

KHX Series

- The KMS series has been improved to have a higher capacitance and ripple current.
- Endurance with ripple current : 105°C 3,000 hours
- Rated voltage range : 350 to 400V
- Capacitance range : 150 to 1,570μF
- Suitable for use in switching power supply equipment and inverters.
- Non solvent resistant type
- The logo mark printed on the sleeve will be changed.
- RoHS2 Compliant

KHX

↑ Downsizing
Higher ripple
KMS

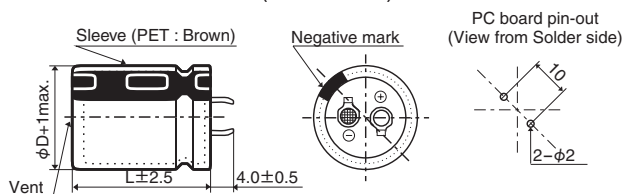


SPECIFICATIONS

Items	Characteristics		
Category	-40 to +105℃		
Temperature Range			
Rated Voltage Range	350 to 400V _{dc}		
Capacitance Tolerance	± 20% (M)		(at 20℃, 120Hz)
Leakage Current	I ≤ 3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)		
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	350 to 400V	(at 20℃, 120Hz)
	tan δ (Max.)	0.15	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	350 to 400V	(at 120Hz)
	Z(-25℃)/Z(+20℃)	5	
	Z(-40℃)/Z(+20℃)	20	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ 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℃.		
	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℃ after exposing them for 1,000 hours at 105℃ 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	

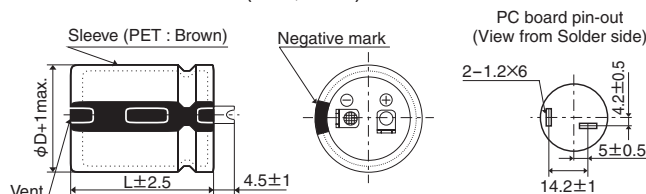
DIMENSIONS [mm]

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

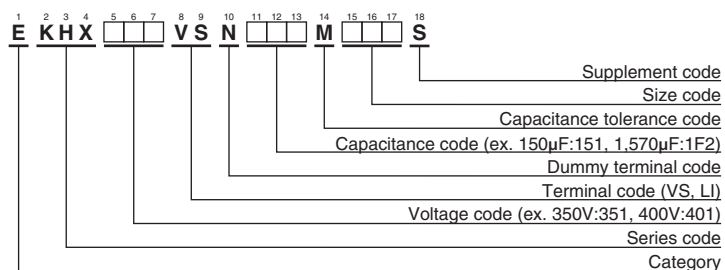


The standard design has no plastic disc.

● Terminal Code : LI (φ30, φ35)



PART NUMBERING SYSTEM



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



KH Series

◆ 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.
350	180	22 × 25	0.15	1.43	EKHX351VSN181MP25S	375	560	30 × 35	0.15	2.65	EKHX3H1VSN561MR35S
	230	22 × 30	0.15	1.70	EKHX351VSN231MP30S		570	25.4 × 50	0.15	2.88	EKHX3H1VSN571MQ50S
	250	25.4 × 25	0.15	1.68	EKHX351VSN251MQ25S		590	35 × 30	0.15	2.47	EKHX3H1VSN591MA30S
	290	22 × 35	0.15	1.95	EKHX351VSN291MP35S		640	25.4 × 55	0.15	3.10	EKHX3H1VSN641MQ55S
	330	25.4 × 30	0.15	1.99	EKHX351VSN331MQ30S		660	30 × 40	0.15	2.96	EKHX3H1VSN661MR40S
	340	22 × 40	0.15	2.16	EKHX351VSN341MP40S		710	25.4 × 60	0.15	3.32	EKHX3H1VSN711MQ60S
	380	30 × 25	0.15	2.11	EKHX351VSN381MR25S		730	35 × 35	0.15	2.79	EKHX3H1VSN731MA35S
	390	22 × 45	0.15	2.36	EKHX351VSN391MP45S		770	30 × 45	0.15	3.28	EKHX3H1VSN771MR45S
	400	25.4 × 35	0.15	2.28	EKHX351VSN401MQ35S		870	30 × 50	0.15	3.54	EKHX3H1VSN871MR50S
	450	22 × 50	0.15	2.59	EKHX351VSN451MP50S		870	35 × 40	0.15	3.15	EKHX3H1VSN871MA40S
	480	25.4 × 40	0.15	2.55	EKHX351VSN481MQ40S		980	30 × 55	0.15	3.84	EKHX3H1VSN981MR55S
	490	35 × 25	0.15	2.22	EKHX351VSN491MA25S		1,020	35 × 45	0.15	3.50	EKHX3H1VSN102MA45S
	500	22 × 55	0.15	2.78	EKHX351VSN501MP55S		1,080	30 × 60	0.15	4.10	EKHX3H1VSN112MR60S
	500	30 × 30	0.15	2.45	EKHX351VSN501MR30S		1,160	35 × 50	0.15	3.81	EKHX3H1VSN112MA50S
	550	25.4 × 45	0.15	2.78	EKHX351VSN551MQ45S		1,300	35 × 55	0.15	4.12	EKHX3H1VSN132MA55S
	560	22 × 60	0.15	3.00	EKHX351VSN561MP60S		1,440	35 × 60	0.15	4.42	EKHX3H1VSN1E2MA60S
	610	30 × 35	0.15	2.77	EKHX351VSN611MR35S	400	150	22 × 25	0.15	1.31	EKHX401VSN151MP25S
	630	25.4 × 50	0.15	3.03	EKHX351VSN631MQ50S		200	22 × 30	0.15	1.58	EKHX401VSN201MP30S
	640	35 × 30	0.15	2.58	EKHX351VSN641MA30S		220	25.4 × 25	0.15	1.58	EKHX401VSN221MQ25S
	700	25.4 × 55	0.15	3.24	EKHX351VSN701MQ55S		250	22 × 35	0.15	1.81	EKHX401VSN251MP35S
	720	30 × 40	0.15	3.09	EKHX351VSN721MR40S		280	25.4 × 30	0.15	1.83	EKHX401VSN281MQ30S
	780	25.4 × 60	0.15	3.48	EKHX351VSN781MQ60S		290	22 × 40	0.15	1.99	EKHX401VSN291MP40S
	800	35 × 35	0.15	2.92	EKHX351VSN801MA35S		330	30 × 25	0.15	1.96	EKHX401VSN331MR25S
	840	30 × 45	0.15	3.43	EKHX351VSN841MR45S		340	22 × 45	0.15	2.20	EKHX401VSN341MP45S
	950	30 × 50	0.15	3.70	EKHX351VSN951MR50S		340	25.4 × 35	0.15	2.10	EKHX401VSN341MQ35S
	950	35 × 40	0.15	3.29	EKHX351VSN951MA40S		390	22 × 50	0.15	2.41	EKHX401VSN391MP50S
	1,060	30 × 55	0.15	3.99	EKHX351VSN1A2MR55S		410	25.4 × 40	0.15	2.35	EKHX401VSN411MQ40S
	1,110	35 × 45	0.15	3.65	EKHX351VSN112MA45S		420	35 × 25	0.15	2.05	EKHX401VSN421MA25S
	1,180	30 × 60	0.15	4.29	EKHX351VSN122MR60S		430	22 × 55	0.15	2.58	EKHX401VSN431MP55S
	1,260	35 × 50	0.15	3.98	EKHX351VSN1C2MA50S		430	30 × 30	0.15	2.27	EKHX401VSN431MR30S
	1,420	35 × 55	0.15	4.31	EKHX351VSN142MA55S		470	25.4 × 45	0.15	2.57	EKHX401VSN471MQ45S
	1,570	35 × 60	0.15	4.61	EKHX351VSN1F2MA60S		480	22 × 60	0.15	2.77	EKHX401VSN481MP60S
375	160	22 × 25	0.15	1.35	EKHX3H1VSN161MP25S		520	30 × 35	0.15	2.55	EKHX401VSN521MR35S
	210	22 × 30	0.15	1.62	EKHX3H1VSN211MP30S		540	25.4 × 50	0.15	2.80	EKHX401VSN541MQ50S
	230	25.4 × 25	0.15	1.61	EKHX3H1VSN231MQ25S		550	35 × 30	0.15	2.39	EKHX401VSN551MA30S
	260	22 × 35	0.15	1.85	EKHX3H1VSN261MP35S		600	25.4 × 55	0.15	3.00	EKHX401VSN601MQ55S
	300	25.4 × 30	0.15	1.89	EKHX3H1VSN301MQ30S		620	30 × 40	0.15	2.87	EKHX401VSN621MR40S
	310	22 × 40	0.15	2.06	EKHX3H1VSN311MP40S		670	25.4 × 60	0.15	3.22	EKHX401VSN671MQ60S
	350	30 × 25	0.15	2.02	EKHX3H1VSN351MR25S		690	35 × 35	0.15	2.71	EKHX401VSN691MA35S
	360	22 × 45	0.15	2.26	EKHX3H1VSN361MP45S		720	30 × 45	0.15	3.17	EKHX401VSN721MR45S
	370	25.4 × 35	0.15	2.19	EKHX3H1VSN371MQ35S		820	30 × 50	0.15	3.44	EKHX401VSN821MR50S
	410	22 × 50	0.15	2.47	EKHX3H1VSN411MP50S		820	35 × 40	0.15	3.06	EKHX401VSN821MA40S
	440	25.4 × 40	0.15	2.44	EKHX3H1VSN441MQ40S		920	30 × 55	0.15	3.72	EKHX401VSN921MR55S
	450	30 × 30	0.15	2.32	EKHX3H1VSN451MR30S		950	35 × 45	0.15	3.38	EKHX401VSN951MA45S
	450	35 × 25	0.15	2.12	EKHX3H1VSN451MA25S		1,010	30 × 60	0.15	3.97	EKHX401VSN102MR60S
	460	22 × 55	0.15	2.67	EKHX3H1VSN461MP55S		1,090	35 × 50	0.15	3.70	EKHX401VSN112MA50S
	500	25.4 × 45	0.15	2.65	EKHX3H1VSN501MQ45S		1,220	35 × 55	0.15	3.99	EKHX401VSN122MA55S
	510	22 × 60	0.15	2.86	EKHX3H1VSN511MP60S		1,350	35 × 60	0.15	4.28	EKHX401VSN1D2MA60S

◆ HIGHER RIPPLE CURRENT 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.
350	340	30 × 25	0.15	2.47	EKHX351VSN341MR25S	375	810	30 × 50	0.15	4.23	EKHX3H1VSN811MR50S
	450	30 × 30	0.15	2.87	EKHX351VSN451MR30S		830	35 × 40	0.15	4.07	EKHX3H1VSN831MA40S
	470	35 × 25	0.15	2.87	EKHX351VSN471MA25S		910	30 × 55	0.15	4.57	EKHX3H1VSN911MR55S
	560	30 × 35	0.15	3.28	EKHX351VSN561MR35S		970	35 × 45	0.15	4.52	EKHX3H1VSN971MA45S
	620	35 × 30	0.15	3.36	EKHX351VSN621MA30S		1,010	30 × 60	0.15	4.91	EKHX3H1VSN102MR60S
	670	30 × 40	0.15	3.69	EKHX351VSN671MR40S		1,110	35 × 50	0.15	4.94	EKHX3H1VSN112MA50S
	760	35 × 35	0.15	3.77	EKHX351VSN761MA35S		1,240	35 × 55	0.15	5.33	EKHX3H1VSN1C2MA55S
	770	30 × 45	0.15	4.06	EKHX351VSN771MR45S		1,380	35 × 60	0.15	5.72	EKHX3H1VSN142MA60S
	880	30 × 50	0.15	4.41	EKHX351VSN881MR50S	400	290	30 × 25	0.15	2.28	EKHX401VSN291MR25S
	910	35 × 40	0.15	4.26	EKHX351VSN911MA40S		390	30 × 30	0.15	2.67	EKHX401VSN391MR30S
	990	30 × 55	0.15	4.77	EKHX351VSN991MR55S		400	35 × 25	0.15	2.65	EKHX401VSN401MA25S
	1,060	35 × 45	0.15	4.73	EKHX351VSN1A2MA45S		480	30 × 35	0.15	3.04	EKHX401VSN481MR35S
	1,100	30 × 60	0.15	5.12	EKHX351VSN112MR60S		530	35 × 30	0.15	3.10	EKHX401VSN531MA30S
	1,210	35 × 50	0.15	5.15	EKHX351VSN122MA50S		570	30 × 40	0.15	3.40	EKHX401VSN571MR40S
	1,350	35 × 55	0.15	5.56	EKHX351VSN1D2MA55S		660	35 × 35	0.15	3.51	EKHX401VSN661MA35S
	1,500	35 × 60	0.15	5.97	EKHX351VSN152MA60S		670	30 × 45	0.15	3.78	EKHX401VSN671MR45S
375	310	30 × 25	0.15	2.36	EKHX3H1VSN311MR25S		760	30 × 50	0.15	4.10	EKHX401VSN761MR50S
	410	30 × 30	0.15	2.74	EKHX3H1VSN411MR30S		780	35 × 40	0.15	3.95	EKHX401VSN781MA40S
	430	35 × 25	0.15	2.75	EKHX3H1VSN431MA25S		850	30 × 55	0.15	4.42	EKHX401VSN851MR55S
	510	30 × 35	0.15	3.13	EKHX3H1VSN511MR35S		910	35 × 45	0.15	4.38	EKHX401VSN911MA45S
	560	35 × 30	0.15	3.19	EKHX3H1VSN561MA30S		940	30 × 60	0.15	4.74	EKHX401VSN941MR60S
	610	30 × 40	0.15	3.52	EKHX3H1VSN611MR40S		1,040	35 × 50	0.15	4.78	EKHX401VSN1A2MA50S
	700	35 × 35	0.15	3.62	EKHX3H1VSN701MA35S		1,160	35 × 55	0.15	5.15	EKHX401VSN1B2MA55S
	710	30 × 45	0.15	3.90	EKHX3H1VSN711MR45S		1,290	35 × 60	0.15	5.53	EKHX401VSN132MA60S

◆ RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
350 to 400V _{dc}	0.70	1.00	1.10	1.17	1.25	1.31

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](#)

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