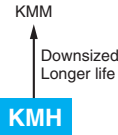


# KMH Series

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

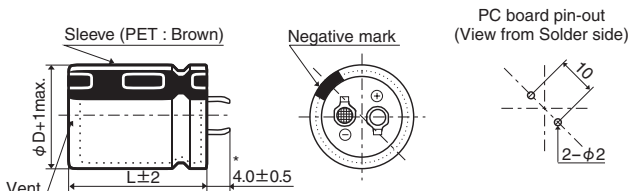


## ◆ SPECIFICATIONS

Items	Characteristics										
Category	-40 to +105°C										
Temperature Range											
Rated Voltage Range	6.3 to 100V <sub>dc</sub>										
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)										
Leakage Current	I=0.02CV or 3mA, whichever is smaller 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 <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tan δ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	(at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(-25°C)/Z(+20°C)	4	4	4	3	3	2	2	2	2	
	Z(-45°C)/Z(+20°C)	15	15	15	10	8	6	6	5	5	(at 120Hz)
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	≤ ±20% of the initial value									
	D.F. (tan δ)	≤ 150% of the initial specified value									
	Leakage current	≤ The initial specified value									

## ◆ DIMENSIONS [mm]

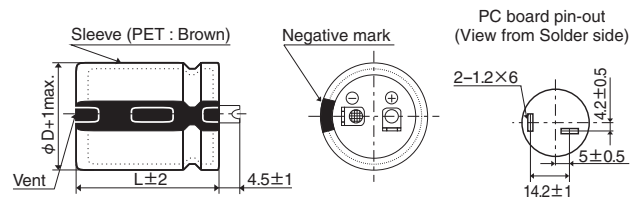
● Terminal Code : VS (φ22 to φ35) : Standard



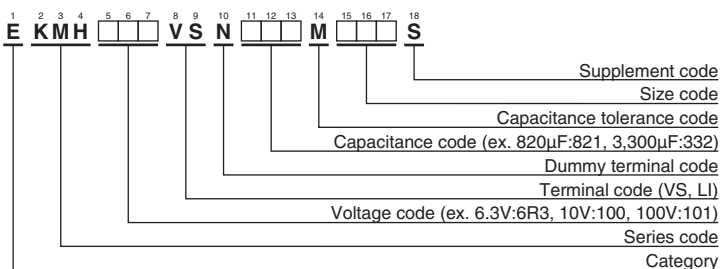
\* φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

● Terminal Code : LI (φ35)



## ◆ PART NUMBERING SYSTEM



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

◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 105°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 105°C, 120Hz)	Part No.	
6.3	12,000	22 × 25	0.60	1.54	EKMH6R3VSN123MP25S	16	27,000	35 × 30	0.40	3.45	EKMH160VSN273MA30S	
	15,000	22 × 25	0.60	1.72	EKMH6R3VSN153MP25S		33,000	30 × 45	0.40	4.30	EKMH160VSN333MR45S	
	18,000	22 × 30	0.60	1.95	EKMH6R3VSN183MP30S		33,000	35 × 35	0.40	4.26	EKMH160VSN333MA35S	
	18,000	25.4 × 25	0.60	1.96	EKMH6R3VSN183MQ25S		39,000	30 × 50	0.40	4.81	EKMH160VSN393MR50S	
	22,000	22 × 35	0.60	2.23	EKMH6R3VSN223MP35S		39,000	35 × 40	0.40	4.79	EKMH160VSN393MA40S	
	22,000	25.4 × 30	0.60	2.25	EKMH6R3VSN223MQ30S		47,000	35 × 45	0.40	5.43	EKMH160VSN473MA45S	
	22,000	30 × 25	0.60	2.28	EKMH6R3VSN223MR25S		25	4,700	22 × 25	0.30	1.50	EKMH250VSN472MP25S
	27,000	22 × 40	0.60	2.54	EKMH6R3VSN273MP40S			5,600	22 × 25	0.30	1.63	EKMH250VSN562MP25S
	27,000	25.4 × 35	0.60	2.57	EKMH6R3VSN273MQ35S			6,800	22 × 30	0.30	1.86	EKMH250VSN682MP30S
	27,000	30 × 25	0.60	2.52	EKMH6R3VSN273MR25S			6,800	25.4 × 25	0.30	1.87	EKMH250VSN682MQ25S
	33,000	22 × 45	0.60	2.88	EKMH6R3VSN333MP45S	8,200		22 × 35	0.30	2.11	EKMH250VSN822MP35S	
	33,000	25.4 × 40	0.60	2.93	EKMH6R3VSN333MQ40S	8,200		25.4 × 30	0.30	2.12	EKMH250VSN822MQ30S	
	33,000	30 × 30	0.60	2.89	EKMH6R3VSN333MR30S	8,200		30 × 25	0.30	2.15	EKMH250VSN822MR25S	
	33,000	35 × 25	0.60	2.93	EKMH6R3VSN333MA25S	10,000		22 × 40	0.30	2.39	EKMH250VSN103MP40S	
	39,000	25.4 × 40	0.60	3.18	EKMH6R3VSN393MQ40S	10,000		25.4 × 35	0.30	2.42	EKMH250VSN103MR35S	
	39,000	30 × 35	0.60	3.26	EKMH6R3VSN393MR35S	10,000		30 × 25	0.30	2.37	EKMH250VSN103MR25S	
	39,000	35 × 30	0.60	3.40	EKMH6R3VSN393MA30S	12,000		22 × 45	0.30	2.69	EKMH250VSN123MP45S	
	47,000	25.4 × 50	0.60	3.69	EKMH6R3VSN473MQ50S	12,000		25.4 × 40	0.30	2.74	EKMH250VSN123MQ40S	
	47,000	30 × 40	0.60	3.69	EKMH6R3VSN473MR40S	12,000		30 × 30	0.30	2.70	EKMH250VSN123MR30S	
	47,000	35 × 30	0.60	3.73	EKMH6R3VSN473MA30S	12,000		35 × 25	0.30	2.74	EKMH250VSN123MA25S	
	56,000	30 × 45	0.60	4.16	EKMH6R3VSN563MR45S	15,000		25.4 × 45	0.30	3.15	EKMH250VSN153MQ45S	
56,000	35 × 35	0.60	4.12	EKMH6R3VSN563MA35S	15,000	30 × 35		0.30	3.13	EKMH250VSN153MR35S		
68,000	30 × 50	0.60	4.71	EKMH6R3VSN683MR50S	15,000	35 × 30		0.30	3.27	EKMH250VSN153MA30S		
68,000	35 × 40	0.60	4.69	EKMH6R3VSN683MA40S	18,000	25.4 × 50		0.30	3.54	EKMH250VSN183MQ50S		
82,000	35 × 45	0.60	5.32	EKMH6R3VSN823MA45S	18,000	30 × 40		0.30	3.54	EKMH250VSN183MR40S		
10	10,000	22 × 25	0.50	1.55	EKMH100VSN103MP25S	18,000		35 × 30	0.30	3.58	EKMH250VSN183MA30S	
	12,000	22 × 30	0.50	1.77	EKMH100VSN123MP30S	22,000	30 × 45	0.30	4.04	EKMH250VSN223MR45S		
	15,000	22 × 30	0.50	1.97	EKMH100VSN153MP30S	22,000	35 × 35	0.30	3.64	EKMH250VSN223MA35S		
	15,000	25.4 × 25	0.50	1.96	EKMH100VSN153MQ25S	27,000	35 × 45	0.30	4.73	EKMH250VSN273MA45S		
	18,000	22 × 35	0.50	2.21	EKMH100VSN183MP35S	33,000	35 × 50	0.30	5.39	EKMH250VSN333MA50S		
	18,000	25.4 × 30	0.50	2.23	EKMH100VSN183MQ30S	35	3,300	22 × 25	0.25	1.40	EKMH350VSN332MP25S	
	22,000	22 × 40	0.50	2.51	EKMH100VSN223MP40S		3,900	22 × 30	0.25	1.57	EKMH350VSN392MP30S	
	22,000	25.4 × 35	0.50	2.54	EKMH100VSN223MQ35S		4,700	22 × 30	0.25	1.72	EKMH350VSN472MP30S	
	22,000	30 × 25	0.50	2.40	EKMH100VSN223MR25S		4,700	25.4 × 25	0.25	1.80	EKMH350VSN472MQ25S	
	27,000	22 × 50	0.50	2.93	EKMH100VSN273MP50S		5,600	22 × 35	0.25	1.95	EKMH350VSN562MP35S	
	27,000	25.4 × 40	0.50	2.90	EKMH100VSN273MQ40S		5,600	25.4 × 30	0.25	1.96	EKMH350VSN562MQ30S	
	27,000	30 × 30	0.50	2.87	EKMH100VSN273MR30S		5,600	30 × 25	0.25	1.99	EKMH350VSN562MR25S	
	27,000	35 × 25	0.50	2.73	EKMH100VSN273MA25S		6,800	22 × 40	0.25	2.20	EKMH350VSN682MP40S	
	33,000	25.4 × 45	0.50	3.30	EKMH100VSN333MQ45S		6,800	25.4 × 35	0.25	2.23	EKMH350VSN682MQ35S	
	33,000	30 × 35	0.50	3.28	EKMH100VSN333MR35S		6,800	30 × 25	0.25	2.19	EKMH350VSN682MR25S	
	33,000	35 × 30	0.50	3.16	EKMH100VSN333MA30S		8,200	22 × 50	0.25	2.55	EKMH350VSN822MP50S	
	39,000	25.4 × 50	0.50	3.68	EKMH100VSN393MQ50S		8,200	25.4 × 40	0.25	2.53	EKMH350VSN822MQ40S	
	39,000	30 × 40	0.50	3.69	EKMH100VSN393MR40S		8,200	30 × 30	0.25	2.75	EKMH350VSN822MR30S	
	39,000	35 × 30	0.50	3.43	EKMH100VSN393MA30S		8,200	35 × 25	0.25	2.75	EKMH350VSN822MA25S	
	47,000	30 × 45	0.50	4.17	EKMH100VSN473MR45S		10,000	25.4 × 45	0.25	2.87	EKMH350VSN103MQ45S	
	47,000	35 × 35	0.50	3.76	EKMH100VSN473MA35S		10,000	30 × 35	0.25	2.90	EKMH350VSN103MR35S	
56,000	30 × 50	0.50	4.68	EKMH100VSN563MR50S	10,000		35 × 30	0.25	2.91	EKMH350VSN103MA30S		
56,000	35 × 40	0.50	4.67	EKMH100VSN563MA40S	12,000		25.4 × 50	0.25	3.24	EKMH350VSN123MQ50S		
68,000	35 × 50	0.50	5.46	EKMH100VSN683MA50S	12,000		30 × 40	0.25	3.23	EKMH350VSN123MR40S		
16	6,800	22 × 25	0.40	1.57	EKMH160VSN682MP25S		12,000	35 × 30	0.25	2.99	EKMH350VSN123MA30S	
	10,000	22 × 30	0.40	1.97	EKMH160VSN103MP30S	15,000	30 × 45	0.25	3.72	EKMH350VSN153MR45S		
	10,000	25.4 × 25	0.40	1.97	EKMH160VSN103MQ25S	15,000	35 × 35	0.25	3.67	EKMH350VSN153MA35S		
	12,000	22 × 35	0.40	2.22	EKMH160VSN123MP35S	18,000	35 × 40	0.25	4.37	EKMH350VSN183MA40S		
	12,000	25.4 × 30	0.40	2.24	EKMH160VSN123MQ30S	22,000	35 × 50	0.25	4.92	EKMH350VSN223MA50S		
	12,000	30 × 25	0.40	2.45	EKMH160VSN123MR25S	50	1,800	22 × 25	0.20	1.33	EKMH500VSN182MP25S	
	15,000	22 × 40	0.40	2.55	EKMH160VSN153MP40S		2,700	22 × 30	0.20	1.69	EKMH500VSN272MP30S	
	15,000	25.4 × 35	0.40	2.58	EKMH160VSN153MQ35S		2,700	25.4 × 25	0.20	1.70	EKMH500VSN272MQ25S	
	15,000	30 × 25	0.40	2.52	EKMH160VSN153MR25S		3,300	22 × 35	0.20	1.93	EKMH500VSN332MP35S	
	18,000	22 × 45	0.40	2.87	EKMH160VSN183MP45S		3,300	25.4 × 30	0.20	1.85	EKMH500VSN332MQ30S	
	18,000	25.4 × 40	0.40	2.92	EKMH160VSN183MQ40S		3,900	22 × 40	0.20	2.16	EKMH500VSN392MP40S	
	18,000	30 × 30	0.40	2.88	EKMH160VSN183MR30S		3,900	25.4 × 35	0.20	2.18	EKMH500VSN392MQ35S	
	18,000	35 × 25	0.40	2.92	EKMH160VSN183MA25S		3,900	30 × 25	0.20	1.95	EKMH500VSN392MR25S	
	22,000	25.4 × 45	0.40	3.32	EKMH160VSN223MQ45S		4,700	22 × 45	0.20	2.43	EKMH500VSN472MP45S	
	22,000	30 × 35	0.40	3.29	EKMH160VSN223MR35S		4,700	25.4 × 35	0.20	2.39	EKMH500VSN472MQ35S	
	22,000	35 × 25	0.40	3.23	EKMH160VSN223MA25S		4,700	30 × 30	0.20	2.25	EKMH500VSN472MR30S	
	27,000	25.4 × 50	0.40	3.78	EKMH160VSN273MQ50S		4,700	35 × 25	0.20	2.48	EKMH500VSN472MA25S	
	27,000	30 × 40	0.40	3.77	EKMH160VSN273MR40S		5,600	22 × 50	0.20	2.75	EKMH500VSN562MP50S	

◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	
50	5,600	25.4 × 40	0.20	2.70	EKMH500VSN562MQ40S	80	1,800	25.4 × 30	0.15	1.76	EKMH800VSN182MQ30S	
	5,600	30 × 35	0.20	2.76	EKMH500VSN562MR35S		1,800	30 × 25	0.15	1.65	EKMH800VSN182MR25S	
	5,600	35 × 25	0.20	2.70	EKMH500VSN562MA25S		2,200	22 × 45	0.15	2.04	EKMH800VSN222MP45S	
	6,800	25.4 × 50	0.20	3.30	EKMH500VSN682MQ50S		2,200	25.4 × 35	0.15	2.01	EKMH800VSN222MQ35S	
	6,800	30 × 40	0.20	3.30	EKMH500VSN682MR40S		2,200	30 × 30	0.15	2.05	EKMH800VSN222MR30S	
	6,800	35 × 30	0.20	3.25	EKMH500VSN682MA30S		2,200	35 × 25	0.15	2.07	EKMH800VSN222MA25S	
	8,200	30 × 45	0.20	3.60	EKMH500VSN822MR45S		2,700	25.4 × 45	0.15	2.36	EKMH800VSN272MQ45S	
	8,200	35 × 35	0.20	3.55	EKMH500VSN822MA35S		2,700	30 × 35	0.15	2.35	EKMH800VSN272MR35S	
	10,000	30 × 50	0.20	4.04	EKMH500VSN103MR50S		2,700	35 × 25	0.15	2.29	EKMH800VSN272MA25S	
	10,000	35 × 40	0.20	4.03	EKMH500VSN103MA40S		3,300	25.4 × 50	0.15	2.68	EKMH800VSN332MQ50S	
63	1,200	22 × 25	0.15	1.19	EKMH630VSN122MP25S	80	3,300	30 × 40	0.15	2.68	EKMH800VSN332MP40S	
	1,500	22 × 25	0.15	1.33	EKMH630VSN152MP25S		3,300	35 × 30	0.15	2.45	EKMH800VSN332MA30S	
	1,800	22 × 30	0.15	1.51	EKMH630VSN182MP30S		3,900	30 × 45	0.15	3.00	EKMH800VSN392MR45S	
	1,800	25.4 × 25	0.15	1.52	EKMH630VSN182MQ25S		3,900	35 × 35	0.15	2.98	EKMH800VSN392MA35S	
	2,200	22 × 35	0.15	1.73	EKMH630VSN222MP35S		4,700	30 × 50	0.15	3.39	EKMH800VSN472MR50S	
	2,200	25.4 × 30	0.15	1.74	EKMH630VSN222MQ30S		4,700	35 × 40	0.15	3.38	EKMH800VSN472MA40S	
	2,700	22 × 40	0.15	1.97	EKMH630VSN272MP40S		5,600	35 × 45	0.15	3.80	EKMH800VSN562MA45S	
	2,700	25.4 × 35	0.15	1.99	EKMH630VSN272MQ35S		6,800	35 × 50	0.15	3.90	EKMH800VSN682MA50S	
	2,700	30 × 25	0.15	1.76	EKMH630VSN272MR25S		100	560	22 × 25	0.15	1.05	EKMH101VSN561MP25S
	3,300	22 × 50	0.15	2.29	EKMH630VSN332MP50S			820	22 × 30	0.15	1.32	EKMH101VSN821MP30S
	3,300	25.4 × 40	0.15	2.27	EKMH630VSN332MQ40S	820		25.4 × 25	0.15	1.33	EKMH101VSN821MQ25S	
	3,300	30 × 30	0.15	2.24	EKMH630VSN332MR30S	1,000		22 × 35	0.15	1.50	EKMH101VSN102MP35S	
	3,300	35 × 25	0.15	2.06	EKMH630VSN332MA25S	1,000		25.4 × 30	0.15	1.51	EKMH101VSN102MQ30S	
	3,900	25.4 × 45	0.15	2.54	EKMH630VSN392MQ45S	1,200		22 × 40	0.15	1.69	EKMH101VSN122MP40S	
	3,900	30 × 35	0.15	2.55	EKMH630VSN392MR35S	1,200		25.4 × 35	0.15	1.71	EKMH101VSN122MQ35S	
	3,900	35 × 25	0.15	2.24	EKMH630VSN392MA25S	1,200		30 × 25	0.15	1.68	EKMH101VSN122MR25S	
	4,700	25.4 × 50	0.15	2.86	EKMH630VSN472MQ50S	1,500		22 × 45	0.15	1.94	EKMH101VSN152MP45S	
	4,700	30 × 40	0.15	2.86	EKMH630VSN472MR40S	1,500		25.4 × 40	0.15	1.98	EKMH101VSN152MQ40S	
	4,700	35 × 30	0.15	2.79	EKMH630VSN472MA30S	1,500	30 × 30	0.15	1.95	EKMH101VSN152MR30S		
	80	5,600	30 × 45	0.15	3.22	EKMH630VSN562MR45S	1,500	35 × 25	0.15	1.98	EKMH101VSN152MA25S	
5,600		35 × 35	0.15	3.19	EKMH630VSN562MA35S	1,800	25.4 × 45	0.15	2.23	EKMH101VSN182MQ45S		
6,800		30 × 50	0.15	3.65	EKMH630VSN682MR50S	1,800	30 × 35	0.15	2.50	EKMH101VSN182MR35S		
6,800		35 × 40	0.15	3.64	EKMH630VSN682MA40S	1,800	35 × 25	0.15	2.17	EKMH101VSN182MA25S		
8,200		35 × 45	0.15	3.90	EKMH630VSN822MA45S	2,200	25.4 × 50	0.15	2.53	EKMH101VSN222MQ50S		
10,000		35 × 50	0.15	4.40	EKMH630VSN103MA50S	2,200	30 × 40	0.15	2.70	EKMH101VSN222MR40S		
820		22 × 25	0.15	1.11	EKMH800VSN821MP25S	2,200	35 × 30	0.15	2.50	EKMH101VSN222MA30S		
1,000		22 × 25	0.15	1.22	EKMH800VSN102MP25S	2,700	30 × 45	0.15	2.88	EKMH101VSN272MR45S		
1,200		22 × 30	0.15	1.38	EKMH800VSN122MP30S	2,700	35 × 35	0.15	2.86	EKMH101VSN272MA35S		
1,200		25.4 × 25	0.15	1.39	EKMH800VSN122MQ25S	3,300	30 × 50	0.15	3.28	EKMH101VSN332MR50S		
1,500	22 × 35	0.15	1.59	EKMH800VSN152MP35S	3,300	35 × 40	0.15	3.27	EKMH101VSN332MA40S			
1,500	25.4 × 30	0.15	1.61	EKMH800VSN152MQ30S	3,900	35 × 45	0.15	3.67	EKMH101VSN392MA45S			
1,800	22 × 40	0.15	1.80	EKMH800VSN182MP40S	4,700	35 × 50	0.15	3.80	EKMH101VSN472MA50S			

\*For the rated voltage ≥ 160V<sub>dc</sub>, please use KMR and KMQ series.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
6.3 to 50V <sub>dc</sub>	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100V <sub>dc</sub>	0.92	1.00	1.07	1.13	1.19	1.20

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.