

Technical features table for miniature circuit-breakers

SH 200 Series

2

Standards		
Poles		
Tripping characteristics		
Rated current I _n	A	
Rated frequency f	Hz	
Rated insulation voltage U _i acc. to IEC/EN 60664-1	V	
Overvoltage category		
Pollution degree		
Data acc. to IEC/EN 60898-1		
Rated operational voltage U _n	V	
Max. power frequency recovery voltage (U _{max})	V	
Min. operating voltage	V	
Rated short-circuit capacity I _{en}	kA	
Energy limiting class (B, C up to 40 A)		
Rated impulse withstand voltage U _{imp} (1.2/50µs)	kV	
Dielectric test voltage	kV	
Reference temperature for tripping characteristics	°C	
Electrical endurance	ops.	
Mechanical Data		
Housing		
Toggle		
Contact position indication		
Protection degree acc. to EN 60529		
Mechanical endurance	ops.	
Shock resistance acc. to IEC/EN 60068-2-27		
Vibration resistance acc. to IEC/EN 60068-2-6		
Environmental conditions (damp heat cyclic) acc. to IEC/EN 60068-2-30	°C/RH	
Ambient temperature	°C	
Storage temperature	°C	
Installation		
Terminal		
Cross-section of conductors (top / bottom)	mm²	
Torque	Nm	
Screwdriver		
Mounting		
Mounting position		
Supply		
Dimensions and weight		
Mounting dimensions acc. to DIN 43880		
Pole dimensions (H x D x W)	mm	
Pole weight	g	
Combination with aux. elements		
Accessories mountable		

* Also fulfilling the requirement acc. to the protection degree IPXXB



2CSC400030F0027



2CSC400030F0015



2CSC400030F0002

SH 200	SH 200 L	SH 200 T
IEC/EN 60898-1		
1P, 2P, 3P, 4P, 1P+N, 3P+N		
B, C		
6...40 A		
50 / 60 Hz		
250 V AC (phase to ground) , 440 V AC (phase to phase)		
III		
2		
1P: 230/400 V AC; 1P+N: 230 V AC; 2...4P: 400 V AC; 3P+N: 400 V AC		
1P: 253 V AC; 1P+N: 253 V AC; 2...4P: 440 V AC; 3P+N: 440 V AC		
12 V AC		
6 kA	4.5 kA	3 kA
3		
4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)		
2 kV (50 / 60Hz, 1 min.)		
B, C: 30°C		
$I_n < 32A$: 20,000 ops (AC), $I_n \geq 32A$: 10,000 ops. (AC); 1,000 ops. (DC); 1 cycle (2s - ON, 13s - OFF, $I_n \leq 32A$), 1 cycle (2s - ON, 28s - OFF, $I_n > 32A$)		
Insulation group II, RAL 7035		
Insulation group II, black, sealable		
Marking on toggle (I ON / 0 OFF)		
IP20*, IP40 in enclosure with cover		
20,000 ops.		
25 g - 3 shocks - 11 ms		
5g - 20 cycles at 5...150...5 Hz with load 0.8 I_n		
28 cycles with 55°C/90-96% and 25°C/95-100%		
-25 ... +55°C		
-40 ... +70°C		
Cage Terminal		
25 mm² / 25 mm²		
2.0 Nm		
No. 2 Pozidrive		
On DIN rail 35 mm acc. to EN 60715 by fast clip		
any		
optional		
Mounting dimension 1		
85 x 69 x 17.5 mm		
ca. 115 g		
No		

Ordering Information

MCB SH 200 L Series - B characteristic

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SH201L-B

2CSC400030F0015



SH201L-B...NA

2CSC400030F0016



SH202L-B

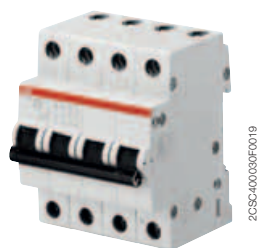
2CSC400030F0017



SH203L-B

2CSC400030F0018

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
1	6	1	632942	SH201L-B6	2CDS241001R0065		0.125	10
	10	1	632973	SH201L-B10	2CDS241001R0105		0.125	10
	13	1	632997	SH201L-B13	2CDS241001R0135		0.125	10
	16	1	633017	SH201L-B16	2CDS241001R0165		0.125	10
	20	1	633031	SH201L-B20	2CDS241001R0205		0.125	10
	25	1	633055	SH201L-B25	2CDS241001R0255		0.125	10
	32	1	633079	SH201L-B32	2CDS241001R0325		0.125	10
	40	1	633093	SH201L-B40	2CDS241001R0405		0.125	10
1+N	6	2	633116	SH201L-B6NA	2CDS241103R0065		0.25	5
	10	2	633147	SH201L-B10NA	2CDS241103R0105		0.25	5
	13	2	633161	SH201L-B13NA	2CDS241103R0135		0.25	5
	16	2	633185	SH201L-B16NA	2CDS241103R0165		0.25	5
	20	2	633208	SH201L-B20NA	2CDS241103R0205		0.25	5
	25	2	633222	SH201L-B25NA	2CDS241103R0255		0.25	5
	32	2	633246	SH201L-B32NA	2CDS241103R0325		0.25	5
	40	2	633260	SH201L-B40NA	2CDS241103R0405		0.25	5
2	6	2	633284	SH202L-B6	2CDS242001R0065		0.25	5
	10	2	633314	SH202L-B10	2CDS242001R0105		0.25	5
	13	2	633338	SH202L-B13	2CDS242001R0135		0.25	5
	16	2	633352	SH202L-B16	2CDS242001R0165		0.25	5
	20	2	633376	SH202L-B20	2CDS242001R0205		0.25	5
	25	2	633390	SH202L-B25	2CDS242001R0255		0.25	5
	32	2	633413	SH202L-B32	2CDS242001R0325		0.25	5
	40	2	633437	SH202L-B40	2CDS242001R0405		0.25	5
3	6	3	633451	SH203L-B6	2CDS243001R0065		0.375	1
	10	3	633482	SH203L-B10	2CDS243001R0105		0.375	1
	13	3	633505	SH203L-B13	2CDS243001R0135		0.375	1
	16	3	633529	SH203L-B16	2CDS243001R0165		0.375	1
	20	3	633543	SH203L-B20	2CDS243001R0205		0.375	1
	25	3	633567	SH203L-B25	2CDS243001R0255		0.375	1
	32	3	633581	SH203L-B32	2CDS243001R0325		0.375	1
	40	3	633604	SH203L-B40	2CDS243001R0405		0.375	1



SH203L-B...NA



SH204L-B

2CSC400030F0019

2CSC400030F0020

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
3+N	6	4	633628	SH203L-B6NA	2CDS243103R0065		0.5	1
	10	4	633659	SH203L-B10NA	2CDS243103R0105		0.5	1
	13	4	633673	SH203L-B13NA	2CDS243103R0135		0.5	1
	16	4	633697	SH203L-B16NA	2CDS243103R0165		0.5	1
	20	4	633710	SH203L-B20NA	2CDS243103R0205		0.5	1
	25	4	633734	SH203L-B25NA	2CDS243103R0255		0.5	1
	32	4	633758	SH203L-B32NA	2CDS243103R0325		0.5	1
	40	4	633772	SH203L-B40NA	2CDS243103R0405		0.5	1
4	6	4	633796	SH204L-B6	2CDS244001R0065		0.5	1
	10	4	633826	SH204L-B10	2CDS244001R0105		0.5	1
	13	4	633840	SH204L-B13	2CDS244001R0135		0.5	1
	16	4	633864	SH204L-B16	2CDS244001R0165		0.5	1
	20	4	633888	SH204L-B20	2CDS244001R0205		0.5	1
	25	4	633901	SH204L-B25	2CDS244001R0255		0.5	1
	32	4	633925	SH204L-B32	2CDS244001R0325		0.5	1
	40	4	633949	SH204L-B40	2CDS244001R0405		0.5	1

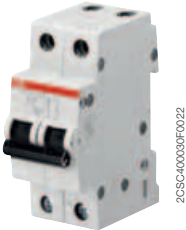
Ordering Information

MCB SH 200 L Series - C characteristic

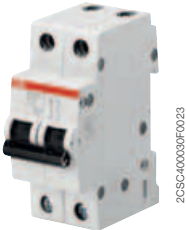
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SH201L-C



SH201L-C...NA



SH202L-C



SH203L-C

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
1	6	1	632935	SH201L-C6	2CDS241001R0064		0.125	10
	8	1	632959	SH201L-C8	2CDS241001R0084		0.125	10
	10	1	632966	SH201L-C10	2CDS241001R0104		0.125	10
	13	1	632980	SH201L-C13	2CDS241001R0134		0.125	10
	16	1	633000	SH201L-C16	2CDS241001R0164		0.125	10
	20	1	633024	SH201L-C20	2CDS241001R0204		0.125	10
	25	1	633048	SH201L-C25	2CDS241001R0254		0.125	10
	32	1	633062	SH201L-C32	2CDS241001R0324		0.125	10
	40	1	633086	SH201L-C40	2CDS241001R0404		0.125	10
1+N	6	2	633109	SH201L-C6NA	2CDS241103R0064		0.25	5
	8	2	633123	SH201L-C8NA	2CDS241103R0084		0.25	5
	10	2	633130	SH201L-C10NA	2CDS241103R0104		0.25	5
	13	2	633154	SH201L-C13NA	2CDS241103R0134		0.25	5
	16	2	633178	SH201L-C16NA	2CDS241103R0164		0.25	5
	20	2	633192	SH201L-C20NA	2CDS241103R0204		0.25	5
	25	2	633215	SH201L-C25NA	2CDS241103R0254		0.25	5
	32	2	633239	SH201L-C32NA	2CDS241103R0324		0.25	5
	40	2	633253	SH201L-C40NA	2CDS241103R0404		0.25	5
2	6	2	633277	SH202L-C6	2CDS242001R0064		0.25	5
	8	2	633291	SH202L-C8	2CDS242001R0084		0.25	5
	10	2	633307	SH202L-C10	2CDS242001R0104		0.25	5
	13	2	633321	SH202L-C13	2CDS242001R0134		0.25	5
	16	2	633345	SH202L-C16	2CDS242001R0164		0.25	5
	20	2	633369	SH202L-C20	2CDS242001R0204		0.25	5
	25	2	633383	SH202L-C25	2CDS242001R0254		0.25	5
	32	2	633406	SH202L-C32	2CDS242001R0324		0.25	5
	40	2	633420	SH202L-C40	2CDS242001R0404		0.25	5
3	6	3	633444	SH203L-C6	2CDS243001R0064		0.375	1
	8	3	633468	SH203L-C8	2CDS243001R0084		0.375	1
	10	3	633475	SH203L-C10	2CDS243001R0104		0.375	1
	13	3	633499	SH203L-C13	2CDS243001R0134		0.375	1
	16	3	633512	SH203L-C16	2CDS243001R0164		0.375	1
	20	3	633536	SH203L-C20	2CDS243001R0204		0.375	1
	25	3	633550	SH203L-C25	2CDS243001R0254		0.375	1
	32	3	633574	SH203L-C32	2CDS243001R0324		0.375	1
	40	3	633598	SH203L-C40	2CDS243001R0404		0.375	1



SH203L-C...NA

2CSC400030F0025



SH204L-C

2CSC400030F0026

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
3+N	6	4	633611	SH203L-C6NA	2CDS243103R0064		0.5	1
	8	4	633635	SH203L-C8NA	2CDS243103R0084		0.5	1
	10	4	633642	SH203L-C10NA	2CDS243103R0104		0.5	1
	13	4	633666	SH203L-C13NA	2CDS243103R0134		0.5	1
	16	4	633680	SH203L-C16NA	2CDS243103R0164		0.5	1
	20	4	633703	SH203L-C20NA	2CDS243103R0204		0.5	1
	25	4	633727	SH203L-C25NA	2CDS243103R0254		0.5	1
	32	4	633741	SH203L-C32NA	2CDS243103R0324		0.5	1
	40	4	633765	SH203L-C40NA	2CDS243103R0404		0.5	1
4	6	4	633789	SH204L-C6	2CDS244001R0064		0.5	1
	8	4	633802	SH204L-C8	2CDS244001R0084		0.5	1
	10	4	633819	SH204L-C10	2CDS244001R0104		0.5	1
	13	4	633833	SH204L-C13	2CDS244001R0134		0.5	1
	16	4	633857	SH204L-C16	2CDS244001R0164		0.5	1
	20	4	633871	SH204L-C20	2CDS244001R0204		0.5	1
	25	4	633895	SH204L-C25	2CDS244001R0254		0.5	1
	32	4	633918	SH204L-C32	2CDS244001R0324		0.5	1
	40	4	633932	SH204L-C40	2CDS244001R0404		0.5	1

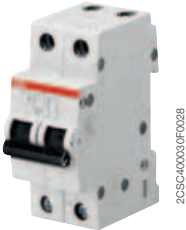
Ordering Information

MCB SH 200 Series - B characteristic

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SH201-B



SH201-B...NA



SH202-B



SH203-B

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
1	6	1	630580	SH201-B6	2CDS211001R0065		0.125	10
	10	1	630610	SH201-B10	2CDS211001R0105		0.125	10
	13	1	630634	SH201-B13	2CDS211001R0135		0.125	10
	16	1	630658	SH201-B16	2CDS211001R0165		0.125	10
	20	1	630672	SH201-B20	2CDS211001R0205		0.125	10
	25	1	630696	SH201-B25	2CDS211001R0255		0.125	10
	32	1	630719	SH201-B32	2CDS211001R0325		0.125	10
	40	1	630733	SH201-B40	2CDS211001R0405		0.125	10
1+N	6	2	630818	SH201-B6NA	2CDS211103R0065		0.25	5
	10	2	630849	SH201-B10NA	2CDS211103R0105		0.25	5
	13	2	630863	SH201-B13NA	2CDS211103R0135		0.25	5
	16	2	630887	SH201-B16NA	2CDS211103R0165		0.25	5
	20	2	630900	SH201-B20NA	2CDS211103R0205		0.25	5
	25	2	630924	SH201-B25NA	2CDS211103R0255		0.25	5
	32	2	630948	SH201-B32NA	2CDS211103R0325		0.25	5
	40	2	630962	SH201-B40NA	2CDS211103R0405		0.25	5
2	6	2	631044	SH202-B6	2CDS212001R0065		0.25	5
	10	2	631075	SH202-B10	2CDS212001R0105		0.25	5
	13	2	631099	SH202-B13	2CDS212001R0135		0.25	5
	16	2	631112	SH202-B16	2CDS212001R0165		0.25	5
	20	2	631136	SH202-B20	2CDS212001R0205		0.25	5
	25	2	631150	SH202-B25	2CDS212001R0255		0.25	5
	32	2	631174	SH202-B32	2CDS212001R0325		0.25	5
	40	2	631198	SH202-B40	2CDS212001R0405		0.25	5
3	6	3	631273	SH203-B6	2CDS213001R0065		0.375	1
	10	3	631303	SH203-B10	2CDS213001R0105		0.375	1
	13	3	631327	SH203-B13	2CDS213001R0135		0.375	1
	16	3	631341	SH203-B16	2CDS213001R0165		0.375	1
	20	3	631365	SH203-B20	2CDS213001R0205		0.375	1
	25	3	631389	SH203-B25	2CDS213001R0255		0.375	1
	32	3	631402	SH203-B32	2CDS213001R0325		0.375	1
	40	3	631426	SH203-B40	2CDS213001R0405		0.375	1



SH203-B...NA

2CSC400030R0031



SH204-B

2CSC400030R0032

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
3+N	6	4	631501	SH203-B6NA	2CDS213103R0065		0.5	1
	10	4	631532	SH203-B10NA	2CDS213103R0105		0.5	1
	13	4	631556	SH203-B13NA	2CDS213103R0135		0.5	1
	16	4	631570	SH203-B16NA	2CDS213103R0165		0.5	1
	20	4	631594	SH203-B20NA	2CDS213103R0205		0.5	1
	25	4	631617	SH203-B25NA	2CDS213103R0255		0.5	1
	32	4	631631	SH203-B32NA	2CDS213103R0325		0.5	1
	40	4	631655	SH203-B40NA	2CDS213103R0405		0.5	1
4	6	4	631730	SH204-B6	2CDS214001R0065		0.5	1
	10	4	631761	SH204-B10	2CDS214001R0105		0.5	1
	13	4	631785	SH204-B13	2CDS214001R0135		0.5	1
	16	4	631808	SH204-B16	2CDS214001R0165		0.5	1
	20	4	631822	SH204-B20	2CDS214001R0205		0.5	1
	25	4	631846	SH204-B25	2CDS214001R0255		0.5	1
	32	4	631860	SH204-B32	2CDS214001R0325		0.5	1
	40	4	631884	SH204-B40	2CDS214001R0405		0.5	1

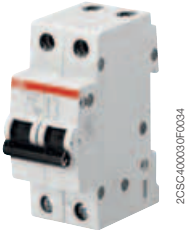
Ordering Information

MCB SH 200 Series - C characteristic

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SH201-C



SH201-C...NA

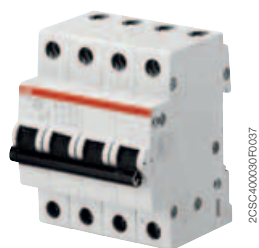


SH202-C



SH203-C

N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
1	6	1	630573	SH201-C6	2CDS211001R0064		0.125	10
	8	1	630597	SH201-C8	2CDS211001R0084		0.125	10
	10	1	630603	SH201-C10	2CDS211001R0104		0.125	10
	13	1	630627	SH201-C13	2CDS211001R0134		0.125	10
	16	1	630641	SH201-C16	2CDS211001R0164		0.125	10
	20	1	630665	SH201-C20	2CDS211001R0204		0.125	10
	25	1	630689	SH201-C25	2CDS211001R0254		0.125	10
	32	1	630702	SH201-C32	2CDS211001R0324		0.125	10
	40	1	630726	SH201-C40	2CDS211001R0404		0.125	10
1+N	6	2	630801	SH201-C6NA	2CDS211103R0064		0.25	5
	8	2	630825	SH201-C8NA	2CDS211103R0084		0.25	5
	10	2	630832	SH201-C10NA	2CDS211103R0104		0.25	5
	13	2	630856	SH201-C13NA	2CDS211103R0134		0.25	5
	16	2	630870	SH201-C16NA	2CDS211103R0164		0.25	5
	20	2	630894	SH201-C20NA	2CDS211103R0204		0.25	5
	25	2	630917	SH201-C25NA	2CDS211103R0254		0.25	5
	32	2	630931	SH201-C32NA	2CDS211103R0324		0.25	5
	40	2	630955	SH201-C40NA	2CDS211103R0404		0.25	5
2	6	2	631037	SH202-C6	2CDS212001R0064		0.25	5
	8	2	631051	SH202-C8	2CDS212001R0084		0.25	5
	10	2	631068	SH202-C10	2CDS212001R0104		0.25	5
	13	2	631082	SH202-C13	2CDS212001R0134		0.25	5
	16	2	631105	SH202-C16	2CDS212001R0164		0.25	5
	20	2	631129	SH202-C20	2CDS212001R0204		0.25	5
	25	2	631143	SH202-C25	2CDS212001R0254		0.25	5
	32	2	631167	SH202-C32	2CDS212001R0324		0.25	5
	40	2	631181	SH202-C40	2CDS212001R0404		0.25	5
3	6	3	631266	SH203-C6	2CDS213001R0064		0.375	1
	8	3	631280	SH203-C8	2CDS213001R0084		0.375	1
	10	3	631297	SH203-C10	2CDS213001R0104		0.375	1
	13	3	631310	SH203-C13	2CDS213001R0134		0.375	1
	16	3	631334	SH203-C16	2CDS213001R0164		0.375	1
	20	3	631358	SH203-C20	2CDS213001R0204		0.375	1
	25	3	631372	SH203-C25	2CDS213001R0254		0.375	1
	32	3	631396	SH203-C32	2CDS213001R0324		0.375	1
	40	3	631419	SH203-C40	2CDS213001R0404		0.375	1



SH203-C...NA

2CSC400030R0037



SH204-C

2CSC400030R0038

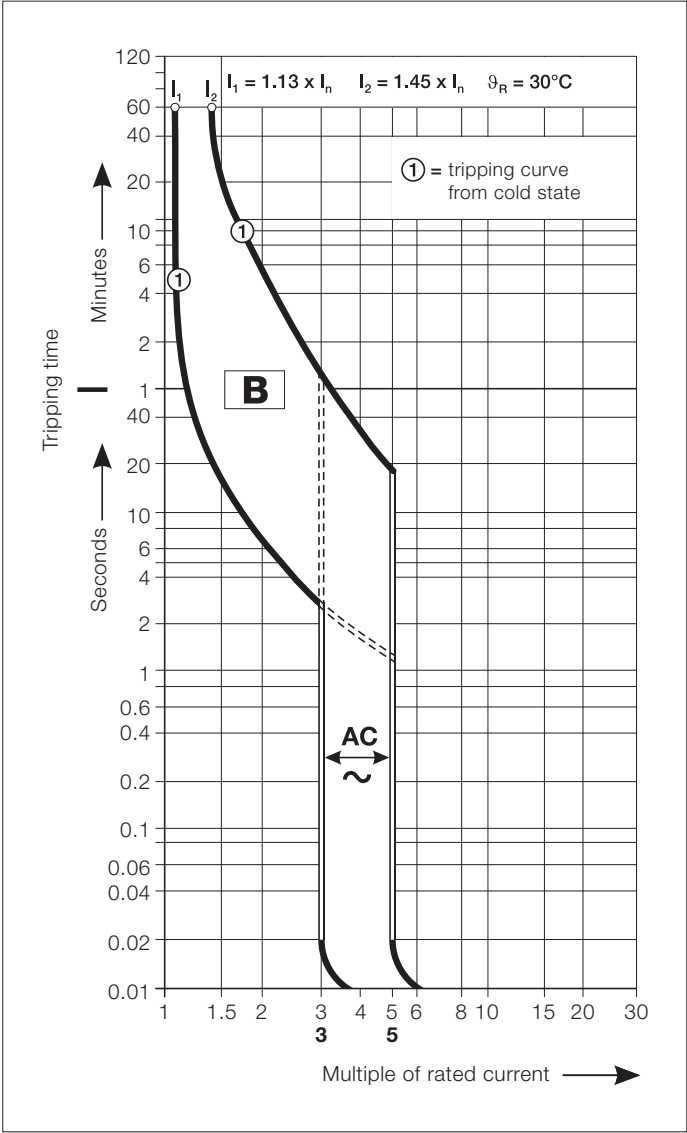
N. of poles	Rated current	N° module	Bbn 4016779	Order details		Price	Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code		Kg	
3+N	6	4	631495	SH203-C6NA	2CDS213103R0064		0.5	1
	8	4	631518	SH203-C8NA	2CDS213103R0084		0.5	1
	10	4	631525	SH203-C10NA	2CDS213103R0104		0.5	1
	13	4	631549	SH203-C13NA	2CDS213103R0134		0.5	1
	16	4	631563	SH203-C16NA	2CDS213103R0164		0.5	1
	20	4	631587	SH203-C20NA	2CDS213103R0204		0.5	1
	25	4	631600	SH203-C25NA	2CDS213103R0254		0.5	1
	32	4	631624	SH203-C32NA	2CDS213103R0324		0.5	1
	40	4	631648	SH203-C40NA	2CDS213103R0404		0.5	1
4	6	4	631723	SH204-C6	2CDS214001R0064		0.5	1
	8	4	631747	SH204-C8	2CDS214001R0084		0.5	1
	10	4	631754	SH204-C10	2CDS214001R0104		0.5	1
	13	4	631778	SH204-C13	2CDS214001R0134		0.5	1
	16	4	631792	SH204-C16	2CDS214001R0164		0.5	1
	20	4	631815	SH204-C20	2CDS214001R0204		0.5	1
	25	4	631839	SH204-C25	2CDS214001R0254		0.5	1
	32	4	631853	SH204-C32	2CDS214001R0324		0.5	1
	40	4	631877	SH204-C40	2CDS214001R0404		0.5	1

Technical details

Tripping diagrams

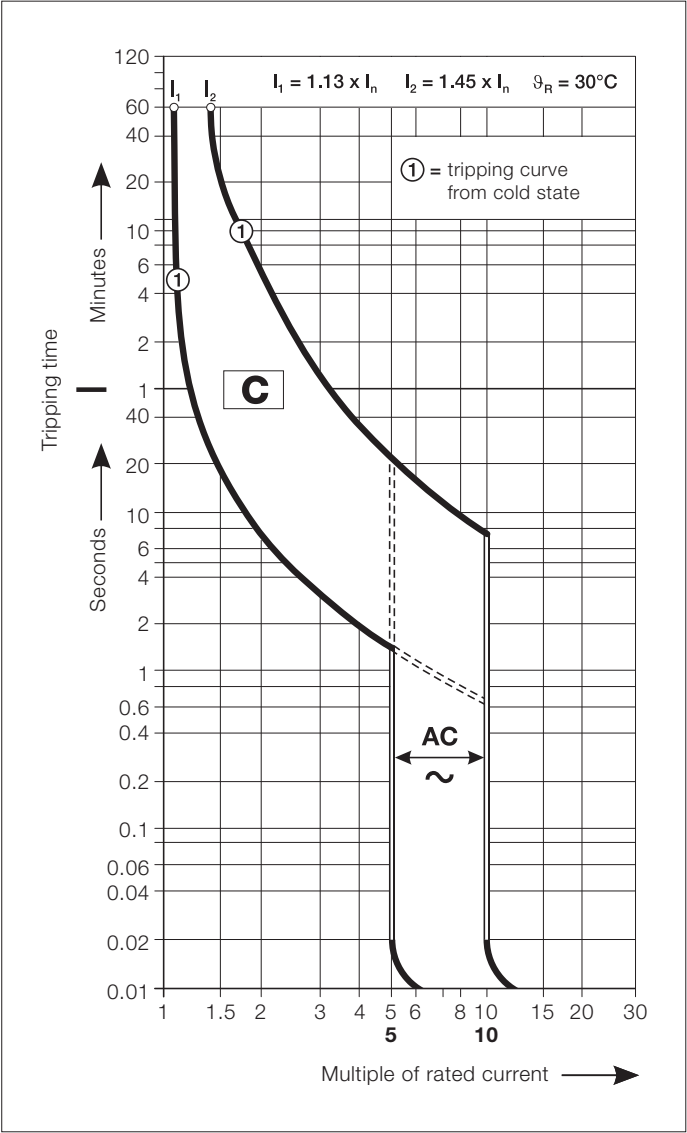
2

B characteristic



acc. to IEC/EN 60898-1
 $I_n = 6 \dots 40 \text{ A}$
SH 200T / SH 200 L / SH 200

C characteristic



acc. to IEC/EN 60898-1
 $I_n = 6 \dots 40 \text{ A}$
SH 200T / SH 200 L / SH 200

Internal resistances and power losses of the Miniature Circuit-Breakers

Rated current A	Range SH 200 T B, C		Range SH 200 L B, C		Range SH 200 B, C	
	m Ω	W	m Ω	W	m Ω	W
6	55	2.0	55	2.0	55	2.0
8	15	1.0	15	1.0	15	1.0
10	13.3	1.3	13.3	1.3	13.3	1.3
13	13.3	2.3	13.3	2.3	13.3	2.3
16	7.0	1.8	7.0	1.8	7.0	1.8
20	6.25	2.5	6.25	2.5	6.25	2.5
25	5.0	3.2	5.0	3.2	5.0	3.2
32	3.6	3.7	3.6	3.7	3.6	3.7
40	3.0	4.8	3.0	4.8	3.0	4.8

Internal resistances per pole in m Ω

Power losses per pole in W

Internal resistances are subject to application-specific and environment-specific conditions and are therefore to be considered as typical values.

Tripping characteristics

acc. to	Tripping character- istic	Thermal tripping ¹			Electromagnetic tripping ²		
		Test currents: conventional non-tripping current I_1	conventional tripping current I_2	Tripping-time	Test currents: conventional non-tripping current	conventional tripping current	Tripping-time
IEC/EN 60898-1	B	$1.13 \cdot I_n$	$1.45 \cdot I_n$	$> 1 \text{ h}$ $< 1 \text{ h}^3$	$3 \cdot I_n$	$5 \cdot I_n$	$0.1 \text{ s} \dots 45 \text{ s} \leq 32 \text{ A} / 0.1 \text{ s} \dots 90 \text{ s} \geq 32 \text{ A}$ $< 0,1 \text{ s}$
	C	$1.13 \cdot I_n$	$1.45 \cdot I_n$	$> 1 \text{ h}$ $< 1 \text{ h}^3$	$5 \cdot I_n$	$10 \cdot I_n$	$0.1 \text{ s} \dots 15 \text{ s} \leq 32 \text{ A} / 0.1 \text{ s} \dots 30 \text{ s} \geq 32 \text{ A}$ $< 0,1 \text{ s}$

¹⁾ Influence of ambient temperature see below.

²⁾ Electromagnetic tripping valid for AC 50...60 Hz.

³⁾ From warm operating condition (immediately after $I_1 > 1 \text{ h}$).

Influence of ambient temperature

The thermal releases are calibrated to a nominal reference temperature of 30°C for B and C characteristic.

In the case of ambient temperatures deviating from these values the trip values:

- are reduced in case of higher temperatures;
- are increased in case of lower temperatures.

The electromagnetic tripping is independent of the ambient temperature.

Technical details

Current-carrying capacity of the MCBs as a function of the ambient temperature

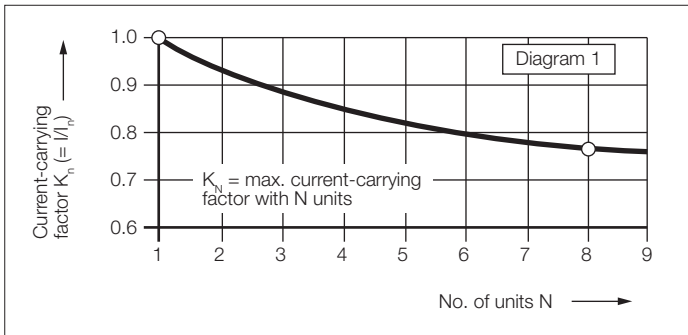
Max. operating current depending on the ambient temperature of a circuit-breaker in load circuit of characteristics type B and C.

2

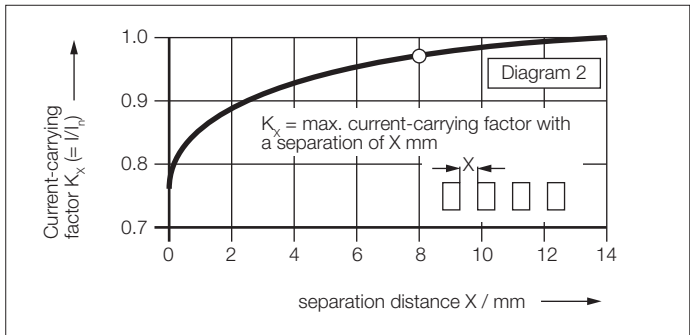
B, C In (A)	Ambient temperature T (°C)									
	-30	-20	-10	0	10	20	30	40	50	60
6.0	7.7	7.5	7.2	6.9	6.6	6.3	6.0	5.7	5.3	4.9
8.0	10.3	10.0	9.6	9.2	8.8	8.4	8.0	7.5	7.1	6.5
10.0	12.9	12.5	12.0	11.5	11.1	10.5	10.0	9.4	8.8	8.2
13.0	16.8	16.2	15.6	15.0	14.4	13.7	13.0	12.3	11.5	10.6
16.0	20.7	20.0	19.2	18.5	17.7	16.9	16.0	15.1	14.1	13.1
20.0	25.8	24.9	24.0	23.1	22.1	21.1	20.0	18.9	17.6	16.3
25.0	32.3	31.2	30.0	28.9	27.6	26.4	25.0	23.6	22.0	20.4
32.0	41.3	39.9	38.5	37.0	35.4	33.7	32.0	30.2	28.2	26.1
40.0	51.6	49.9	48.1	46.2	44.2	42.2	40.0	37.7	35.3	32.7

Mutual thermal influence in the case of simultaneous load

MCBs mounted in a row side by side



MCBs mounted with a separating distance X



Characteristic	from diagram	Calculation	Example
Rated current and characteristics of MCB		$I_n / B, C$	16 A – B
Continuous load		ϑ_{θ}	40 °C
Number of MCB's / Mounting distance		N / X	8 pieces / 0 and 8 mm
Continuous load > 1 h		$I = I_n \cdot K_{\theta}$	$I_n=16A$ incl. derating due to temp. 40°C: $I_n=15.1A$
Continuous load, N MCB, Distance 0	1	$I = K_{\theta} \cdot K_N$	$16 \cdot 0.77 = 12.23 A$
Continuous load, N MCB, Distance X	2	$I = K_{\theta} \cdot K_X$	$15.1A \cdot 0.77 = 11.6A$ $15.1A \cdot 0.98 = 14.8A$

Max. Back-up protection

SH 200 T / SH 200 L / SH 200	B/C	Max. Back-up protection	
	Rated current	fuse	Main Circuit Breaker S 700
	6/8	63 A	100 A
	10... 32	100 A	100 A
	40	125 A	100 A

Maximum permissible earth-fault loop impedance Z_s

Impedance Z_s at $U_0 = 230 \text{ V AC}$ ¹ to ensure compliance with the operation conditions in accordance to IEC 60 364-4-41.

Operating time $< 0.4 \text{ s}$; at $400 \text{ V AC} < 0.2 \text{ s}$ and at $> 400 \text{ V AC} < 0.1 \text{ s}$

The instantaneous tripping of the MCB ensures an operating time of $\leq 0.1 \text{ s}$ (TN system).

Determined according to DIN VDE 0100-520, supplement 2, 2002-11 (source impedance = 300Ω , $c = 0.95$ and conductor temperature 70°C = factor 0.8). The internal resistance of the MCB is already included.

SH 200, SH 200 L, SH 200 T

Rated current $I_n \text{ A}$	B max. Z_s Ω	C max. Z_s Ω
6	7.7	3.8
8	—	2.8
10	4.6	2.2
13	3.5	1.7
16	2.9	1.4
20	2.3	1.2
25	1.8	0.9
32	1.4	0.7
40	1.1	0.6

1) U_0 = rated voltage against earthed conductor; for $U_0 = 240 \text{ V}$ is $Z_s \cdot 1.04$; for $U_0 = 127 \text{ V}$ is $Z_s \cdot 0.55$

Take into account the voltage drop:

e.g. in the case of a 1.5 mm^2 conductor, protected by a B 16 circuit breaker, the maximum cable length is 82 m.

If the voltage is below 3%, this would result in a maximum cable length (2 wire) of 17 m.

For more details on this topic, get your own copy of the technical information leaflet "Maximum cable lengths".

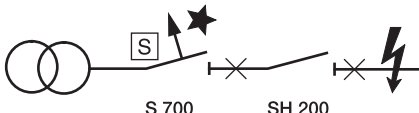
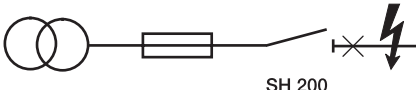
Maximum cable length in case of different voltages and cross sections on request.

Technical details

Short circuit selectivity

In the case of a short circuit, selectivity exists up to the values indicated.

2

MCBs		short circuit discrimination in kA																				
																						
		to main circuit breaker S 700									to fuse gL/gG (IEC 60 269-1)											
series	I _n (A)	16	20	25	35	40	50	63	80	100	16	20	25	35	50	63	80	100	125	160		
SH 200 T – B, C	6	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	0.2	0.4	0.6	1.5	2.5	2.8	3	3	3	3		
	8	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		0.3	0.6	1.4	2.4	2.6	3	3	3	3		
	10	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5			0.5	1.2	2.1	2.5	2.8	3	3	3		
	13	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5			0.4	1.0	1.8	2.4	2.8	3	3	3		
	16	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				0.8	1.6	2.3	2.8	3	3	3		
	20		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					1.5	2.1	2.5	2.5	3	3		
	25			4.5	4.5	4.5	4.5	4.5	4.5	4.5					1.0	2.0	2.5	2.5	3	3		
	32		**		4.5	4.5	4.5	4.5	4.5	4.5	no selectivity						1.9	2.5	2.5	3	3	
	40					4.5	4.5	4.5	4.5	4.5						1.5	2	2	2	2		
SH 200 L – B, C	6	6	6	6	6	6	6	6	6	6	0.2	0.4	0.7	1.8	3	5	4.5	4.5	4.5	4.5		
	8	6	6	6	6	6	6	6	6	6	0.2	0.3	0.6	0.6	2.5	4	4.5	4.5	4.5	4.5		
	10	6	6	6	6	6	6	6	6	6		0.3	0.6	1.4	2.3	3	4	4.5	4.5	4.5		
	13	6	6	6	6	6	6	6	6	6			0.5	1.3	2	3	4	4.5	4.5	4.5		
	16	6	6	6	6	6	6	6	6	6				1	1.8	2.5	3.5	4.5	4.5	4.5		
	20		6	6	6	6	6	6	6	6					1.6	2.2	3	4	4.5	4.5		
	25			6	6	6	6	6	6	6					1.5	2.2	3	4	4.5	4.5		
	32		**		6	6	6	6	6	6	no selectivity						2	2.8	3.5	4.5	4.5	
	40					6	6	6	6	6						2	2.5	3	4.5	4.5		
SH 200 – B, C	6	10	10	10	10	10	10	10	8	8	0.2	0.5	0.8	2	3.3	5.5	6	6	6	6		
	8	10	10	10	10	10	10	10	8	8	0.2	0.4	0.7	1.7	2.8	4.5	6	6	6	6		
	10	10	10	10	10	10	10	10	8	8	0.2	0.4	0.7	1.5	2.5	3.5	5	6	6	6		
	16	10	10	10	10	10	10	10	8	8			0.7	1.5	2.5	3.5	5	6	6	6		
	20		10	10	10	10	10	10	8	8				1.3	2	2.9	4.1	6	6	6		
	25			10	10	10	15	10	8	8					1.8	2.6	3.5	5	6	6		
	32		**		10	10	10	10	8	8	no selectivity						1.8	2.6	3.5	5	6	6
	40					10	10	10	8	8						2.2	3	4	6	6		

** Limited or no selectivity at all possible in the overload range (thermal tripping)

Overall dimensions

SH 200, SH 200 L, SH 200 T

