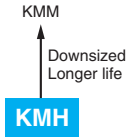




## KMH Series

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



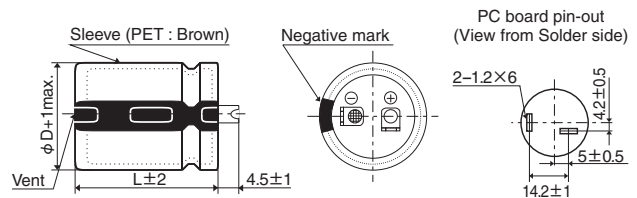
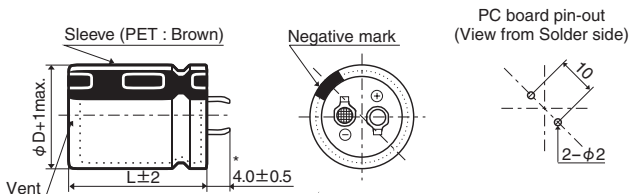
### SPECIFICATIONS

Items	Characteristics									
Category	-40 to +105°C									
Temperature Range	-40 to +105°C									
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
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(-40°C)/Z(+20°C)	15	15	15	10	8	6	6	5	5
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

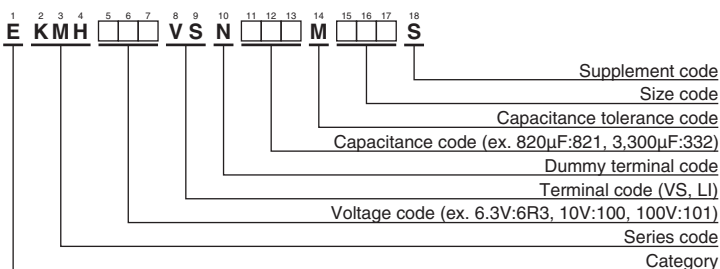
Terminal Code : LI (φ35)



\*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

### 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
12,000	35 × 45	0.20	4.55	EKMH500VSN123MA45S	3,300	30 × 40	0.15	2.68	EKMH800VSN332MP40S		
63	1,200	22 × 25	0.15	1.19	EKMH630VSN122MP25S	3,300	35 × 30	0.15	2.45	EKMH800VSN332MA30S	
	1,500	22 × 25	0.15	1.33	EKMH630VSN152MP25S	3,900	30 × 45	0.15	3.00	EKMH800VSN392MR45S	
	1,800	22 × 30	0.15	1.51	EKMH630VSN182MP30S	3,900	35 × 35	0.15	2.98	EKMH800VSN392MA35S	
	1,800	25.4 × 25	0.15	1.52	EKMH630VSN182MQ25S	4,700	30 × 50	0.15	3.39	EKMH800VSN472MP50S	
	2,200	22 × 35	0.15	1.73	EKMH630VSN222MP35S	4,700	35 × 40	0.15	3.38	EKMH800VSN472MA40S	
	2,200	25.4 × 30	0.15	1.74	EKMH630VSN222MQ30S	5,600	35 × 45	0.15	3.80	EKMH800VSN562MA45S	
	2,700	22 × 40	0.15	1.97	EKMH630VSN272MP40S	6,800	35 × 50	0.15	3.90	EKMH800VSN682MA50S	
	2,700	25.4 × 35	0.15	1.99	EKMH630VSN272MQ35S	100	560	22 × 25	0.15	1.05	EKMH101VSN561MP25S
	2,700	30 × 25	0.15	1.76	EKMH630VSN272MR25S		820	22 × 30	0.15	1.32	EKMH101VSN821MP30S
	3,300	22 × 50	0.15	2.29	EKMH630VSN332MP50S		820	25.4 × 25	0.15	1.33	EKMH101VSN821MQ25S
	3,300	25.4 × 40	0.15	2.27	EKMH630VSN332MQ40S		1,000	22 × 35	0.15	1.50	EKMH101VSN102MP35S
	3,300	30 × 30	0.15	2.24	EKMH630VSN332MR30S		1,000	25.4 × 30	0.15	1.51	EKMH101VSN102MQ30S
	3,300	35 × 25	0.15	2.06	EKMH630VSN332MA25S		1,200	22 × 40	0.15	1.69	EKMH101VSN122MP40S
	3,900	25.4 × 45	0.15	2.54	EKMH630VSN392MQ45S		1,200	25.4 × 35	0.15	1.71	EKMH101VSN122MQ35S
	3,900	30 × 35	0.15	2.55	EKMH630VSN392MR35S		1,200	30 × 25	0.15	1.68	EKMH101VSN122MR25S
	3,900	35 × 25	0.15	2.24	EKMH630VSN392MA25S		1,500	22 × 45	0.15	1.94	EKMH101VSN152MP45S
	4,700	25.4 × 50	0.15	2.86	EKMH630VSN472MQ50S		1,500	25.4 × 40	0.15	1.98	EKMH101VSN152MQ40S
	4,700	30 × 40	0.15	2.86	EKMH630VSN472MR40S		1,500	30 × 30	0.15	1.95	EKMH101VSN152MR30S
	4,700	35 × 30	0.15	2.79	EKMH630VSN472MA30S		1,500	35 × 25	0.15	1.98	EKMH101VSN152MA25S
	5,600	30 × 45	0.15	3.22	EKMH630VSN562MR45S		1,800	25.4 × 45	0.15	2.23	EKMH101VSN182MQ45S
5,600	35 × 35	0.15	3.19	EKMH630VSN562MA35S	1,800		30 × 35	0.15	2.50	EKMH101VSN182MR35S	
6,800	30 × 50	0.15	3.65	EKMH630VSN682MR50S	1,800		35 × 25	0.15	2.17	EKMH101VSN182MA25S	
6,800	35 × 40	0.15	3.64	EKMH630VSN682MA40S	2,200		25.4 × 50	0.15	2.53	EKMH101VSN222MQ50S	
8,200	35 × 45	0.15	3.90	EKMH630VSN822MA45S	2,200		30 × 40	0.15	2.70	EKMH101VSN222MR40S	
10,000	35 × 50	0.15	4.40	EKMH630VSN103MA50S	2,200		35 × 30	0.15	2.50	EKMH101VSN222MA30S	
80	820	22 × 25	0.15	1.11	EKMH800VSN821MP25S		2,700	30 × 45	0.15	2.88	EKMH101VSN272MR45S
	1,000	22 × 25	0.15	1.22	EKMH800VSN102MP25S		2,700	35 × 35	0.15	2.86	EKMH101VSN272MA35S
	1,200	22 × 30	0.15	1.38	EKMH800VSN122MP30S	3,300	30 × 50	0.15	3.28	EKMH101VSN332MR50S	
	1,200	25.4 × 25	0.15	1.39	EKMH800VSN122MQ25S	3,300	35 × 40	0.15	3.27	EKMH101VSN332MA40S	
	1,500	22 × 35	0.15	1.59	EKMH800VSN152MP35S	3,900	35 × 45	0.15	3.67	EKMH101VSN392MA45S	
	1,500	25.4 × 30	0.15	1.61	EKMH800VSN152MQ30S	4,700	35 × 50	0.15	3.80	EKMH101VSN472MA50S	
	1,800	22 × 40	0.15	1.80	EKMH800VSN182MP40S						

\*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 deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
- Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.
- The products listed in this catalog are designed and manufactured for general electronics equipment use and are not intended for use in applications that can adversely affect human life; where the malfunction of equipment may cause damage to life or property. In addition, our products are not intended to be used in specific applications that may cause a major social impact. Please consult with us in advance of usage of our products in the following listed applications. ① Aerospace equipment ② Power generation equipment such as thermal power, nuclear power etc. ③ Medical equipment ④ Transport equipment (automobiles, trains, ships, etc.) ⑤ Transportation control equipment ⑥ Disaster prevention / crime prevention equipment ⑦ Highly publicized information processing equipment ⑧ Submarine equipment ⑨ Other applications that are not considered general-purpose applications.
- The circuits described as examples in this catalog and the "delivery specifications" are featured in order to show the operations and usage of our products, however, this fact does not guarantee that the circuits are available to function in your equipment systems. We are not in any case responsible for any failures or damage caused by the use of information contained herein. You should examine our products, of which the characteristics are described in the "delivery specifications" and other documents, and determine whether or not our products suit your requirements according to the specifications of your equipment systems. Therefore, you bear final responsibility regarding the use of our products.  
Please make sure that you take appropriate safety measures such as use of redundant design and malfunction prevention measures in order to prevent fatal accidents and/or fires in the event any of our products malfunction.
- We strongly recommend our customers to purchase Nippon Chemi-Con products only through our official sales channels. We assume no responsibility for any defects or damages caused by using products purchased from outside our official sales channel or of counterfeit goods. In addition, we will ask the customer to pay the investigation cost for products purchased outside our official sales channel.
- We reserve the right to discontinue production and delivery of products. We do not guarantee that all the products included in this catalog will be available in the future.  
The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products
- We continually strive to improve the quality and reliability of our products, but in any case that our product does not meet our published specifications, please stop using it promptly and contact us immediately. As for compensation for non-conforming goods delivered by Chemi-Con, we will limit it only to goods found in non-compliance of our published specifications. This may be accomplished by a no cost replacement of non-conforming individual products, a credit of the piece price paid per each individual non-conforming product, or in other ways deemed necessary.  
In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.

[Part Numbering System](#)

[Part Numbering System \(Appendix\)](#)

[Standardization](#)

[Available Items by Manufacturing Locations](#)

[Environmental Measures](#)

[Technical Note](#)

[Precautions and Guidelines](#)

[Recommended Soldering Conditions](#)

[Taping, Lead-preforming and Packaging](#)

[Available Terminals for Snap-in and Screw Mount Type](#)