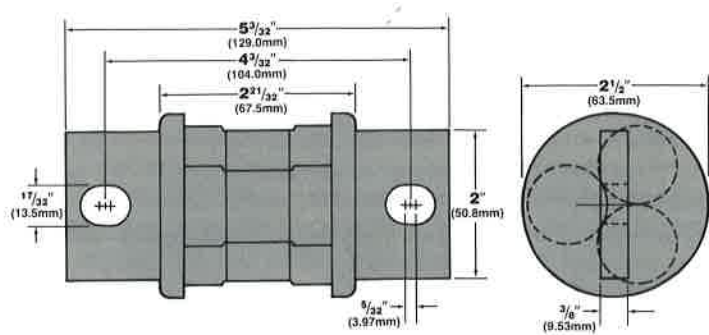
70-100 Ampere Rating



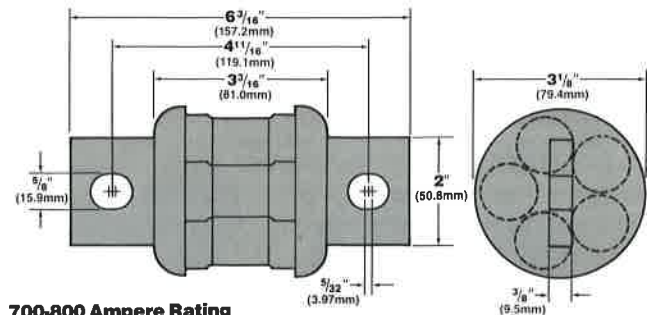
125-200 Ampere Rating



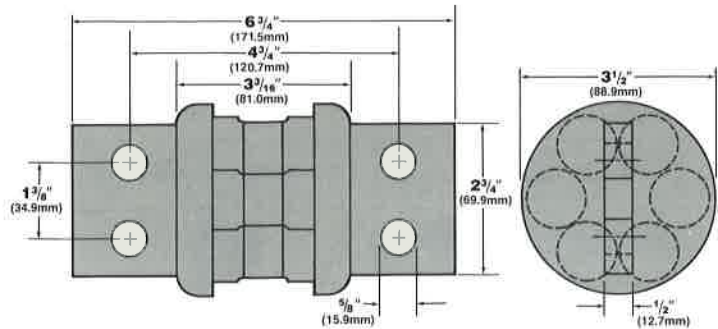
250-400 Ampere Rating



450-600 Ampere Rating



700-800 Ampere Rating



900-1000 Ampere Rating