



# KHS Series

- For solar power generation
- Endurance with ripple current : 3,000 hours at 105°C
- Rated voltage range:450 to 500V, Capacitance range:68 to 1,000μF
- Non solvent resistant type
- RoHS2 Compliant

**KHS**

↑ Downsizing

KMS

↑ Downsizing

KMM



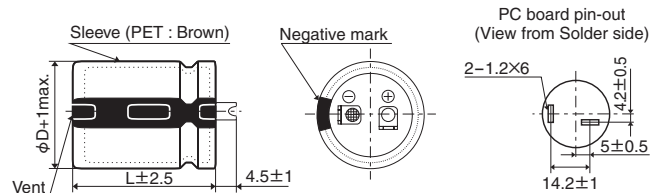
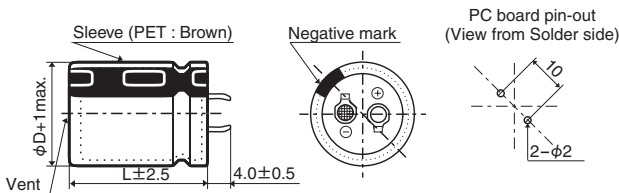
### ◆ SPECIFICATIONS

Items	Characteristics	
<b>Category Temperature Range</b>	-40 to +105°C (450, 475V <sub>dc</sub> ), -25 to +105°C (500V <sub>dc</sub> )	
<b>Rated Voltage Range</b>	450 to 500V <sub>dc</sub>	
<b>Capacitance Tolerance</b>	±20% (M) (at 20°C, 120Hz)	
<b>Leakage Current</b>	I ≤ 3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)	
<b>Dissipation Factor (tan δ)</b>	Rated voltage (V <sub>dc</sub> )	450 to 500V
	tan δ (Max.)	0.20 (at 20°C, 120Hz)
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	Rated voltage (V <sub>dc</sub> )	450 to 500V
	Z(-25°C)/Z(+20°C)	8 (at 120Hz)
<b>Endurance</b>	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 3,000 hours at 105°C.	
	Capacitance change	≤ ±20% of the initial value
	D.F. (tan δ)	≤ 200% of the initial specified value (500V <sub>dc</sub> : ≤ 250%)
	Leakage current	≤ The initial specified value
<b>Shelf Life</b>	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]

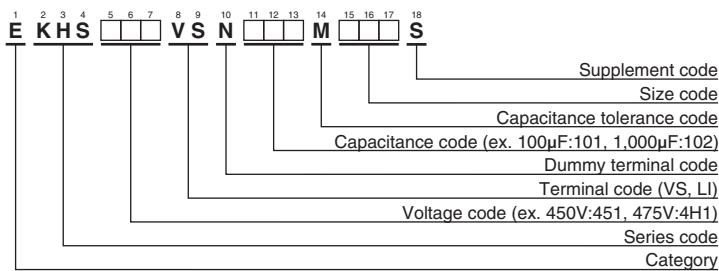
● Terminal Code : VS (φ22 to φ35) : Standard

● 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 <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.
450	100	22 × 25	0.20	0.71	EKHS451VSN101MP25S	475	330	30 × 35	0.20	1.53	EKHS4H1VSN331MR35S
	150	22 × 30	0.20	0.91	EKHS451VSN151MP30S		350	25.4 × 50	0.20	1.63	EKHS4H1VSN351MQ50S
	180	22 × 35	0.20	1.02	EKHS451VSN181MP35S		360	35 × 30	0.20	1.56	EKHS4H1VSN361MA30S
	180	22 × 40	0.20	1.04	EKHS451VSN181MP40S		390	30 × 40	0.20	1.71	EKHS4H1VSN391MR40S
	180	25.4 × 25	0.20	1.02	EKHS451VSN181MQ25S		400	25.4 × 55	0.20	1.77	EKHS4H1VSN401MQ55S
	220	22 × 45	0.20	1.17	EKHS451VSN221MP45S		440	25.4 × 60	0.20	1.89	EKHS4H1VSN441MQ60S
	220	25.4 × 30	0.20	1.16	EKHS451VSN221MQ30S		440	35 × 35	0.20	1.75	EKHS4H1VSN441MA35S
	270	22 × 50	0.20	1.33	EKHS451VSN271MP50S		450	30 × 45	0.20	1.89	EKHS4H1VSN451MR45S
	270	25.4 × 35	0.20	1.34	EKHS451VSN271MQ35S		510	30 × 50	0.20	2.04	EKHS4H1VSN511MR50S
	270	30 × 25	0.20	1.28	EKHS451VSN271MR25S		530	35 × 40	0.20	1.99	EKHS4H1VSN531MA40S
	270	35 × 25	0.20	1.24	EKHS451VSN271MQ25S		560	35 × 50	0.20	2.13	EKHS4H1VSN561MA50S
	330	22 × 60	0.20	1.54	EKHS451VSN331MP60S		570	30 × 55	0.20	2.20	EKHS4H1VSN571MR55S
	330	25.4 × 40	0.20	1.51	EKHS451VSN331MQ40S		610	35 × 45	0.20	2.18	EKHS4H1VSN611MA45S
	330	30 × 30	0.20	1.43	EKHS451VSN331MR30S		640	30 × 60	0.20	2.38	EKHS4H1VSN641MR60S
	390	25.4 × 45	0.20	1.67	EKHS451VSN391MQ45S		700	35 × 50	0.20	2.39	EKHS4H1VSN701MA50S
	390	30 × 35	0.20	1.59	EKHS451VSN391MR35S		790	35 × 55	0.20	2.59	EKHS4H1VSN791MA55S
	390	35 × 30	0.20	1.52	EKHS451VSN391MA30S		870	35 × 60	0.20	2.77	EKHS4H1VSN871MA60S
	470	25.4 × 50	0.20	1.86	EKHS451VSN471MQ50S		68	22 × 25	0.20	0.61	EKHS501VSN680MP25S
	470	30 × 40	0.20	1.79	EKHS451VSN471MR40S		82	22 × 30	0.20	0.70	EKHS501VSN820MP30S
	470	35 × 35	0.20	1.69	EKHS451VSN471MA35S		82	25.4 × 25	0.20	0.72	EKHS501VSN820MQ25S
	560	25.4 × 60	0.20	2.09	EKHS451VSN561MQ60S		100	22 × 35	0.20	0.79	EKHS501VSN101MP35S
	560	30 × 45	0.20	2.01	EKHS451VSN561MR45S		120	22 × 40	0.20	0.89	EKHS501VSN121MP40S
	560	35 × 40	0.20	1.95	EKHS451VSN561MA40S		120	25.4 × 30	0.20	0.89	EKHS501VSN121MQ30S
	680	30 × 50	0.20	2.25	EKHS451VSN681MR50S		120	30 × 25	0.20	0.90	EKHS501VSN121MR25S
	680	35 × 45	0.20	2.16	EKHS451VSN681MA45S		150	22 × 45	0.20	1.01	EKHS501VSN151MP45S
	680	35 × 50	0.20	2.22	EKHS451VSN681MA50S		150	25.4 × 35	0.20	1.04	EKHS501VSN151MQ35S
	820	30 × 60	0.20	2.56	EKHS451VSN821MR60S		180	22 × 50	0.20	1.13	EKHS501VSN181MP50S
	820	35 × 55	0.20	2.47	EKHS451VSN821MA55S		180	25.4 × 40	0.20	1.16	EKHS501VSN181MQ40S
1,000	35 × 60	0.20	2.78	EKHS451VSN102MA60S	180	25.4 × 45	0.20	1.18	EKHS501VSN181MQ45S		
475	100	22 × 25	0.20	0.76	EKHS4H1VSN101MP25S	180	30 × 30	0.20	1.11	EKHS501VSN181MR30S	
	130	22 × 30	0.20	0.90	EKHS4H1VSN131MP30S	180	35 × 25	0.20	1.08	EKHS501VSN181MA25S	
	140	25.4 × 25	0.20	0.91	EKHS4H1VSN141MQ25S	220	22 × 60	0.20	1.31	EKHS501VSN221MP60S	
	160	22 × 35	0.20	1.03	EKHS4H1VSN161MP35S	220	25.4 × 50	0.20	1.33	EKHS501VSN221MQ50S	
	180	25.4 × 30	0.20	1.06	EKHS4H1VSN181MQ30S	220	30 × 35	0.20	1.26	EKHS501VSN221MR35S	
	190	22 × 40	0.20	1.14	EKHS4H1VSN191MP40S	220	35 × 30	0.20	1.22	EKHS501VSN221MA30S	
	200	30 × 25	0.20	1.15	EKHS4H1VSN201MR25S	270	25.4 × 60	0.20	1.51	EKHS501VSN271MQ60S	
	220	22 × 45	0.20	1.25	EKHS4H1VSN221MP45S	270	30 × 40	0.20	1.44	EKHS501VSN271MR40S	
	230	25.4 × 35	0.20	1.25	EKHS4H1VSN231MQ35S	270	30 × 45	0.20	1.47	EKHS501VSN271MR45S	
	250	22 × 50	0.20	1.37	EKHS4H1VSN251MP50S	270	35 × 35	0.20	1.37	EKHS501VSN271MA35S	
	270	25.4 × 40	0.20	1.38	EKHS4H1VSN271MQ40S	330	30 × 50	0.20	1.66	EKHS501VSN331MR50S	
	270	30 × 30	0.20	1.35	EKHS4H1VSN271MR30S	330	35 × 40	0.20	1.57	EKHS501VSN331MA40S	
	270	35 × 25	0.20	1.33	EKHS4H1VSN271MA25S	390	30 × 60	0.20	1.87	EKHS501VSN391MR60S	
	290	22 × 55	0.20	1.50	EKHS4H1VSN291MP55S	390	35 × 45	0.20	1.74	EKHS501VSN391MA45S	
	310	25.4 × 45	0.20	1.51	EKHS4H1VSN311MQ45S	470	35 × 50	0.20	1.95	EKHS501VSN471MA50S	
	320	22 × 60	0.20	1.60	EKHS4H1VSN321MP60S	560	35 × 60	0.20	2.22	EKHS501VSN561MA60S	

### ◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
450V <sub>dc</sub>	0.77	1.00	1.16	1.30	1.41	1.43
475V <sub>dc</sub>	0.77	1.00	1.11	1.20	1.25	1.33
500V <sub>dc</sub>	0.70	1.00	1.16	1.30	1.41	1.43

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.  
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- 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
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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](#)