NHA Series

• 105℃ 1,000～2,000Hrs assured.

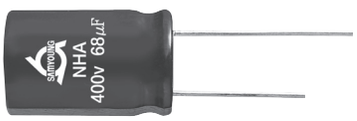
Solvent-proof

WV≦100VDC

• For Digital Household Appliance.
• RoHS compliant.
• Halogen-free capacitors are also available.

KMG → NHA

Downsized



SPECIFICATIONS

Item	Characteristics		
Rated Voltage Range	6.3 ～ 100 VDC	160 ～ 400 VDC	450 ～ 500 VDC
Operating Temperature Range	-55 ～ +105℃	-40 ～ +105℃	-25 ～ +105℃
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)		
Leakage Current	After 1 minute:I=0.03CV(μA) or 4μA, whichever is greater. After 2 minutes:I=0.01CV(μA) or 3μA, whichever is greater.	After 1 minute: CV≦1,000: 0.1CV+40; CV>1,000: 0.04CV+100	After 5 minutes: CV≦1,000: 0.03CV+15; CV>1,000: 0.02CV+25
	Where, I:Max. Leakage current(μA), C:Nominal capacitance(μF), V:Rated voltage(VDC) (at 20℃)		

Dissipation Factor (Tanδ)

Rated Voltage(VDC)	6.3	10	16	25	35	50	63	100	160～250	350～500
Tanδ(Max.)	0.34	0.24	0.20	0.16	0.14	0.12	0.10	0.09	0.20	0.24

When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase. (at 20℃, 120Hz)

Temperature Characteristics (Max. Impedance ratio)

Rated Voltage(VDC)	6.3	10	16	25	35	50	63～100	160	200～400	450～500
Z(-25℃)/Z(20℃)	5	4	3	2	2	2	3	3	6	6
Z(-40℃)/Z(20℃)	12	10	8	5	4	3	4	5	6	-

(at 120Hz)

Load Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.(where, 1,000 hours ≤ ø8)

Capacitance change ≦ ±20% of the initial value
Tanδ ≦ 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.(where, 500 hours ≤ ø8)
The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.

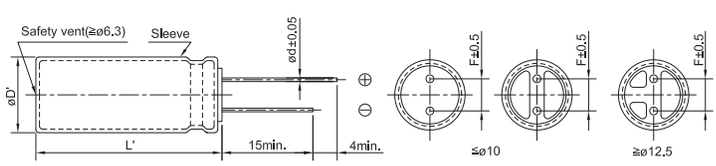
Capacitance change ≦ ±20% of the initial value
Tanδ ≦ 200% of the initial specified value
Leakage current ≦ The initial specified value (where, 200% for ≧ WV 160 VDC)

Others

Satisfied characteristics KS C IEC 60384-4

DIMENSIONS OF NHA Series

Unit(mm)



Marking : BROWN SLEEVE, WHITE INK

øD	5	6.3	8	10	12.5	16	18	22
ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
øD'	øD+0.5 max.							
L'	L+1.5 max.			L+2.0 max.				

RATINGS OF NHA Series

μF \ VDC	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
1						5×11 13	5×11 15	5×11 16	5×11 12 6.3×11 14	5×11 13 6.3×11 15	5×11 15 6.3×11 17	6.3×11 18	6.3×11 19	6.3×11 14	
2.2						5×11 18	5×11 19	5×11 21	5×11 17 6.3×11 20	6.3×11 24	6.3×11 27	6.3×11 28 8×11.5 29	6.3×11 28 8×11.5 30	6.3×11 22 8×11.5 25	8×11.5 22
3.3						5×11 30	5×11 33	5×11 34	6.3×11 35	6.3×11 36	6.3×11 37	6.3×11 38 8×11.5 38	8×11 39 10×12.5 41	8×11 30 10×12.5 35	10×12.5 29
4.7				5×11 25	5×11 27	5×11 37	5×11 39	5×11 40	6.3×11 41	6.3×11 43	6.3×11 44 8×11.5 45	8×11.5 45	8×11.5 46 10 ×12.5 48	10×12.5 38	10×12.5 36
6.8				5×11 31	5×11 33	5×11 44	5×11 48	5×11 49	8×11.5 52	8×11.5 54	8×11.5 56	10×12.5 58	10×12.5 59	10×16 54	10×16 50
10			5×11 35	5×11 37	5×11 40	5×11 54	5×11 59	5×11 59	8×11.5 60	8×11.5 62	10×12.5 67	10×16 73	10×16 79	10×16 70	12.5×16 66
22		5×11 48	5×11 53	5×11 56	5×11 67	5×11 79	5×11 87	6.3×11 100	10×12.5 101	10 ×12.5 102	10×16 117	12.5×16 138	10×25 157	12.5×20 125	16×20 123
33	5×11 52	5×11 56	5×11 60	5×11 75	5×11 80	5×11 97	6.3×11 122	8×11.5 144	10×16 143	10 ×16 145	12.5×16 169	12.5×25 189	16×20 210	12.5×30 189	16×25 165
47	5×11 61	5×11 66	5×11 77	5×11 80	5×11 101	6.3×11 133	6.3×11 146	8×11.5 171 8×15 189	10×20 202	12.5 ×16 206	12.5×20 218	16×20 246	16×25 280	16×25 222	18×25 188
68	5×11 69	5×11 83	5×11 92	5×11 113	5×11 122 6.3×11 138	6.3×11 156	8×11.5 207	10×12.5 239	12.5×16 252	12.5×20 265	16×20 300	16×25 322	16×31.5 376	18×31.5 338	
100	5×11 90	5×11 100	5×11 125	5 x 11 141 6.3× 11 159	6.3×11 168	8×11.5 229	8×11.5 216 10 ×12.5 251	10×16 321	12.5×25 360	16×20 366	16×25 405	16×35.5 447	18×35.5 453	22×30 414	
220	5×11 153	5×11 170	6.3×11 213	6.3×11 238	8×11.5 294	10×12.5 395	10×16 474	12.5×20 572	16×25 656	16×31.5 684	18×35.5 719	22×45 780			
330	6.3×11 216	6.3×11 239	6.3×11 265	6.3× 11 293 8×11.5 340	8×11 360 8×15 398	10×16 529	10×20 633	16×20 810	18×31.5 848	18×35.5 866	22×35 880				
470	6.3×11 258	6.3×11 286	8×11.5 366	8×11.5 406 8×15 447	10×16 547	10×20 690	12.5×20 886	16×25 1,072	22×35 1,130	22×40 1,156					
680	8×11.5 365	8×11.5 405	8×11.5 413 8×15 455	10×16 620	12.5×16 777	12.5×20 973	12.5×25 1,160	16×31.5 1,364	22×45 1,463						
1,000	8×11.5 443	8×15 542	10×16 680	10×16 756	12.5×16 940	12.5×25 1,287	16×25 1,565	18×35.5 1,987							
2,200	10×16 772	10×20 886	12.5×16 1,019	12.5×20 1,188	16×20 1,394	16×31.5 1,724	18×35.5 1,938								
3,300	10×20 1,032	12.5×20 1,205	12.5×20 1,275	16×20 1,535	16×31.5 1,808	18 ×31.5 2,190									
4,700	12.5×20 1,280	12.5×25 1,492	16×20 1,610	16×25 1,865	18×31.5 2,262										
6,800	12.5×25 1,554	16×20 1,699	16 ×25 1,929	18×31.5 2,374	18×40 2,642										
10,000	16×25 1,897	16×31.5 2,082	18×31.5 2,365	18×35.5 2,649											
15,000	16×31.5 2,297		← Case Size ØD×L(mm) ← Rated Ripple Current(mArms/105℃, 120Hz)												

RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Cap.(μF) \ Freq.(Hz)	60	120	300	1k	10k~
1~6.8	0.65	1.00	1.35	1.75	2.30
10~68	0.75	1.00	1.25	1.50	1.75
100~1,000	0.80	1.00	1.15	1.30	1.40
2,200~15,000	0.85	1.00	1.03	1.05	1.08

* SMT Products are available upon request.
Please check with us about individual characteristics.

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NXA50VB47M6.3*11_2.5TP NFA200VB22M10*20_5.0TP NXA10VB220M6.3*11_5.0TP
NXA25VB100M6.3*11_2.5TP TDC400VS680M35*40_VS TDC450VS470M35*35_VS
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TLS450VS680M35*50_VS NXA16VB1000M10*16_LO NXB16VB47M5*11_2.5TP NXH50VB100M8*11.5_LO
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