

SMG Series

- Endurance : 2,000 hours at 85°C
- Solvent resistant type except 315 to 450V_{dc}
(see PRECAUTIONS AND GUIDELINES)
- RoHS Compliant

SMQ
↑
Downsized
SMG

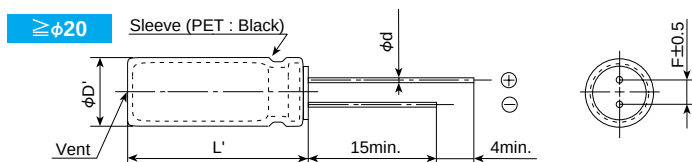
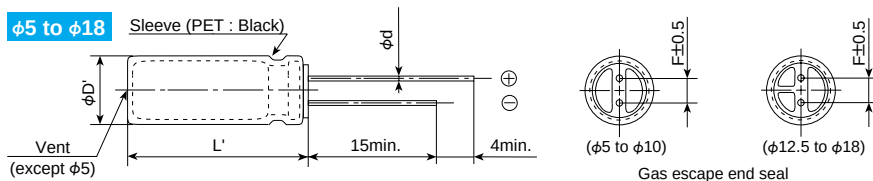


◆SPECIFICATIONS

Items	Characteristics												
Category													
Temperature Range	-40 to +85°C(6.3 to 400V _{dc}) -25 to +85°C(450V _{dc})												
Rated Voltage Range	6.3 to 450V _{dc}												
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)												
Leakage Current		6.3 to 100V _{dc}						160 to 450V _{dc}					
	≤φ18	I=0.03CV or 4μA, whichever is greater. (at 20°C after 1 minute)						CV \ Time		After 1minute		After 5minutes	
								CV≤1,000		I=0.1CV+40 max.		I=0.03CV+15 max.	
								CV>1,000		I=0.04CV+100 max.		I=0.02CV+25 max.	
							(at 20°C)						
	≥φ20	I=0.03CV						(at 20°C after 3 minutes)					
Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)													
Dissipation Factor (tanδ)	Rated voltage (V _{dc})		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V
	tanδ (Max.)	≤φ18	0.34	0.24	0.20	0.16	0.14	0.12	0.09	0.08	0.20	0.24	0.24
		≥φ20	0.28	0.24	0.20	0.16	0.14	0.12	0.09	0.08	0.15	0.15	0.20
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)													
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V
	Z(-25°C)/Z(+20°C)	≤φ18	5	4	3	2	2	2	2	2	3	6	6
		≥φ20	5	4	3	2	2	2	2	2	4	6	6
	Z(-40°C)/Z(+20°C)	≤φ18	12	10	8	5	4	3	3	3	4	6	— (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 85°C.												
	Capacitance change	≤±20% of the initial value											
	D.F. (tanδ)	≤200% of the initial specified value											
	Leakage current	≤The initial specified value											
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.												
	Rated voltage	6.3 to 100V _{dc}						160 to 450V _{dc}					
	Capacitance change	≤±20% of the initial value						≤±20% of the initial value					
	D.F. (tanδ)	≤200% of the initial specified value						≤200% of the initial specified value					
	Leakage current	≤The initial specified value						≤500% of the initial specified value					

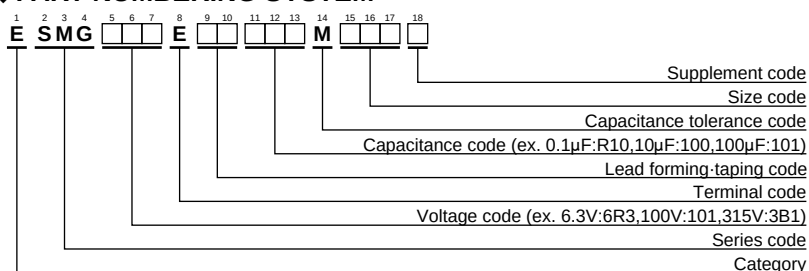
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18	20	22	25.4
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φD'	φD+0.5max.							φD+0.5max.		
L'	L+1.5max.							L+2.0max.		

◆PART NUMBERING SYSTEM



Please refer to "Product code guide
(radial lead type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA _{rms} /85°C,120Hz)	Part No.	WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA _{rms} /85°C,120Hz)	Part No.
6.3	33	5X11	0.34	77	ESMG6R3E□□330ME11D	25	4.7	5X11	0.16	36	ESMG250E□□4R7ME11D
	47	5X11	0.34	92	ESMG6R3E□□470ME11D		10	5X11	0.16	53	ESMG250E□□100ME11D
	100	5X11	0.34	134	ESMG6R3E□□101ME11D		22	5X11	0.16	78	ESMG250E□□220ME11D
	220	5X11	0.34	200	ESMG6R3E□□221ME11D		33	5X11	0.16	96	ESMG250E□□330ME11D
	330	6.3X11	0.34	270	ESMG6R3E□□331MF11D		47	5X11	0.16	115	ESMG250E□□470ME11D
	470	6.3X11	0.34	320	ESMG6R3E□□471MF11D		100	6.3X11	0.16	190	ESMG250E□□101MF11D
	1,000	8X11.5	0.34	540	ESMG6R3E□□102MHB5D		220	8X11.5	0.16	330	ESMG250E□□221MHB5D
	2,200	10X20	0.36	1,000	ESMG6R3E□□222MJ20S		330	8X11.5	0.16	440	ESMG250E□□331MHB5D
	3,300	10X20	0.38	1,185	ESMG6R3E□□332MJ20S		470	10X12.5	0.16	545	ESMG250E□□471MJ20S
	4,700	12.5X20	0.40	1,545	ESMG6R3E□□472MK20S		1,000	10X20	0.16	955	ESMG250E□□102MJ20S
	6,800	12.5X25	0.44	1,915	ESMG6R3E□□682MK25S		2,200	12.5X25	0.18	1,540	ESMG250E□□222MK25S
	10,000	16X25	0.52	2,330	ESMG6R3E□□103ML25S		3,300	16X25	0.20	1,975	ESMG250E□□332ML25S
	10,000	20X25	0.46	2,310	ESMG6R3E□□103MN25S		3,300	20X20	0.20	1,850	ESMG250E□□332MN20S
	15,000	16X35.5	0.62	2,845	ESMG6R3E□□153MLP1S		4,700	16X31.5	0.22	2,420	ESMG250E□□472MLN3S
	15,000	20X30	0.56	2,660	ESMG6R3E□□153MN30S		4,700	20X25	0.22	2,420	ESMG250E□□472MN25S
	18,000	20X35	0.62	2,890	ESMG6R3E□□183MN35S		5,600	20X30	0.24	2,430	ESMG250E□□562MN30S
	18,000	22X30	0.62	2,860	ESMG6R3E□□183MP30S		6,800	18X35.5	0.26	2,880	ESMG250E□□682MMP1S
	22,000	18X40	0.76	3,320	ESMG6R3E□□223MM40S		6,800	20X35	0.26	2,680	ESMG250E□□682MN35S
	22,000	20X40	0.70	3,130	ESMG6R3E□□223MN40S		6,800	22X30	0.26	2,510	ESMG250E□□682MP30S
	22,000	22X35	0.70	3,130	ESMG6R3E□□223MP35S		8,200	20X40	0.30	2,810	ESMG250E□□822MN40S
10	27,000	22X40	0.80	3,280	ESMG6R3E□□273MP40S	35	8,200	22X35	0.30	2,810	ESMG250E□□822MP35S
	39,000	25.4X40	1.04	3,560	ESMG6R3E□□393MQ40S		10,000	22X40	0.34	3,240	ESMG250E□□103MP40S
	22	5X11	0.24	66	ESMG100E□□220ME11D		12,000	22X40	0.38	3,240	ESMG250E□□123MP40S
	33	5X11	0.24	83	ESMG100E□□330ME11D		15,000	25.4X40	0.44	3,610	ESMG250E□□153MQ40S
	47	5X11	0.24	100	ESMG100E□□470ME11D		4.7	5X11	0.14	41	ESMG350E□□4R7ME11D
	100	5X11	0.24	146	ESMG100E□□101ME11D		10	5X11	0.14	59	ESMG350E□□100ME11D
	220	5X11	0.24	240	ESMG100E□□221ME11D		22	5X11	0.14	88	ESMG350E□□220ME11D
	330	6.3X11	0.24	290	ESMG100E□□331MF11D		33	5X11	0.14	108	ESMG350E□□330ME11D
	470	6.3X11	0.24	350	ESMG100E□□471MF11D		47	5X11	0.14	130	ESMG350E□□470ME11D
	1,000	10X12.5	0.24	650	ESMG100E□□102MJ20S		100	6.3X11	0.14	210	ESMG350E□□101MF11D
	2,200	10X20	0.26	1,070	ESMG100E□□222MJ20S		220	8X11.5	0.14	385	ESMG350E□□221MHB5D
	3,300	12.5X20	0.28	1,420	ESMG100E□□332MK20S		330	10X12.5	0.14	490	ESMG350E□□331MJ20S
	4,700	12.5X25	0.30	1,780	ESMG100E□□472MK25S		470	10X16	0.14	645	ESMG350E□□471MJ16S
	6,800	16X25	0.34	2,220	ESMG100E□□682ML25S		1,000	12.5X20	0.14	1,145	ESMG350E□□102MK20S
	6,800	20X20	0.34	2,080	ESMG100E□□682MN20S		2,200	16X25	0.16	1,785	ESMG350E□□222ML25S
	10,000	16X35.5	0.42	2,670	ESMG100E□□103MLP1S		2,200	20X20	0.16	1,670	ESMG350E□□222MN20S
	10,000	20X25	0.42	2,410	ESMG100E□□103MN25S		3,300	16X35.5	0.18	2,275	ESMG350E□□332MLP1S
	12,000	20X30	0.46	2,620	ESMG100E□□123MN30S		3,300	20X25	0.18	2,050	ESMG350E□□332MN25S
	15,000	18X35.5	0.52	3,080	ESMG100E□□153MMP1S		3,900	20X30	0.18	2,310	ESMG350E□□392MN30S
	15,000	20X35	0.52	2,870	ESMG100E□□153MN35S		4,700	18X35.5	0.20	2,700	ESMG350E□□472MMP1S
16	15,000	22X30	0.52	2,660	ESMG100E□□153MP30S	50	4,700	20X35	0.20	2,510	ESMG350E□□472MN35S
	18,000	22X35	0.58	3,050	ESMG100E□□183MP35S		4,700	22X30	0.20	2,380	ESMG350E□□472MP30S
	22,000	22X40	0.66	3,480	ESMG100E□□223MP40S		5,600	20X40	0.22	2,690	ESMG350E□□562MN40S
	33,000	25.4X40	0.88	3,560	ESMG100E□□333MQ40S		5,600	22X35	0.22	2,690	ESMG350E□□562MP35S
	10	5X11	0.20	50	ESMG160E□□100ME11D		6,800	22X40	0.24	3,090	ESMG350E□□682MP40S
	22	5X11	0.20	75	ESMG160E□□220ME11D		10,000	25.4X40	0.32	3,480	ESMG350E□□103MQ40S
	33	5X11	0.20	91	ESMG160E□□330ME11D		0.10	5X11	0.12	1.3	ESMG500E□□R10ME11D
	47	5X11	0.20	109	ESMG160E□□470ME11D		0.22	5X11	0.12	2.9	ESMG500E□□R22ME11D
	100	5X11	0.20	160	ESMG160E□□101ME11D		0.33	5X11	0.12	4.3	ESMG500E□□R33ME11D
	220	6.3X11	0.20	260	ESMG160E□□221MF11D		0.47	5X11	0.12	6.2	ESMG500E□□R47ME11D
	330	8X11.5	0.20	370	ESMG160E□□331MHB5D		1.0	5X11	0.12	17	ESMG500E□□R10ME11D
	470	8X11.5	0.20	440	ESMG160E□□471MHB5D		2.2	5X11	0.12	28	ESMG500E□□R22ME11D
	1,000	10X16	0.20	785	ESMG160E□□102MJ16S		3.3	5X11	0.12	35	ESMG500E□□R33ME11D
	2,200	12.5X20	0.22	1,295	ESMG160E□□222MK20S		4.7	5X11	0.12	41	ESMG500E□□R47ME11D
	3,300	12.5X25	0.24	1,655	ESMG160E□□332MK25S		10	5X11	0.12	60	ESMG500E□□100ME11D
	4,700	16X25	0.26	2,090	ESMG160E□□472ML25S		22	5X11	0.12	95	ESMG500E□□220ME11D
	4,700	20X20	0.26	1,960	ESMG160E□□472MN20S		33	5X11	0.12	125	ESMG500E□□330ME11D
	6,800	16X31.5	0.30	2,520	ESMG160E□□682MLN3S		47	6.3X11	0.12	155	ESMG500E□□470MF11D
	6,800	20X25	0.30	2,330	ESMG160E□□682MN25S		100	8X11.5	0.12	260	ESMG500E□□101MHB5D
	8,200	20X30	0.34	2,500	ESMG160E□□822MN30S		220	10X12.5	0.12	430	ESMG500E□□221MJ20S
	10,000	18X35.5	0.38	2,920	ESMG160E□□103MMP1S		330	10X16	0.12	585	ESMG500E□□331MJ16S
	10,000	20X35	0.38	2,720	ESMG160E□□103MN35S		470	10X20	0.12	755	ESMG500E□□471MJ20S
	10,000	22X30	0.38	2,660	ESMG160E□□103MP30S		1,000	12.5X25	0.12	1,340	ESMG500E□□102MK25S
	12,000	20X40	0.42	2,900	ESMG160E□□123MN40S		1,500	20X20	0.12	1,570	ESMG500E□□152MN20S
	12,000	22X35	0.42	2,900	ESMG160E□□123MP35S		2,200	16X35.5	0.14	2,075	ESMG500E□□222MLP1S
	15,000	22X40	0.48	3,380	ESMG160E□□153MP40S		2,200	20X25	0.14	1,880	ESMG500E□□222MN25S
	22,000	25.4X40	0.62	3,720	ESMG160E□□223MQ40S		2,700	20X30	0.14	2,150	ESMG500E□□272MN30S

□□ : Enter the appropriate lead forming or taping code.

◆STANDARD RATINGS

□ is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA rms/ 85°C, 120Hz)	Part No.	WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA rms/ 85°C, 120Hz)	Part No.
50	3,300	18×35.5	0.16	2,500	ESMG500□□332MMP1S	200	22	10×20	0.20	170	ESMG201□□220MJ20S
	3,300	20×35	0.16	2,420	ESMG500□□332MN35S		33	10×20	0.20	205	ESMG201□□330MJ20S
	3,300	22×30	0.16	2,420	ESMG500□□332MP30S		47	12.5×20	0.20	270	ESMG201□□470MK20S
	3,900	20×40	0.16	2,590	ESMG500□□392MN40S		100	16×25	0.20	475	ESMG201□□101ML25S
	3,900	22×35	0.16	2,590	ESMG500□□392MP35S		100	20×20	0.15	460	ESMG201□□101MN20S
	4,700	22×40	0.18	2,960	ESMG500□□472MP40S		180	20×25	0.15	660	ESMG201□□181MN25S
	6,800	25.4×40	0.22	3,360	ESMG500□□682MQ40S		220	18×35.5	0.20	810	ESMG201□□221MMP1S
63	10	5×11	0.09	65	ESMG630□□100ME11D		220	20×30	0.15	750	ESMG201□□221MN30S
	22	5×11	0.09	100	ESMG630□□220ME11D		270	20×30	0.15	830	ESMG201□□271MN30S
	33	6.3×11	0.09	140	ESMG630□□330MF11D		330	20×35	0.15	1,070	ESMG201□□331MN35S
	47	6.3×11	0.09	170	ESMG630□□470MF11D		330	22×30	0.15	1,070	ESMG201□□331MP30S
	100	10×12.5	0.09	300	ESMG630□□101MJC5S		390	20×40	0.15	1,190	ESMG201□□391MN40S
	220	10×16	0.09	490	ESMG630□□221MJ16S		390	22×30	0.15	1,160	ESMG201□□391MP30S
	330	10×20	0.09	710	ESMG630□□331MJ20S		470	22×40	0.15	1,350	ESMG201□□471MP40S
	470	12.5×20	0.09	900	ESMG630□□471MK20S		560	22×40	0.15	1,430	ESMG201□□561MP40S
	820	20×20	0.09	1,370	ESMG630□□821MN20S		680	25.4×40	0.15	1,620	ESMG201□□681MQ40S
	1,000	16×25	0.09	1,300	ESMG630□□102ML25S	250	2.2	6.3×11	0.20	32	ESMG251□□2R2MF11D
	1,000	20×25	0.09	1,600	ESMG630□□102MN25S		3.3	8×11.5	0.20	46	ESMG251□□3R3MHB5D
	1,500	20×30	0.09	1,850	ESMG630□□152MN30S		4.7	8×11.5	0.20	55	ESMG251□□4R7MHB5D
	2,200	20×35	0.11	2,330	ESMG630□□222MN35S		10	10×16	0.20	105	ESMG251□□100MJ16S
	2,200	22×30	0.11	2,190	ESMG630□□222MP30S		22	10×20	0.20	170	ESMG251□□220MJ20S
	2,700	20×40	0.11	2,640	ESMG630□□272MN40S		33	12.5×20	0.20	230	ESMG251□□330MK20S
	3,300	22×40	0.13	2,810	ESMG630□□332MP40S		47	12.5×25	0.20	295	ESMG251□□470MK25S
	3,900	25.4×40	0.13	3,100	ESMG630□□392MQ40S		82	20×20	0.15	420	ESMG251□□820MN20S
100	0.10	5×11	0.08	2.1	ESMG101□□R10ME11D		100	16×31.5	0.20	515	ESMG251□□101MLN3S
	0.22	5×11	0.08	4.7	ESMG101□□R22ME11D		100	20×25	0.15	490	ESMG251□□101MN25S
	0.33	5×11	0.08	7.0	ESMG101□□R33ME11D		120	20×25	0.15	530	ESMG251□□121MN25S
	0.47	5×11	0.08	10	ESMG101□□R47ME11D		180	20×30	0.15	680	ESMG251□□181MN30S
	1.0	5×11	0.08	21	ESMG101□□R10ME11D		220	18×40	0.20	825	ESMG251□□221MM40S
	2.2	5×11	0.08	30	ESMG101□□R22ME11D		220	20×35	0.15	780	ESMG251□□221MN35S
	3.3	5×11	0.08	40	ESMG101□□R33ME11D		220	22×30	0.15	820	ESMG251□□221MP30S
	4.7	5×11	0.08	45	ESMG101□□R47ME11D		270	20×40	0.15	880	ESMG251□□271MN40S
	10	6.3×11	0.08	75	ESMG101□□100MF11D		270	22×35	0.15	880	ESMG251□□271MP35S
	22	8×11.5	0.08	130	ESMG101□□220MHB5D		330	22×40	0.15	1,060	ESMG251□□331MP40S
	33	8×11.5	0.08	180	ESMG101□□330MHB5D		390	25.4×40	0.15	1,200	ESMG251□□391MQ40S
	47	10×12.5	0.08	230	ESMG101□□470MJC5S	315	47	20×20	0.15	310	ESMG3B1□□470MN20S
	100	10×20	0.08	370	ESMG101□□101MJ20S		68	20×25	0.15	400	ESMG3B1□□680MN25S
	220	12.5×25	0.08	620	ESMG101□□221MK25S		82	20×25	0.15	440	ESMG3B1□□820MN25S
	330	12.5×25	0.08	760	ESMG101□□331MK25S		100	20×30	0.15	500	ESMG3B1□□101MN30S
	330	20×20	0.08	870	ESMG101□□331MN20S		120	20×30	0.15	550	ESMG3B1□□121MN30S
	470	16×25	0.08	1,000	ESMG101□□471ML25S		180	20×40	0.15	720	ESMG3B1□□181MN40S
	680	20×30	0.08	1,360	ESMG101□□681MN30S		180	22×35	0.15	720	ESMG3B1□□181MP35S
	820	22×30	0.08	1,540	ESMG101□□821MP30S		220	22×40	0.15	810	ESMG3B1□□221MP40S
	1,000	18×40	0.08	1,380	ESMG101□□102MM40S		270	25.4×40	0.15	920	ESMG3B1□□271MQ40S
	1,000	20×35	0.08	1,720	ESMG101□□102MN35S	350	0.47	6.3×11	0.24	15	ESMG351□□R47MF11D
160	1,200	22×40	0.08	1,980	ESMG101□□122MP40S		1.0	6.3×11	0.24	22	ESMG351□□R0MF11D
	1,800	25.4×40	0.08	2,490	ESMG101□□182MQ40S		2.2	8×11.5	0.24	38	ESMG351□□2R2MHB5D
	3.3	6.3×11	0.20	40	ESMG161□□3R3MF11D		3.3	8×11.5	0.24	46	ESMG351□□3R3MHB5D
	4.7	6.3×11	0.20	48	ESMG161□□4R7MF11D		4.7	10×12.5	0.24	65	ESMG351□□4R7MJC5S
	10	10×12.5	0.20	94	ESMG161□□100MJC5S		10	10×20	0.24	115	ESMG351□□100MJ20S
	22	10×20	0.20	170	ESMG161□□220MJ20S		22	12.5×20	0.24	185	ESMG351□□220MK20S
	33	10×20	0.20	205	ESMG161□□330MJ20S		33	16×25	0.24	275	ESMG351□□330ML25S
	47	12.5×20	0.20	270	ESMG161□□470MK20S		47	16×25	0.24	325	ESMG351□□470ML25S
	100	12.5×25	0.20	430	ESMG161□□101MK25S		47	20×20	0.15	310	ESMG351□□470MN20S
	220	16×31.5	0.20	760	ESMG161□□221MLN3S		68	20×25	0.15	400	ESMG351□□680MN25S
	220	20×25	0.15	730	ESMG161□□221MN25S		100	18×31.5	0.24	530	ESMG351□□101MMN3S
	330	18×35.5	0.20	995	ESMG161□□331MMP1S		100	20×30	0.15	500	ESMG351□□101MN30S
	330	20×30	0.15	920	ESMG161□□331MN30S	400	120	20×35	0.15	560	ESMG351□□121MN35S
	390	20×35	0.15	1,160	ESMG161□□391MN35S		220	25.4×40	0.15	890	ESMG351□□221MQ40S
	390	22×30	0.15	1,160	ESMG161□□391MP30S		1.0	6.3×11	0.24	22	ESMG401□□1R0MF11D
	470	20×40	0.15	1,340	ESMG161□□471MN40S		2.2	8×11.5	0.24	38	ESMG401□□2R2MHB5D
	470	22×35	0.15	1,340	ESMG161□□471MP35S		3.3	10×12.5	0.24	54	ESMG401□□3R3MJC5S
	560	22×40	0.15	1,470	ESMG161□□561MP40S		4.7	10×16	0.24	71	ESMG401□□4R7MJ16S
	680	25.4×40	0.15	1,570	ESMG161□□681MQ40S		10	10×20	0.24	115	ESMG401□□100MJ20S
200	3.3	6.3×11	0.20	40	ESMG201□□3R3MF11D		22	12.5×25	0.24	205	ESMG401□□220MK25S
	4.7	8×11.5	0.20	55	ESMG201□□4R7MHB5D		33	16×25	0.24	275	ESMG401□□330ML25S
	10	10×12.5	0.20	94	ESMG201□□100MJC5S		33	20×20	0.15	260	ESMG401□□330MN20S

□ : Enter the appropriate lead forming or taping code.

◆STANDARD RATINGS

□□ is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mA _{rms} /85°C, 120Hz)	Part No.
400	47	16×31.5	0.24	350	ESMG401E□□470MLN3S
	56	20×25	0.15	350	ESMG401E□□560MN25S
	68	20×30	0.15	420	ESMG401E□□680MN30S
	100	20×35	0.15	520	ESMG401E□□101MN35S
	100	22×30	0.15	520	ESMG401E□□101MP30S
	120	20×40	0.15	580	ESMG401E□□121MN40S
	120	22×35	0.15	580	ESMG401E□□121MP35S
	180	25.4×40	0.15	790	ESMG401E□□181MQ40S
450	2.2	10×12.5	0.24	32	ESMG451E□□2R2MJC5S
	3.3	10×16	0.24	44	ESMG451E□□3R3MJ16S
	4.7	10×20	0.24	56	ESMG451E□□4R7MJ20S
	10	12.5×20	0.24	91	ESMG451E□□100MK20S
WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mA _{rms} /85°C, 120Hz)	Part No.
450	22	16×25	0.24	165	ESMG451E□□220ML25S
	22	20×20	0.20	180	ESMG451E□□220MN20S
	33	16×31.5	0.24	215	ESMG451E□□330MLN3S
	33	20×25	0.20	240	ESMG451E□□330MN25S
	47	16×35.5	0.24	265	ESMG451E□□470MLP1S
	47	20×25	0.20	290	ESMG451E□□470MN25S
	56	20×30	0.20	320	ESMG451E□□560MN30S
	68	20×35	0.20	370	ESMG451E□□680MN35S
	68	22×30	0.20	370	ESMG451E□□680MP30S
	82	20×40	0.20	420	ESMG451E□□820MN40S
	82	22×35	0.20	420	ESMG451E□□820MP35S
	100	22×40	0.20	470	ESMG451E□□101MP40S
	120	25.4×40	0.20	520	ESMG451E□□121MQ40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

Frequency (Hz)	50	120	300	1k	10k	100k
Capacitance (μF)						
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20 to φ25.4)

Frequency (Hz)	50	120	300	1k	10k	100k
Rated Voltage (V _{dc})						
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20
160 to 250	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.