# RCBO DS201
Data sheet



—
01

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 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.

# RCBOs DS201

## Technical data



| | | | | DS201 L |
|---|---|---|---|---|
| | Standards | | | IEC/EN 61009-1; IEC/EN 61009-2-1 |
| Electrical features | Type (wave form of the earth leakage sensed) | | | A - AC - APR |
| | Number of poles | | | 1P + N |
| | Rated current In | | A | 6 ≤ In ≤ 32 |
| | Rated sensitivity IΔn | | A | 0.01 - 0.03 - 0.3 |
| | Rated voltage Ue | | V | 230-240 |
| | Insulation voltage Ui | | V | 500 V AC |
| | Overvoltage category | | | III |
| | Pollution degree | | | 2 |
| | Operating voltage of circuit test Ut | | V | 110 (170 for 30mA) - 264 |
| | Rated frequency | | Hz | 50/60 |
| | Rated breaking capacity acc. to IEC/EN 61009-1 | Icn | A | 4500 |
| | Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test) | ultimate Icu | kA | 6 |
| | | service Ics | kA | 4.5 |
| | Rated residual breaking capacity IΔm according to EN 61009-1 | IΔm | A | 4500 |
| | Rated residual breaking capacity IΔm according to IEC 61009-1 | IΔm | A | 4500 |
| | Rated impulse withstand voltage (1.2/50) Uimp | | kV | 4 kV |
| | Dielectric test voltage at ind. freq. for 1 min. | | kV | 2.5 kV (50 / 60Hz, 1 min.) |
| | Thermomagnetic release - characteristic | B: 3 In ≤ In ≤ 5 In | | |
| | | C: 5 In ≤ In ≤ 10 In | | ■ |
| | | K: 10 In ≤ In ≤ 14 In | | |
| | 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 ≤ In ≤ 40 | 4 ≤ In ≤ 40 | 6 ≤ In ≤ 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 |
| 2.5 kV (50 / 60Hz, 1 min.) | 2.5 kV (50 / 60Hz, 1 min.) | 2.5 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 |

# RCBOs DS201

## Technical data



| | | | | | DS201 L |
|---|---|---|---|---|---|
| Installation | Terminal type | | top / bottom | | failsafe bi-directional cylinder-lift terminal (shock protected) |
| | Terminal size for cables | | top / bottom | mm2 | 25/25 |
| | Terminal size for busbars | | top / bottom | mm2 | 10/10 |
| | Solid /stranded wiring | | | | 1 x 0,75-25 mm² for front terminal and<br>1 x 1-10 mm² for rear terminal;<br>2 x 0,75-10 mm² for front terminal |
| | Flexible wires with or without ferrules | | | | 1 x 0,75-16 mm² for front terminal and<br>1 x 1-4 mm² for rear terminal;<br>2 x 0,75-6 mm² for front terminal |
| | Solid /stranded and flexible wiring with or without ferrules | | | | 2 x 0,75-4 mm² for front terminal and<br>2 x 1,5 mm² or 1 x 2,5-4 mm² for rear terminal |
| | Tightening torque | | top / bottom | Nm | 2.8 |
| | Stripping length of the cable | | | mm | 12 |
| | Mounting | | | | on DIN rail EN 60715 (35mm)<br>by means of mounting clip |
| | Mounting position | | | | Any |
| | Supply from | | | | Top/Bottom terminals |
| Dimensions and weight | 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 |





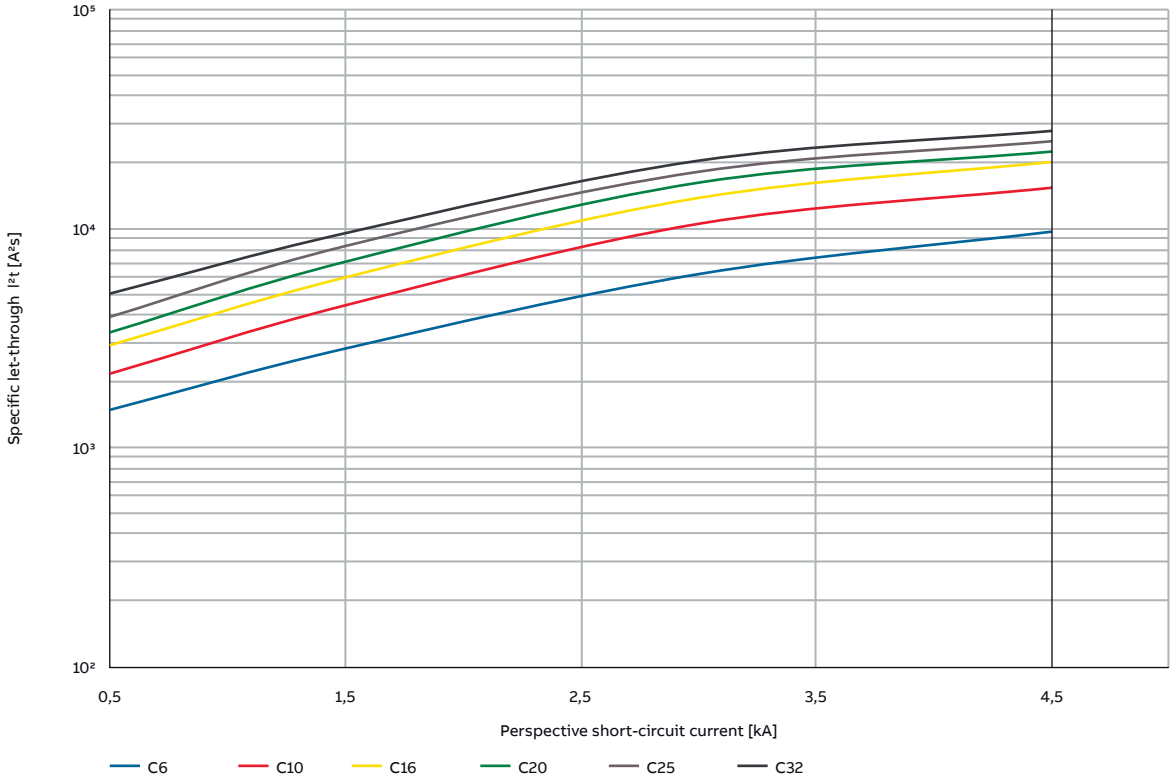


| DS201 | DS201 M | DS201 M 110V |
|---|---|---|
| failsafe bi-directional cylinder-lift terminal (shock protected) | failsafe bi-directional cylinder-lift terminal (shock protected) | failsafe bi-directional cylinder-lift terminal (shock protected) |
| 25/25 | 25/25 | 25/25 |
| 10/10 | 10/10 | 10/10 |
| 1 x 0,75-25 mm² for front terminal and<br>1 x 1-10 mm² for rear terminal;<br>2 x 0,75-10 mm² for front terminal | 1 x 0,75-25 mm² for front terminal and<br>1 x 1-10 mm² for rear terminal;<br>2 x 0,75-10 mm² for front terminal | 1 x 0,75-25 mm² for front terminal and<br>1 x 1-10 mm² for rear terminal;<br>2 x 0,75-10 mm² for front terminal |
| 1 x 0,75-16 mm² for front terminal and<br>1 x 1-4 mm² for rear terminal;<br>2 x 0,75-6 mm² for front terminal | 1 x 0,75-16 mm² for front terminal and<br>1 x 1-4 mm² for rear terminal;<br>2 x 0,75-6 mm² for front terminal | 1 x 0,75-16 mm² for front terminal and<br>1 x 1-4 mm² for rear terminal;<br>2 x 0,75-6 mm² for front terminal |
| 1 x 0,75-4 mm² for front terminal and<br>2 x 1,5 mm² or 1 x 2,5-4 mm² for rear terminal | 1 x 0,75-4 mm² for front terminal and<br>2 x 1,5 mm² or 1 x 2,5-4 mm² for rear terminal | 1 x 0,75-4 mm² for front terminal and<br>2 x 1,5 mm² or 1 x 2,5-4 mm² for rear terminal |
| 2.8 | 2.8 | 2.8 |
| 12 | 12 | 12 |
| on DIN rail EN 60715 (35mm)<br>by means of mounting clip | on DIN rail EN 60715 (35mm)<br>by means of mounting clip | on DIN rail EN 60715 (35mm)<br>by means of mounting clip |
| Any | Any | Any |
| Top/Bottom terminals | Top/Bottom terminals | Top/Bottom terminals |
| 85 x 69 x 35 | 85 x 69 x 35 | 85 x 69 x 35 |
| 200 | 200 | 200 |
| yes | yes | yes |
| yes | yes | yes |
| yes | yes | yes |
| yes | yes | yes |
| yes | yes | yes |
| yes | yes | yes |
| yes | yes | yes |

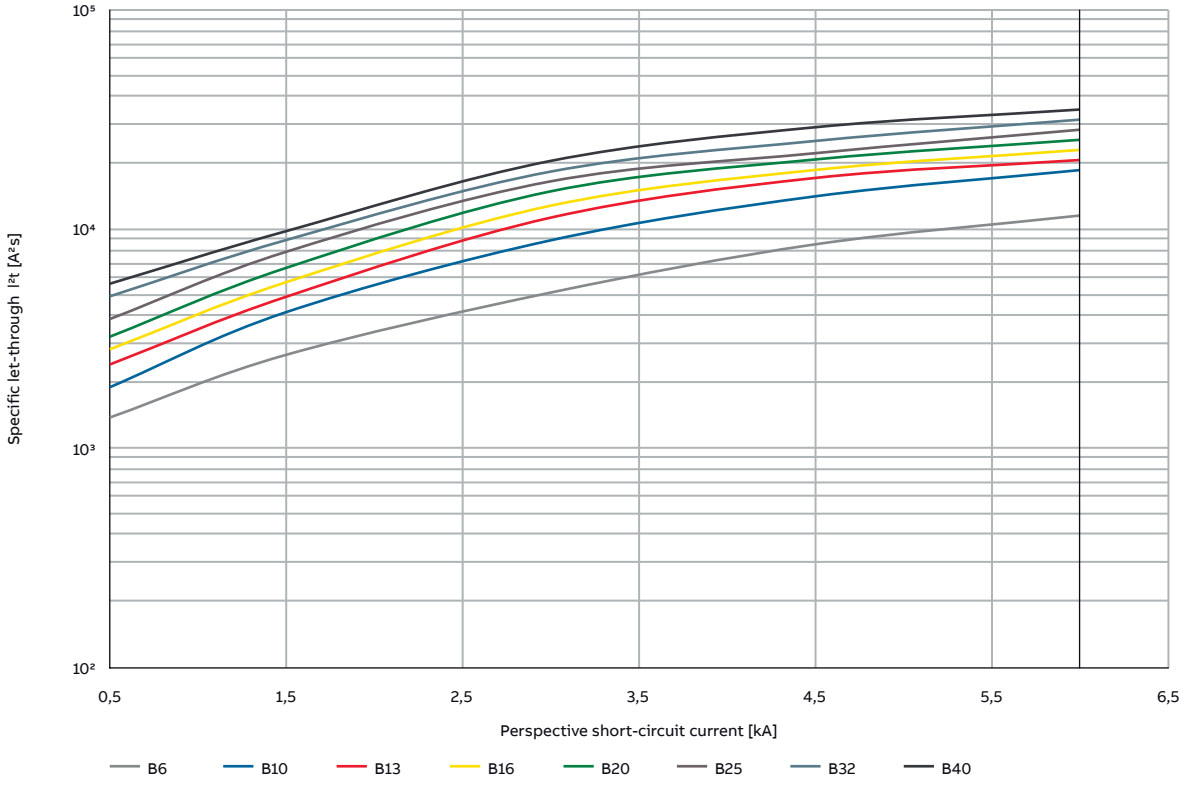
# RCBOs DS201

Technical data

### Specific let-through energy I²t DS201L - Characteristic C



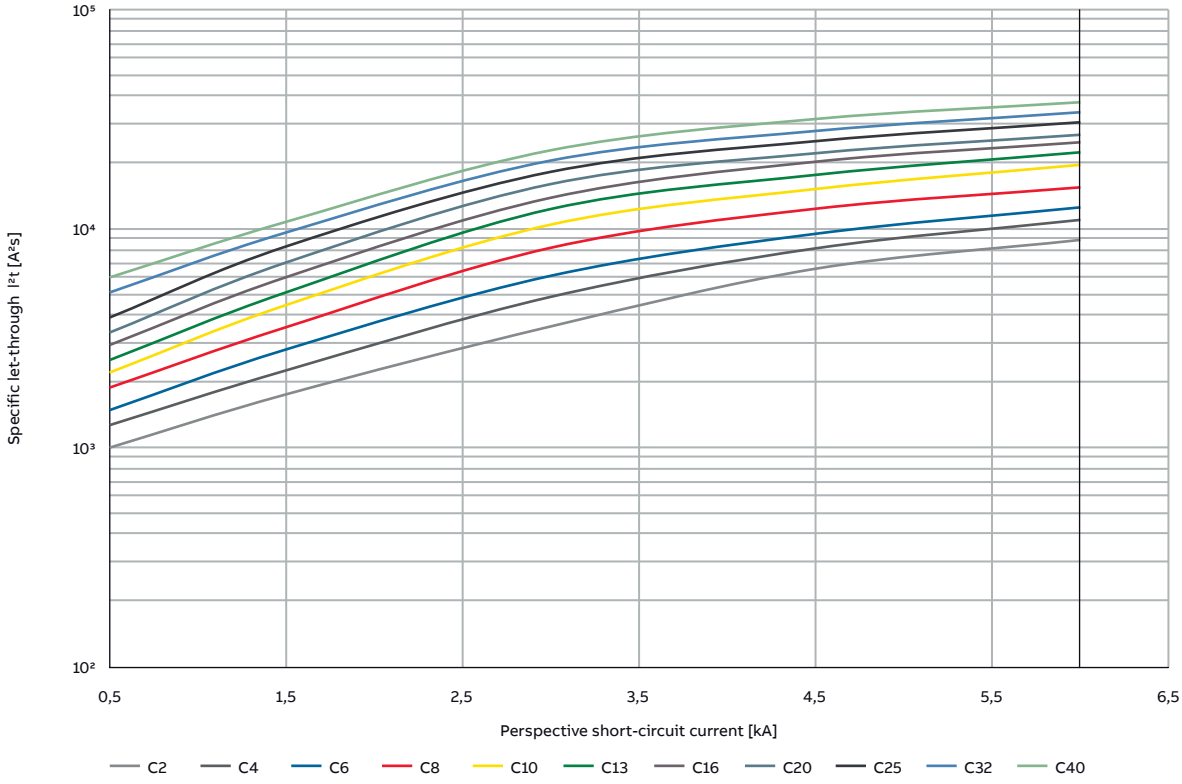

### Specific let-through energy I²t DS201 - Characteristic B



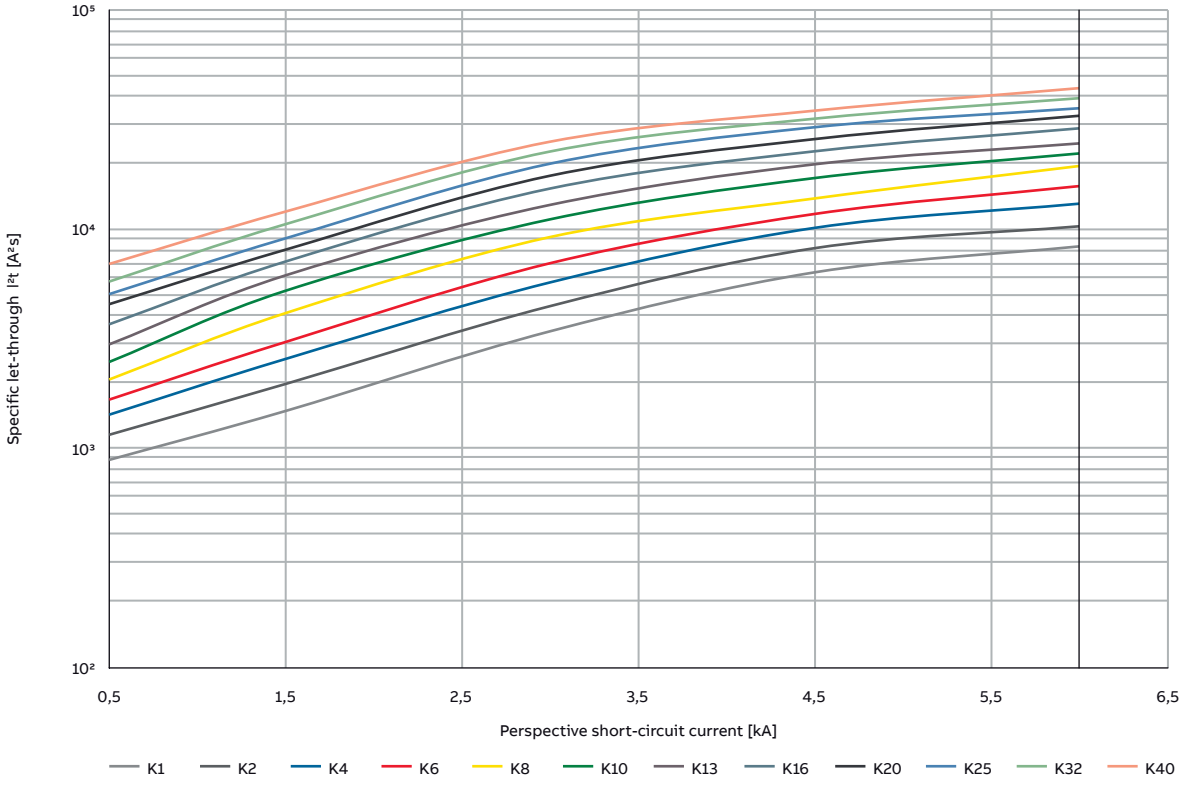
# RCBOs DS201

## Technical data

### Specific let-through energy I²t DS201 - Characteristic C



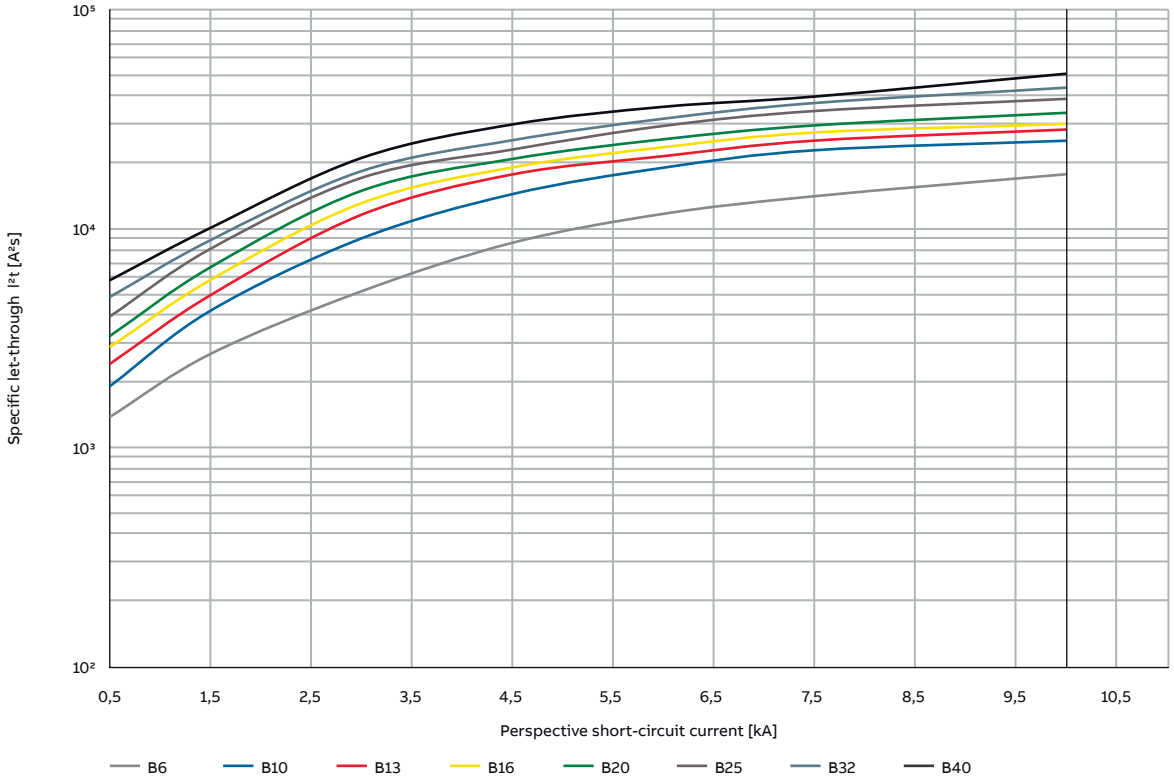

### Specific let-through energy I²t DS201 - Characteristic K



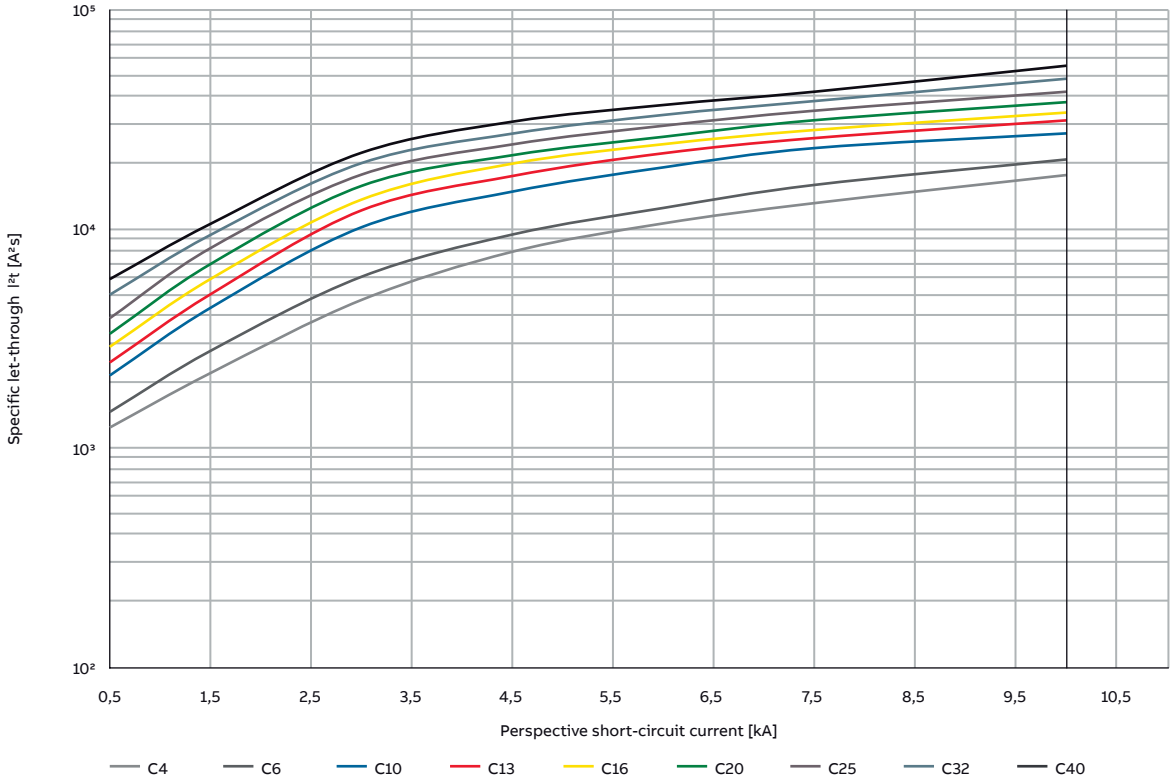
# RCBOs DS201

Technical data

## Specific let-through energy I²t DS201M - Characteristic B



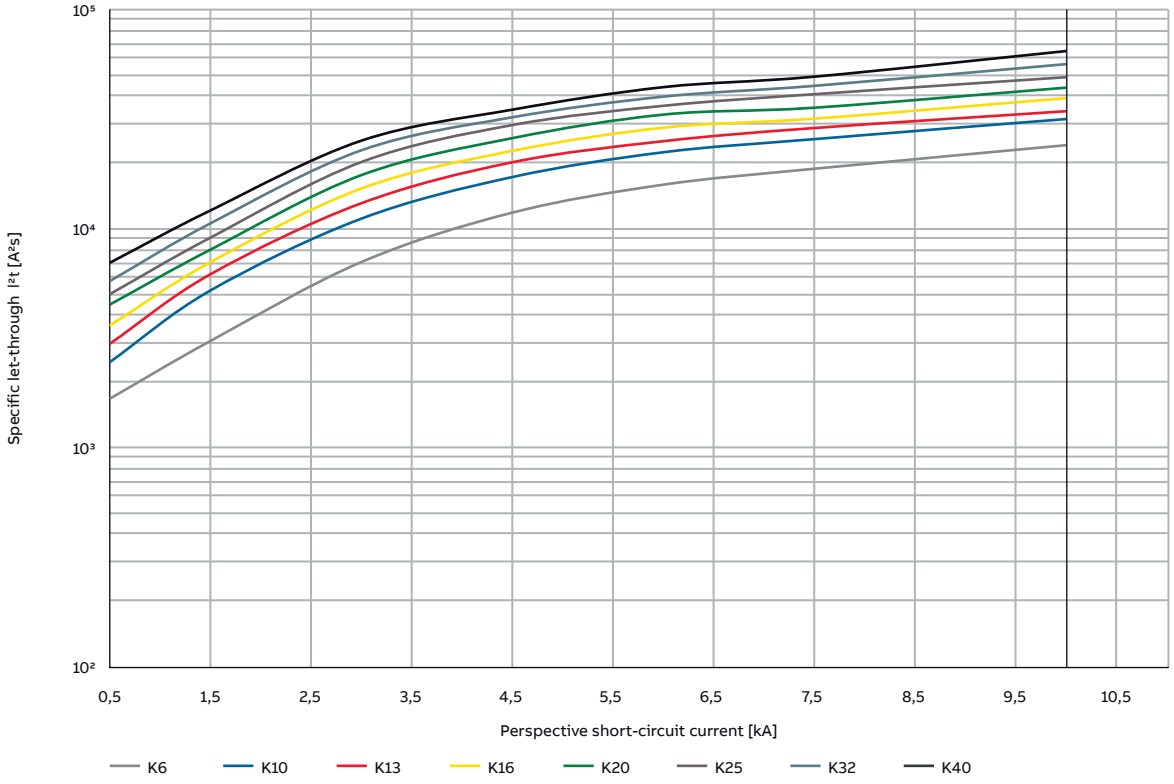

## Specific let-through energy I²t DS201M - Characteristic C



# RCBOs DS201

## Technical data

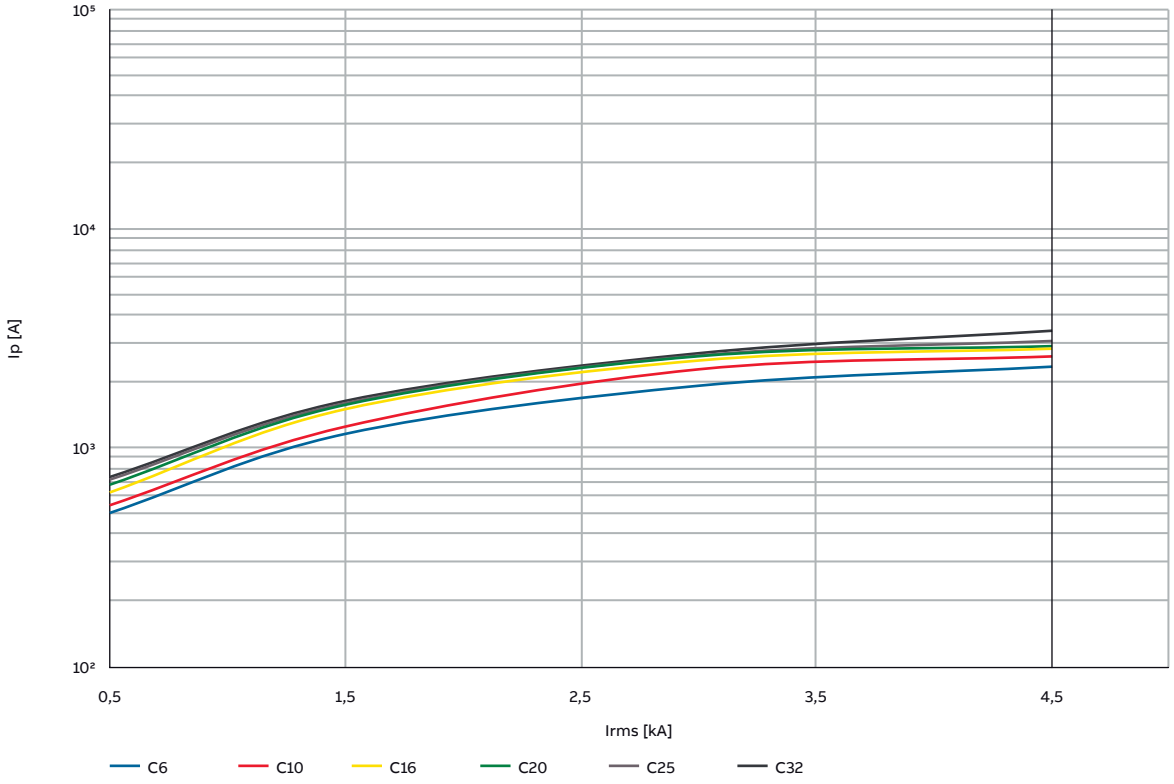
### Specific let-through energy I²t DS201M - Characteristic K



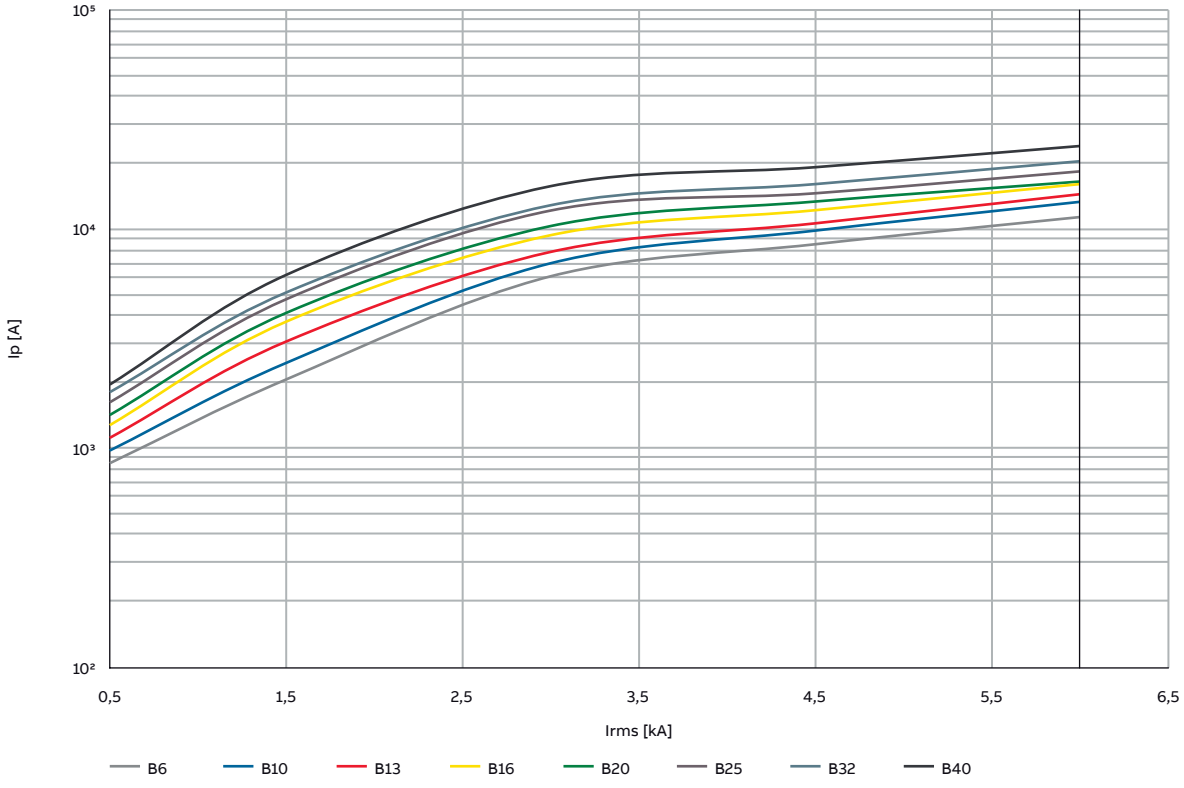
# RCBOs DS201

Technical data

### Ipeak DS201L - Characteristic C



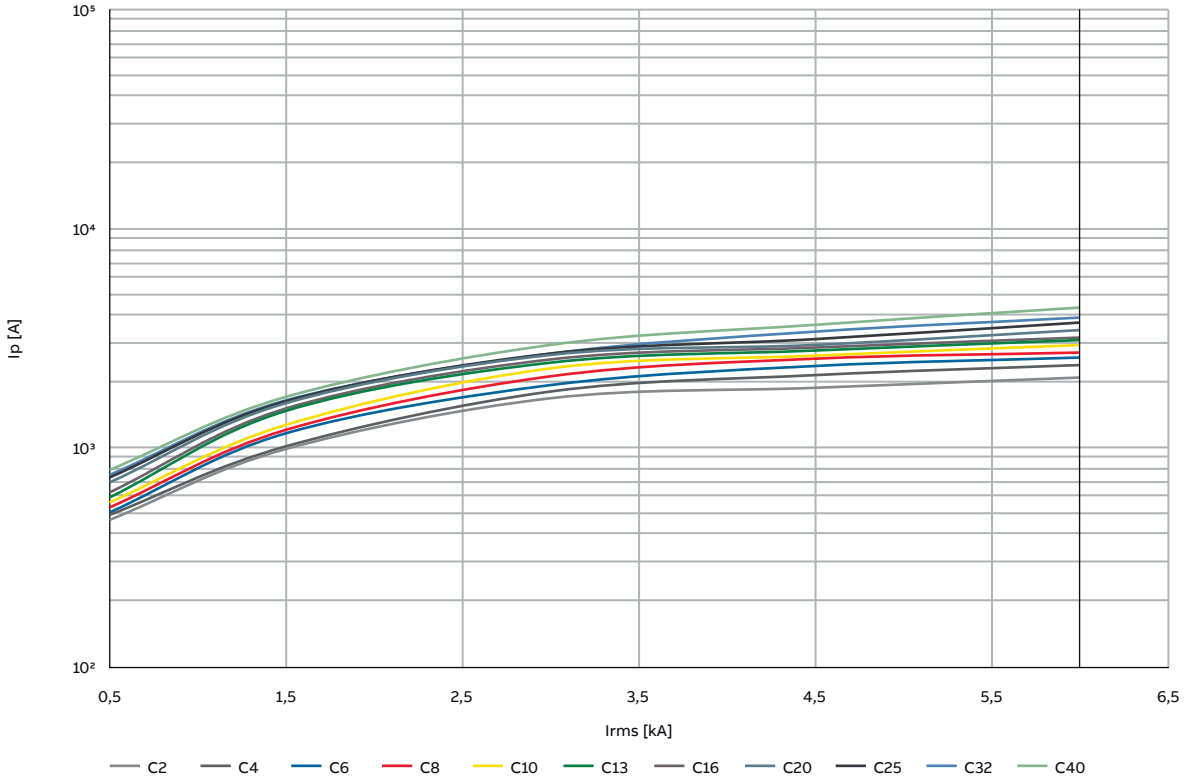

### Ipeak DS201 - Characteristic B



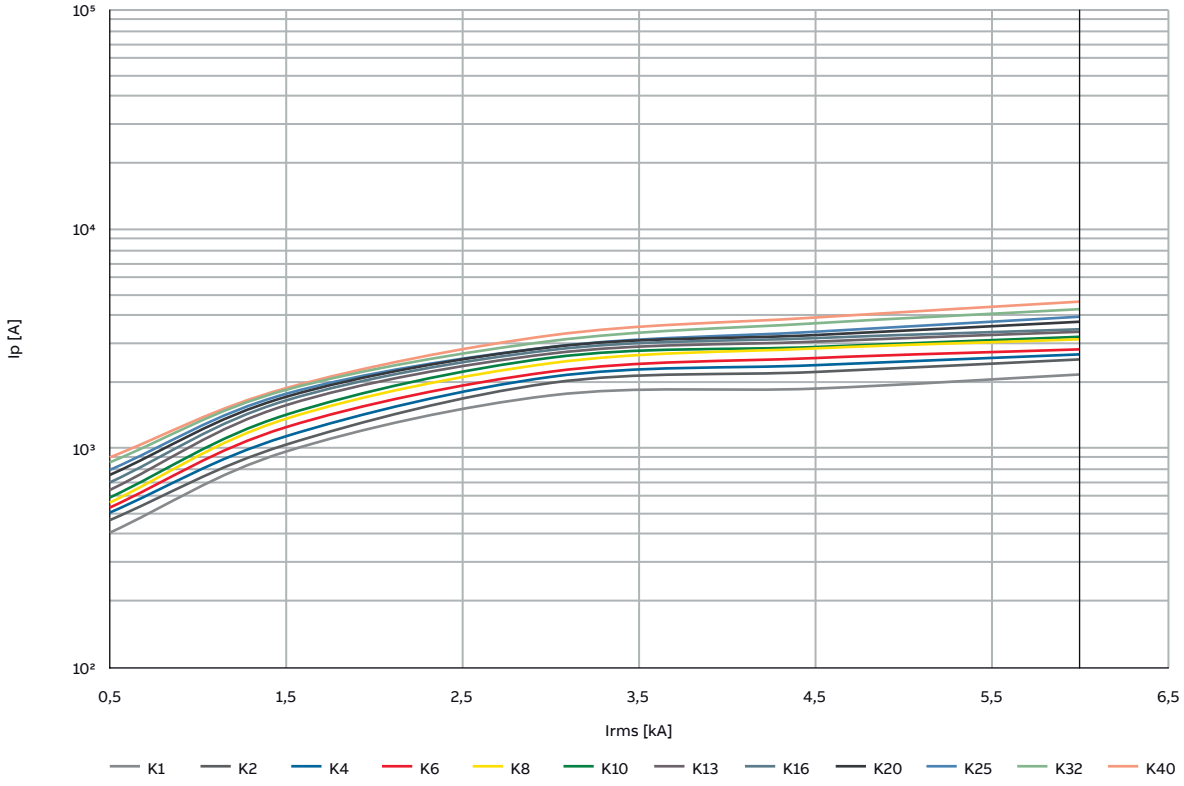
# RCBOs DS201

Technical data

## Ipeak DS201 - Characteristic C



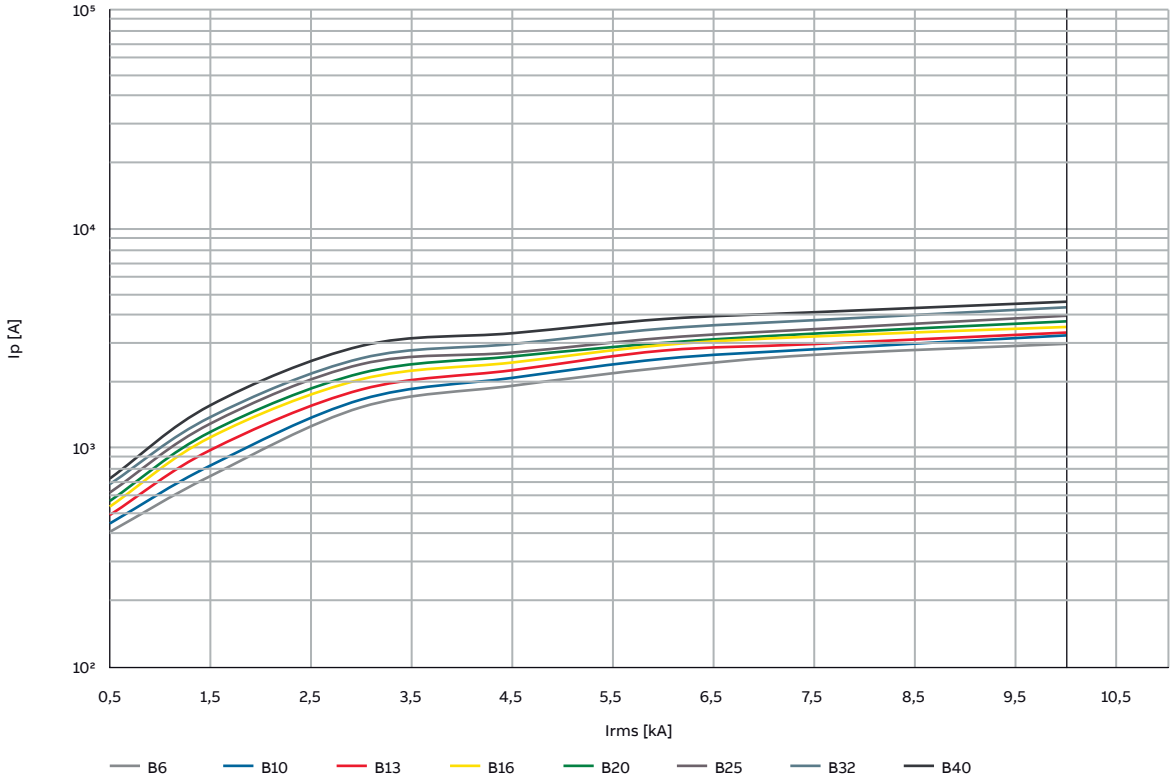

## Ipeak DS201 - Characteristic K



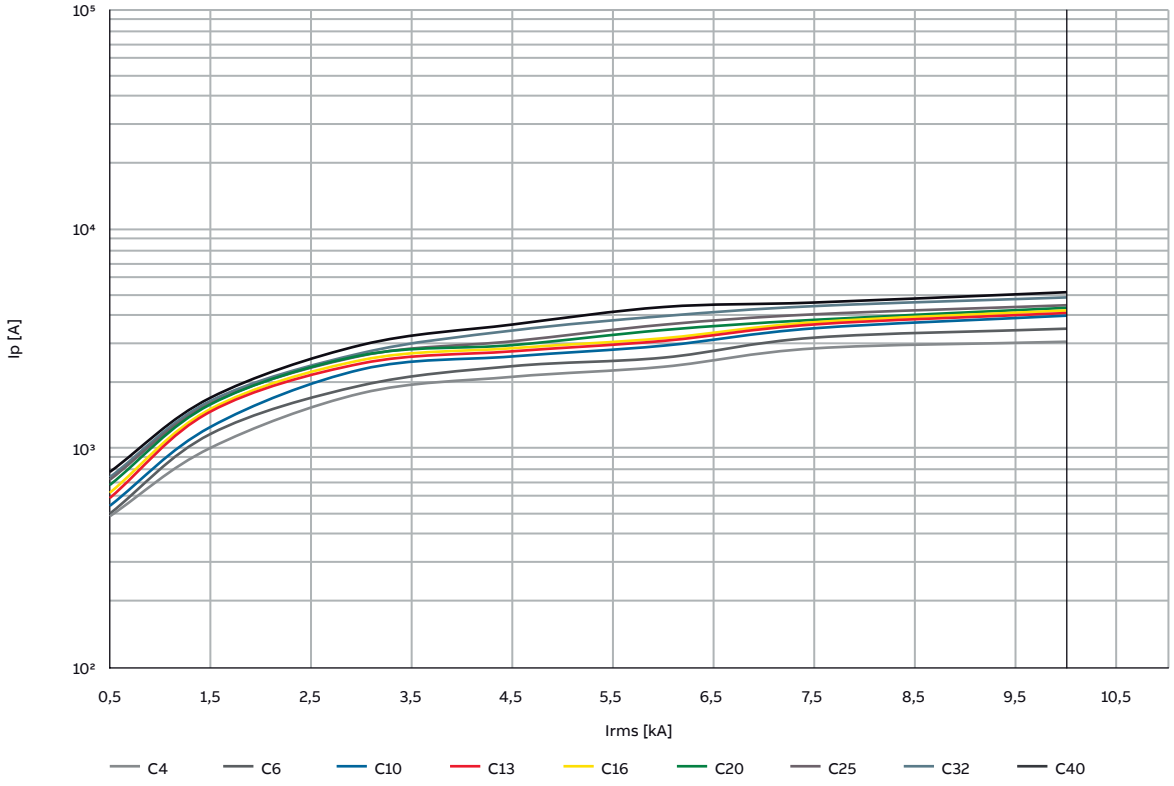
# RCBOs DS201

Technical data

### Ipeak DS201M - Characteristic B



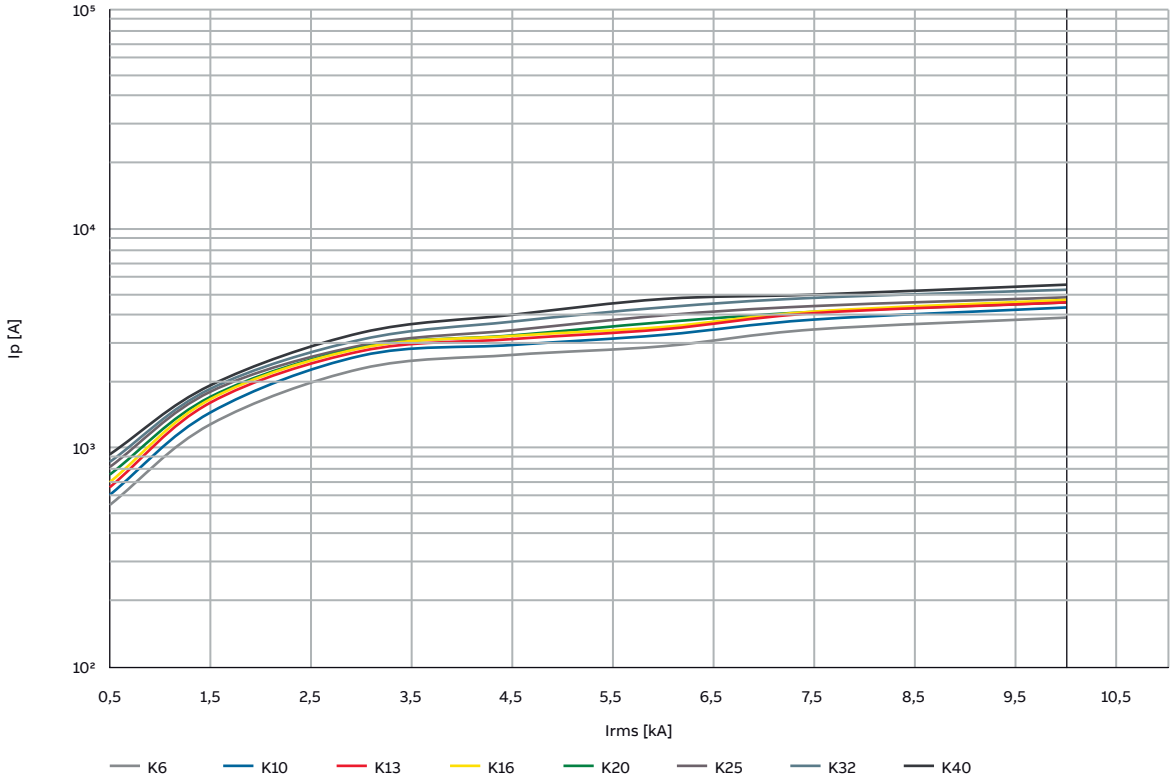

### Ipeak DS201M - Characteristic C



# RCBOs DS201

## Technical data

### Ipeak DS201M - Characteristic K

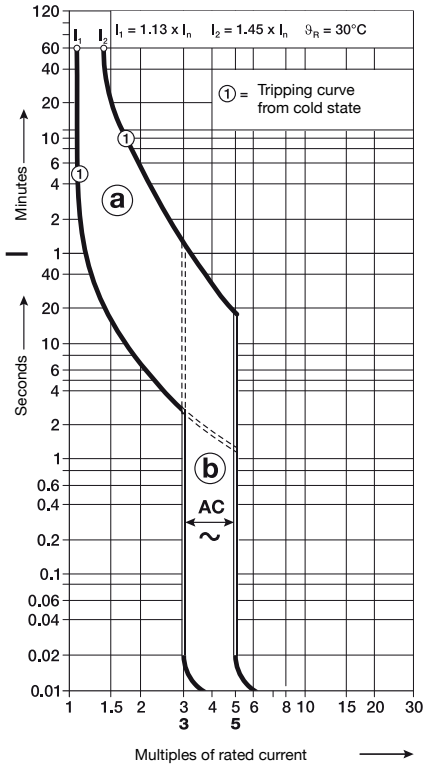


# RCBOs DS201

## Technical data

### Tripping characteristics B

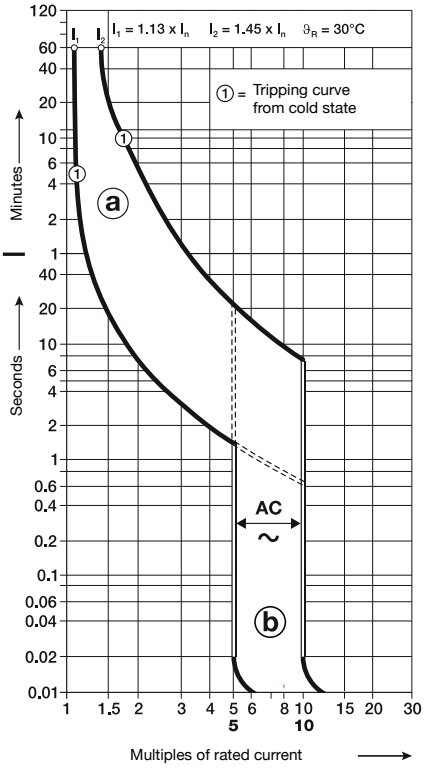
IEC/EN 61009-1




a: thermal trip
b: electromagnetic trip

### Tripping characteristics C

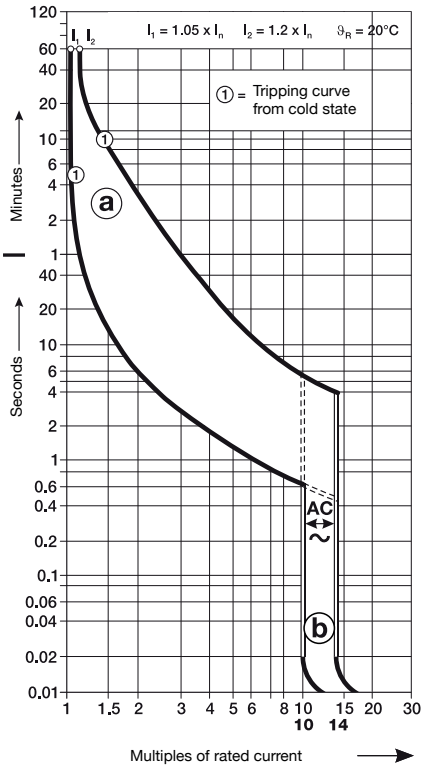
IEC/EN 61009-1




a: thermal trip
b: electromagnetic trip

### Tripping characteristics K

IEC-EN60947-2




a: thermal trip
b: electromagnetic trip

# RCBOs 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 ≤ +35 °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 ≤ +35 °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 |

# RCBOs 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 |

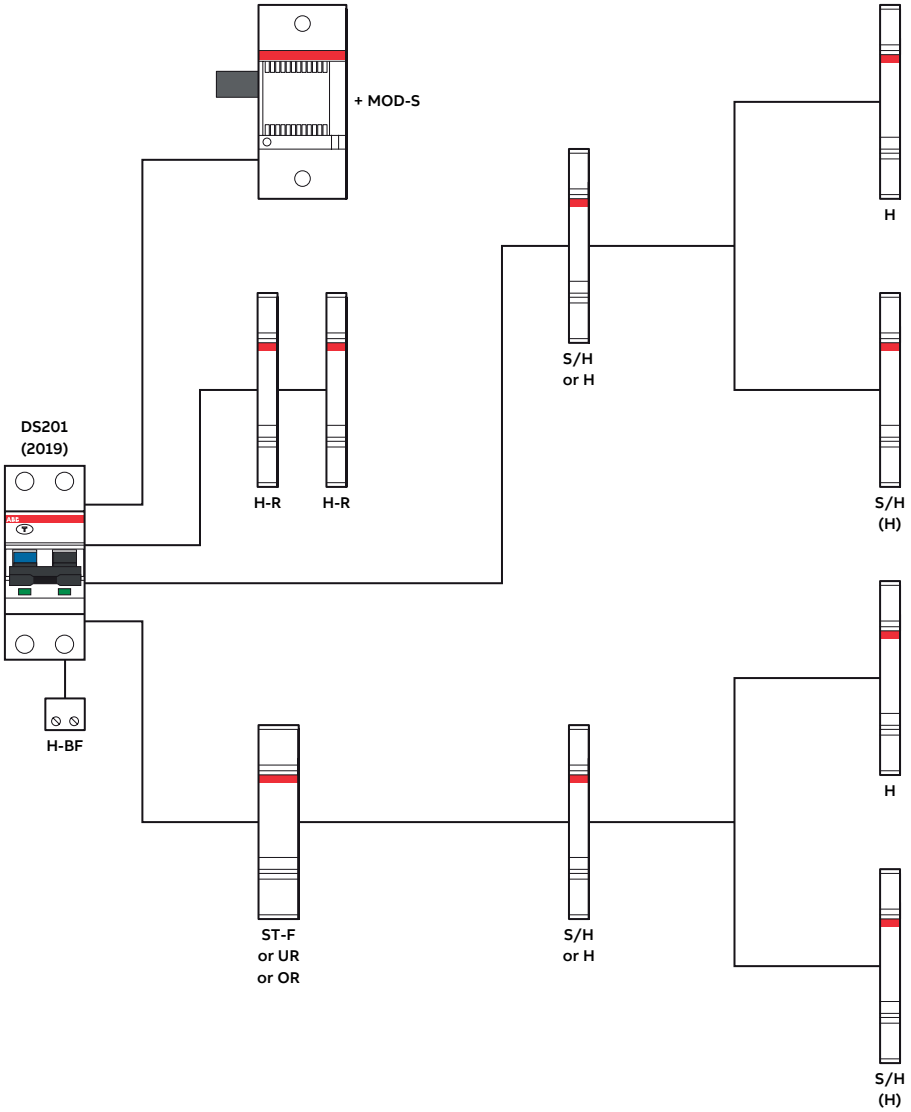
# RCBOs DS201

## Accessories

**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 |
| ST-F | Shunt Trip | F2C-A |
| UR | Undervoltage release | S2C-UA |
| OR | Overvoltage release | S2C-OVP |
| H-BF | Auxiliary contact for bottom fitting | S2C-H01 / S2C-H10 |
| MOD-S | Motor operating device | S2C-CM2/3 |

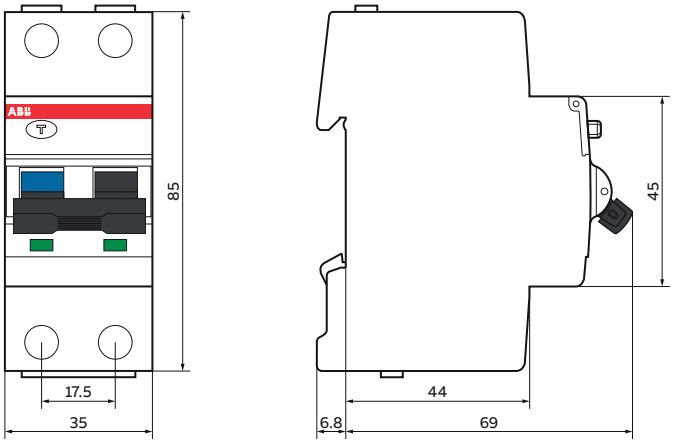


# RCBOs DS201

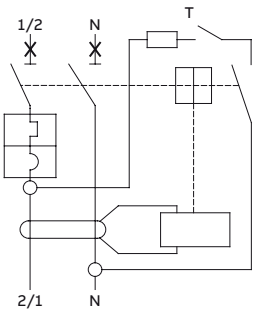
## Dimensions and connections

### Overall dimensions DS201

All measurements in mm




### Main connection

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