

RCBO DS201

Data sheet



The 1P+N DS201 RCBOs are the perfect solution for a complete protection against overcurrent and earth fault currents. In two modules width the series ensure, at any time and under any condition, the safety of people, facilities and related equipment.

01

01 DS201: residual current circuit breaker with overcurrent protection

DS201 is a 1P+N RCBO compliant to product standard IEC/EN 61009 and with the following main technical features:

- Breaking capacity 4.5 - 6 - 10 kA
- Type AC - A - APR - F
- Sensitivity 10 - 30 - 100 - 300 mA
- Tripping characteristics B - C - K
- Rated current from 1 to 40 A

Application benefits

- Supply possible both from top and bottom and in parallel with cables and busbars thanks to terminals composed by two different seats: a front seat for 25 mm² cables and a back seat for 10 mm² busbars.
- Easy troubleshooting and reduced downtime for maintenance operations thanks to the earth fault indicator (blue flag on the toggle) and contact position indicator (CPI).
- Product Made in Italy, with RFid tag on the product side to authenticate the device.
- Family feeling in the System pro M compact® range.

RCBO DS201

Technical data



				DS201 L
Electrical features	Standards			IEC/EN 61009-1; IEC/EN 61009-2-1
	Type (wave form of the earth leakage sensed)			A - AC - APR
	Number of poles			1P + N
	Rated current I _n	A		6 ≤ I _n ≤ 32
	Rated sensitivity I _{Δn}	A		0.01 - 0.03 - 0.3
	Rated voltage U _e	V		230-240
	Insulation voltage U _i	V		500 V AC
	Overvoltage category			III
	Pollution degree			2
	Operating voltage of circuit test U _t	V		110 (170 for 30mA) - 264
	Rated frequency	Hz		50/60
	Rated breaking capacity acc. to IEC/EN 61009-1	I _{cn}	A	4500
	Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test)	ultimate I _{cu}	kA	6
		service I _{cs}	kA	4.5
	Rated residual breaking capacity I _{Δm} according to EN 61009-1	I _{Δm}	A	4500
	Rated residual breaking capacity I _{Δm} according to IEC 61009-1	I _{Δm}	A	4500
	Rated impulse withstand voltage (1.2/50) U _{imp}	kV		4 kV
	Dielectric test voltage at ind. freq. for 1 min.	kV		2 kV (50 / 60Hz, 1 min.)
	Thermomagnetic release - characteristic	B: 3 I _n ≤ I _n ≤ 5 I _n		
		C: 5 I _n ≤ I _n ≤ 10 I _n		■
		K: 10 I _n ≤ I _n ≤ 14 I _n		
Energy limiting class acc. to EN 61009-1	3			
Surge current resistance (wave 8/20)	A	NA for A, AC versions; 3000 for APR version		
Mechanical features	Housing			Insulation group I - II, RAL 7035
	Toggle			Insulation group II, Black RAL 9005, sealable in ON-OFF positions
	Contact position indication			Green/Red Window
	Earth fault trip indication			Blue flag on toggle
	Electrical life	operations	10000	
	Mechanical life	operations	20000	
	Protection degree acc. to EN 60529	housing	IP4X	
		terminals	IP2X	
	Shock resistance acc. to IEC/EN 60068-2-27			25g - 2 shocks - 13ms
	Vibration resistance acc. to IEC/EN 60068-2-6			0.1 mm or 1 g - 20 cycles at 5...150...5 Hz
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30	°C/RH	28 cycles with 55°C/90-96% and 25°C/95-100%	
	Reference temperature for setting of thermal element	°C	30	
	Ambient temperature (with daily average ≤ +35 °C)	°C	-25...+55	
	Storage temperature	°C	-40...+70	



DS201	DS201 M	DS201 M 110V
IEC/EN 61009-1; IEC/EN 61009-2-1	IEC/EN 61009-1; IEC/EN 61009-2-1	IEC 61009-1; IEC 61009-2-1
A - AC - APR	A - AC - APR - F	A
1P + N	1P + N	1P + N
$1 \leq I_n \leq 40$	$4 \leq I_n \leq 40$	$6 \leq I_n \leq 40$
0.01 - 0.03 - 0.1 - 0.3	0.01 - 0.03 - 0.1 - 0.3	0.03
230-240	230-240	230-240
500 V AC	500 V AC	500 V AC
III	III	III
2	2	2
110 (170 for 30mA) - 264	110 (170 for 30mA) - 264	110 - 264
50/60	50/60	50/60
6000	10000	10000
10	15	15
7.5	11.2	11.2
6000	6000	6000
6000 up to 25 A; 4500 for 32A and 40A	6000 up to 25 A; 4500 for 32A and 40A	6000 up to 25 A; 4500 for 32A and 40A
4 kV	4 kV	4 kV
2kV (50 / 60Hz, 1 min.)	2 kV (50 / 60Hz, 1 min.)	2 kV (50 / 60Hz, 1 min.)
■	■	■
■	■	■
■	■	
3	3	NA
NA for A, AC versions; 3000 for APR version	NA for A, AC versions; 3000 for APR and F version	NA
Insulation group I - II, RAL 7035	Insulation group I - II, RAL 7035	Insulation group I - II, RAL 7035
Insulation group II, Black RAL 9005, sealable in ON-OFF positions	Insulation group II, Black RAL 9005, sealable in ON-OFF positions	Insulation group II, Black RAL 9005, sealable in ON-OFF positions
Green/Red Window	Green/Red Window	Green/Red Window
Blue flag on toggle	Blue flag on toggle	Blue flag on toggle
10000	10000	10000
20000	20000	20000
IP4X	IP4X	IP4X
IP2X	IP2X	IP2X
25g - 2 shocks - 13ms	25g - 2 shocks - 13ms	25g - 2 shocks - 13ms
0.1 mm or 1 g - 20 cycles at 5...150...5 Hz	0.1 mm or 1 g - 20 cycles at 5...150...5 Hz	0.1 mm or 1 g - 20 cycles at 5...150...5 Hz
28 cycles with 55°C/90-96% and 25°C/95-100%	28 cycles with 55°C/90-96% and 25°C/95-100%	28 cycles with 55°C/90-96% and 25°C/95-100%
30 (20 for K tripping char)	30 (20 for K tripping char)	30
-25...+55	-25...+55	-25...+55
-40...+70	-40...+70	-40...+70

RCBO DS201

Technical data



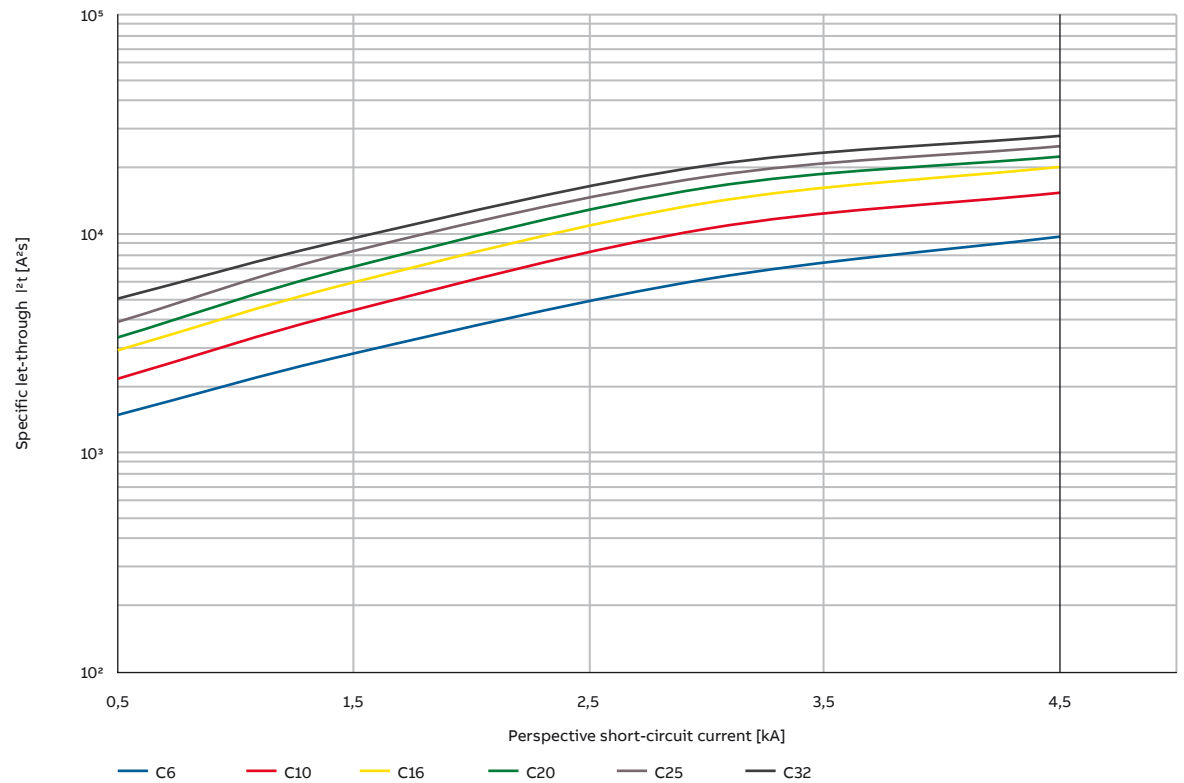
				DS201 L
Installation	Terminal type	top / bottom		failsafe bi-directional cylinder-lift terminal (shock protected)
	Terminal size for cables	top / bottom	mm ²	25/25
	Terminal size for busbars	top / bottom	mm ²	10/10
	Solid /stranded wiring	1 x 0,75-25 mm ² for front terminal and 1 x 1-10 mm ² for rear terminal; 2 x 0,75-10 mm ² for front terminal		
	Flexible wires with or without ferrules	1 x 0,75-16 mm ² for front terminal and 1 x 1-4 mm ² for rear terminal; 2 x 0,75-6 mm ² for front terminal		
	Solid /stranded and flexible wiring with or without ferrules	2 x 0,75-4 mm ² for front terminal and 2 x 1,5 mm ² or 1 x 2,5-4 mm ² for rear terminal		
	Tightening torque	top / bottom	Nm	2.8
	Stripping length of the cable		mm	12
	Mounting	on DIN rail EN 60715 (35mm) by means of mounting clip		
	Mounting position	Any		
Dimensions and weight	Supply from	Top/Bottom terminals		
	Dimensions (H x D x W)		mm	85 x 69 x 35
	Weight		g	200
Combination with auxiliary elements	Combinable with accessories and auxiliaries	Auxiliary contact	yes	
		Signal contact / auxiliary contact	yes	
		Shunt trip	yes	
		Auxiliary contact for bottom fitting	yes	
		Undervoltage release	yes	
		Overvoltage release	yes	
		Motor operating device	yes	

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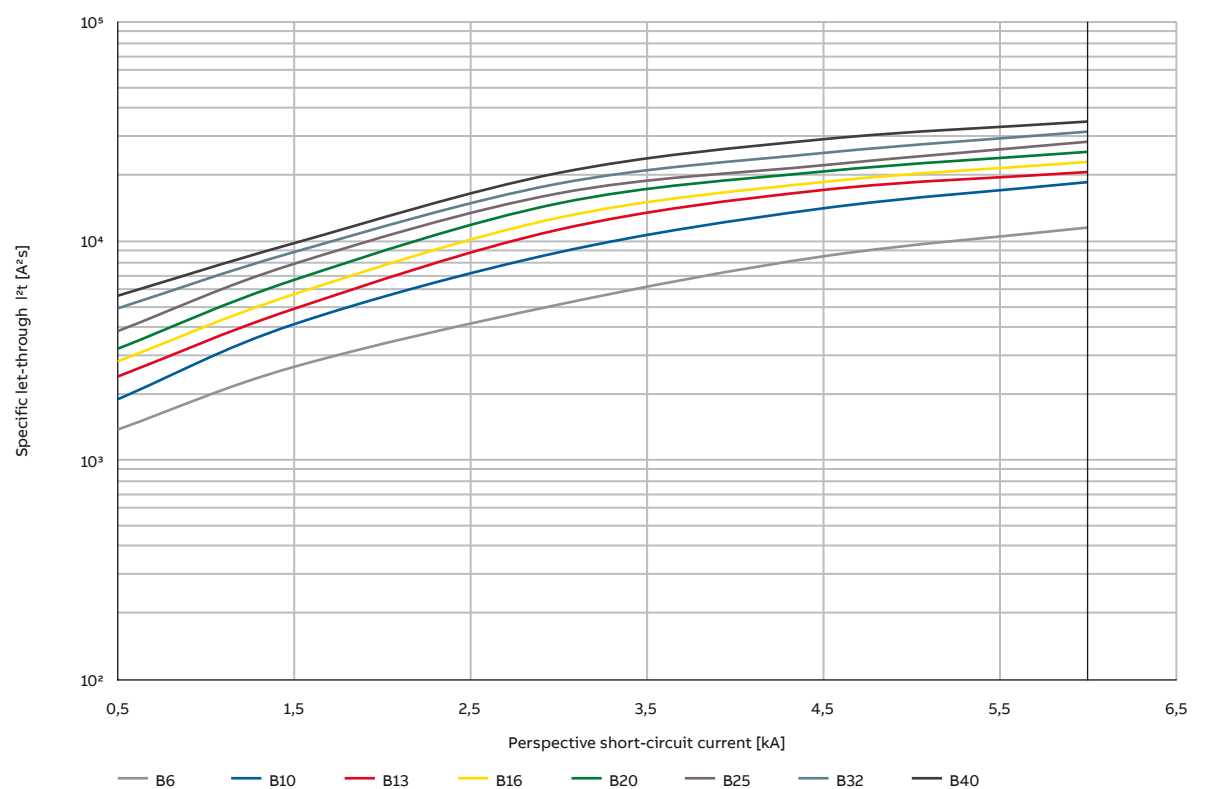
RCBO DS201

Technical data

Specific let-through energy I^2t DS201L - Characteristic C



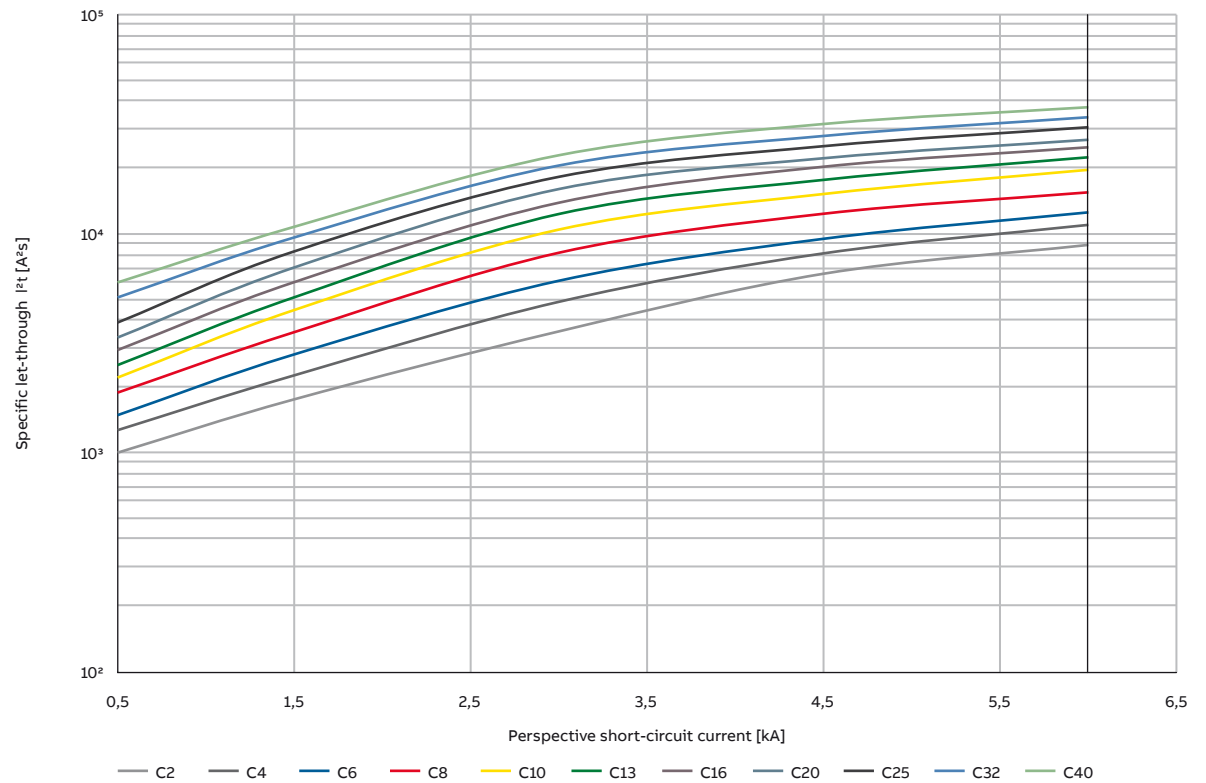
Specific let-through energy I^2t DS201 - Characteristic B



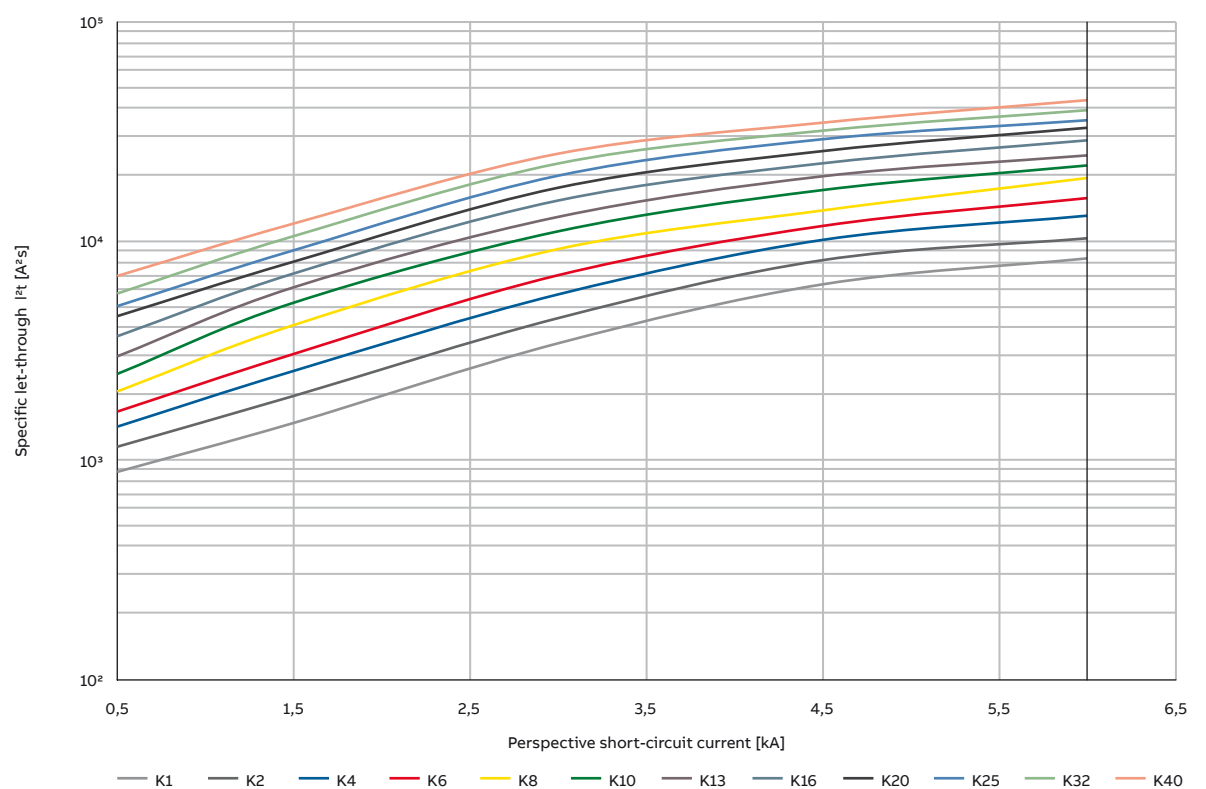
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Technical data

Specific let-through energy I^2t DS201 - Characteristic C



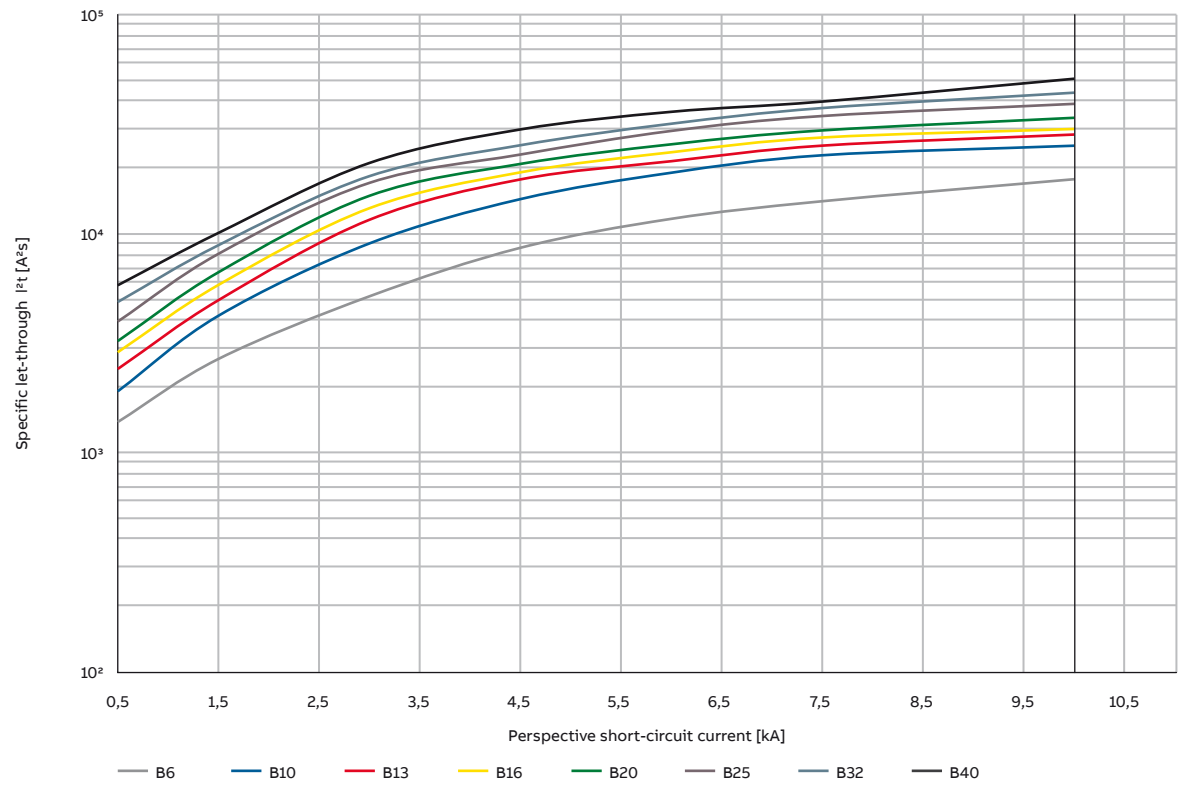
Specific let-through energy I^2t DS201 - Characteristic K



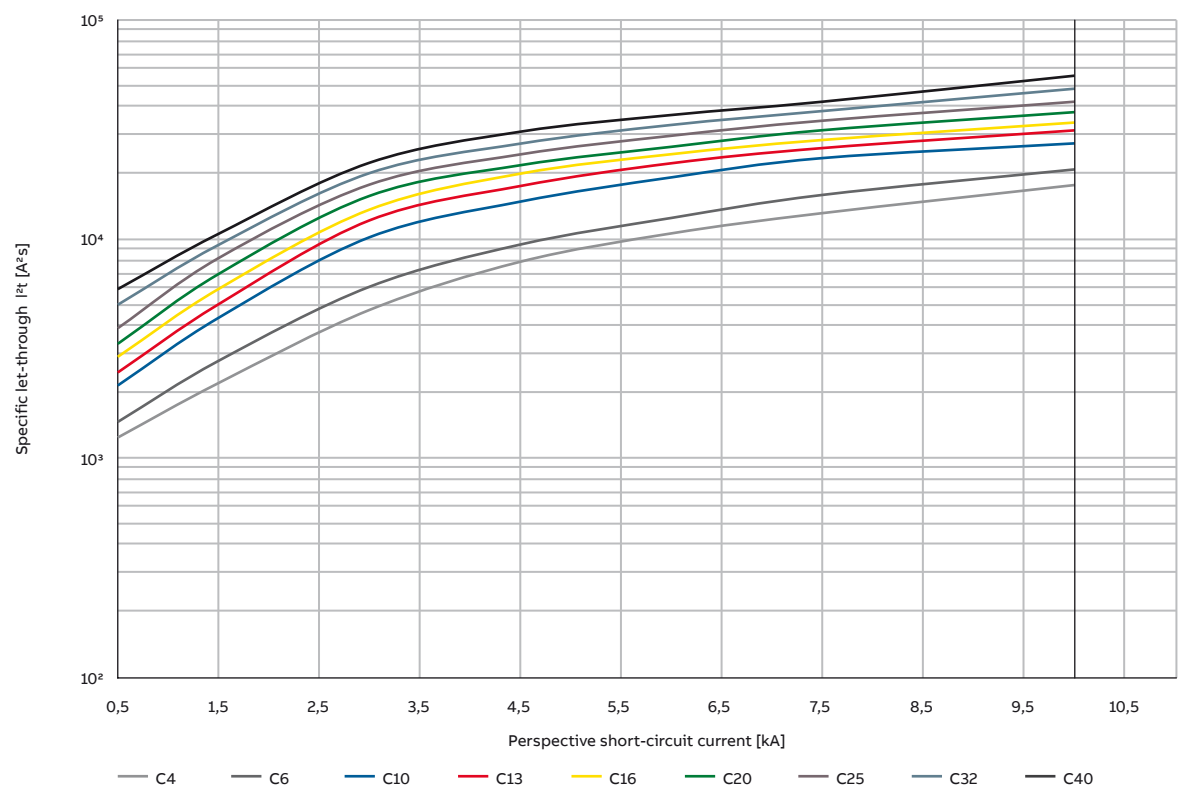
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Technical data

Specific let-through energy I^2t DS201M - Characteristic B



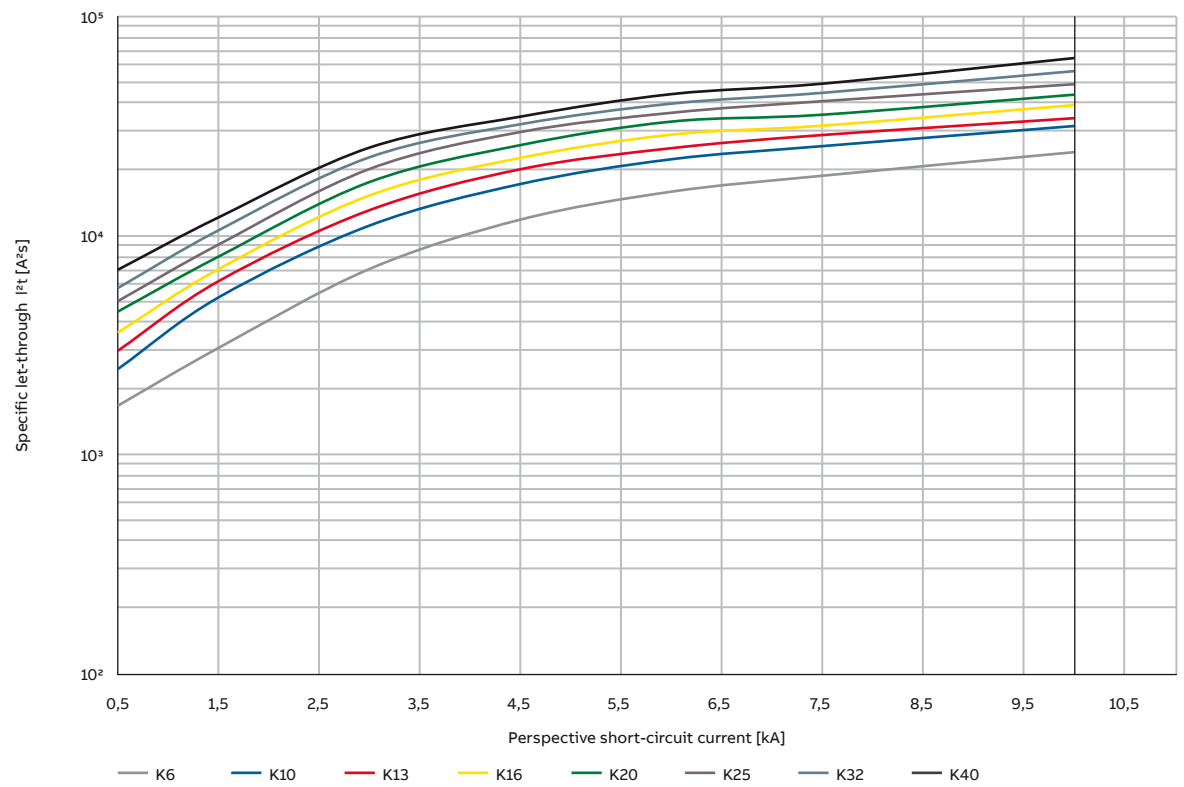
Specific let-through energy I^2t DS201M - Characteristic C



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Technical data

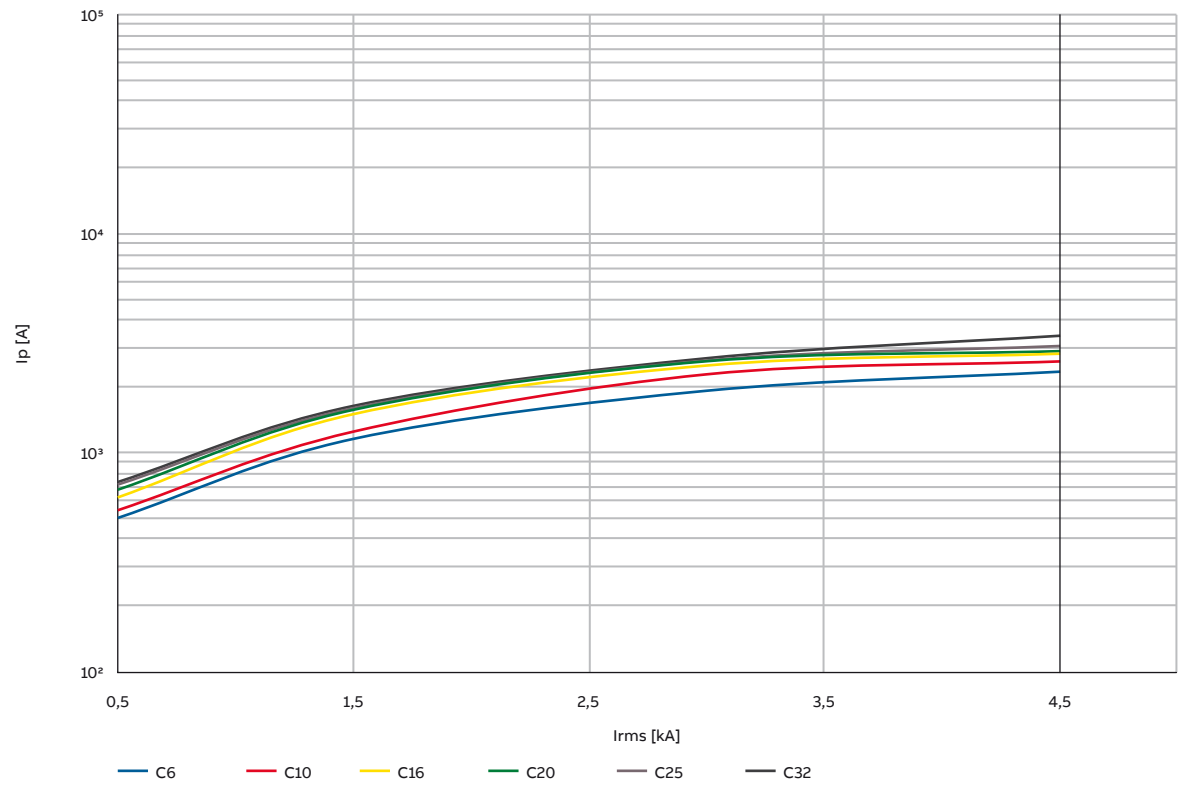
Specific let-through energy I^2t DS201M - Characteristic K



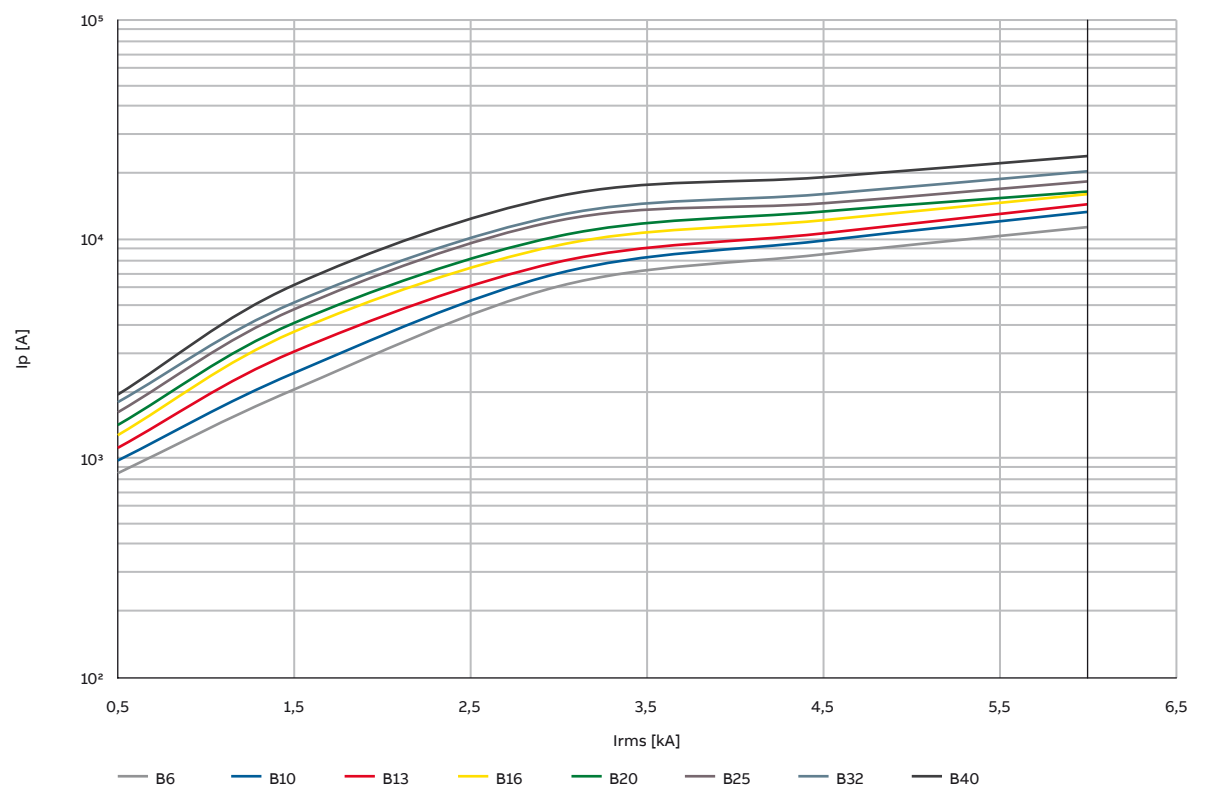
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Technical data

I_{peak} DS201L - Characteristic C



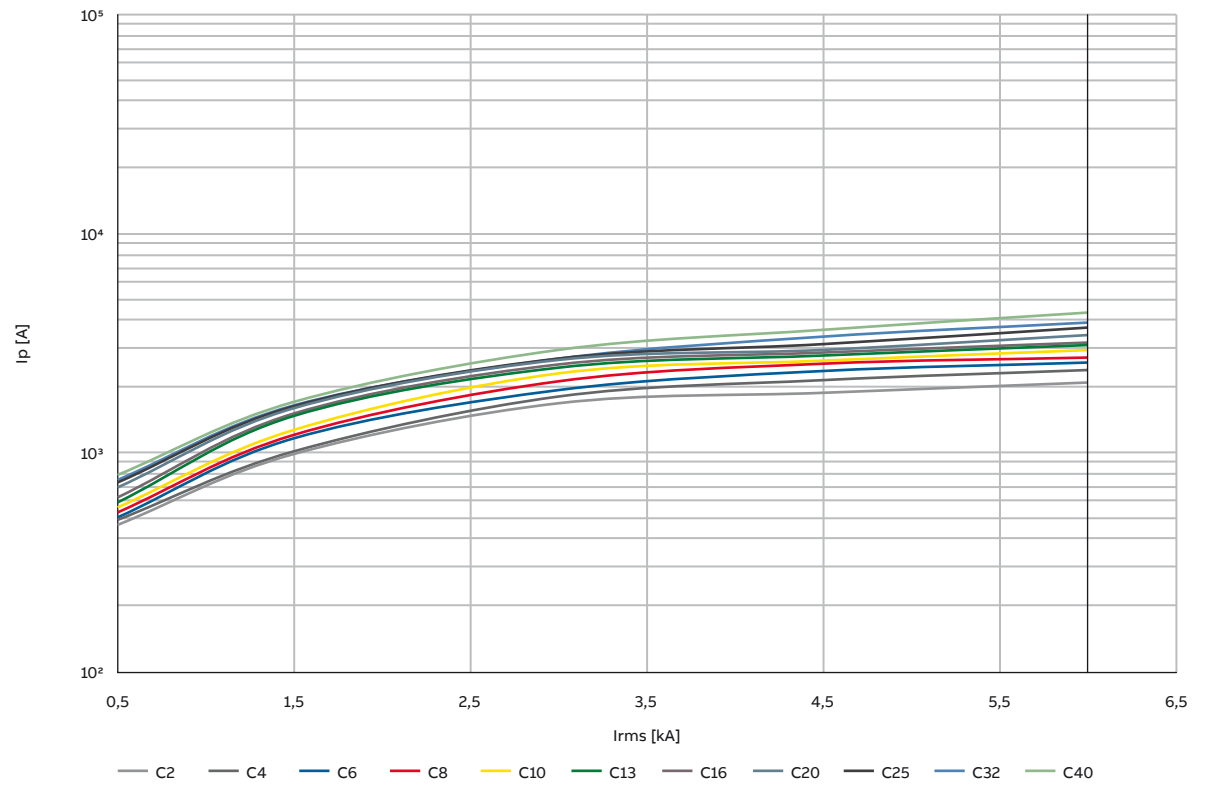
I_{peak} DS201 - Characteristic B



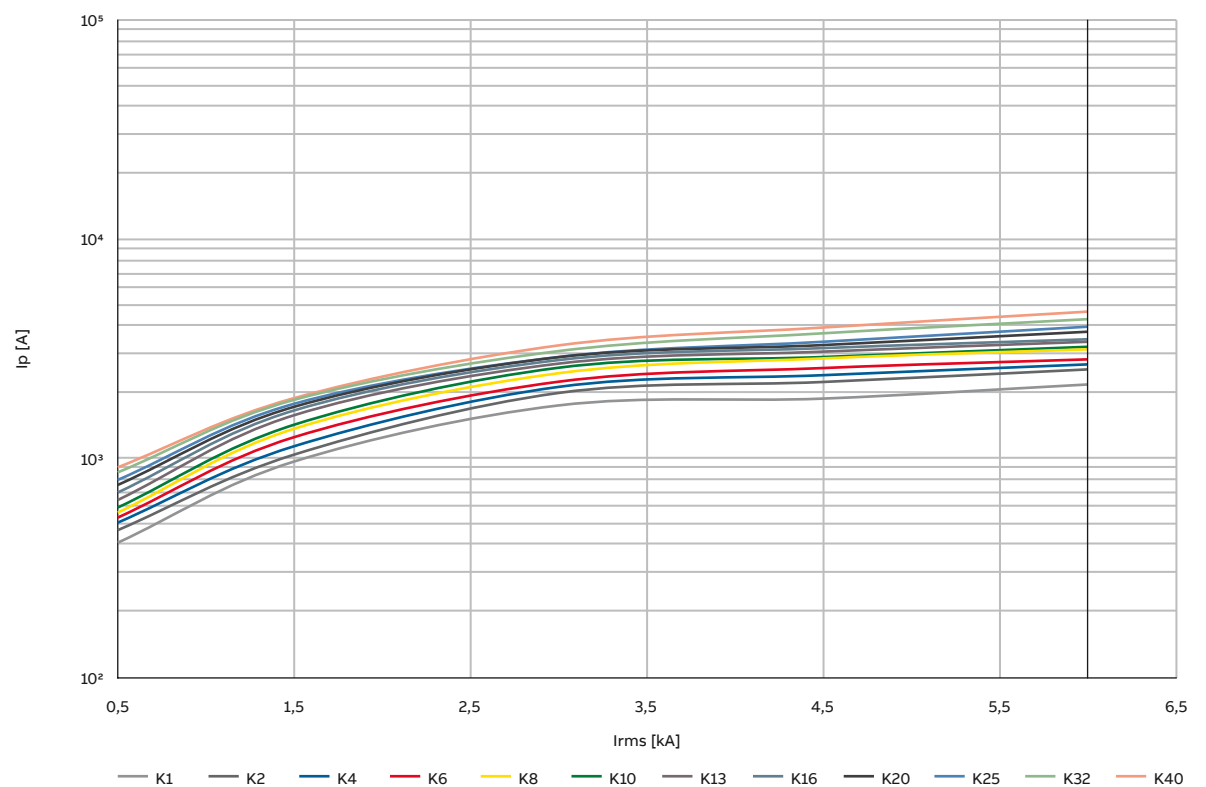
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Technical data

I_{peak} DS201 - Characteristic C



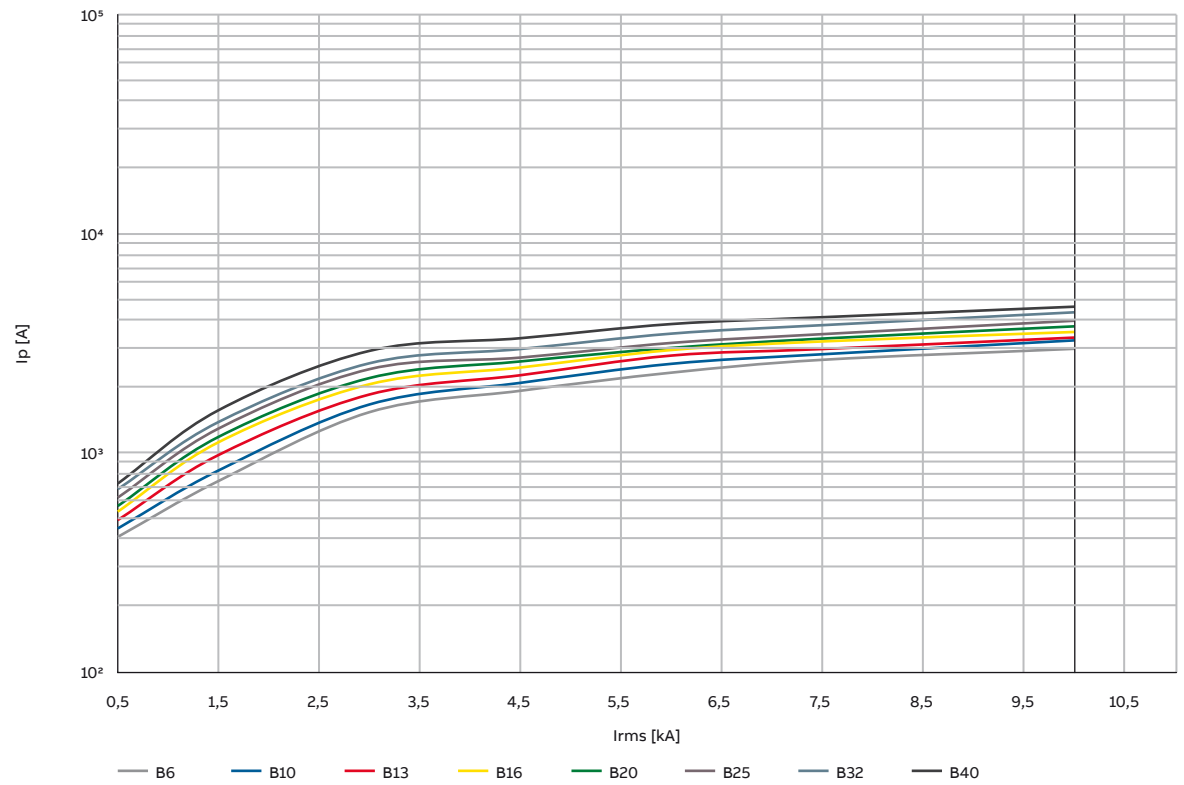
I_{peak} DS201 - Characteristic K



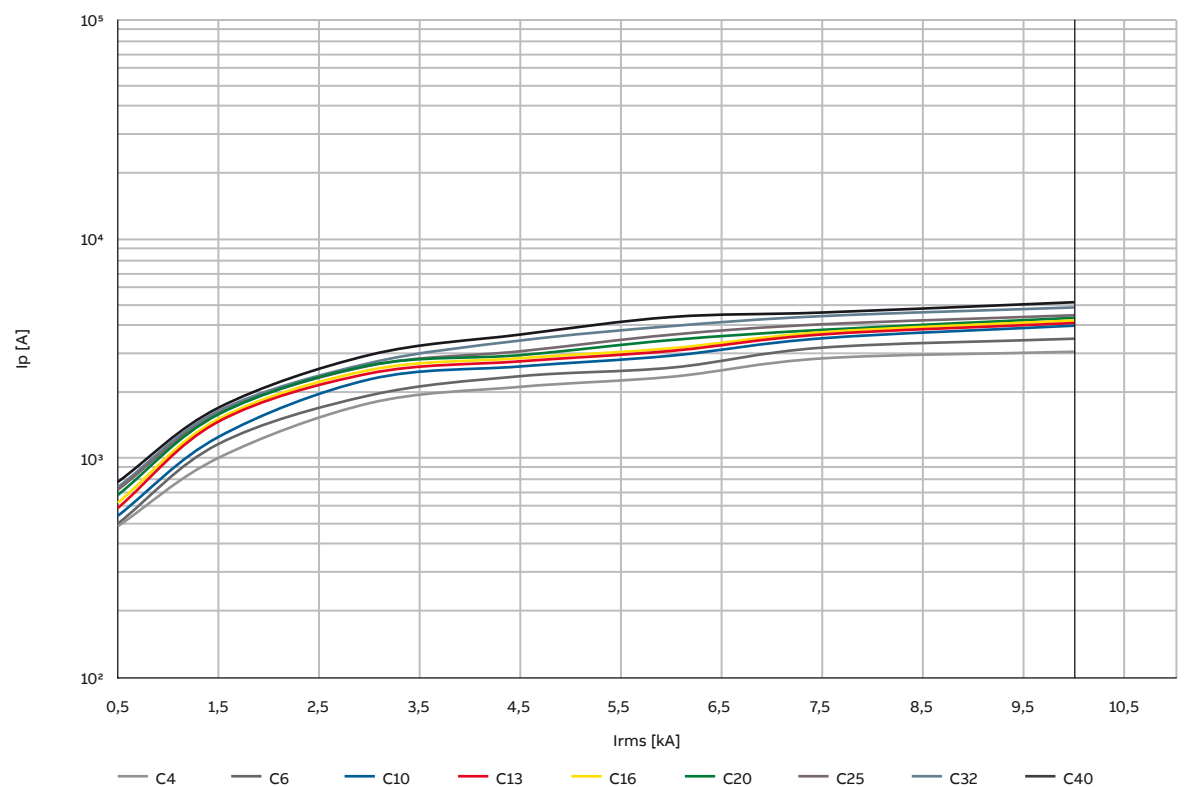
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Technical data

I_{peak} DS201M - Characteristic B



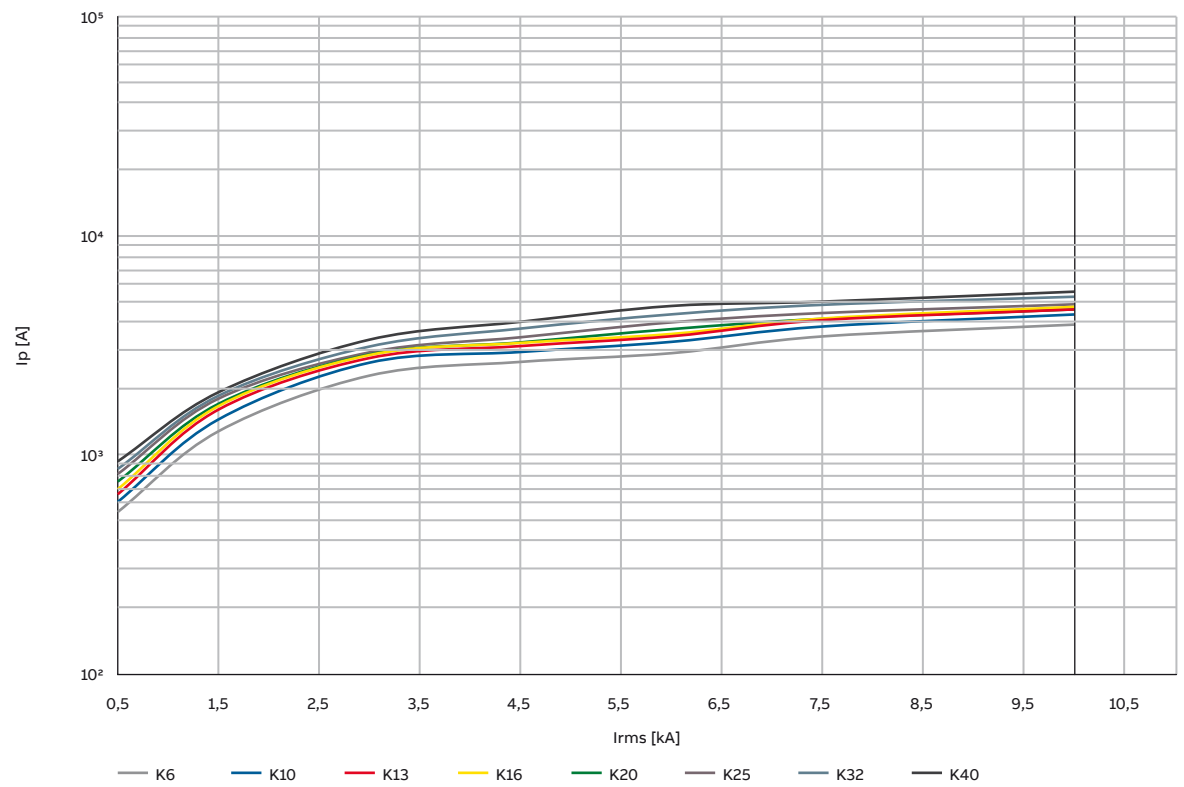
I_{peak} DS201M - Characteristic C



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Technical data

I_{peak} DS201M - Characteristic K

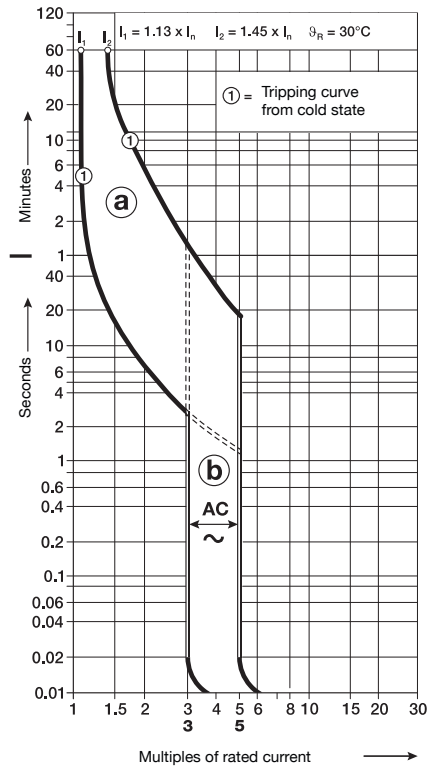


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Technical data

Tripping characteristics B

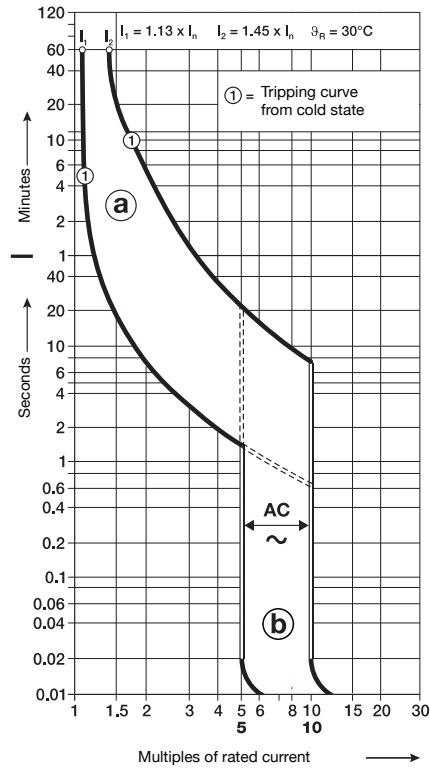
IEC/EN 61009-1



a: thermal trip
b: electromagnetic trip

Tripping characteristics C

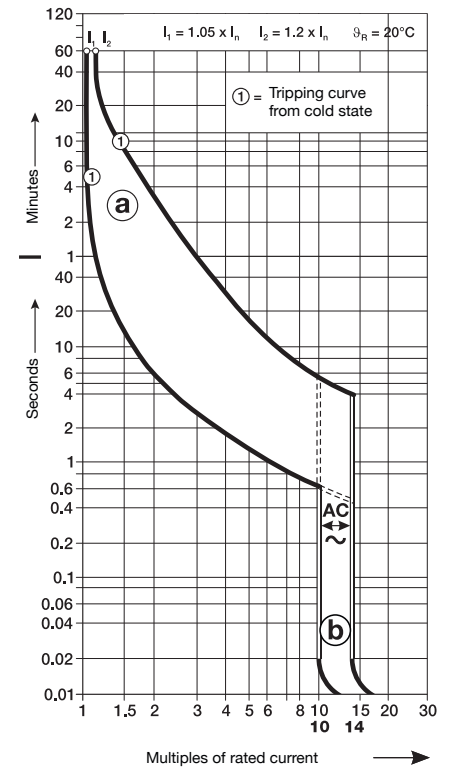
IEC/EN 61009-1



a: thermal trip
b: electromagnetic trip

Tripping characteristics K

IEC-EN60947-2



a: thermal trip
b: electromagnetic trip

RCBO DS201

Technical data

Performance in altitude

Elevation [m]	2000	3000	4000	5000	6000
Rated Current [A]	1 x In	0.96 x In	0.94 x In	0.92 x In	0.90 x In
Rated Voltage [V]	1 x Un	0.877 x Un	0.775 x Un	0.676 x Un	0.588 x Un

Derating in temperature

Max operating current depending on the ambient temperature (daily average $\leq +35^{\circ}\text{C}$) of characteristics type B and C.

In (A)	Temperature (°C)												
	-25	-20	-10	0	10	20	30	40	50	55	60	65	70
2A	3.9	3.6	3.2	2.9	2.7	2.4	2.0	1.8	1.7	1.6	1.5	1.4	1.3
4A	6.1	5.8	5.4	5.0	4.7	4.4	4.0	3.6	3.4	3.2	3.1	3.0	2.8
6A	8.7	8.4	7.7	7.3	7.0	6.4	6.0	5.5	5.3	5.1	4.9	4.7	4.6
8A	10.8	10.3	9.5	9.0	8.7	8.3	8.0	7.4	7.1	7.0	6.8	6.6	6.5
10A	13.5	13.0	12.1	11.5	11.0	10.6	10.0	9.4	9.0	8.8	8.6	8.4	8.3
13A	16.0	15.6	14.9	14.5	14.0	13.4	13.0	12.4	11.7	11.4	11.2	11.0	10.8
16A	18.9	18.6	18.1	17.5	17.0	16.4	16.0	15.3	14.8	14.5	14.3	14.1	14.0
20A	24.0	23.5	22.7	22.0	21.4	20.7	20.0	19.1	18.5	18.3	18.0	17.8	17.7
25A	27.9	27.5	27.1	26.6	26.0	25.3	25.0	24.3	23.6	23.4	23.2	23.0	22.8
32A	36.8	36.2	35.4	34.8	34.0	32.9	32.0	31.3	30.5	30.0	29.7	29.5	29.4
40A	44.8	44.6	44.0	43.2	42.1	41.0	40.0	39.0	38.1	37.9	37.6	37.4	37.2

Max operating current depending on the ambient temperature (daily average $\leq +35^{\circ}\text{C}$) of characteristics type K.

In (A)	Temperature (°C)												
	-25	-20	-10	0	10	20	30	40	50	55	60	65	70
1A	2.2	2.2	1.7	1.5	1.3	1.0	0.7	0.6	0.6	0.5	0.5	0.4	0.4
2A	3.5	3.2	2.8	2.8	2.4	2.0	1.8	1.8	1.7	1.6	1.5	1.5	1.4
4A	5.7	5.3	4.9	4.8	4.4	4.0	3.6	3.4	3.3	3.0	2.9	2.8	2.8
6A	8.0	7.7	7.4	7.0	6.5	6.0	5.4	5.3	5.2	4.8	4.7	4.6	4.5
8A	10.0	9.5	9.0	8.7	8.2	8.0	7.4	7.1	7.0	6.7	6.6	6.5	6.4
10A	12.6	12.1	11.5	11.0	10.5	10.0	9.4	9.1	8.9	8.8	8.6	8.4	8.3
13A	15.4	14.9	14.4	14.1	13.4	13.0	12.5	11.8	11.4	11.2	11.0	10.8	10.7
16A	18.7	18.2	17.5	17.0	16.4	16.0	15.4	14.7	14.6	14.3	14.2	14.0	13.9
20A	23.1	22.7	22.1	21.3	20.7	20.0	19.1	18.5	18.2	18.1	17.9	17.8	17.7
25A	27.4	27.1	26.5	26.0	25.4	25.0	24.3	23.6	23.4	23.2	23.0	22.8	22.6
32A	36.1	35.4	34.9	34.0	32.8	32.0	31.2	30.5	29.9	29.7	29.5	29.4	29.3
40A	44.4	43.9	43.2	42.1	40.9	40.0	39.0	38.2	37.7	37.4	37.2	37.0	36.8

RCBO DS201

Technical data

Influence of adjacent devices

Number of devices	1	3	5	7	9
Correction factor	1	0.9	0.85	0.81	0.8

Voltage Drop, power loss, internal resistance, own consumption

In (A)	Voltage drop (V)	Power loss (W)	Int. res. (mΩ)
1A	1.4	1.4	1400.0
2A	0.8	1.6	400.0
4A	0.6	2.2	137.5
6A	0.4	2.4	66.7
8A	0.2	1.9	29.7
10A	0.2	1.8	18.0
13A	0.2	2.5	15.0
16A	0.2	3.3	12.8
20A	0.2	3.6	9.0
25A	0.2	5.5	8.8
32A	0.2	6.4	6.3
40A	0.1	5.0	3.1

RCBO DS201

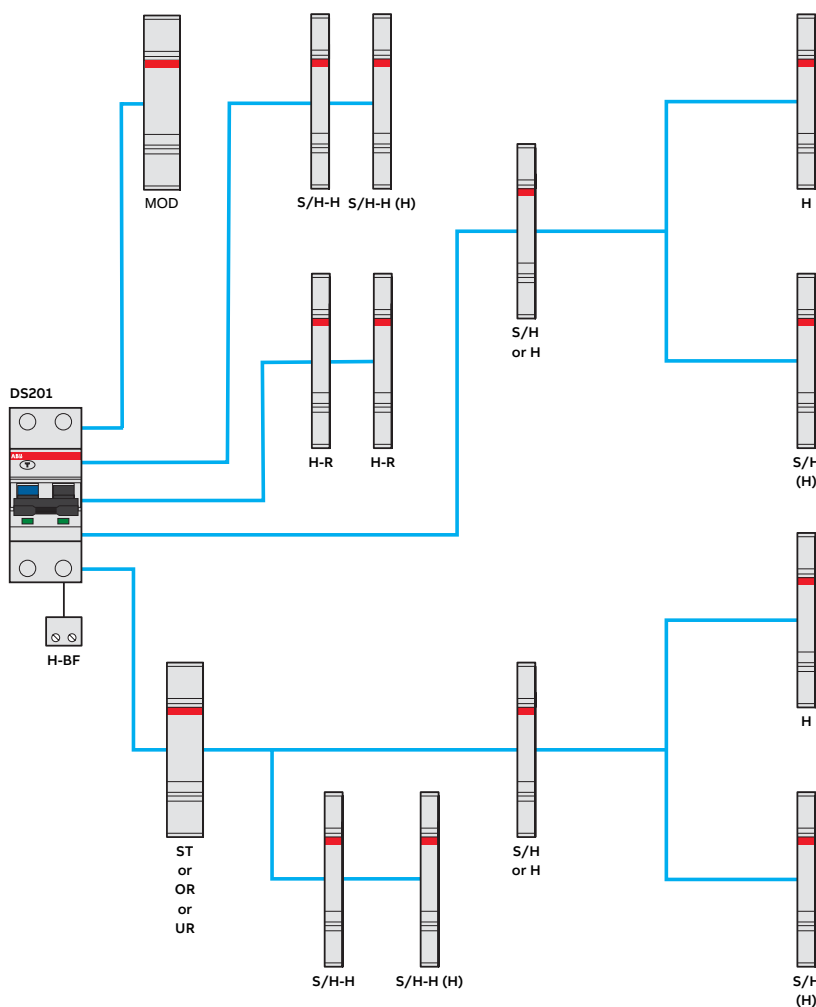
Accessories scheme

Combination of auxiliary elements with DS201

System pro M compact® accessories can be mounted directly in few steps.

Combination possible with the same motor operating device suitable for S200.

Combination possible also with auxiliary contact for bottom fitting, making DS201 particular suitable also for retrofitting and space constraint applications.



H	Auxiliary contact	S2C-H6R
H-R	Auxiliary contact	S2C-H6-xxR
S/H	Signal / auxiliary contact	S2C-S/H6R
S/H (H)	Signal / auxiliary contact used as auxiliary contact	S2C-S/H6R
S/H-H	Auxiliary contact-Signal contact/ Auxiliary contact 2CO	S3C-H-S/H6R
S/H-H (H)	Auxiliary contact-Signal contact/ Auxiliary contact 2CO (used as auxiliary contact)	S3C-H-S/H6R
ST	Shunt Trip	S3C-A...
OR	Overvoltage release	S2C-OVP
UR	Undervoltage release	S3C-UA*
H-BF	Auxiliary contact for bottom fitting (only DS201 (2019))	S2C-H01 / S2C-H10
MOD	Motor operating device	S3C-MOD...

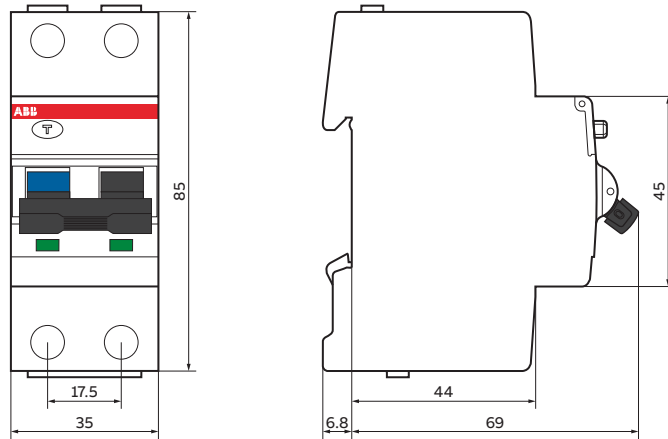
* S3C-UA can accept only one auxiliary or signal contact mounted after it

RCBO DS201

Dimensions and connections

Overall dimensions DS201

All measurements in mm



Main connection

