

DISTRIBUTION

Miniature Circuit Breakers BE1 Series

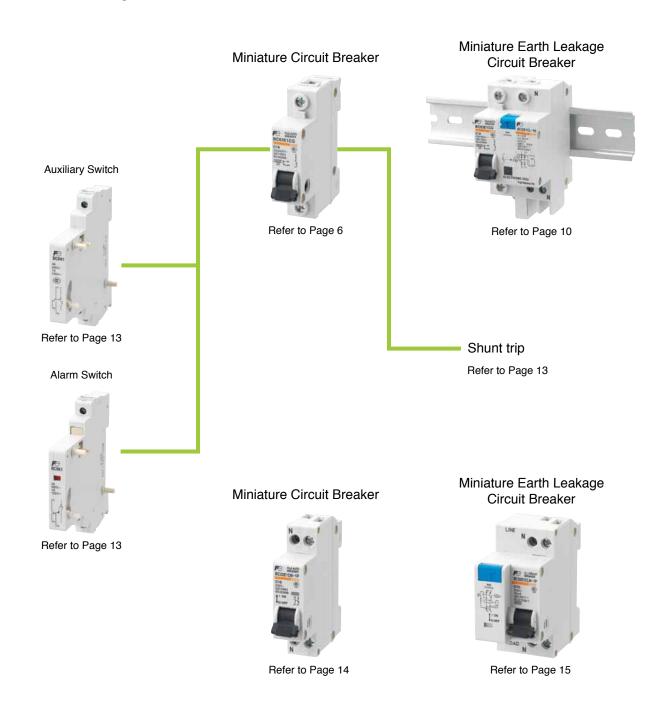


Features

This series of miniature circuit breaker is for the purpose of the protection of distribution equipment in the residential or similar facility, to protect against short circuit and overload damage.

- Among the characteristics of overload protection, there are the Curve C characteristic for the protection of lighting electrical systems having 5 ~ 10ln instantaneous tripping characteristic, and the Curve D characteristic for the protection of ordinary electrical system wires having 10 ~ 14ln instantaneous tripping characteristic.
- · ELCB is completed by combining a miniature circuit breaker with an earth leakage shunt trip device.
- As functional components can be installed such as auxiliary switch, alarm switch among others, it can monitor and control the electrical system.

Product Composition



Catalog Disclaimer

The information contained in this catalog does not constitute an express or implied warranty of quality, any warranty of merchantability of fitness for a particular purpose is hereby disclaimed.

Since the user's product information, specific use application, and conditions of use are all outside of Fuji Electric FA Components & Systems'control, it shall be the responsibility of the user to determine the suitability of any of the products mentioned for the user's application.

One Year Limited Warranty

The products identified in this catalog shall be sold pursuant to the terms and conditions identified in the "Conditions of Sale" issued by Fuji Electric FA with each order confirmation.

Except to the extent otherwise provided for in the Conditions of Sale issued by Fuji Electric FA, Fuji Electric FA warrants that the Fuji Electric FA products identified in this catalog shall be free from significant defects in materials and workmanship provided the product has not been: 1) repaired or altered by others than Fuji Electric FA; 2) subjected to negligence, accident, misuse, or damage by circumstances beyond Fuji Electric FA's control; 3) improperly operated, maintained or stored; or 4) used in other than normal use or service. This warranty shall apply only to defects appearing within one (1) year from the date of shipment by Fuji Electric FA, and in such case, only if such defects are reported to Fuji Electric FA within thirty (30) days of discovery by purchaser. Such notice should be submitted in writing to Fuji Electric FA at 5-7, Nihonbashi Odemma-cho, Chuo-ku, Tokyo, Japan. The sole and exclusive remedy with respected to the above warranty whether such claim is based on warranty, contract, negligence, strict liability or any other theory, is limited to the repair or replacement of such product or, at Fuji Electric FA's option reimbursement by Fuji Electric FA of the purchase price paid to Fuji Electric FA for the particular product. Fuji Electric FA does not make any other representations or warranties, whether oral or in writing, expressed or implied, including but not limited to any warranty regarding merchantability or fitness for a particular purpose. Except as provided in the Conditions of Sale, no agent or representative of Fuji Electric FA is authorized to modify the terms of this warranty in writing or orally.

In no event shall Fuji Electric FA be liable for special, indirect or consequential damages, including but not limited to, loss of use of the product, other equipment, plant and power system which is installed with the product, loss of profits or revenues, cost of capital, or claims against the purchaser or user of the product by its customers resulting from the use of information, recommendations and descriptions contained herein. The purchaser agrees to pass on to its customers and users, in writing at the time inquiries and orders are received by buyer, Fuji Electric FA's warranty as set forth above.

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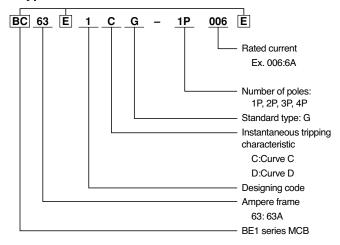
BC63 Series

BC63 Series Miniature Circuit Breaker Standards

Application

- Curve C: Illumination distribution system
 Curve D: Industrial distribution system
- Overload and short circuit protection

• Type number nomenclature



Standards and Certificates

- IEC 60898-1, GB 10963.1
- · CE, CCC

Working Condition

- Ambient temperature: -35°C to +70°C
- Altitude: ≤2000m
 Air humidity: ≤95%
 Pollution degree: II
- A place where there should not be significant shock or vibration

Product Features

- With short circuit current limiting structure-high breaking capacity of lated short circuit.
- · Short-circuit and overload protection
- · Screw clamp, shock-proof wiring terminals
- · Numerous accessories available
- · Modularization-random combination, series mating
- · Standard TH35 mm IEC rail mounting

Specifications

Rated voltage: AC230/400V, 50/60Hz

Rated current: page 5-6Mechanical life: 10000 times

• Tripping characteristic: C: 5~10In D: 10-14In

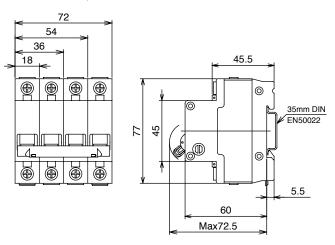
· Breaking capacity

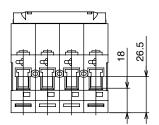
Tripping characteristic	Rated current (A)	Rated operational voltage (V)	Rated breaking capacity (kA)
0	1~40	230/400	6
Curve C	50, 63	230/400	4.5
Curve D	1~40	230/400	4.5

Wiring Capacity

Rated current (A)	Wire size (mm²)
In≤63	25

• Dimensions, mm



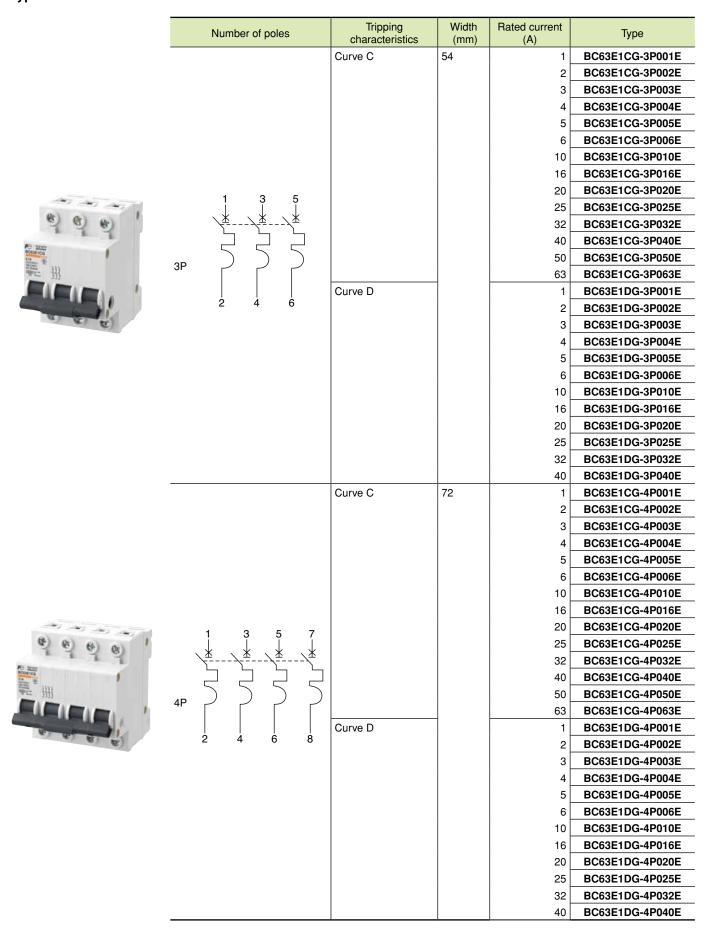


● Type and Rated Current

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40 BC63E1CG-2P040E 50 BC63E1CG-2P050E 63 BC63E1CG-2P063E Curve D 1 BC63E1DG-2P002E 2 BC63E1DG-2P003E 4 BC63E1DG-2P005E 5 BC63E1DG-2P005E 6 BC63E1DG-2P016E 10 BC63E1DG-2P016E 20 BC63E1DG-2P020E 25 BC63E1DG-2P025E 32 BC63E1DG-2P032E	1 3			l	
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63 BC63E1CG-2P063E Curve D 1 BC63E1DG-2P001E 2 BC63E1DG-2P002E 3 BC63E1DG-2P004E 5 BC63E1DG-2P005E 6 BC63E1DG-2P016E 10 BC63E1DG-2P016E 20 BC63E1DG-2P026E 20 BC63E1DG-2P026E 20 BC63E1DG-2P026E 20 BC63E1DG-2P026E 21 BC63E1DG-2P028E 22 BC63E1DG-2P028E	<u>*</u> *				
Curve D 1 BC63E1DG-2P001E 2 BC63E1DG-2P002E 3 BC63E1DG-2P003E 4 BC63E1DG-2P005E 5 BC63E1DG-2P006E 10 BC63E1DG-2P016E 10 BC63E1DG-2P016E 20 BC63E1DG-2P026E 25 BC63E1DG-2P025E 32 BC63E1DG-2P032E	2P				
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3 BC63E1DG-2P003E 4 BC63E1DG-2P004E 5 BC63E1DG-2P006E 6 BC63E1DG-2P010E 10 BC63E1DG-2P010E 20 BC63E1DG-2P020E 25 BC63E1DG-2P025E 32 BC63E1DG-2P032E	ΓΓ	Curve D			
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10 BC63E1DG-2P010E 16 BC63E1DG-2P010E 20 BC63E1DG-2P020E 25 BC63E1DG-2P025E 32 BC63E1DG-2P032E				5	BC63E1DG-2P005E
16 BC63E1DG-2P016E 20 BC63E1DG-2P020E 25 BC63E1DG-2P025E 32 BC63E1DG-2P032E				6	BC63E1DG-2P006E
20 BC63E1DG-2P020E 25 BC63E1DG-2P025E 32 BC63E1DG-2P032E				10	BC63E1DG-2P010E
25 BC63E1DG-2P025E 32 BC63E1DG-2P032E				16	BC63E1DG-2P016E
32 BC63E1DG-2P032E				20 [BC63E1DG-2P020E
				25	BC63E1DG-2P025E
40 RC63E1DC-2D040B				32	BC63E1DG-2P032E
1 40 BC03E IDG-2F040E				40	BC63E1DG-2P040E

BC63 Series

■ Type and Rated Current



Precautions for the DC use of BC63 Series Miniature Circuit Breaker

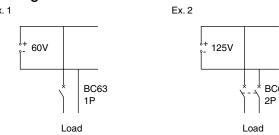
- Choose the rated current of the circuit breaker according to the power of direct current circuit.
- DC rated voltage determines the number of cascades of circuit breaker to use.

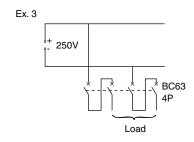
DC60V One pole
DC125V Two poles
DC250V Four poles

- Such use does not have to be divided into positive and negative and can be up and down into the line.
- In the above use condition, the estimated short circuit current cannot exceed its rated service short circuit breaking capacity.

Circuit breaker	Rated current		C rated service short circuit breaking capacity (kA)		
model (A	(A)	60V	125V	250V	
BC63	1A~63A	10(1P)	20(2P)	50(4P)	

Wiring Schematics





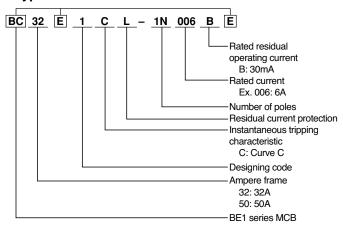
BC32 and BC50 Series

Miniature Earth Leakage Circuit Breaker Standards

Application

 Clip onto the right side of BC32E1, BC50E1 series MCB protection against earth leakage faults.

• Type number nomenclature



Appearance



Wiring Capacity

Rated		Wire size (mm²)
current (A)	Power	Load
In≤32	0.5	10
In≤50	25	25

Standards and Certificates

• IEC 61009-1, GB 16917.1

• CCC

Working Condition

• Ambient temperature: -5°C to +40°C

Altitude: ≤2000mAir humidity: ≤95%Pollution degree: II

A place where there should not be significant shock or vibration

Specifications

 Rated voltage: AC230/400V(1PN, 2P) 50Hz AC400V(3P, 3PN, 4P) 50Hz

· Rated current: page 10

· Rated residual operating current: 30mA

· Mechanical life: 20000 times

• Instantaneous tripping characteristic: curve C: 5-10In

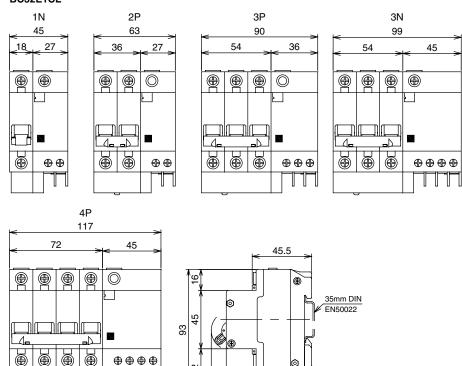
· Breaking capacity

Tripping characteristic	Rated current (A)	Rated operational voltage (V)	Rated breaking capacity (kA)
Curve C	1~40	230/400	6
	50	230/400	4.5

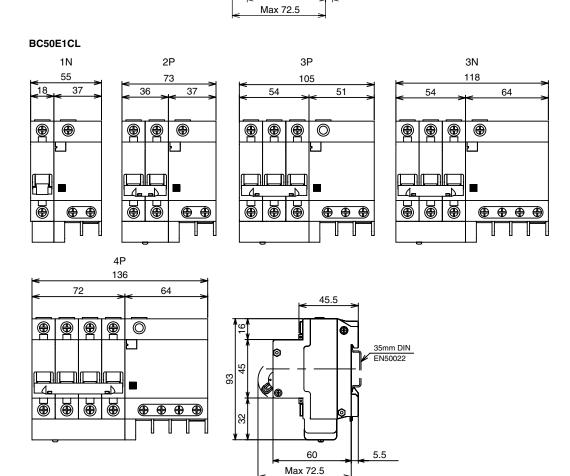
• Dimensions, Miniature Earth Leakage Circuit Breaker, mm

Miniature earth leakage circuit breaker consists of miniature circuit breaker and earth leakage shunt trip.

BC32E1CL



32



60

5.5

BC32 and BC50 Series

● Type and Rated Current

Number	of Miring diagram	Tripping		th (mm)	Rated current	Tuno
Number of poles	of Wiring diagram	characteristics	Miniature circuit breaker	Earth leakage shunt trip	Rated current (A)	Туре
		Curve C	18	27	1	BC32E1CL-1N001BE
					2	BC32E1CL-1N002BE
	N				3	BC32E1CL-1N003BE
	.1				4	BC32E1CL-1N004BE
	'				5	BC32E1CL-1N005BE
	<u>,</u> * <u> </u>				6	BC32E1CL-1N006BE
1N					10	BC32E1CL-1N010BE
	7 1 1				16	BC32E1CL-1N016BE
) [.]				20	BC32E1CL-1N020BE
	2 N				25	BC32E1CL-1N025BE
	1 phase line + neutral line				32	BC32E1CL-1N032BE
				37	40	BC50E1CL-1N040BE
					50	BC50E1CL-1N050BE
			36	27	1	BC32E1CL-2P001BE
					2	BC32E1CL-2P002BE
					3	BC32E1CL-2P003BE
					4	BC32E1CL-2P004BE
	1 3 Τ[\				5	BC32E1CL-2P005BE
	* * 「' ' ' ' ' ' ' '				6	BC32E1CL-2P006BE
2P	<u> </u>				10	BC32E1CL-2P010BE
	22 TT				16	BC32E1CL-2P016BE
)				20	BC32E1CL-2P020BE
	12 14				25	BC32E1CL-2P025BE
				37	32	BC32E1CL-2P032BE
				37	40	BC50E1CL-2P040BE
		-	54	36	50	BC50E1CL-2P050BE
			34	30	1	BC32E1CL-3P001BE
					2	BC32E1CL-3P002BE
					3	BC32E1CL-3P003BE
					4	BC32E1CL-3P004BE
	1 3 5 T				5	BC32E1CL-3P005BE
0.0	* * * \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				6	BC32E1CL-3P006BE
3P					10	BC32E1CL-3P010BE
					16	BC32E1CL-3P016BE
					20	BC32E1CL-3P020BE
	/ / / l2 l4 l6				25 32	BC32E1CL-3P025BE BC32E1CL-3P032BE
				51	40	
					50	BC50E1CL-3P040BE BC50E1CL-3P050BE
		_	54	45	1	BC32E1CL-3N001BE
				10	2	BC32E1CL-3N001BE
					3	BC32E1CL-3N002BE
					1 -1	BC32E1CL-3N004BE
	N				5	BC32E1CL-3N005BE
	1 3 5 - 1 1 1				6	BC32E1CL-3N006BE
3N	****				10	BC32E1CL-3N010BE
J14	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				16	BC32E1CL-3N016BE
	< < < \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				20	BC32E1CL-3N020BE
	7				25	BC32E1CL-3N025BE
	3 phase line + neutral line				32	BC32E1CL-3N032BE
	o prised into a floatida into			64	40	BC50E1CL-3N040BE
					50	BC50E1CL-3N050BE
		1	72	45	1	BC32E1CL-4P001BE
					2	BC32E1CL-4P002BE
					3	BC32E1CL-4P003BE
					4	BC32E1CL-4P004BE
					5	BC32E1CL-4P005BE
	1 3 5 7				6	BC32E1CL-4P006BE
4P					10	BC32E1CL-4P010BE
	<u> </u>				16	BC32E1CL-4P016BE
	2 4 6 8				20	BC32E1CL-4P020BE
					25	BC32E1CL-4P025BE
					32	BC32E1CL-4P032BE
				64	40	BC50E1CL-4P040BE

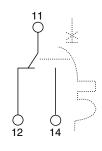
[•] The earth leakage shunt trip of our company is only supplied in conjunction with the miniature circuit breaker of our company and will not be supplied alone.

Optional Accessories

■ Accessories Standards

Auxiliary switch (W) Type: BC9W1SA1-E





Application

 Linked to the left side of BC63 series MCB to indicate the OPEN or CLOSED status of the associated breaker

Specifications

· Rated operating parameters

Voltage	Current	Voltage	Current
AC 230V	6A	AC 400V	3A
DC 24V	6A	DC 48V	2A
DC 125V	1A	DC 250V	0.4A

• Width (mm): 9

Notes

After clipping on to BC63

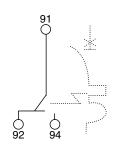
Point 11 and 14 are connected when circuit is closed;

Point 11 and 12 are connected when circuit is open.

May be used in conjunction with two alarm switches or another auxiliary switch.

Alarm Switch (K)Type: BC9K1SA1-E





Application

 Linked to the left side of BC63 series MCB, to indicate the OPEN or CLOSED status of the associated breaker

Specifications

· Rated operating parameters

Voltage	Current	Voltage	Current
AC 230V	6A	AC 400V	3A
DC 24V	6A	DC 48V	2 A
DC 125V	1A	DC 250V	0.4A

• Width (mm): 9

Notes:

After clipping on to BC63 MCB,

Point 91 and 92 are connected when circuit is closed;

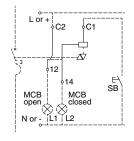
Point 91 and 94 are connected when the breaker trips due to fault;

Point 91 and 92 are connected when the breaker trips by manual operation. Meanwhile, point 91 and 94 are disconnected.

May be used in conjunction with two alarm switches.

Shunt trip (F+W)

Type: BC9FRA1-E, BC9FKA1-E



Application

- · Linked to the right side of BC63 series MCB
- · Remote control

Specifications

Control voltage

Туре	Control voltage
BC9FRA1-E	AC230/400V
BC9FKA1-E	DC24/48V

• Width (mm): 18

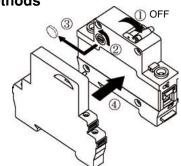
■ Standards and Certificates

- IEC 60947-5, GB 14048.5
- · ccc

■ Wiring Capacity

• Single line: 2.5 mm² Double line: 1.5 mm²





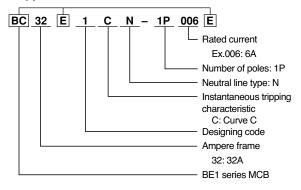
BC32 Series Miniature Circuit Breaker (1P+N)

■ Miniature Circuit Breaker (1P+N)

Application

- TT/TN-S grounding system
- Phase and neutral protection against short circuit and overload

• Type number nomenclature



Standards and Certificates

- IEC 60898-1, GB 10963.1
- CCC

Working Condition

• Ambient temperature: -35°C to +70°C

Altitude: ≤2000mAir humidity: ≤95%

Product Features

- Phase and neutral are both switched when circuit opens or trips because of failure
- · Neutral line connected early and disconnected late
- · Screw clamp, shock-proof wiring terminals
- · Standard TH35 mm IEC rail mounting

Type and Rated Current



Number of poles	Width (mm)	Rated current (A)	Туре
N 1		6	BC32E1CN-1P006E
ji j	18	10	BC32E1CN-1P010E
1P+N N 2		16	BC32E1CN-1P016E
		20	BC32E1CN-1P020E
		25	BC32E1CN-1P025E
		32	BC32E1CN-1P032E

Specifications

• Rated voltage: AC230V, 50/60Hz

· Mechanical life: 10000 times

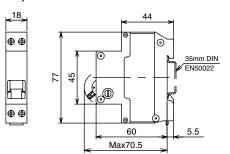
• Tripping characteristic: C: 5~10In

· Breaking capacity: 4.5kA

Wiring Capacity

• ≤ 10 mm²

• Dimensions, mm



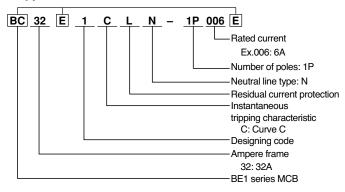
BC32 Series Miniature Earth Leakage Circuit Breaker (1P+N)

■ Earth Leakage Circuit Breaker (1P+N)

Application

- TT/TN-S grounding system
- Phase and neutral protection against short circuit and overload

• Type number nomenclature



Standards and Certificates

- IEC 61009-1, GB 16917.1
- CCC

Working Condition

• Ambient temperature: -5°C to +40°C

Altitude: ≤2000mAir humidity: ≤95%

Product Features

- Phase and neutral are both switched when circuit opens or trips because of failure
- Neutral line connected early and disconnected late
- · Convenient wiring
- · Standard TH35 mm IEC rail mounting

Type and Rated Current



Number of poles	Width (mm)	Rated current (A)	Rated residual operating current (mA)	Туре
1P+N N J1 N 2	36	6		BC32E1CLN-1P006E
		10		BC32E1CLN-1P010E
		16	30	BC32E1CLN-1P016E
		20	30	BC32E1CLN-1P020E
		25		BC32E1CLN-1P025E
		32		BC32E1CLN-1P032E

Specifications

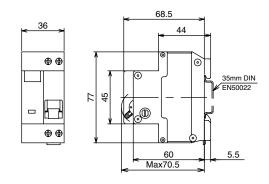
Rated voltage: AC230V, 50Hz
Mechanical life: 10000 times
Tripping characteristic: C: 5~10In
Rated residual operating current: 30mA

· Breaking capacity: 4.5kA

Wiring Capacity

• ≤ 10 mm²

Dimensions, mm

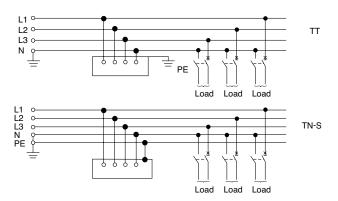


Wiring Method/Characteristic Curves

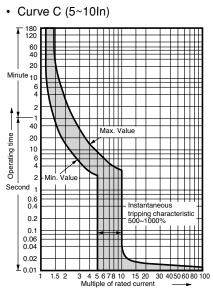
■ Wiring Method

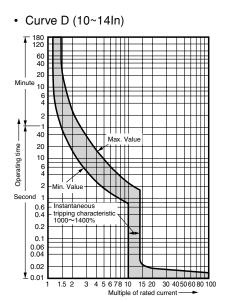
• Use of phase line and neutral line series products in the TT / TN-S systems

Phase line and neutral line are required to be switched in the TT (three-phase four-wire system)/TN-S (three-phase five-wire system) systems.



- **■** Characteristic Curves
- BC32, BC50, BC63





■ Temperature Compensation Table

Compensated current(A)		Rated current(A)										
		1	3	6	10	16	20	25	32	40	50	63
Ambient temperature (C°)	-35	1.27	3.89	7.70	13.89	20.78	25.67	32.21	41.04	51.63	64.92	83.48
	-30	1.25	3.83	7.58	13.62	20.43	25.28	31.72	40.46	50.86	63.97	82.06
	-25	1.23	3.76	7.46	13.35	20.08	24.88	31.22	39.82	50.04	62.92	80.64
	-20	1.21	3.70	7.34	13.07	19.75	24.47	30.70	39.17	49.21	61.86	79.19
	-15	1.19	3.64	7.21	12.81	19.40	24.06	30.18	38.51	48.37	60.77	77.72
	-10	1.17	3.57	7.09	12.53	19.05	23.64	29.65	37.84	47.51	59.67	76.22
	-5	1.15	3.50	6.96	12.23	18.70	23.22	29.10	37.15	46.63	58.54	74.70
	0	1.13	3.44	6.83	11.93	18.33	22.78	28.55	36.47	45.74	57.40	73.14
	5	1.10	3.37	6.70	11.63	17.96	22.34	27.98	35.75	44.83	56.23	71.54
	10	1.08	3.30	6.56	11.33	17.58	21.89	27.41	35.03	43.90	55.05	69.91
	15	1.06	3.22	6.42	11.01	17.20	21.43	26.82	34.30	42.95	53.81	68.24
	20	1.05	3.14	6.27	10.67	16.80	20.96	26.22	33.54	41.98	52.56	66.53
	25	1.02	3.06	6.14	10.34	16.40	20.47	25.61	32.77	40.99	51.28	64.78
	30	1.00	3.00	6.00	10.00	16.00	20.00	25.00	32.00	40.00	50.00	63.00
Ā	35	0.97	2.92	5.84	9.63	15.35	19.47	24.33	31.17	38.93	47.82	60.11
	40	0.94	2.84	5.68	9.24	15.11	18.95	23.67	30.34	37.85	46.24	58.19
	45	0.91	2.76	5.52	8.85	14.66	18.42	23.00	29.48	36.75	44.81	56.21
	50	0.89	2.67	5.36	8.45	14.20	17.87	22.28	28.60	35.61	43.33	54.16
	55	0.86	2.58	5.19	8.01	13.71	17.30	21.56	27.69	34.43	41.81	52.03
	60	0.83	2.49	5.01	7.55	13.21	16.71	20.80	26.75	33.21	40.23	49.81
	65	0.80	2.38	4.83	7.06	12.70	16.10	20.02	25.78	31.95	38.58	47.50
	70	0.77	2.27	4.64	6.55	12.15	15.47	19.21	24.77	30.63	35.77	43.05

Note: Ambient temperature means the set temperature within the circuit breaker distribution box or distribution panel. The standard ambient temperature of 1A-63A circuit breaker is 30°C.

Memo

- Operate (keep) in the environment specified in the operating instructions and manual. High temperature, high humidity, condensation, dust, corrosive gases, oil, organic solvents, excessive vibration or shock might cause electric shock, fire, erratic operation or failure.
- For safe operation, before using the product read the instruction manual or user manual that comes with the product carefully or consult the Fuji sales representative from which you purchased the product.
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- For safe operation, wiring should be conducted only by qualified engineers who have sufficient technical knowledge about electrical work or wiring
- Follow the regulations of industrial wastes when the product is to be discarded.
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For Fuji Electric FA Components & Systems Co., Ltd.

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