

NZE Series

• 105°C 2,000Hrs assured.

- Non-solvent proof.
- Downsized, High Ripple.
- For SMPS, IP-Board, Adaptor.
- RoHS compliant.
- Halogen-free capacitors are also available.

NFD
(KMF)

Downsized

NZE



SPECIFICATIONS

Item	Characteristics														
Rated Voltage Range	160 ~ 400 V _{DC}	420 ~ 500 V _{DC}													
Operating Temperature Range	-40 ~ + 105℃	-25 ~ +105℃													
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)														
Leakage Current	<table><tr><td> C · V Time </td><td>After 1 minute</td><td>After 5 minutes</td></tr><tr><td>≤ 1000</td><td>I = 0.1CV + 40</td><td>I = 0.03CV + 15</td></tr><tr><td>> 1000</td><td>I = 0.04CV + 100</td><td>I = 0.02CV + 25</td></tr></table> Where, I:Max. Leakage current(μA) C:Nominal capacitance(μF) V:Rated voltage(V_{DC}) (at 20℃)			C · V Time	After 1 minute	After 5 minutes	≤ 1000	I = 0.1CV + 40	I = 0.03CV + 15	> 1000	I = 0.04CV + 100	I = 0.02CV + 25			
C · V Time	After 1 minute	After 5 minutes													
≤ 1000	I = 0.1CV + 40	I = 0.03CV + 15													
> 1000	I = 0.04CV + 100	I = 0.02CV + 25													
Dissipation Factor(Tanδ)	<table><tr><td>Rated Voltage(V_{DC})</td><td>160~250</td><td colspan="2">350~500</td></tr><tr><td>Tanδ(Max.)</td><td>0.20</td><td colspan="2">0.24</td></tr></table> (at 20℃, 120Hz)			Rated Voltage(V _{DC})	160~250	350~500		Tanδ(Max.)	0.20	0.24					
Rated Voltage(V _{DC})	160~250	350~500													
Tanδ(Max.)	0.20	0.24													
Temperature Characteristics (Max. Impedance ratio)	<table><tr><td>Rated Voltage(V_{DC})</td><td>160~250</td><td>350~400</td><td>420~500</td></tr><tr><td>Z(- 25℃)/Z(+ 20℃)</td><td>3</td><td>5</td><td>6</td></tr><tr><td>Z(- 40℃)/Z(+ 20℃)</td><td>6</td><td>6</td><td>—</td></tr></table> (at 120Hz)			Rated Voltage(V _{DC})	160~250	350~400	420~500	Z(- 25℃)/Z(+ 20℃)	3	5	6	Z(- 40℃)/Z(+ 20℃)	6	6	—
Rated Voltage(V _{DC})	160~250	350~400	420~500												
Z(- 25℃)/Z(+ 20℃)	3	5	6												
Z(- 40℃)/Z(+ 20℃)	6	6	—												
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage)for 2,000 hours at 105℃. 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. 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 ≤ 500% of the initial specified value														
Others	Satisfied characteristics KS C IEC 60384-4														

DIMENSIONS OF NZE Series

Unit(mm)

01-01-01

Technical drawing of a capacitor showing side and end views with dimensions:

- Side View:**
 - Safety vent:** Indicated by a dashed line and arrow.
 - Sleeve:** The outer cylindrical part.
 - Dimensions:**
 - $\phi D'$: Total diameter including the sleeve.
 - L' : Total length.
 - 15min. : Minimum length of the sleeve.
 - 4min. : Minimum length of the leads.
 - $\phi d \pm 0.05$: Lead diameter.
- End Views:**
 - Left End View:** Diameter ≈ 10 , outer diameter $F \pm 0.5$.
 - Middle End View:** Diameter ≈ 12.5 , outer diameter $F \pm 0.5$.
 - Right End View:** Diameter $\phi 20$, outer diameter $F \pm 0.5$.

Marking : DARK BROWN SLEEVE, SILVER INK

ϕD	6.3	8	10	12.5	16	18	20	22	25.4
ϕd	0.5	0.6	0.6	0.6	0.8	0.8	0.8	1.0	1.0
F	2.5	3.5	5.0	5.0	7.5	7.5	7.5	10.0	10.0
$\phi D'$	$\phi D + 0.5 \text{ max.}$								
L'	$L + 1.5 \text{ max.}$		$L + 2.0 \text{ max.}$						



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

RATINGS OF NZE Series

V _{dc}	Capacitance (μF)	ø D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
160	22	10 × 20	211
	33	10 × 20	260
	47	10 × 25	338
	68	12.5 × 20	413
	82	12.5 × 25	494
	100	12.5 × 30	589
	120	16 × 20	615
	150	12.5 × 35	710
		16 × 25	738
	180	16 × 25	809
	220	16 × 31.5	964
	270	16 × 35.5	1091
	330	18 × 31.5	1221
		22 × 25	1230
	390	18 × 35.5	1371
		22 × 30	1410
	470	25.4 × 30	1660
	560	22 × 35	1780
		22 × 40	1870
	680	22 × 45	2150
		25.4 × 35	2100
200	820	22 × 50	2450
		25.4 × 40	2420
	1000	25.4 × 50	2880
	22	8 × 20	160
	33	10 × 20	260
	47	10 × 25	338
	68	12.5 × 25	413
	82	12.5 × 25	494
	100	12.5 × 30	589
	120	16 × 25	660
	150	16 × 25	738
	180	16 × 31.5	872
	220	16 × 31.5	964
		22 × 25	1030
	270	16 × 35.5	1091
		18 × 31.5	1104
	330	16 × 40	1245
		18 × 35.5	1261
		22 × 30	1290
		25.4 × 30	1280
	390	18 × 40	1393
		22 × 35	1370
	470	22 × 40	1580
		25.4 × 35	1610
	560	22 × 45	1790
		22 × 50	1860
		25.4 × 40	1840
	820	25.4 × 50	2400

V _{dc}	Capacitance (μF)	ø D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
250	10	8 × 15	108
	22	10 × 20	211
	33	10 × 25	284
	47	12.5 × 20	343
	68	12.5 × 30	488
	82	16 × 25	546
	100	16 × 25	603
	120	16 × 25	660
	150	16 × 31.5	796
	180	16 × 35.5	891
		18 × 31.5	901
		22 × 25	830
	220	16 × 40	1016
		18 × 35.5	1030
		22 × 30	1050
	270	18 × 40	1158
		22 × 35	1140
		25.4 × 30	1160
	330	18 × 45	1267
		22 × 40	1320
		25.4 × 35	1350
	390	22 × 45	1500
		25.4 × 40	1530
350	470	22 × 50	1710
	560	25.4 × 50	1990
	10	10 × 16	118
	15	10 × 20	169
	22	10 × 25	228
	33	12.5 × 25	304
	39	10 × 40	374
	47	16 × 25	400
	56	16 × 25	437
	68	16 × 31.5	510
		18 × 25	502
	82	16 × 35.5	582
		18 × 31.5	590
	100	18 × 31.5	632
		22 × 25	630
	120	18 × 35.5	716
		22 × 30	730
	150	25.4 × 30	880
	180	22 × 35	950
	200	22 × 40	1050
		25.4 × 35	1070
	220	22 × 45	1150
		22 × 50	1320
	270	25.4 × 40	1300
		25.4 × 50	1560
	330	25.4 × 50	1560

RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Freq.(Hz)	120	1K	10K	50K	100K
Factor	1.00	1.25	1.50	1.60	1.75

RATINGS OF NZE Series

V _{DC}	Capacitance (μF)	∅ D × L (mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
400	4.7	6.3 × 15	55
	6.8	8 × 15	102
	8.2	8 × 15	105
		8 × 20	110
	10	8 × 20	115
		10 × 16	118
	15	10 × 20	169
	22	10 × 25	228
	33	12.5 × 25	304
	39	12.5 × 30	355
	47	16 × 25	400
	56	16 × 25	437
	68	16 × 31.5	510
	82	16 × 35.5	582
		18 × 31.5	590
		22 × 25	590
	100	16 × 40	645
		18 × 35.5	786
	120	18 × 40	801
		22 × 30	790
	150	18 × 40	872
		22 × 35	900
		25.4 × 30	920
	180	22 × 40	1040
		25.4 × 35	1060
420	200	22 × 45	1140
	220	22 × 50	1250
	270	25.4 × 40	1110
		25.4 × 50	1400
	330	25.4 × 50	1450
	10	10 × 20	129
	15	12.5 × 16	161
	22	12.5 × 20	207
	33	16 × 20	265
	47	16 × 25	374
	56	16 × 31.5	440
	68	18 × 25	492
		18 × 31.5	520
	82	18 × 31.5	640
		22 × 25	550
	100	16 × 45	750
		18 × 35.5	750
		22 × 30	650
	120	16 × 45	780
		18 × 40	819
		22 × 35	750
		25.4 × 30	760
	150	18 × 45	840
		20 × 40	845
		22 × 40	880
		25.4 × 35	890
	180	22 × 45	1000
	200	25.4 × 40	1080
	220	22 × 50	1150
	270	25.4 × 50	1360

V _{DC}	Capacitance (μF)	∅ D × L (mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
450	4.7	8 × 20	80
	8.2	10 × 16	108
	10	10 × 20	129
	15	12.5 × 20	173
	22	12.5 × 25	232
	33	12.5 × 30	292
		16 × 25	306
	39	10 × 45	330
	47	16 × 25	374
	53	10 × 50	424
	56	16 × 31.5	440
	68	16 × 35.5	514
		18 × 31.5	520
		22 × 25	500
	82	12.5 × 50	670
		16 × 40	640
		18 × 31.5	640
	100	12.5 × 60	790
		16 × 45	750
		18 × 35.5	750
		22 × 30	740
	120	16 × 50	819
		18 × 40	819
		22 × 35	750
		25.4 × 30	760
	150	18 × 45	840
		20 × 40	845
		22 × 40	880
		25.4 × 35	890
	180	22 × 45	1000
		25.4 × 40	1030
	200	22 × 50	1100
	220	25.4 × 50	1230
500	22	12.5 × 30	238
	33	12.5 × 45	327
	39	12.5 × 50	376
	47	16 × 35.5	385
		18 × 31.5	389
	56	12.5 × 60	473
		16 × 40	452
		22 × 25	450
	60	12.5 × 60	494
	68	16 × 45	567
		18 × 35.5	546
		22 × 30	530
	82	16 × 50	599
		18 × 40	588
		25.4 × 30	620
	100	18 × 45	700
		20 × 40	700
		22 × 35	680
		22 × 40	710
	120	18 × 50	800
		22 × 45	900
		25.4 × 35	800
		25.4 × 40	830
	150	22 × 50	950
	180	25.4 × 50	1100