

KMQ Series

- Endurance with ripple current : 2,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant



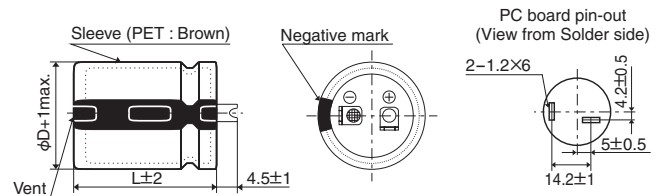
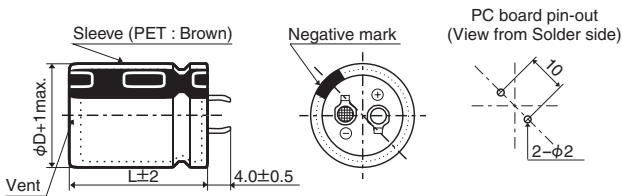
SPECIFICATIONS

Items	Characteristics														
Category	-40 to +105°C (35&50V _{dc}), -25 to +105°C (160 to 450V _{dc})														
Temperature Range															
Rated Voltage Range	35&50V _{dc} , 160 to 450V _{dc}														
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)														
Leakage Current	I ≤ 3√CV Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 5 minutes)														
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	35V		50V		160 to 250V		315 to 400V		420 & 450V					
	Nominal capacitance (µF)	10,000 > C ≥ 10,000		10,000 > C ≥ 10,000		—		—		—					
	tan δ (Max.)	0.30		0.35		0.25		0.30		0.15		0.15		0.20	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	35&50V		160 to 250V		315 to 450V									
	Z(-25°C)/Z(+20°C)	4		4		8									
	Z(-40°C)/Z(+20°C)	10		—		—									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105°C.														
	Capacitance change	≤ ±20% of the initial value													
	D.F. (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°C after exposing them for 1,000 hours at 105°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.														
	Capacitance change	≤ ±15% of the initial value													
	D.F. (tan δ)	≤ 150% of the initial specified value													
	Leakage current	≤ The initial specified value													

DIMENSIONS [mm]

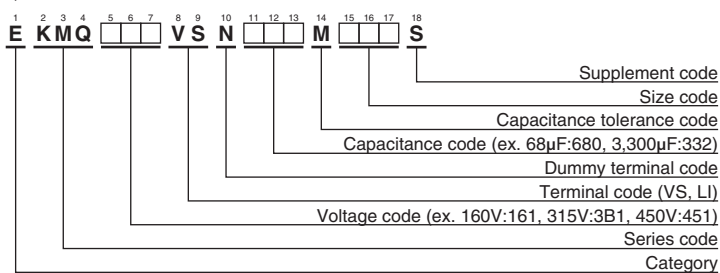
● Terminal Code : VS (φ22 to φ35) : Standard

● Terminal Code : LI (φ35)



The standard design has no plastic disc.

PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	
35	4,700	22 × 25	0.30	1.87	EKMQ350VSN472MP25S	160	1,800	30 × 40	0.15	2.70	EKMQ161VSN182MR40S	
	5,600	22 × 25	0.30	2.04	EKMQ350VSN562MP25S		1,800	35 × 30	0.15	2.70	EKMQ161VSN182MA30S	
	5,600	25.4 × 25	0.30	2.00	EKMQ350VSN562MQ25S		2,200	30 × 45	0.15	2.90	EKMQ161VSN222MR45S	
	6,800	22 × 30	0.30	2.36	EKMQ350VSN682MP30S		2,200	35 × 35	0.15	2.90	EKMQ161VSN222MA35S	
	6,800	25.4 × 25	0.30	2.21	EKMQ350VSN682MQ25S		2,700	30 × 50	0.15	3.10	EKMQ161VSN272MR50S	
	8,200	22 × 35	0.30	2.65	EKMQ350VSN822MP35S		2,700	35 × 40	0.15	3.10	EKMQ161VSN272MA40S	
	8,200	25.4 × 30	0.30	2.49	EKMQ350VSN822MQ30S		3,300	35 × 50	0.15	3.30	EKMQ161VSN332MA50S	
	8,200	30 × 25	0.30	2.62	EKMQ350VSN822MR25S		180	390	22 × 25	0.15	1.30	EKMQ181VSN391MP25S
	10,000	22 × 40	0.35	3.00	EKMQ350VSN103MP40S			470	22 × 30	0.15	1.40	EKMQ181VSN471MP30S
	10,000	25.4 × 35	0.35	2.88	EKMQ350VSN103MQ35S			560	22 × 30	0.15	1.50	EKMQ181VSN561MP30S
	10,000	30 × 25	0.35	2.90	EKMQ350VSN103MR25S	560		25.4 × 25	0.15	1.50	EKMQ181VSN102MR25S	
	12,000	22 × 50	0.35	3.47	EKMQ350VSN123MP50S	680		22 × 35	0.15	1.70	EKMQ181VSN681MP35S	
	12,000	25.4 × 35	0.35	3.15	EKMQ350VSN123MQ35S	680		25.4 × 30	0.15	1.70	EKMQ181VSN681MQ30S	
	12,000	30 × 30	0.35	3.25	EKMQ350VSN123MR30S	820		22 × 40	0.15	2.00	EKMQ181VSN821MP40S	
	12,000	35 × 25	0.35	3.20	EKMQ350VSN123MA25S	820		25.4 × 30	0.15	2.00	EKMQ181VSN102MR30S	
	15,000	25.4 × 40	0.35	3.61	EKMQ350VSN153MQ40S	820		30 × 25	0.15	2.00	EKMQ181VSN821MR25S	
	15,000	30 × 35	0.35	3.78	EKMQ350VSN153MR35S	1,000		22 × 45	0.15	2.20	EKMQ181VSN102MP45S	
	15,000	35 × 25	0.35	3.60	EKMQ350VSN153MA25S	1,000	25.4 × 40	0.15	2.20	EKMQ181VSN102MQ40S		
	18,000	25.4 × 50	0.35	4.14	EKMQ350VSN183MQ50S	1,000	30 × 30	0.15	2.20	EKMQ181VSN102MR30S		
	18,000	30 × 40	0.35	4.30	EKMQ350VSN183MR40S	1,000	35 × 25	0.15	2.20	EKMQ181VSN102MA25S		
18,000	35 × 30	0.35	4.10	EKMQ350VSN183MA30S	1,200	25.4 × 45	0.15	2.30	EKMQ181VSN122MQ45S			
22,000	30 × 50	0.35	5.00	EKMQ350VSN223MR50S	1,200	30 × 35	0.15	2.30	EKMQ181VSN122MR35S			
22,000	35 × 35	0.35	4.64	EKMQ350VSN223MA35S	1,200	35 × 30	0.15	2.30	EKMQ181VSN122MA30S			
27,000	35 × 40	0.35	5.37	EKMQ350VSN273MA40S	1,500	25.4 × 50	0.15	2.50	EKMQ181VSN152MQ50S			
33,000	35 × 50	0.35	6.00	EKMQ350VSN333MA50S	1,500	30 × 40	0.15	2.50	EKMQ181VSN152MR40S			
50	2,700	22 × 25	0.25	1.65	EKMQ500VSN272MP25S	1,500	35 × 30	0.15	2.50	EKMQ181VSN152MA30S		
	3,300	22 × 30	0.25	1.92	EKMQ500VSN332MP30S	1,800	30 × 45	0.15	2.70	EKMQ181VSN102MR45S		
	3,300	25.4 × 25	0.25	1.76	EKMQ500VSN332MQ25S	1,800	35 × 35	0.15	2.70	EKMQ181VSN182MA35S		
	3,900	22 × 30	0.25	2.08	EKMQ500VSN392MP30S	2,200	30 × 50	0.15	2.90	EKMQ181VSN222MR50S		
	3,900	25.4 × 25	0.25	2.04	EKMQ500VSN392MQ25S	2,200	35 × 40	0.15	2.90	EKMQ181VSN222MA40S		
	4,700	22 × 35	0.25	2.43	EKMQ500VSN472MP35S	2,700	35 × 50	0.15	3.10	EKMQ181VSN272MA50S		
	4,700	25.4 × 30	0.25	2.50	EKMQ500VSN472MQ30S	200	390	22 × 25	0.15	1.31	EKMQ201VSN391MP25S	
	4,700	30 × 25	0.25	2.29	EKMQ500VSN472MR25S		470	22 × 30	0.15	1.45	EKMQ201VSN471MP30S	
	5,600	22 × 40	0.25	2.63	EKMQ500VSN562MP40S		560	22 × 30	0.15	1.67	EKMQ201VSN561MP30S	
	5,600	25.4 × 35	0.25	2.61	EKMQ500VSN562MQ35S		560	25.4 × 25	0.15	1.67	EKMQ201VSN561MQ25S	
	5,600	30 × 25	0.25	2.80	EKMQ500VSN562MR25S		680	22 × 40	0.15	1.75	EKMQ201VSN681MP40S	
	6,800	22 × 50	0.25	3.05	EKMQ500VSN682MP50S		680	25.4 × 30	0.15	1.75	EKMQ201VSN681MQ30S	
	6,800	25.4 × 40	0.25	2.94	EKMQ500VSN682MQ40S		820	22 × 45	0.15	2.04	EKMQ201VSN821MP45S	
	6,800	30 × 30	0.25	3.30	EKMQ500VSN682MR30S		820	25.4 × 35	0.15	2.04	EKMQ201VSN821MQ35S	
	6,800	35 × 25	0.25	2.77	EKMQ500VSN682MA25S		820	30 × 25	0.15	2.04	EKMQ201VSN821MR25S	
	8,200	25.4 × 45	0.25	3.60	EKMQ500VSN822MQ45S		1,000	22 × 50	0.15	2.30	EKMQ201VSN102MP50S	
	8,200	30 × 35	0.25	3.60	EKMQ500VSN822MR35S	1,000	25.4 × 45	0.15	2.30	EKMQ201VSN102MQ45S		
	8,200	35 × 30	0.25	3.60	EKMQ500VSN822MA30S	1,000	30 × 30	0.15	2.30	EKMQ201VSN102MR30S		
	10,000	25.4 × 50	0.30	4.00	EKMQ500VSN103MQ50S	1,000	35 × 25	0.15	2.30	EKMQ201VSN102MA25S		
	10,000	30 × 40	0.30	4.00	EKMQ500VSN103MR40S	1,200	25.4 × 50	0.15	2.65	EKMQ201VSN122MQ50S		
10,000	35 × 30	0.30	4.00	EKMQ500VSN103MA30S	1,200	30 × 35	0.15	2.65	EKMQ201VSN122MR35S			
12,000	30 × 50	0.30	4.29	EKMQ500VSN123MR50S	1,200	35 × 30	0.15	2.65	EKMQ201VSN122MA30S			
12,000	35 × 35	0.30	4.37	EKMQ500VSN123MA35S	1,500	30 × 40	0.15	2.80	EKMQ201VSN152MR40S			
15,000	35 × 40	0.30	4.50	EKMQ500VSN153MA40S	1,500	35 × 30	0.15	2.80	EKMQ201VSN152MA30S			
18,000	35 × 50	0.30	5.30	EKMQ500VSN183MA50S	1,800	30 × 45	0.15	3.08	EKMQ201VSN182MR45S			
160	470	22 × 25	0.15	1.40	EKMQ161VSN471MP25S	1,800	35 × 40	0.15	3.08	EKMQ201VSN182MA40S		
	560	22 × 30	0.15	1.50	EKMQ161VSN561MP30S	2,200	35 × 45	0.15	3.48	EKMQ201VSN222MA45S		
	680	22 × 30	0.15	1.70	EKMQ161VSN681MP30S	250	220	22 × 25	0.15	1.00	EKMQ251VSN221MP25S	
	680	25.4 × 25	0.15	1.70	EKMQ161VSN681MQ25S		270	22 × 25	0.15	1.10	EKMQ251VSN271MP25S	
	820	22 × 35	0.15	2.00	EKMQ161VSN821MP35S		330	22 × 30	0.15	1.20	EKMQ251VSN331MP30S	
	820	25.4 × 30	0.15	2.00	EKMQ161VSN821MQ30S		330	25.4 × 25	0.15	1.20	EKMQ251VSN331MQ25S	
	820	30 × 25	0.15	2.00	EKMQ161VSN821MR25S		390	22 × 35	0.15	1.30	EKMQ251VSN391MP35S	
	1,000	22 × 40	0.15	2.20	EKMQ161VSN102MP40S		390	25.4 × 25	0.15	1.30	EKMQ251VSN391MQ25S	
	1,000	25.4 × 35	0.15	2.20	EKMQ161VSN102MQ35S		470	22 × 40	0.15	1.40	EKMQ251VSN471MP40S	
	1,000	30 × 25	0.15	2.20	EKMQ161VSN102MR25S		470	25.4 × 30	0.15	1.40	EKMQ251VSN471MQ30S	
	1,200	25.4 × 40	0.15	2.30	EKMQ161VSN122MQ40S		470	30 × 25	0.15	1.40	EKMQ251VSN471MR25S	
	1,200	30 × 30	0.15	2.30	EKMQ161VSN122MR30S		560	22 × 45	0.15	1.50	EKMQ251VSN561MP45S	
	1,200	35 × 25	0.15	2.30	EKMQ161VSN122MA25S	560	25.4 × 35	0.15	1.50	EKMQ251VSN561MQ35S		
	1,500	25.4 × 45	0.15	2.50	EKMQ161VSN152MQ45S	560	30 × 25	0.15	1.50	EKMQ251VSN561MR25S		
	1,500	30 × 35	0.15	2.50	EKMQ161VSN152MR35S	680	22 × 50	0.15	1.70	EKMQ251VSN681MP50S		
	1,500	35 × 30	0.15	2.50	EKMQ161VSN152MA30S	680	25.4 × 40	0.15	1.70	EKMQ251VSN681MQ40S		
	1,800	25.4 × 50	0.15	2.70	EKMQ161VSN182MQ50S	680	30 × 30	0.15	1.70	EKMQ251VSN681MR30S		

◆ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.
250	680	35 × 25	0.15	1.70	EKMQ251VSN681MA25S	400	270	25.4 × 40	0.15	1.22	EKMQ401VSN271MQ40S
	820	25.4 × 45	0.15	2.00	EKMQ251VSN821MQ45S		270	30 × 30	0.15	1.22	EKMQ401VSN271MR30S
	820	30 × 35	0.15	2.00	EKMQ251VSN821MR35S		270	35 × 25	0.15	1.22	EKMQ401VSN271MA25S
	820	35 × 30	0.15	2.00	EKMQ251VSN821MA30S		330	25.4 × 45	0.15	1.44	EKMQ401VSN331MQ45S
	1,000	30 × 40	0.15	2.20	EKMQ251VSN102MR40S		330	30 × 35	0.15	1.44	EKMQ401VSN331MR35S
	1,000	35 × 30	0.15	2.20	EKMQ251VSN102MA30S		330	35 × 30	0.15	1.44	EKMQ401VSN331MA30S
	1,200	30 × 45	0.15	2.30	EKMQ251VSN122MR45S		390	25.4 × 50	0.15	1.55	EKMQ401VSN391MQ50S
	1,200	35 × 35	0.15	2.30	EKMQ251VSN122MA35S		390	30 × 40	0.15	1.55	EKMQ401VSN391MR40S
	1,500	35 × 45	0.15	2.50	EKMQ251VSN152MA45S		390	35 × 30	0.15	1.55	EKMQ401VSN391MA30S
	1,800	35 × 50	0.15	2.70	EKMQ251VSN182MA50S		470	30 × 45	0.15	1.68	EKMQ401VSN471MR45S
315	150	22 × 25	0.15	0.82	EKMQ3B1VSN151MP25S	470	35 × 35	0.15	1.68	EKMQ401VSN471MA35S	
	180	22 × 30	0.15	0.90	EKMQ3B1VSN181MP30S	560	30 × 50	0.15	1.90	EKMQ401VSN561MR50S	
	220	22 × 30	0.15	1.00	EKMQ3B1VSN221MP30S	560	35 × 40	0.15	1.90	EKMQ401VSN561MA40S	
	220	25.4 × 25	0.15	1.00	EKMQ3B1VSN221MQ25S	680	35 × 45	0.15	2.12	EKMQ401VSN681MA45S	
	270	22 × 35	0.15	1.10	EKMQ3B1VSN271MP35S	82	22 × 25	0.20	0.64	EKMQ421VSN820MP25S	
	270	25.4 × 30	0.15	1.10	EKMQ3B1VSN271MQ30S	100	22 × 25	0.20	0.66	EKMQ421VSN101MP25S	
	330	22 × 45	0.15	1.20	EKMQ3B1VSN331MP45S	100	25.4 × 25	0.20	0.66	EKMQ421VSN101MQ25S	
	330	25.4 × 35	0.15	1.20	EKMQ3B1VSN331MQ35S	120	22 × 30	0.20	0.81	EKMQ421VSN121MP30S	
	330	30 × 25	0.15	1.20	EKMQ3B1VSN331MR25S	120	25.4 × 25	0.20	0.81	EKMQ421VSN121MQ25S	
	390	22 × 45	0.15	1.30	EKMQ3B1VSN391MP45S	150	22 × 35	0.20	0.84	EKMQ421VSN151MP35S	
	390	25.4 × 40	0.15	1.30	EKMQ3B1VSN391MQ40S	150	25.4 × 30	0.20	0.84	EKMQ421VSN151MQ30S	
	390	30 × 30	0.15	1.30	EKMQ3B1VSN391MR30S	150	30 × 25	0.20	0.84	EKMQ421VSN151MR25S	
	390	35 × 25	0.15	1.30	EKMQ3B1VSN391MA25S	180	22 × 40	0.20	0.91	EKMQ421VSN181MP40S	
	470	25.4 × 45	0.15	1.40	EKMQ3B1VSN471MQ45S	180	25.4 × 30	0.20	0.91	EKMQ421VSN181MQ30S	
	470	30 × 35	0.15	1.40	EKMQ3B1VSN471MR35S	180	30 × 25	0.20	0.91	EKMQ421VSN181MR25S	
	470	35 × 25	0.15	1.40	EKMQ3B1VSN471MA25S	220	22 × 45	0.20	1.05	EKMQ421VSN221MP45S	
	560	25.4 × 50	0.15	1.50	EKMQ3B1VSN561MQ50S	220	25.4 × 35	0.20	1.05	EKMQ421VSN221MQ35S	
	560	30 × 40	0.15	1.50	EKMQ3B1VSN561MR40S	220	30 × 30	0.20	1.05	EKMQ421VSN221MR30S	
	560	35 × 30	0.15	1.50	EKMQ3B1VSN561MA30S	220	35 × 25	0.20	1.05	EKMQ421VSN221MA25S	
	680	30 × 45	0.15	1.70	EKMQ3B1VSN681MR45S	270	25.4 × 40	0.20	1.25	EKMQ421VSN271MQ40S	
680	35 × 35	0.15	1.70	EKMQ3B1VSN681MA35S	270	30 × 30	0.20	1.25	EKMQ421VSN271MR30S		
820	30 × 50	0.15	2.00	EKMQ3B1VSN821MR50S	270	35 × 25	0.20	1.25	EKMQ421VSN271MA25S		
820	35 × 40	0.15	2.00	EKMQ3B1VSN821MA40S	330	25.4 × 50	0.20	1.42	EKMQ421VSN331MQ50S		
1,000	35 × 45	0.15	2.30	EKMQ3B1VSN102MA45S	330	30 × 35	0.20	1.42	EKMQ421VSN331MR35S		
350	120	22 × 25	0.15	0.75	EKMQ351VSN121MP25S	330	35 × 30	0.20	1.42	EKMQ421VSN331MA30S	
	150	22 × 30	0.15	0.82	EKMQ351VSN151MP30S	390	30 × 40	0.20	1.61	EKMQ421VSN391MR40S	
	180	22 × 30	0.15	0.90	EKMQ351VSN181MP30S	390	35 × 35	0.20	1.61	EKMQ421VSN391MA35S	
	180	25.4 × 25	0.15	0.90	EKMQ351VSN181MQ25S	470	30 × 45	0.20	1.86	EKMQ421VSN471MR45S	
	220	22 × 35	0.15	1.00	EKMQ351VSN221MP35S	470	35 × 40	0.20	1.86	EKMQ421VSN471MA40S	
	220	25.4 × 30	0.15	1.00	EKMQ351VSN221MQ30S	560	35 × 45	0.20	2.10	EKMQ421VSN561MA45S	
	270	22 × 40	0.15	1.10	EKMQ351VSN271MP40S	680	35 × 50	0.20	2.20	EKMQ421VSN681MA50S	
	270	25.4 × 30	0.15	1.10	EKMQ351VSN271MQ30S	68	22 × 25	0.20	0.50	EKMQ451VSN680MP25S	
	270	30 × 25	0.15	1.10	EKMQ351VSN271MR25S	82	22 × 30	0.20	0.56	EKMQ451VSN820MP30S	
	330	22 × 45	0.15	1.20	EKMQ351VSN331MP45S	100	22 × 30	0.20	0.64	EKMQ451VSN101MP30S	
	330	25.4 × 40	0.15	1.20	EKMQ351VSN331MQ40S	100	25.4 × 25	0.20	0.64	EKMQ451VSN101MQ25S	
	330	30 × 30	0.15	1.20	EKMQ351VSN331MR30S	120	22 × 35	0.20	0.72	EKMQ451VSN121MP35S	
	390	25.4 × 45	0.15	1.30	EKMQ351VSN391MQ45S	120	25.4 × 30	0.20	0.72	EKMQ451VSN121MQ30S	
	390	30 × 35	0.15	1.30	EKMQ351VSN391MR35S	150	22 × 40	0.20	0.79	EKMQ451VSN151MP40S	
	470	25.4 × 50	0.15	1.40	EKMQ351VSN471MQ50S	150	25.4 × 30	0.20	0.79	EKMQ451VSN151MQ30S	
	470	30 × 35	0.15	1.40	EKMQ351VSN471MR35S	150	30 × 25	0.20	0.79	EKMQ451VSN151MR25S	
	470	35 × 30	0.15	1.40	EKMQ351VSN471MA30S	180	22 × 45	0.20	0.87	EKMQ451VSN181MP45S	
	560	30 × 45	0.15	1.50	EKMQ351VSN561MR45S	180	25.4 × 40	0.20	0.87	EKMQ451VSN181MQ40S	
	560	35 × 35	0.15	1.50	EKMQ351VSN561MA35S	180	30 × 30	0.20	0.87	EKMQ451VSN181MR30S	
	680	30 × 50	0.15	1.70	EKMQ351VSN681MR50S	220	25.4 × 45	0.20	1.00	EKMQ451VSN221MQ45S	
680	35 × 40	0.15	1.70	EKMQ351VSN681MA40S	220	30 × 30	0.20	1.00	EKMQ451VSN221MR30S		
820	35 × 45	0.15	1.90	EKMQ351VSN821MA45S	220	35 × 25	0.20	1.00	EKMQ451VSN221MA25S		
400	100	22 × 25	0.15	0.70	EKMQ401VSN101MP25S	270	25.4 × 50	0.20	1.19	EKMQ451VSN271MQ50S	
	120	22 × 30	0.15	0.75	EKMQ401VSN121MP30S	270	30 × 40	0.20	1.19	EKMQ451VSN271MR40S	
	150	22 × 30	0.15	0.88	EKMQ401VSN151MP30S	270	35 × 30	0.20	1.19	EKMQ451VSN271MA30S	
	150	25.4 × 25	0.15	0.88	EKMQ401VSN151MQ25S	330	30 × 45	0.20	1.38	EKMQ451VSN331MQ45S	
	180	22 × 35	0.15	0.95	EKMQ401VSN181MP35S	330	35 × 35	0.20	1.38	EKMQ451VSN331MA35S	
	180	25.4 × 30	0.15	0.95	EKMQ401VSN181MQ30S	390	30 × 50	0.20	1.55	EKMQ451VSN391MR50S	
	220	22 × 45	0.15	1.10	EKMQ401VSN221MP45S	390	35 × 40	0.20	1.55	EKMQ451VSN391MA40S	
	220	25.4 × 35	0.15	1.10	EKMQ401VSN221MQ35S	470	35 × 45	0.20	1.74	EKMQ451VSN471MA45S	
	220	30 × 25	0.15	1.10	EKMQ401VSN221MR25S	560	35 × 50	0.20	1.90	EKMQ451VSN561MA50S	
	270	22 × 50	0.15	1.22	EKMQ401VSN271MP50S						



KMQ Series

◆ RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
35, 50V _{dc}	0.95	1.00	1.03	1.05	1.08	1.08
160 to 250V _{dc}	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450V _{dc}	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.