MRS series

Long Life | High Ripple | RoHS Compliant

- 105℃ 5,000Hrs assured.
- Long life, High ripple
- For SMPS, IP-Board, Adaptor
- RoHS compliant
- Halogen-free capacitors are also available.

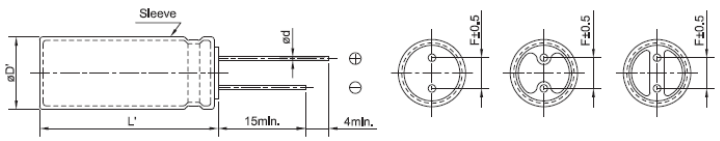
MRG ⟹ MRS
High Ripple

■ Specifications

Item	Characteristics		
Rated Voltage Range	160 ~ 400 Vdc	450 ~ 500 Vdc	
Operating Temperature Range	-40 ~ +105℃	-25 ~ +105℃	
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I=0.01CV+40(μA) at CV ≤ 1,000, I=0.03CV+100(μA) at CV › 1,000 (at 20℃, 1min) I=0.03CV+15(μA) at CV ≤ 1,000, I=0.02CV+25(μA) at CV › 1,000 (at 20℃, 5min) Where, I:Max. Leakage current(μA), C:Nominal capacitance(μF), V:Rated voltage(Vdc)		
Dissipation Factor(Tanδ)	Rated voltage (Vdc): 160 ~ 250 / 350 ~ 500 Tanδ (max.): 0.20 / 0.24 (at 20℃, 120Hz)		
Temperature characteristics (Max,impedance ratio)	Rated voltage (Vdc): 160 ~ 250 / 350 ~ 400 / 450 ~ 500 Z(-25℃)/Z(20℃): 3 / 5 / 6 Z(-40℃)/Z(20℃): 6 / 6 / - (at 120Hz)		
Load life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified life times at 105℃5,000hrs. Capacitance change ≤±20%of the initial value Tan δ ≤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℃ after exposing them for 1,000 hours at 105℃ without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes at least 24 hours and not more than 48 hours before the measurements. Capacitance change ≤±20% of the initial value Tanδ ≤200% of the initial specified value Leakage current ≤500%The initial specified value		

■ Dimensions

Unit(mm)



ØD	8		10	12.5	16	18	20	22
Ød	0.5	0.6	0.6	0.6	0.8	0.8	0.8	0.8
F	3.5		5.0	5.0	7.5	7.5	7.5	10.0
ØD'	ØD+0.5 max.							
L'	L+1.5 max		L+2.0 max					

- Printed silver color letter on PET dark green sleeve

■ Code numbering system

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
M R S □ □ □ M □ □ □ □ □ □ □ □ □ □ □ □

- Taping, Cutting
- Terminal type
- Size (5X11: D11)
- Capacitance
- Capacitance tolerance(M:±20%, K:±10%, V :-10~20%)
- Working voltage(ex. 160V→160)
- Series name

Ø8	F
Ø10	G
Ø12.5	X
Ø16	J
Ø18	K
Ø20	L
Ø22	M

MRS series

■Standard Ratings

Note1) Ripple current = mArms/105℃,120Hz

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Tan δ	Ripple[1)]	Code No
160	33	10 x 20	0.20	236	MRS160□220G20CS□□□
	47	12.5 x 20	0.20	340	MRS160□470X20CS□□□
	68	12.5 x 25	0.20	436	MRS160□680X25CS□□□
	100	12.5 x 30	0.20	554	MRS160□101J30CS□□□
	150	16 x 25	0.20	738	MRS160□151J25CS□□□
	220	16 x 31.5	0.20	920	MRS160□221J32CS□□□
	330	18 x 31.5	0.20	1,210	MRS160□331K32CS□□□
200	22	8 x 20	0.20	155	MRS200□220F20CS□□□
	33	10 x 20	0.20	236	MRS200□330G20CS□□□
	47	12.5 x 20	0.20	340	MRS200□470X20CS□□□
	68	12.5 x 25	0.20	440	MRS200□680X25CS□□□
	100	12.5 x 30	0.20	550	MRS200□101X30CS□□□
	150	16 x 25	0.20	736	MRS200□151J25CS□□□
	220	18 x 31.5	0.20	985	MRS200□221K32CS□□□
250	10	8 x 15	0.20	96	MRS250□100F15CS□□□
		10 x 12.5	0.20	105	MRS250□100G13CS□□□
	22	10 x 16	0.20	165	MRS250□220G16CS□□□
	33	12.5 x 20	0.20	252	MRS250□330X20CS□□□
	47	12.5 x 25	0.20	376	MRS250□470X25CS□□□
	68	10 x 40	0.20	465	MRS250□680G40CS□□□
		12.5 x 30	0.20	463	MRS250□680X30CS□□□
	100	10 x 50	0.20	585	MRS250□101G50CS□□□
		16 x 25	0.20	591	MRS250□101J25CS□□□
	150	18 x 25	0.20	720	MRS250□151K25CS□□□
	180	12.5 x 50	0.20	860	MRS250□181X50CS□□□
		18 x 31.5	0.20	813	MRS250□181K32CS□□□
	220	18 x 35.5	0.20	925	MRS250□221K36CS□□□
350	10	8 x 20	0.24	120	MRS350□100F20CS□□□
		10 x 16	0.24	125	MRS350□100G16CS□□□
	22	12.5 x 20	0.24	230	MRS350□220X20CS□□□
	33	12.5 x 25	0.24	262	MRS350□330X25CS□□□
	47	12.5 x 30	0.24	380	MRS350□470X30CS□□□
	68	16 x 25	0.24	510	MRS350□680J25CS□□□
	100	18 x 31.5	0.24	745	MRS350□101K32CS□□□
	150	18 x 35.5	0.24	945	MRS350□151K36CS□□□
	180	18 x 40	0.24	1,048	MRS350□181K40CS□□□
400	6.8	8 x 15	0.24	90	MRS400□6R8F15CS□□□
	8.2	8 x 20	0.24	105	MRS400□8R2F20CS□□□
	10	10 x 16	0.24	125	MRS400□100G16CS□□□
	15	10 x 25	0.24	150	MRS400□150G25CS□□□
		12.5 x 16	0.24	142	MRS400□150X16CS□□□
	22	10 x 25	0.24	200	MRS400□220G25CS□□□
	27	12.5 x 20	0.24	250	MRS400□270X20CS□□□
	33	12.5 x 25	0.24	295	MRS400□330X25CS□□□
		16 x 20	0.24	305	MRS400□330J20CS□□□
	47	10 x 45	0.24	354	MRS400□470G45CS□□□
		12.5 x 35	0.24	375	MRS400□470X35CS□□□
		16 x 25	0.24	436	MRS400□470J25CS□□□
	68	12.5 x 40	0.24	475	MRS400□680X40CS□□□
		18 x 25	0.24	470	MRS400□680K25CS□□□
	82	18 x 31.5	0.24	700	MRS400□820K32CS□□□
	100	18 x 35.5	0.24	795	MRS400□101K36CS□□□
	120	18 x 40	0.24	912	MRS400□121K40CS□□□
	150	18 x 40	0.24	1,020	MRS400□151K40CS□□□
	180	20 x 40	0.24	1,080	MRS400□181L40CS□□□
	220	20 x 45	0.24	1,200	MRS400□221L45CS□□□

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Tan δ	Ripple[1)]	Code No
450	4.7	8 x 20	0.24	79	MRS450□4R7F20CS□□□
	6.8	10 x 16	0.24	100	MRS450□6R8G16CS□□□
	8.2	10 x 16	0.24	122	MRS450□8R2G16CS□□□
	10	10 x 20	0.24	135	MRS450□100G20CS□□□
	15	10 x 25	0.24	185	MRS450□150G25CS□□□
	22	10 x 33	0.24	215	MRS450□220G33CS□□□
	27	12.5 x 25	0.24	260	MRS450□270X25CS□□□
	33	12.5 x 30	0.24	334	MRS450□330X30CS□□□
		16 x 25	0.24	340	MRS450□330J25CS□□□
	47	10 x 50	0.24	400	MRS450□470G50CS□□□
		12.5 x 40	0.24	405	MRS450□470X40CS□□□
		16 x 25	0.24	368	MRS450□470J25CS□□□
	68	18 x 25	0.24	500	MRS450□680K25CS□□□
	82	12.5 x 50	0.24	670	MRS450□820X50CS□□□
		18 x 31.5	0.24	650	MRS450□820K32CS□□□
	100	12.5 x 60	0.24	750	MRS450□101X60CS□□□
		18 x 35.5	0.24	700	MRS450□101K36CS□□□
	120	18 x 40	0.24	800	MRS450□121K40CS□□□
	150	18 x 45	0.24	920	MRS450□151K45CS□□□
		20 x 40	0.24	930	MRS450□151L40CS□□□
	180	22 x 50	0.24	1,100	MRS450□181M50CS□□□
500	27	10 x 50	0.24	305	MRS500□270G50CS□□□
	33	12.5 x 45	0.24	365	MRS500□330X45CS□□□
	39	12.5 x 50	0.24	425	MRS500□390X50CS□□□
	47	18 x 31.5	0.24	468	MRS500□470K32CS□□□
	56	12.5 x 60	0.24	515	MRS500□560X60CS□□□
	68	18 x 35.5	0.24	585	MRS500□680K36CS□□□
	82	18 x 40	0.24	653	MRS500□820K40CS□□□
	100	18 x 45	0.24	750	MRS500□101K45CS□□□
		20 x 40	0.24	800	MRS500□101L40CS□□□
	120	22 x 45	0.24	900	MRS500□121M45CS□□□
	150	22 x 50	0.24	980	MRS500□151M50CS□□□

■ Rated ripple current multipliers

Frequency (Hz)	120	1K	10K	50K	100K
Factor	1.00	1.25	1.50	1.75	2.00