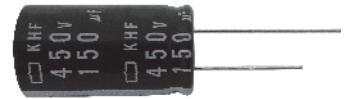
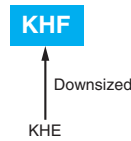


# KHF Series

- Ideal for low profile power supply applications
- Downsize, high ripple design
- Rated voltage range : 400 to 450V<sub>dc</sub>, Capacitance range : 33 to 150μF
- Endurance with ripple current : 3,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant

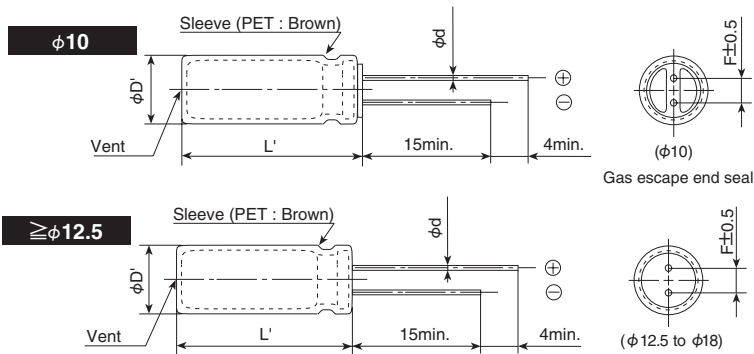


## SPECIFICATIONS

Items	Characteristics		
<b>Category</b>	-40 to +105°C		
<b>Temperature Range</b>	-40 to +105°C		
<b>Rated Voltage Range</b>	400 to 450V <sub>dc</sub>		
<b>Capacitance Tolerance</b>	±20% (M) (at 20°C, 120Hz)		
<b>Leakage Current</b>		After 1 minute	After 5 minutes
	CV ≤ 1,000	I = 0.1CV + 40	I = 0.03CV + 15
	CV > 1,000	I = 0.04CV + 100	I = 0.02CV + 25
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C)		
<b>Dissipation Factor (tan δ)</b>	Rated voltage (V <sub>dc</sub> )	400 to 450V	
	tan δ (Max.)	0.20 (at 20°C, 120Hz)	
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	Rated voltage (V <sub>dc</sub> )	400 to 450V	
	Z(-25°C)/Z(+20°C)	6	
	Z(-40°C)/Z(+20°C)	10 (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	
	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	≤ ±20% of the initial value	
	D.F. (tan δ)	≤ 200% of the initial specified value	
	Leakage current	≤ 500% of the initial specified value	

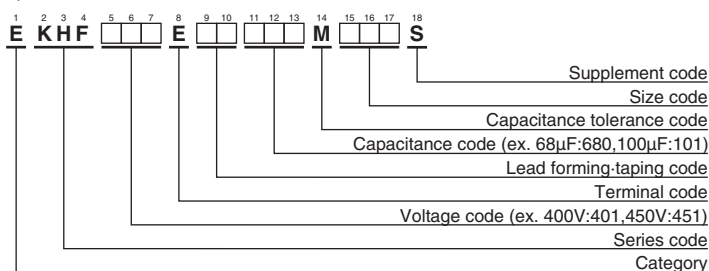
## DIMENSIONS [mm]

● Terminal Code : E



φD	10	12.5	14.5	16	18
φd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
φD'	φD+0.5 max.				
L'	L+2.0 max.				

## PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

**◆STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part No.	
400	39	10 × 30	0.20	365	EKHF401E□□390MJ30S	
	47	10 × 35	0.20	425	EKHF401E□□470MJ35S	
	56	10 × 40	0.20	485	EKHF401E□□560MJ40S	
	68	10 × 45	0.20	555	EKHF401E□□680MJ45S	
	68	12.5 × 30	0.20	530	EKHF401E□□680MK30S	
	82	12.5 × 35	0.20	610	EKHF401E□□820MK35S	
	100	12.5 × 40	0.20	705	EKHF401E□□101MK40S	
	100	14.5 × 31.5	0.20	680	EKHF401E□□101MUN3S	
	120	12.5 × 45	0.20	800	EKHF401E□□121MK45S	
	120	14.5 × 35	0.20	765	EKHF401E□□121MU35S	
	120	16 × 31.5	0.20	790	EKHF401E□□121MLN3S	
	120	18 × 25	0.20	755	EKHF401E□□121MM25S	
	150	14.5 × 45	0.20	905	EKHF401E□□151MU45S	
	150	16 × 35	0.20	905	EKHF401E□□151ML35S	
150	18 × 31.5	0.20	915	EKHF401E□□151MMN3S		
420	39	10 × 30	0.20	365	EKHF421E□□390MJ30S	
	56	10 × 40	0.20	485	EKHF421E□□560MJ40S	
	68	12.5 × 30	0.20	530	EKHF421E□□680MK30S	
	82	12.5 × 35	0.20	610	EKHF421E□□820MK35S	
	82	14.5 × 31.5	0.20	615	EKHF421E□□820MUN3S	
	100	12.5 × 40	0.20	705	EKHF421E□□101MK40S	
	100	14.5 × 35	0.20	700	EKHF421E□□101MU35S	
	120	14.5 × 40	0.20	810	EKHF421E□□121MU40S	
	120	16 × 31.5	0.20	790	EKHF421E□□121MLN3S	
	120	18 × 25	0.20	755	EKHF421E□□121MM25S	
	150	14.5 × 45	0.20	905	EKHF421E□□151MU45S	
	150	18 × 31.5	0.20	915	EKHF421E□□151MMN3S	
	450	33	10 × 30	0.20	335	EKHF451E□□330MJ30S
		39	10 × 35	0.20	385	EKHF451E□□390MJ35S
47		10 × 40	0.20	445	EKHF451E□□470MJ40S	
56		10 × 45	0.20	505	EKHF451E□□560MJ45S	
56		12.5 × 30	0.20	480	EKHF451E□□560MK30S	
68		12.5 × 35	0.20	560	EKHF451E□□680MK35S	
82		12.5 × 40	0.20	640	EKHF451E□□820MK40S	
82		14.5 × 31.5	0.20	615	EKHF451E□□820MUN3S	
100		12.5 × 45	0.20	730	EKHF451E□□101MK45S	
100		14.5 × 35	0.20	700	EKHF451E□□101MU35S	
100		16 × 31.5	0.20	720	EKHF451E□□101MLN3S	
100		18 × 25	0.20	690	EKHF451E□□101MM25S	
120		14.5 × 40	0.20	810	EKHF451E□□121MU40S	
120		16 × 35	0.20	810	EKHF451E□□121ML35S	
150		18 × 31.5	0.20	915	EKHF451E□□151MMN3S	

□□ : Enter the appropriate lead forming or taping code.

**◆RATED RIPPLE CURRENT MULTIPLIERS**
**●Frequency Multipliers**

Capacitance(μF)	Frequency(Hz)	120	1k	10k	100k
33 to 82		1.00	1.50	1.75	1.80
100 to 150		1.00	1.30	1.40	1.50

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.