



DIN SERIES

PCB SOLDER PINS

FEATURES

- All internal contacts welded
- High CV product
- High reliability
- Long useful life

APPLICATIONS

- HiFi
- Consumer
- Industrial
- Inverter/drives

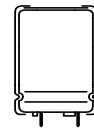
RoHS compliant
REACH compliant

GENERAL SPECIFICATIONS

Items	Characteristics
Rated capacitance range C_R	56... 330.000 μF
Capacitance tolerance	$\pm 20\%$
Rated voltage range U	16 ... 500 V
Surge voltage U_S	$U_R \leq 315 \text{ V: } U_S = 1,15 U_R$; $U_R > 315 \text{ V: } U_S = 1,10 U_R$
Max. reverse voltage	2 V
Category temperature range	- 40°C ... + 185 °C
Leakage current I_L after 5 min @ U_R	$\leq 0,008 * C_R [\mu\text{F}] * U_R [\text{V}] + 6 \mu\text{A} [\mu\text{A}]$
Useful life 5000 h @ 85 °C ; U_R ; I_R	Requirements $\Delta C/C \leq 30 \%$ of initial value ; ESR $\leq 300 \%$ of specified ; limit $I_L \leq$ specified limit
Endurance test 2000 h @ 85 °C , U_R	Requirements $\Delta C/C \leq 20 \%$ of initial value ; ESR $\leq 130 \%$ of specified ; limit $I_L \leq$ specified limit
Climatic category IEC 60068	40/085/56
Voltage proof of the external insulation	$\geq 2500 \text{ V AC}$
Sectional specification	IEC 60384-4

Different voltages and capacitance combinations are available on request. Also in small lots.

Stand: 05/2015



■ DRAWING AND MOUNTING PIN LAYOUT OF THE SERIES GS CAPACITORS

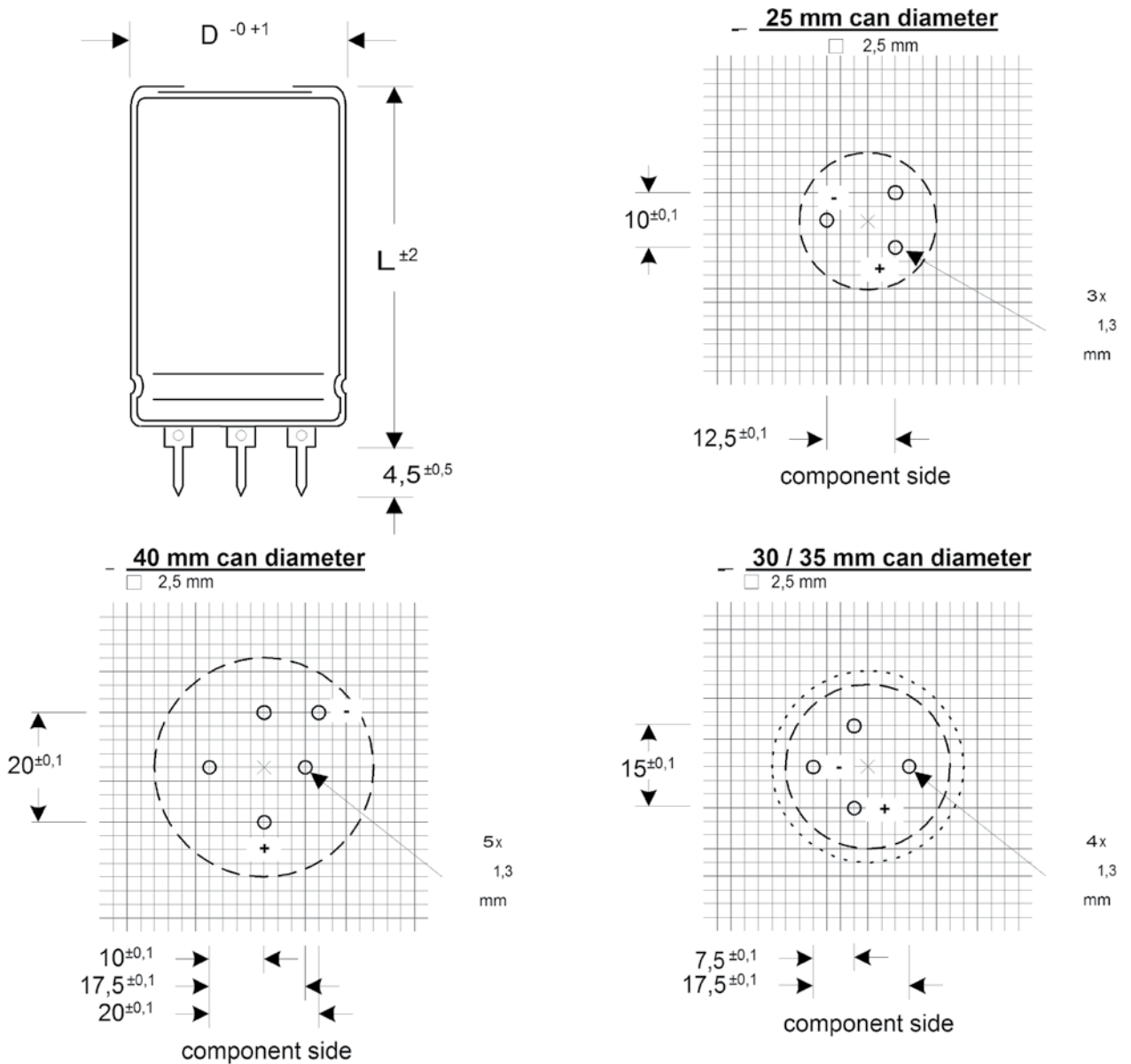
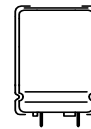


Fig1: Dimensions of the series GS and mounting hole layouts for $D = 25 \dots 40$ mm

NC terminals must be soldered to isolated pads connected to the minus potential.

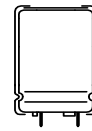


ELECTRICAL DATA AND ORDERING CODE FOR SERIES GS

Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
16	22000	25x30	22	3,6	22301625030
	27000	25x35	18	4,2	27301625035
	39000	25x40	12	5,3	39301625040
	33000	30x30	14	4,8	33301630030
	39000	25x45	12	5,6	39301625045
	47000	25x50	10	6,4	47301625050
	39000	30x35	12	5,5	39301630035
	47000	35x30	10	6,4	47301635030
	56000	30x40	9	7,0	56301630040
	56000	35x35	9	7,4	56301635035
	56000	30x45	9	7,3	56301630045
	68000	30x50	7	8,4	68301630050
	68000	35x40	7	8,5	68301635040
	82000	35x45	6	9,7	82301635045
	82000	35x50	6	10,1	82301635050
	100000	30x70	5	11,6	10401630070
	120000	40x50	4	12,9	12401640050
	150000	35x80	3	16,4	15401635080
	120000	40x50	4	12,9	12401640050
	150000	40x60	3	15,4	15401640060
	180000	35x100	3	19,7	18401635100
	220000	40x80	2	20,8	22401640080
	180000	45x60	3	16,9	18401645060
	270000	45x80	2	23,1	27401645080
	270000	40x100	2	25,3	27401640100
	330000	45x100	1	27,9	33401645100
25	10000	25x30	45	2,5	10302525030
	12000	25x35	37	2,9	12302525035
	15000	25x40	30	3,4	15302525040
	15000	30x30	30	3,4	15302530030
	18000	25x45	25	3,9	18302525045
	18000	30x35	25	3,9	18302530035
	18000	25x50	25	4,1	18302525050
	22000	30x40	20	4,5	22302530040
	18000	35x30	25	4,1	18302535030
	27000	30x45	17	5,1	27302530045
	27000	30x50	17	5,4	27302530050
	22000	35x35	21	4,7	22302535035
	27000	35x40	17	5,4	27302535040
	33000	35x45	14	6,3	33302535045
	39000	30x70	12	7,4	39302530070
	39000	35x50	12	7,1	39302535050
	47000	35x60	10	8,3	47302535060
	56000	40x50	8	8,9	56302540050
	56000	35x80	8	10,2	56302535080
	68000	40x60	7	10,5	68302540060
	82000	35x100	6	13,5	82302535100
	82000	45x60	6	11,6	82302545060

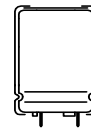
Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
25	120000	40x80	4	15,6	12402540080
	120000	40x100	4	17,1	12402540100
	120000	45x80	4	15,6	12402545080
	150000	45x100	3	19,1	15402545100
	5600	25x30	68	2,0	56204025030
40	6800	25x35	56	2,4	68204025035
	8200	25x40	47	2,7	82204025040
	8200	30x30	47	2,7	82204030030
	10000	25x45	38	3,2	10304025045
	10000	30x35	38	3,1	10304030035
	10000	25x50	38	3,3	10304025050
	12000	30x40	32	3,6	12304030040
	10000	35x30	38	3,3	10304035030
	15000	30x45	25	4,2	15304030045
	12000	35x35	32	3,8	12304035035
	15000	30x50	25	4,4	15304030050
	15000	35x40	25	4,5	15304035040
	18000	35x45	21	5,1	18304035045
	22000	35x50	17	5,8	22304035050
	22000	30x70	17	6,1	22304030070
	27000	35x60	14	6,9	27304035060
	27000	40x50	14	6,8	27304040050
	33000	35x80	12	8,6	33304035080
	33000	40x60	12	8,1	33304040060
	47000	35x100	8	11,3	47304035100
	47000	40x80	8	10,8	47304040080
	39000	45x60	10	8,8	39304045060
	56000	40x100	7	12,9	56304040100
	56000	45x80	7	11,7	56304045080
	82000	45x100	5	15,5	82304045100
63	2700	25x30	106	1,6	27206325030
	3300	25x35	87	1,9	33206325035
	3900	25x40	73	2,2	39206325040
	3900	30x30	73	2,1	39206330030
	4700	25x45	61	2,5	47206325045
	4700	30x35	61	2,5	47206330035
	5600	25x50	51	0,0	56206325050
	5600	30x40	51	2,8	56206330040
	5600	35x30	51	2,9	56206335030
	6800	30x45	42	3,3	68206330045
	6800	35x35	42	3,3	68206335035
	8200	30x50	35	3,7	82206330050
	8200	35x45	35	4,0	82206335045
	12000	30x70	24	5,2	12306330070
	12000	35x60	24	5,3	12306335060
	15000	40x50	19	5,9	15306340050
	18000	35x80	16	7,3	18306335080
	18000	40x60	16	6,9	18306340060

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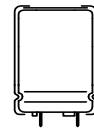
Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
63	22000	45x60	13	7,6	22306345060
	22000	35x100	13	8,9	22306335100
	22000	40x80	13	8,5	22306340080
	27000	40x100	11	10,3	27306340100
	27000	45x80	11	9,4	27306345080
	39000	45x100	7	12,4	39306345100
80	1800	25x30	177	1,3	18208025030
	1800	25x35	177	1,3	18208025035
	2700	25x40	118	1,7	27208025040
	2700	30x30	118	1,7	27208030030
	3300	25x45	97	2,0	33208025045
	3900	25x50	82	2,3	39208025050
	3300	30x35	97	2,0	33208030035
	3900	35x30	82	2,3	39208035030
	3900	30x40	82	2,3	39208030040
	4700	30x45	68	2,6	47208030045
	4700	35x35	68	2,6	47208035035
	5600	30x50	57	2,9	56208030050
	5600	35x40	57	3,0	56208035040
	6800	35x45	47	3,4	68208035045
	6800	35x50	47	3,6	68208035050
	8200	30x70	39	4,1	82208030070
	10000	35x60	32	4,6	10308035060
	10000	40x50	32	4,6	10308040050
	12000	35x80	27	5,7	12308035080
	12000	40x60	27	5,3	12308040060
	18000	35x100	18	7,6	18308035100
	15000	45x60	21	6,0	15308045060
	18000	40x80	18	7,3	18308040080
	22000	45x80	14	8,1	22308045080
	22000	40x100	14	8,8	22308040100
	27000	45x100	12	9,8	27308045100
100	1200	25x30	133	1,5	12210025030
	1500	25x35	106	1,7	15210025035
	1800	25x40	88	2,0	18210025040
	1800	30x30	88	2,0	18210030030
	2200	25x45	72	2,3	22210025045
	2200	25x50	72	2,4	22210025050
	2200	35x30	72	2,4	22210035030
	2700	30x40	59	2,7	27210030040
	2700	30x45	59	2,8	27210030045
	2700	35x35	59	2,8	27210035035
	3300	30x50	48	3,2	33210030050
	3300	35x40	48	3,2	33210035040
	3900	35x45	41	3,7	39210035045
	5600	30x70	28	4,7	56210030070
	4700	35x50	34	4,2	47210035050
	5600	35x60	28	4,9	56210035060
	5600	40x50	28	4,8	56210040050
	6800	35x80	23	6,1	68210035080

Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
100	6800	40x60	23	5,7	68210040060
	10000	35x100	16	8,1	10310035100
	12000	40x80	13	8,4	12310040080
	10000	45x60	16	6,9	10310045060
	12000	45x80	13	8,4	12310045080
	15000	40x100	11	10,3	15310040100
	18000	45x100	9	11,3	18310045100
160	470	25x30	237	1,1	47116025030
	560	25x35	199	1,3	56116025035
	680	25x40	164	1,5	68116025040
	680	30x30	164	1,4	68116030030
	820	25x45	136	1,7	82116025045
	820	30x35	136	1,7	82116030035
	1000	25x50	111	1,9	10216025050
	1000	30x40	111	1,9	10216030040
	1000	35x30	111	1,9	10216035030
	1200	30x45	93	2,2	12216030045
	1200	35x35	93	2,2	12216035035
	1500	30x50	74	2,6	15216030050
	1500	35x40	74	2,6	15216035040
	1800	35x45	62	3,0	18216035045
	1800	35x50	62	3,1	18216035050
	2200	30x70	51	3,6	22216030070
	2200	35x60	51	3,7	22216035060
	2700	40x50	41	4,0	27216040050
	3300	35x80	34	5,0	33216035080
	3300	40x60	34	4,7	33216040060
	3900	35x100	29	6,0	39216035100
	3900	45x60	29	5,2	39216045060
	4700	40x80	24	6,3	47216040080
	5600	40x100	20	7,5	56216040100
	5600	45x80	20	6,9	56216045080
	6800	45x100	16	8,3	68216045100
200	470	25x30	203	1,2	47120025030
	560	25x35	171	1,4	56120025035
	680	25x40	141	1,6	68120025040
	680	30x30	141	1,6	68120030030
	820	25x45	117	1,8	82120025045
	820	30x35	117	1,8	82120030035
	1000	35x30	96	2,1	10220035030
	1000	25x50	96	2,1	10220025050
	1000	30x40	96	2,1	10220030040
	1200	30x45	80	2,4	12220030045
	1500	30x50	64	2,8	15220030050
	1200	35x35	80	2,4	12220035035
	1500	35x40	64	2,8	15220035040
	1800	35x45	53	3,2	18220035045
	1800	35x50	53	3,3	18220035050
	2200	30x70	43	3,8	22220030070
	2200	35x60	43	4,0	22220035060



Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
200	3300	35x80	29	5,4	33220035080
	2700	40x50	35	4,3	27220040050
	3300	40x60	29	5,1	33220040060
	3900	35x100	24	6,5	39220035100
	4700	40x80	20	6,8	47220040080
	3900	45x60	24	5,6	39220045060
	5600	40x100	17	8,1	56220040100
	5600	45x80	17	7,4	56220045080
	6800	45x100	14	9,0	68220045100
350	180	25x30	531	0,7	18135025030
	220	25x35	434	0,9	22135025035
	270	25x40	354	1,0	27135025040
	270	30x30	354	1,0	27135030030
	330	25x45	290	1,2	33135025045
	330	30x35	290	1,1	33135030035
	390	35x30	245	1,3	39135035030
	390	25x50	245	1,3	39135025050
	390	30x40	245	1,3	39135030040
	470	30x45	203	1,5	47135030045
	470	35x35	203	1,5	47135035035
	560	30x50	171	1,7	56135030050
	560	35x40	171	1,7	56135035040
	560	35x45	171	1,8	56135035045
	680	35x50	141	2,1	68135035050
	820	30x70	117	2,3	82135030070
	820	35x60	117	2,4	82135035060
	1000	40x50	96	2,6	10235040050
	1200	35x80	80	3,3	12235035080
	1200	40x60	80	3,1	12235040060
	1500	35x100	64	4,0	15235035100
	1500	45x60	64	3,4	15235045060
	1800	40x80	53	4,2	18235040080
	1800	40x100	53	4,6	18235040100
	2200	45x80	43	4,7	22235045080
	2700	45x100	35	5,6	27235045100
400	180	25x30	708	0,6	18140025030
	220	25x35	579	0,7	22140025035
	270	25x40	472	0,9	27140025040
	270	30x30	472	0,8	27140030030
	330	25x45	386	1,0	33140025045
	330	25x50	386	1,0	33140025050
	330	30x35	386	1,0	33140030035
	390	35x30	327	1,1	39140035030
	390	30x40	327	1,1	39140030040
	470	35x35	271	1,3	47140035035
	470	30x45	271	1,3	47140030045
	560	30x50	227	1,5	56140030050
	560	35x40	227	1,5	56140035040
	560	35x45	227	1,6	56140035045
	680	30x70	187	1,8	68140030070

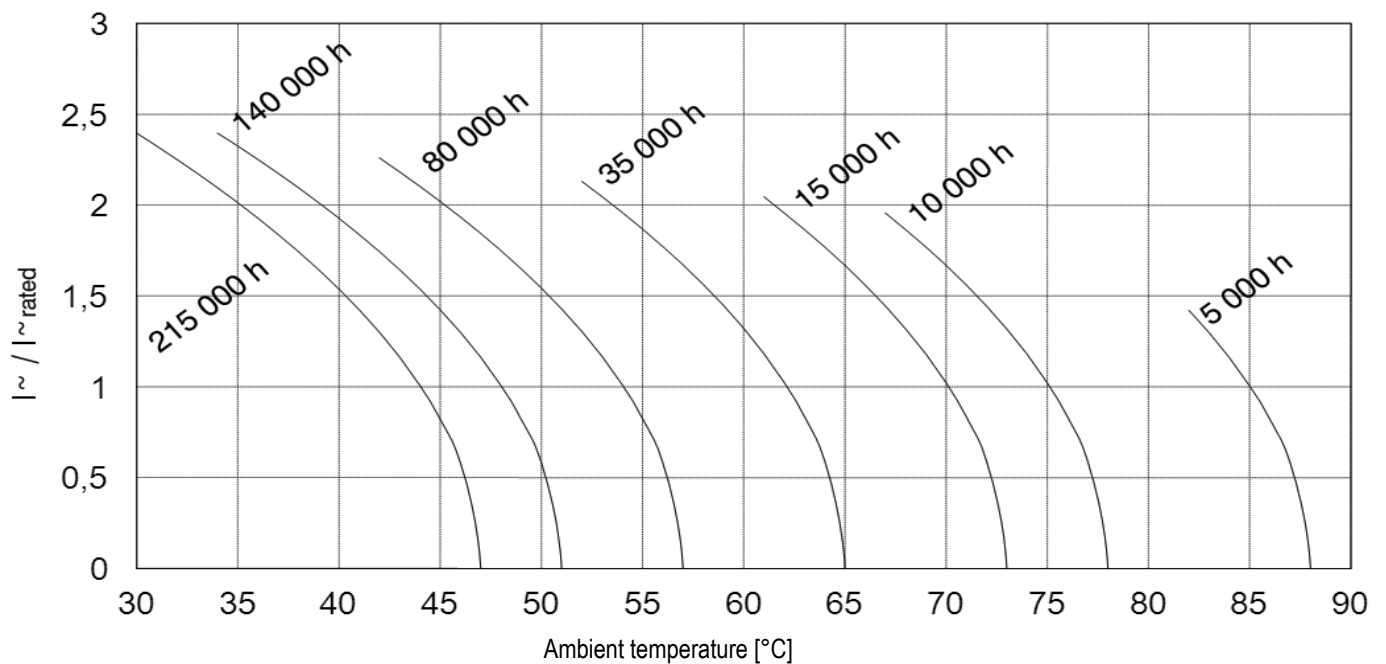
Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
400	820	35x50	155	2,0	82140035050
	820	35x60	155	2,1	82140035060
	820	40x50	155	2,1	82140040050
	1200	35x80	106	2,8	12240035080
	1200	40x60	106	2,7	12240040060
	1500	35x100	85	3,5	15240035100
	1500	40x80	85	3,3	15240040080
	1800	45x60	71	3,3	18240045060
	1800	40x100	71	4,0	18240040100
	1800	45x80	71	3,6	18240045080
	2700	45x100	47	4,9	27240045100
	2200	45x100	58	4,7	22240045100
450	120	25x30	929	0,6	12145025030
	150	25x35	743	0,7	15145025035
	180	25x40	619	0,8	18145025040
	220	25x45	507	0,9	22145025045
	180	30x30	619	0,7	18145030030
	220	30x35	507	0,9	22145030035
	220	25x50	507	0,9	22145025050
	270	30x40	413	1,0	27145030040
	220	35x30	507	0,9	22145035030
	270	30x45	413	1,0	27145030045
	270	35x35	413	1,1	27145035035
	330	30x50	338	1,2	33145030050
	390	35x40	286	1,3	39145035040
	390	35x45	286	1,4	39145035045
	560	30x70	199	1,8	56145030070
	470	35x50	237	1,6	47145035050
	560	35x60	199	1,9	56145035060
	560	40x50	199	1,8	56145040050
	820	35x80	136	2,5	82145035080
	1200	40x60	93	2,8	12245040060
	1000	35x100	111	3,0	10245035100
	1000	45x60	111	2,6	10245045060
	1200	40x80	93	3,3	12245040080
	1500	40x100	74	4,0	15245040100
	1200	45x80	93	3,2	12245045080
	1800	45x100	62	4,3	18245045100
500	120	25x30	796	0,6	12150025030
	120	25x35	796	0,6	12150025035
	150	25x40	637	0,7	15150025040
	180	25x45	531	0,9	18150025045
	150	30x30	637	0,7	15150030030
	180	30x35	531	0,8	18150030035
	220	25x50	434	1,0	22150025050
	220	30x40	434	1,0	22150030040
	180	35x30	531	0,9	18150035030
	270	30x45	354	1,1	27150030045
	270	35x35	354	1,1	27150035035
	270	30x50	354	1,2	27150030050



Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
500	270	35x40	354	1,2	27150035040
	390	35x45	245	1,5	39150035045
	470	30x70	203	1,8	47150030070
	390	35x50	245	1,6	39150035050
	560	35x60	171	2,0	56150035060
	560	40x50	171	2,0	56150040050
	680	35x80	141	2,5	68150035080

Rated voltage U_R [V]	Rated cap. C_R [μF]	Case size D x L [mm]	Typ. ESR 100 Hz, 20°C [mΩ]	Ripple current IR~ 100 Hz, 85°C [A]	Order code GS...
500	680	40x60	141	2,3	68150040060
	820	35x100	117	3,0	82150035100
	820	45x60	117	2,6	82150045060
	1200	40x80	80	3,4	12250040080
	820	40x100	117	3,1	82150040100
	1200	45x80	80	3,4	12250045080
	1500	45x100	64	4,2	15250045100

■ USEFUL LIFE AS A FUNCTION OF AMBIENT TEMPERATURE AND ACTUAL RIPPLE CURRENT



Stand: 05/2015