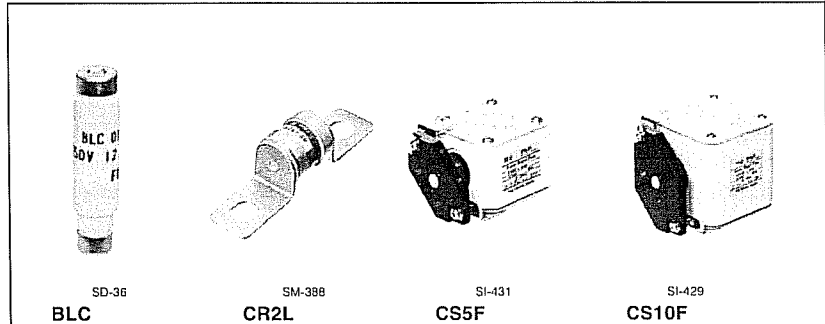


# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

## BLC, CR and CS types Super Rapid Fuses 150-1500 Volts AC 10-4700 Amps

### ■ Description

The FUJI BLC, CR and CS types are extremely reliable fuses which have been specially developed to provide protection for silicon diodes and thyristors and are suitable for inverters using semiconductors or transformers-rectifiers. FUJI Super Rapid Fuses are designed with a very small total  $I^2t$  value which gives them a high speed interrupting action in the face of abnormal currents. In addition the arc voltage generated at the time of interruption has a low value so that faults will not influence related electric machinery and equipment. These fuses can carry out the protection of many types of circuits rating from the semiconductor overcurrents to destructive short-circuiting faults-i.e. when the



semiconductors short or circuits fail the sound elements will be quickly isolated from the fault circuits.

### ■ Features

- The total clearing  $I^2t$  is small and the semiconductor circuit is completely protected.
- Since the peak arc voltage at the time of interruption is low damage to other equipment does not occur.

- High interrupting capacity of 200kA at 1000V AC
- The CS type is provided with a blown fuse indicator. An alarm contact block (1NO or 1NC) can also be attached.

- **UL recognized:** CR2L/UL, CR2LS/UL, CR6L/UL (File No. E92312)  
**CSA certified:** CR2LS/UL (File No. LO4000-4090)  
**TÜV:** CR2LS/UL (10-100A), CR2L/UL (150-350A) (Rep. No. E9450643E02) CR6L/UL (50-300A) (Rep. No. E9560543E02)

### ■ Specifications

Rated current (A)	Rated voltage (V)	Peak arc voltage (V)	Max. interrupting $I^2t$ (Amp <sup>2</sup> ·sec.) × 10 <sup>3</sup>	Watt loss (W)	Fuse-link Type	
12	550V AC	1550	0.09	5.1	BLC012-1	
20		1550	0.27	8.5	BLC020-1	
23		1550	0.39	10	BLC023-1	
45		1380	1.8	19	BLC045-1	
75		1250	5	32	BLC075-1	
90		1250	11.5	38	BLC090-1	
120		1200	33	51	BLC120-1	
140		1200	100	59	BLC140-1	
30		250V AC	Max. 500	0.35	4.0	CR2L-30
50				0.85	6.0	CR2L-50
75	2.3			9.0	CR2L-75	
100	4.0			12.0	CR2L-100	
125	6.5			14.0	CR2L-125	
140	7.0			16.0	CR2L-140	
150	9.5			18.0	CR2L-150	
175	13			21.0	CR2L-175	
200	17			23.0	CR2L-200	
225	22			26.0	CR2L-225	
260	27			30.0	CR2L-260	
300	38			35.0	CR2L-300	
325	49			37.0	CR2L-325	
350	60			37.0	CR2L-350	
400	103			39.0	CR2L-400	
450	140			46.0	CR2L-450	
500	160			48.0	CR2L-500	
550	200			51.0	CR2L-550	
600	215	56.0	CR2L-600			

Interrupting capacity  
 BLC ..... 100kA at 550V AC  
 CR2L .... 100kA at 250V AC

Rated current (A)	Rated voltage (V)	Peak arc voltage (V)	Max. interrupting $I^2t$ (Amp <sup>2</sup> ·sec.) × 10 <sup>3</sup>	Watt loss (W)	Fuse-link Type
10	250V AC	Max. 500	0.04	1.2	CR2LS-10
20			0.17	3.0	CR2LS-20
30			0.35	4.0	CR2LS-30
50			0.85	6.0	CR2LS-50
75			2.3	9.0	CR2LS-75
100			4.0	12.0	CR2LS-100
20			600V AC	Max. 1200	0.14
30	0.35	7.0			CR6L-30
50	1.8	9.0			CR6L-50
75	3.0	12.5			CR6L-75
100	7.0	15			CR6L-100
150	18	22.0			CR6L-150
200	30	34.0			CR6L-200
250	70	37.0			CR6L-250
300	95	40.0			CR6L-300
350	150	45.0			CR6L-350
400	200	55			CR6L-400
500	390	60			CR6L-500
600	700	70			CR6L-600

Interrupting capacity  
 CR2LS ..... 100kA at 250V AC  
 CR6L ..... 100kA at 600V AC

08

# Low Voltage Fuses

## BLC, CR and CS types

### Super Rapid Fuses

#### ■ Specifications

Rated current (A)	Inter-rupting capacity (kA)	Max. interrupting I <sup>2</sup> t (Amp <sup>2</sup> ·sec.) × 10 <sup>3</sup>	Watt loss (W)	Fuse-link Type
4700	150 at 125V AC	14000	310	CS1F-4700
2000 3000	150 at 250V AC	1950 5500	124 216	CS2F-2000 CS2F-3000
40 75 100 150 200 250 300 350 400 450 500 600 800 1000 1000 1200 1200 1500	200 at 500V AC	1 3.5 5 10 18.5 33 64 85 122 131 159 257 600 1200 843 1800 1311 3600	6.4 12 17 25 34 42 45 56 57 62 73 80 114 110 167 114 200 209	CS5F-40 CS5F-75 CS5F-100 CS5F-150 CS5F-200 CS5F-250 CS5F-300 CS5F-350 CS5F-400 CS5F-450 CS5F-500 CS5F-600 CS5F-800 CS5F-1000 CS5F-1000-P CS5F-1200 CS5F-1200-P CS5F-1500
1000 1200 1500	200 at 800V AC	1800 2500 4400	125 176 220	CS8F-1000 CS8F-1200 CS8F-1500
80 100 150 200 250 300 350 400 500 560 630 750 800 1000 1250 1500	200 at 1000V AC	10 16 37 63 110 148 211 307 420 410 450 640 1259 1722 2250 3200	17 21 27 37 44 53 70 74 90 102 135 156 211 245 330 334	CS10F-80 CS10F-100 CS10F-150 CS10F-200 CS10F-250 CS10F-300 CS10F-350 CS10F-400 CS10F-500 CS10F-560 CS10F-630 CS10F-750 CS10F-800-P CS10F-1000-P CS10F-1250-P CS10F-1500-C
450 630 900 1250	100 at 1500V AC	350 760 1400 3050	134 170 280 350	CS15F-450 CS15F-630 CS15F-900-P CS15F-1250-P

- Note:
- Peak arc voltage  
CS1F ..... Max. 450V  
CS2F ..... Max. 750V  
CS5F ..... Max. 1000V  
CS8F ..... Max. 2000V  
CS10F ... Max. 2000V  
CS15F ... Less than 3000V
  - An alarm contact block AHX2905 (1NO) or AHX2915 (1NC) can be attached to CS type. (Sold separately) See page 08/44.

Note: UL recognized fuse  
In the UL recognized fuses, a fuse with a blown indication fuse, or a fuse both with a blown indication fuse and a precision switch is also UL recognized.

Examples: CR2L-200G/UL  
CR2LS-30S/UL  
CR6L-100G/UL

#### ■ Specifications (UL-recognized, CSA certified, TÜV)

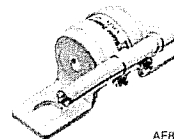
Rated current (A)	Rated voltage	Inter-rupting capacity (kA)	Max. interrupting I <sup>2</sup> t (Amp <sup>2</sup> ·sec.) × 10 <sup>3</sup>	Watt loss (W)	Fuse-link Type
10 20 30 50 75 100	250V AC 400V DC	10 at AC (pf: 0.8) 10 at DC (L/R: 2ms)	0.04 0.17 0.35 0.85 2.3 4.0	1.2 3.0 4.0 6.0 9.0 12.0	CR2LS-10/UL CR2LS-20/UL CR2LS-30/UL CR2LS-50/UL CR2LS-75/UL CR2LS-100/UL
150 200 260 350 400 450 500 550 600			9.5 17 27 60 103 140 160 200 215	18.0 23.0 30.0 37.0 39.0 46.0 48.0 51.0 56.0	CR2L-150/UL CR2L-200/UL CR2L-260/UL CR2L-350/UL CR2L-400/UL CR2L-450/UL CR2L-500/UL CR2L-550/UL CR2L-600/UL
20 30	600V AC 680V DC	100 at AC (pf: 0.8) 10 at DC (L/R: 2ms)	0.14 0.35	4.0 7.0	CR6L-20/UL CR6L-30/UL
50 75 100			1.8 3.0 7.0	9.0 12.5 15.0	CR6L-50/UL CR6L-75/UL CR6L-100/UL
150		100 at AC (pf: 0.8) 50 at DC (L/R: 2ms)	18	22.0	CR6L-150/UL
200 300			30 95	34.0 40.0	CR6L-200/UL CR6L-300/UL

- Note:
- Peak arc voltage  
CR2LS, CR2L .... Max. 500V  
CR6L ..... Max. 1200V
  - The peak arc voltage is obtained by interruption caused by the listed interrupting current at rated voltage.
  - This indicates the values when the conductors specified in UL Standards are connected and rated current apply.
  - TÜV: CR2LS, 2L: Up to 350A  
CR6L: 50 to 300A

#### ■ CR type fuse with optional accessory

##### Fuse with blown indication fuse

##### CR2L (S) - G



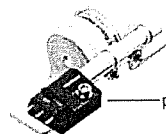
AF88-446

##### Fuse with blown indication fuse and precision switch

##### CR2L (S) - S

##### Precision switch (SPDT)

##### CRX-1



precision switch

AF88-445



AF88-442

# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

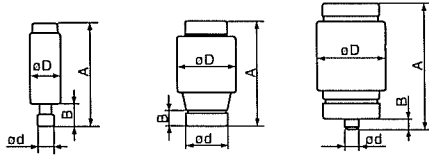
## ■ Dimensions, mm

### ● BLC

BLC012, 020, 023

BLC045

BLC075 to 140



Type	Rated current (A)	A	B	øD	ød	Color of indicator	Mass (g)
BLC012-1	12	50	10	13	10	Grey	12
BLC020-1	20	50	10	13	14	Yellow	12
BLC023-1	23	50	10	13	14	Violet	12
BLC045-1	45	50	10	27	20	White	62
BLC075-1	75	63	6	34	5	Silver	120
BLC090-1	90	63	6	34	8	Red	120
BLC120-1	120	63	6	47	8	Yellow	120
BLC140-1	140	63	6	47	8	Light red	215

Note: The BLC type fuse link requires a holder in use. The size of the holder differs according to the fuse ratings. Select the most suitable one after referring to the Table on page 08/44. For drawings see page 08/32.

## ■ Ordering information

Specify the following:

1. Type number

## ■ Type number nomenclature

**BLC 012-1**

Rated current: 12 to 140A  
Plug-in type super rapid fuse

**CS 10F-1000 □-P/ UL**

UL recognized (CR2L, CR2LS, CR6L)  
CSA certified (CR2LS)  
TÜV (CR2LS, CR2L, CR6L)

2-fuse connected parallel

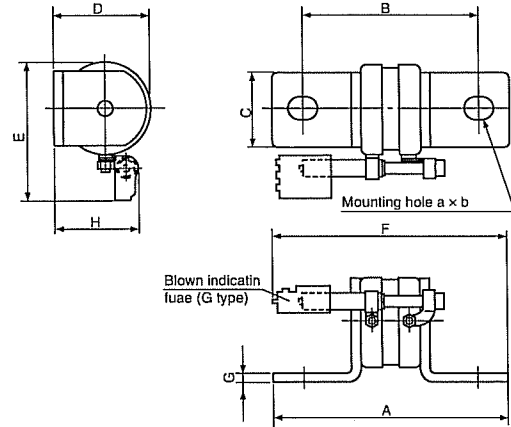
Optional accessory (See page 08/44)  
G: With blown indication fuse  
S: With blown indication fuse and precision switch

Rated current  
10 to 4700A

Rated voltage  
2L, 2LS: 250V AC, 6L: 600V AC  
1F: 150V AC, 2F: 250V AC  
5F: 500V AC, 8F: 800V AC  
10F: 1000V AC, 15F: 1500V AC

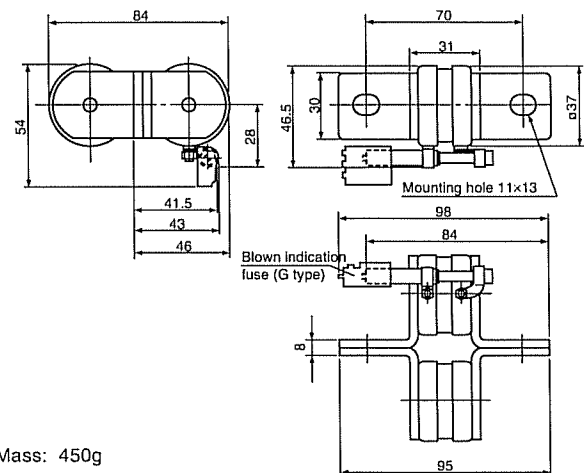
CR: Barrel-shaped super rapid fuse  
CS: Cubic-shaped super rapid fuse

## ● CR2L-450 or smaller, CR2LS



Type	A	B	C	D	E	a x b	F	G	H	Mass
CR2L-30	80	58	18	21.5	37	9×11	90	1.5	26.5	42g
CR2L-50										
CR2L-75	80	58	20	30.5	44	9×11	90	3	32.5	100g
CR2L-100										
CR2L-125										
CR2L-140										
CR2L-150										
CR2L-175										
CR2L-200	85	60	25	33.5	47	11×13	93	3.2	33.5	130g
CR2L-225										
CR2L-260										
CR2L-300										
CR2L-325										
CR2L-350	95	70	30	42	54	11×13	98	4	39	220g
CR2L-400										
CR2L-450										
CR2LS-10	56	42	12	18.5	34.5	6.5×8.5	78	2	25	28g
CR2LS-20										
CR2LS-30										
CR2LS-50										
CR2LS-75										
CR2LS-100										

## ● CR2L-500 to -600



Mass: 450g

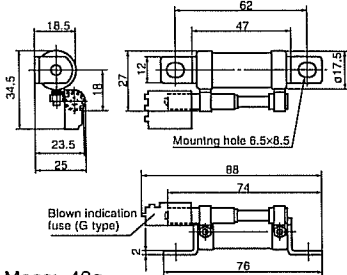
Dimensions for reference only. Confirm before construction begins.

Note: The dimensions of the fuses with suffix, UL are the same as those of the standard ones.

# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

## ■ Dimensions, mm

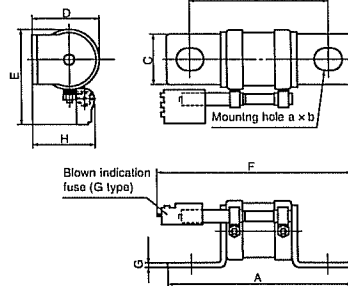
### ● CR6L-20, CR6L-30, CR6L-50



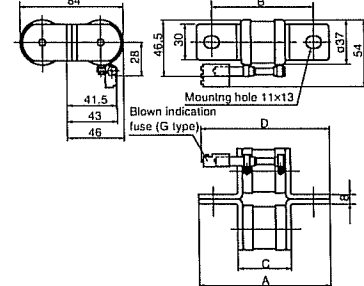
Mass: 42g

Type	A	B	C	D	E	F	G	H	axb	Mass (g)
CR6L-75	95	70	25	34	47	102	3.2	33.5	11x13	150
CR6L-100										
CR6L-150										
CR6L-200	107	82	30	42	54	107	4	39	11x13	246
CR6L-250										
CR6L-300										

### ● CR6L-75 to 300

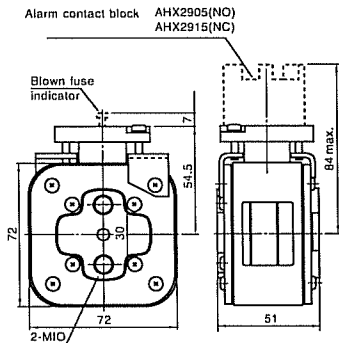


### ● CR6L-350 to 600



Type	A	B	C	D	Mass (g)
CR6L-350	107	82	43	107	493
CR6L-400	121	96	43	114	522
CR6L-500					
CR6L-600	121	96	47.4	114	545

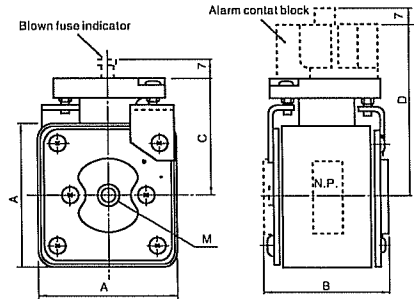
### ● CS1F-4700 CS2F-2000, 3000



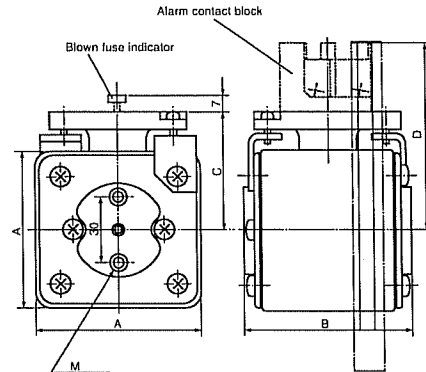
Mass: 800g

Voltage	Type	A	B	C	D	M	Mass (g)
500V	CS5F-40	47	47	42.5	65.5	M8	320
	CS5F-75						
	CS5F-100						
	CS5F-150						
	CS5F-200						
	CS5F-250	57	51	47	70	M8	510
	CS5F-300						
	CS5F-350						
	CS5F-400	72	51	54.5	77	M10	800
	CS5F-450						
CS5F-500							
CS5F-600							
CS5F-800							
CS5F-1000	72	51	54.5	77	M12	830	
CS5F-1200							
CS5F-1500							

### ● CS5F-40 to 1500 CS10F-80 to 750 CS15F-450, 630



### ● CS8F-1000, 1200, 1500

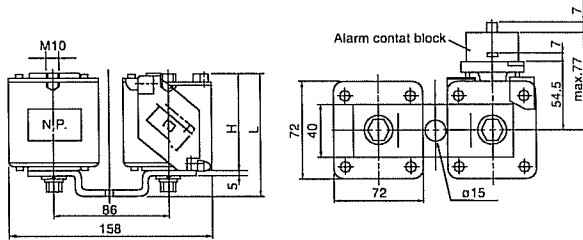


Voltage	Type	A	B	C	D	M	Mass (g)
800V	CS8F-1000	72	74	54.5	84	M12	1060
	CS8F-1200						
1000V	CS8F-1500	72	82	54.5	84	M8	1150
	CS10F-80	47	71	42.5	65.5	M8	420
	CS10F-100						
	CS10F-150	57	74	47	70	M8	690
	CS10F-200						
	CS10F-250						
	CS10F-300	72	74	54.5	77	M10	1060
	CS10F-350						
	CS10F-400						
	CS10F-500						
CS10F-630							
CS10F-750							
1500V	CS15F-450	72	105	54.7	77	M10	1400
	CS15F-630						

# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

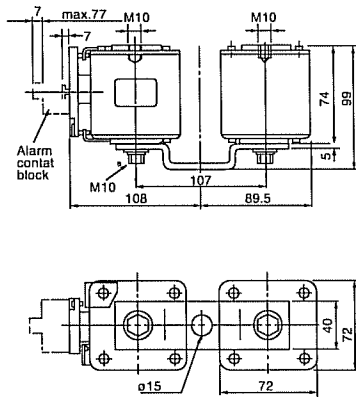
## ■ Dimensions, mm

- CS5F-P CS10F-P, CS15F-P



Voltage	Type	H	L	Mass (g)
500V	CS5F-1000-P	51	69	1900
	CS5F-1200-P			
1000V	CS10F-800-P	74	92	2420
	CS10F-1000-P			
	CS10F-1250-P			
1500V	CS15F-900-P	105	123	3100
	CS15F-1250-P			

- CS10F-1500-C

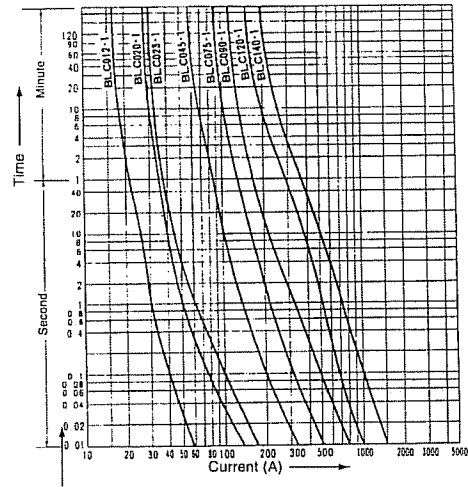


Mass: 2500g

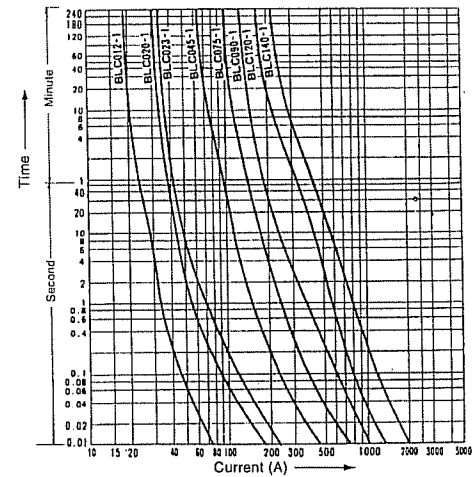
## ■ Characteristic curves

### BLC

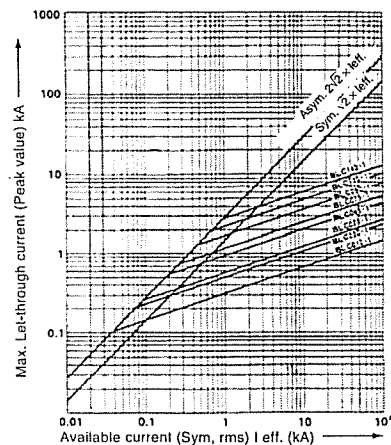
Melting time-current characteristic



### Operating time-current characteristic

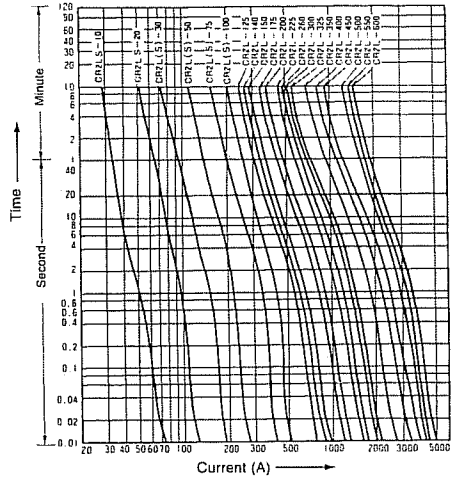


### Current-limiting characteristic

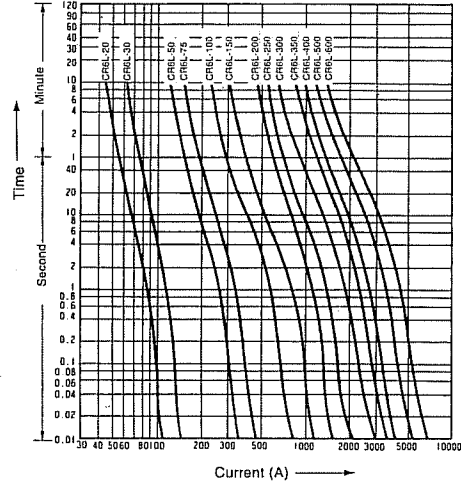


# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

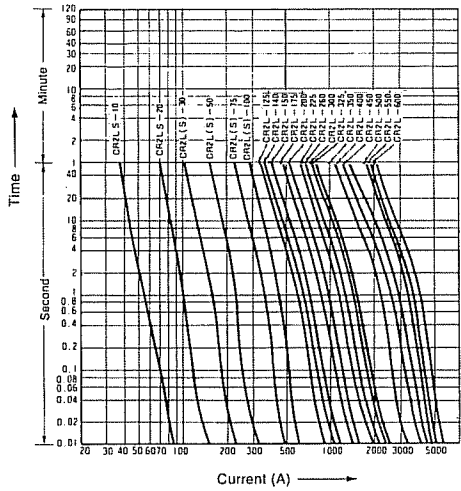
## ■ Characteristic curves CR2L, CR2LS Melting time-current characteristic



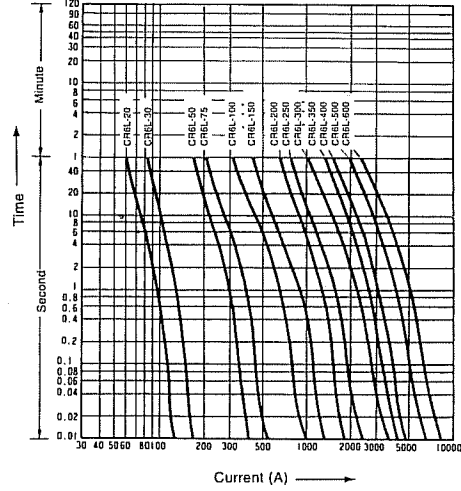
## CR6L Melting time-current characteristic



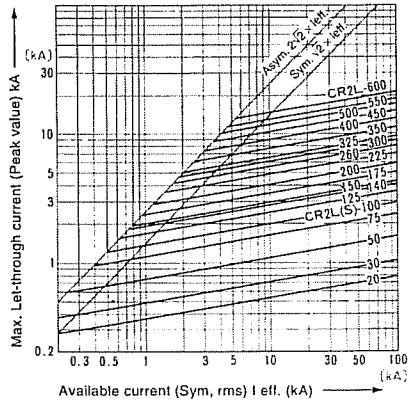
## Operating time-current characteristic



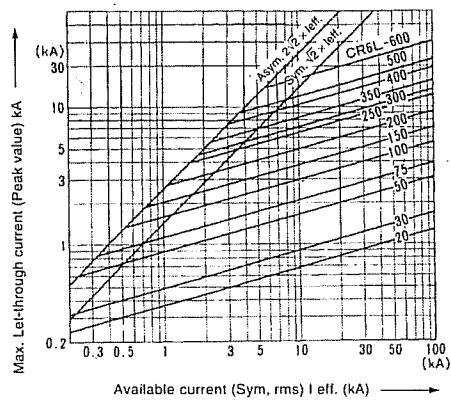
## Operating time-current characteristic



## Current-limiting characteristic



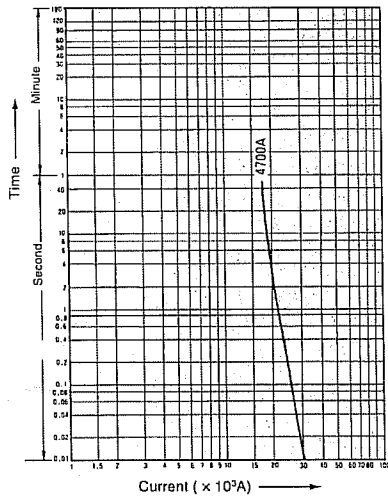
## Current-limiting characteristic



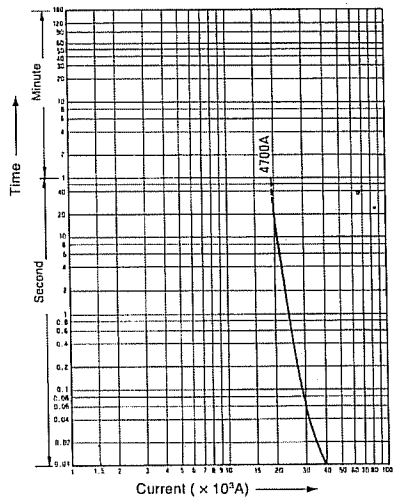
■ Characteristic curves

CS1F

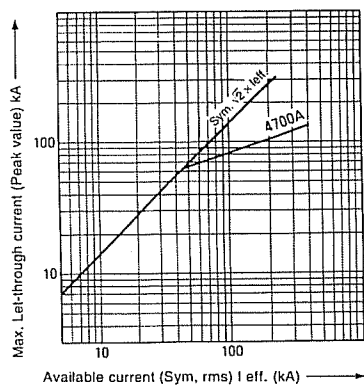
Melting time-current characteristic



Operating time-current characteristic

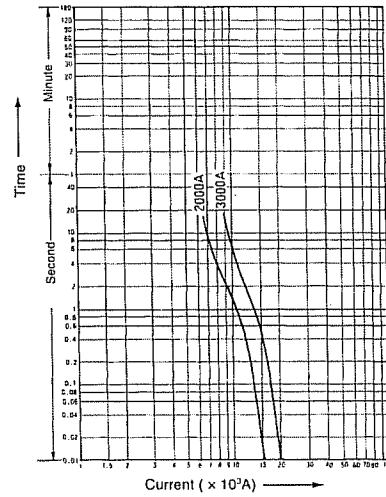


Current-limiting characteristic

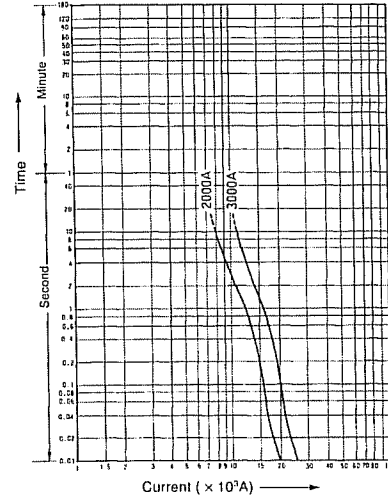


CS2F

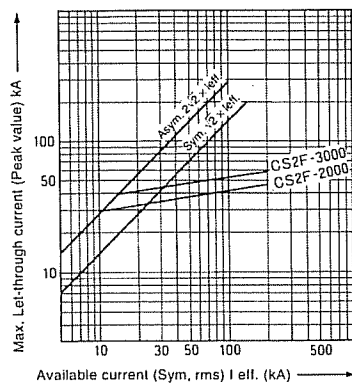
Melting time-current characteristic



Operating time-current characteristic



Current-limiting characteristic

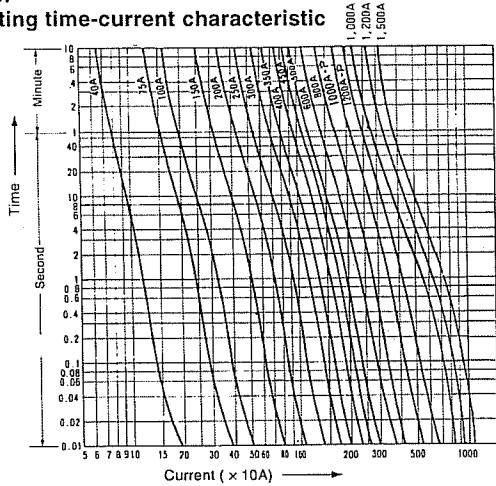


# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

## ■ Characteristic curves

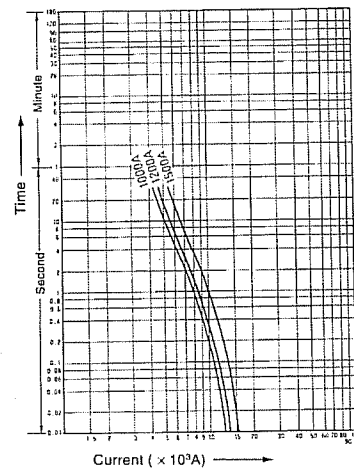
### CS5F

#### Melting time-current characteristic

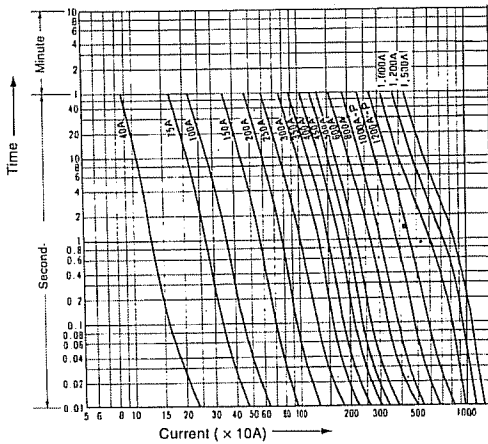


### CS8F

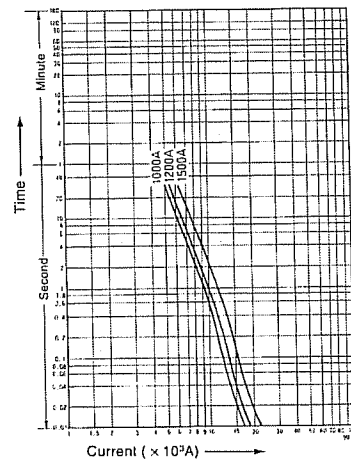
#### Melting time-current characteristic



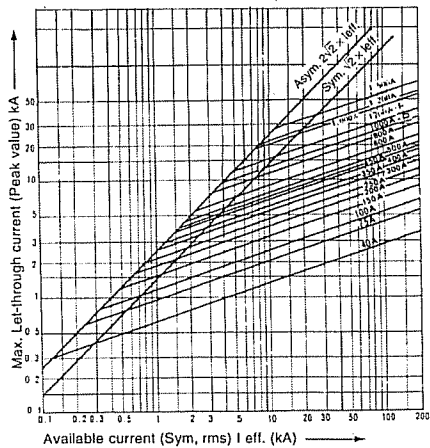
#### Operating time-current characteristic



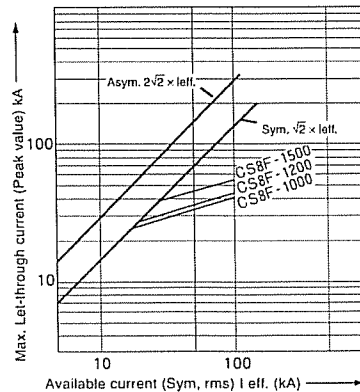
#### Operating time-current characteristic



#### Current-limiting characteristic



#### Current-limiting characteristic



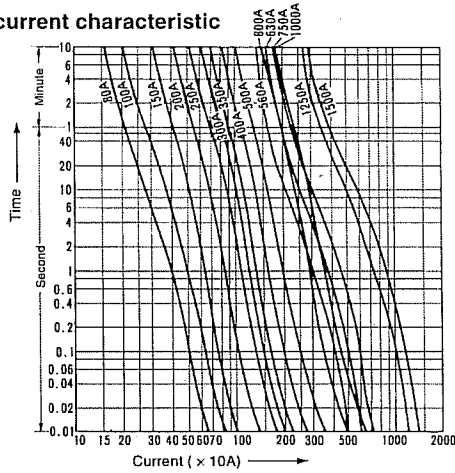


# Low Voltage Fuses BLC, CR and CS types Super Rapid Fuses

## ■ Characteristic curves

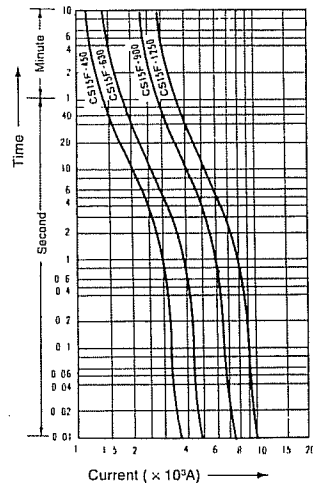
### CS10F

#### Melting time-current characteristic

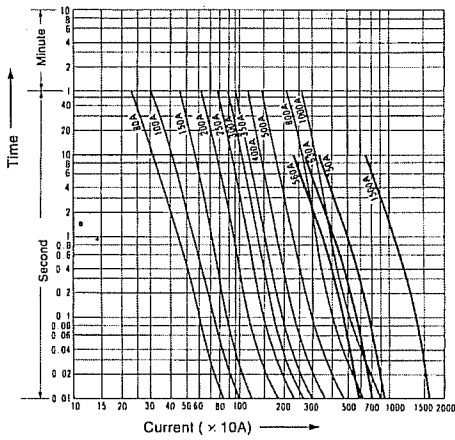


### CS15F

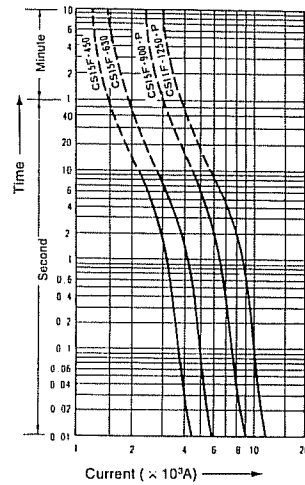
#### Melting time-current characteristic



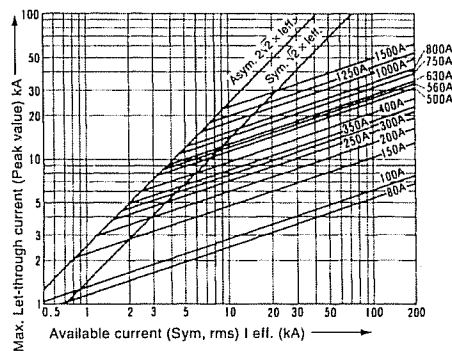
#### Operating time-current characteristic



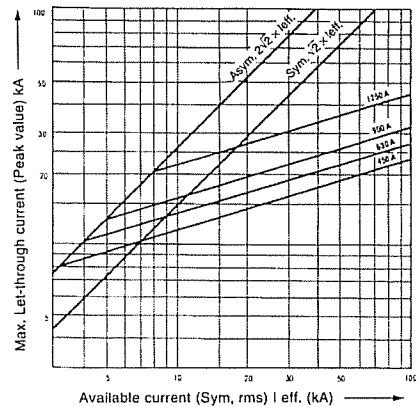
#### Operating time-current characteristic



#### Current-limiting characteristic



#### Current-limiting characteristic



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