



# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

## NXA Series

• 105°C 4,000 ~ 10,000Hrs assured.

- Non-solvent proof.
- Low Impedance, Long Life.
- For SMPS, IP-Board, Adaptor, Noise Filter, Charger.
- RoHS compliant.
- Halogen-free capacitors are also available.

KMG

NXA

Low Imp.  
Long Life



## SPECIFICATIONS

| Item  | Characteristics  |             |             |              |      |      |      |      |      |      |
|---|--|-------------|-------------|--------------|------|------|------|------|------|------|
| Rated Voltage Range                                   | 6.3 ~ 100 V <sub>DC</sub>  |             |             |              |      |      |      |      |      |      |
| Operating Temperature Range                           | -40 ~ +105°C   |             |             |              |      |      |      |      |      |      |
| Capacitance Tolerance                                 | $\pm 20\%(\text{M})$ (at 20°C, 120Hz)  |             |             |              |      |      |      |      |      |      |
| Leakage Current                                       | $I = 0.01CV(\mu\text{A})$ or $3\mu\text{A}$ , whichever is greater.<br>Where, I:Max. Leakage current( $\mu\text{A}$ ), C:Nominal capacitance( $\mu\text{F}$ ), V:Rated voltage(V <sub>DC</sub> )<br>(at 20°C, 2 minutes)   |             |             |              |      |      |      |      |      |      |
| Dissipation Factor(Tanδ)                              | Rated Voltage(V <sub>DC</sub> )  | 6.3         | 10          | 16           | 25   | 35   | 50   | 63   | 80   | 100  |
|   | Tanδ(Max.)   | 0.22        | 0.19        | 0.16         | 0.14 | 0.12 | 0.10 | 0.09 | 0.09 | 0.08 |
|   | When the capacitance exceeds 1,000 $\mu\text{F}$ , 0.02 shall be added every 1,000 $\mu\text{F}$ increase. (at 20°C, 120Hz)  |             |             |              |      |      |      |      |      |      |
| Temperature Characteristics<br>(Max. Impedance ratio) | Rated Voltage(V <sub>DC</sub> )  | 6.3         | 10          | 16           | 25   | 35   | 50   | 63   | 80   | 100  |
|   | Z(-25°C)/Z(+20°C)  | 4           | 3           | 2            | 2    | 2    | 2    | 2    | 2    | 2    |
|   | Z(-40°C)/Z(+20°C)  | 8           | 6           | 4            | 3    | 3    | 3    | 3    | 3    | 3    |
|   | (at 120Hz)   |             |             |              |      |      |      |      |      |      |
| Load Life   | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) at 105°C for the specified period of time.<br>Capacitance change $\leq \pm 25\%$ of the initial value<br>Tanδ $\leq 200\%$ of the initial specified value<br>Leakage current $\leq$ The initial specified value  |             |             |              |      |      |      |      |      |      |
|   | V <sub>DC</sub>  | Ø5~Ø6.3     | Ø8~Ø10      | Ø12.5~Ø18    |      |      |      |      |      |      |
|   | 6.3~10(V)  | 4,000 hours | 6,000 hours | 8,000 hours  |      |      |      |      |      |      |
|   | 16~100(V)  | 5,000 hours | 7,000 hours | 10,000 hours |      |      |      |      |      |      |
| Shelf Life  | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied.<br>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.<br>Capacitance change $\leq \pm 25\%$ of the initial value<br>Tanδ $\leq 200\%$ of the initial specified value<br>Leakage current $\leq$ The initial specified value |             |             |              |      |      |      |      |      |      |
| Others  | Satisfied characteristics KS C IEC 60384-4   |             |             |              |      |      |      |      |      |      |

## DIMENSIONS OF NXA Series

Unit(mm)

|                                |   |     |     |                |     |      |     |    |
|--------------------------------|---|-----|-----|----------------|-----|------|-----|----|
|                                | Marking : DARK BROWN SLEEVE, SILVER INK |     |     |                |     |      |     |    |
|                                | ØD                                      | 5   | 6.3 | 8              | 10  | 12.5 | 16  | 18 |
| Ød                             | 0.5                                     | 0.5 | 0.6 | 0.6            | 0.6 | 0.8  | 0.8 |    |
| F                              | 2.0                                     | 2.5 | 3.5 | 5.0            | 5.0 | 7.5  | 7.5 |    |
| ØD'                            | $\text{ØD} + 0.5$ max.                  |     |     |                |     |      |     |    |
| L'                             | $L + 1.5$ max.                          |     |     | $L + 2.0$ max. |     |      |     |    |
| ※ Ø10 x 12L, L' $\leq L + 1.5$ |   |     |     |                |     |      |     |    |

## RATINGS OF NXA Series

| Vdc<br>ØD×L(mm) | 6.3    |       |       |        | 10     |       |       |        | 16     |       |       |        |
|-----------------|--------|-------|-------|--------|--------|-------|-------|--------|--------|-------|-------|--------|
|                 | μF     | IMP.  |       | Ripple | μF     | IMP.  |       | Ripple | μF     | IMP.  |       | Ripple |
|                 |        | 20°C  | -10°C |        |        | 20°C  | -10°C |        |        | 20°C  | -10°C |        |
| 5×11            | 150    | 0.58  | 2.3   | 210    | 100    | 0.58  | 2.3   | 210    | 56     | 0.58  | 2.3   | 210    |
| 6.3×11          | 330    | 0.22  | 0.87  | 340    | 220    | 0.22  | 0.87  | 340    | 120    | 0.22  | 0.87  | 340    |
| 8×11.5          | 680    | 0.130 | 0.52  | 640    | 470    | 0.130 | 0.52  | 640    | 330    | 0.130 | 0.52  | 640    |
| 8×15            | 1,000  | 0.087 | 0.35  | 840    | 680    | 0.087 | 0.35  | 840    | 470    | 0.087 | 0.35  | 840    |
| 8×20            | 1,200  | 0.069 | 0.27  | 1,050  | 1,000  | 0.069 | 0.27  | 1,050  | 680    | 0.069 | 0.27  | 1,050  |
| 10×12           | 820    | 0.080 | 0.32  | 865    | 680    | 0.080 | 0.32  | 865    | 470    | 0.080 | 0.32  | 865    |
| 10×12.5         | 820    | 0.080 | 0.32  | 865    | 680    | 0.080 | 0.32  | 865    | 470    | 0.080 | 0.32  | 865    |
| 10×16           | 1,200  | 0.060 | 0.24  | 1,210  | 1,000  | 0.060 | 0.24  | 1,210  | 680    | 0.060 | 0.24  | 1,210  |
| 10×20           | 1,500  | 0.046 | 0.18  | 1,400  | 1,200  | 0.046 | 0.18  | 1,400  | 1,000  | 0.046 | 0.18  | 1,400  |
| 10×25           | 2,200  | 0.042 | 0.17  | 1,650  | 1,500  | 0.042 | 0.17  | 1,650  | 1,200  | 0.042 | 0.17  | 1,650  |
| 10×30           | 2,700  | 0.031 | 0.12  | 1,910  | 2,200  | 0.031 | 0.12  | 1,910  | 1,500  | 0.031 | 0.12  | 1,910  |
| 12.5×16         | 1,800  | 0.049 | 0.16  | 1,450  | 1,500  | 0.049 | 0.16  | 1,450  | 1,000  | 0.049 | 0.16  | 1,450  |
| 12.5×20         | 3,300  | 0.035 | 0.12  | 1,900  | 2,200  | 0.035 | 0.12  | 1,900  | 1,500  | 0.035 | 0.12  | 1,900  |
| 12.5×25         | 3,900  | 0.027 | 0.089 | 2,230  | 3,300  | 0.027 | 0.089 | 2,230  | 2,200  | 0.027 | 0.089 | 2,230  |
| 12.5×30         | 4,700  | 0.024 | 0.078 | 2,650  | 3,900  | 0.024 | 0.078 | 2,650  | 2,700  | 0.024 | 0.078 | 2,650  |
| 12.5×35         | 5,600  | 0.020 | 0.065 | 2,880  | 4,700  | 0.020 | 0.065 | 2,880  | 3,300  | 0.020 | 0.065 | 2,880  |
| 16×15           | 2,700  | 0.042 | 0.12  | 1,940  | 2,200  | 0.042 | 0.12  | 1,940  | 1,500  | 0.042 | 0.12  | 1,940  |
| 16×20           | 5,600  | 0.027 | 0.078 | 2,530  | 3,900  | 0.027 | 0.078 | 2,530  | 2,700  | 0.027 | 0.078 | 2,530  |
| 16×25           | 6,800  | 0.021 | 0.060 | 2,930  | 5,600  | 0.021 | 0.06  | 2,930  | 3,900  | 0.021 | 0.06  | 2,930  |
| 16×31.5         | 8,200  | 0.017 | 0.050 | 3,450  | 6,800  | 0.017 | 0.05  | 3,450  | 4,700  | 0.017 | 0.05  | 3,450  |
| 16×35.5         | 10,000 | 0.015 | 0.044 | 3,610  | 8,200  | 0.015 | 0.044 | 3,610  | 5,600  | 0.015 | 0.044 | 3,610  |
| 16×40           | 12,000 | 0.013 | 0.038 | 4,080  | 10,000 | 0.013 | 0.038 | 4,080  | 6,800  | 0.013 | 0.038 | 4,080  |
| 18×20           | 6,800  | 0.026 | 0.067 | 2,860  | 5,600  | 0.026 | 0.067 | 2,860  | 3,900  | 0.026 | 0.067 | 2,860  |
| 18×25           | 10,000 | 0.019 | 0.049 | 3,140  | 6,800  | 0.019 | 0.049 | 3,140  | 4,700  | 0.019 | 0.049 | 3,140  |
| 18×31.5         | 12,000 | 0.017 | 0.047 | 4,170  | 8,200  | 0.017 | 0.047 | 4,170  | 5,600  | 0.017 | 0.047 | 4,170  |
| 18×35.5         | 15,000 | 0.016 | 0.045 | 4,220  | 10,000 | 0.016 | 0.045 | 4,220  | 8,200  | 0.016 | 0.045 | 4,220  |
| 18×40           | 18,000 | 0.015 | 0.043 | 4,280  | 12,000 | 0.015 | 0.043 | 4,280  | 10,000 | 0.015 | 0.043 | 4,280  |

| Vdc<br>ØD×L(mm) | 25    |       |       |        | 35    |       |       |        | 50    |       |       |        |
|-----------------|-------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|--------|
|                 | μF    | IMP.  |       | Ripple | μF    | IMP.  |       | Ripple | μF    | IMP.  |       | Ripple |
|                 |       | 20°C  | -10°C |        |       | 20°C  | -10°C |        |       | 20°C  | -10°C |        |
| 5×11            | 47    | 0.58  | 2.3   | 210    | 33    | 0.58  | 2.3   | 210    | 1     | 4.0   | 16.0  | 50     |
| 6.3×11          | 100   | 0.22  | 0.87  | 340    | 56    | 0.22  | 0.87  | 340    | 22    | 0.30  | 1.2   | 295    |
| 8×11.5          | 220   | 0.13  | 0.52  | 640    | 150   | 0.13  | 0.52  | 640    | 47    | 0.30  | 1.2   | 340    |
| 8×15            | 330   | 0.087 | 0.35  | 840    | 220   | 0.087 | 0.35  | 840    | 120   | 0.12  | 0.48  | 730    |
| 8×20            | 470   | 0.069 | 0.27  | 1,050  | 270   | 0.069 | 0.27  | 1,050  | 180   | 0.090 | 0.36  | 910    |
| 10×12           | 330   | 0.080 | 0.32  | 865    | 220   | 0.080 | 0.32  | 865    | 150   | 0.12  | 0.48  | 760    |
| 10×12.5         | 330   | 0.080 | 0.32  | 865    | 220   | 0.080 | 0.32  | 865    | 150   | 0.12  | 0.48  | 760    |
| 10×16           | 470   | 0.060 | 0.24  | 1,210  | 330   | 0.060 | 0.24  | 1,210  | 220   | 0.084 | 0.34  | 1,050  |
| 10×20           | 680   | 0.046 | 0.18  | 1,400  | 470   | 0.046 | 0.18  | 1,400  | 270   | 0.060 | 0.24  | 1,220  |
| 10×25           | 820   | 0.042 | 0.17  | 1,650  | 560   | 0.042 | 0.17  | 1,650  | 330   | 0.055 | 0.22  | 1,440  |
| 10×30           | 1,000 | 0.031 | 0.12  | 1,910  | 680   | 0.031 | 0.12  | 1,910  | 470   | 0.043 | 0.17  | 1,690  |
| 12.5×16         | 680   | 0.049 | 0.16  | 1,450  | 470   | 0.049 | 0.16  | 1,450  | 270   | 0.061 | 0.20  | 1,260  |
| 12.5×20         | 1,000 | 0.035 | 0.12  | 1,900  | 680   | 0.035 | 0.12  | 1,900  | 470   | 0.045 | 0.15  | 1,660  |
| 12.5×25         | 1,500 | 0.027 | 0.089 | 2,230  | 1,000 | 0.027 | 0.089 | 2,230  | 560   | 0.034 | 0.11  | 1,950  |
| 12.5×30         | 1,800 | 0.024 | 0.078 | 2,650  | 1,200 | 0.024 | 0.078 | 2,650  | 680   | 0.030 | 0.10  | 2,310  |
| 12.5×35         | 2,200 | 0.020 | 0.065 | 2,880  | 1,500 | 0.020 | 0.065 | 2,880  | 820   | 0.025 | 0.083 | 2,510  |
| 16×15           | 1,000 | 0.042 | 0.12  | 1,940  | 680   | 0.042 | 0.12  | 1,940  | 470   | 0.055 | 0.17  | 1,690  |
| 16×20           | 1,800 | 0.027 | 0.078 | 2,530  | 1,200 | 0.027 | 0.078 | 2,530  | 820   | 0.034 | 0.10  | 2,210  |
| 16×25           | 2,700 | 0.021 | 0.060 | 2,930  | 1,800 | 0.021 | 0.060 | 2,930  | 1,000 | 0.025 | 0.075 | 2,555  |
| 16×31.5         | 3,300 | 0.017 | 0.050 | 3,450  | 2,200 | 0.017 | 0.050 | 3,450  | 1,200 | 0.022 | 0.066 | 3,010  |
| 16×35.5         | 3,900 | 0.015 | 0.044 | 3,610  | 2,700 | 0.015 | 0.044 | 3,610  | 1,500 | 0.019 | 0.057 | 3,150  |
| 16×40           | 4,700 | 0.013 | 0.038 | 4,080  | 3,300 | 0.013 | 0.038 | 4,080  | 1,800 | 0.016 | 0.048 | 3,710  |
| 18×20           | 2,200 | 0.026 | 0.067 | 2,860  | 1,800 | 0.026 | 0.067 | 2,860  | 1,000 | 0.036 | 0.097 | 2,490  |
| 18×25           | 3,300 | 0.019 | 0.049 | 3,140  | 2,200 | 0.019 | 0.049 | 3,140  | 1,200 | 0.026 | 0.070 | 2,740  |
| 18×31.5         | 3,900 | 0.017 | 0.047 | 4,170  | 2,700 | 0.017 | 0.047 | 4,170  | 1,800 | 0.021 | 0.057 | 3,635  |
| 18×35.5         | 4,700 | 0.016 | 0.045 | 4,220  | 3,300 | 0.016 | 0.045 | 4,220  | 2,200 | 0.017 | 0.046 | 3,680  |
| 18×40           | 5,600 | 0.015 | 0.043 | 4,280  | 3,900 | 0.015 | 0.043 | 4,280  | 2,700 | 0.016 | 0.045 | 3,800  |



## **MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS**

## RATINGS OF NXA Series

- Rated Ripple Current (mA rms/105°C, 100kHz)

- Impedance ( $\Omega$  max./100kHz)

- Nominal Capacitance( $\mu\text{F}$ )

## RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

| Freq.(Hz)<br>Cap.(μF) | 120  | 1k   | 10k  | 50K  | 100k |
|-----------------------|------|------|------|------|------|
| 1 ~ 180               | 0.40 | 0.75 | 0.90 | 0.95 | 1.00 |
| 220 ~ 560             | 0.50 | 0.85 | 0.94 | 0.96 | 1.00 |
| 680 ~ 1,800           | 0.60 | 0.87 | 0.95 | 0.97 | 1.00 |
| 2,200 ~ 3,900         | 0.75 | 0.90 | 0.95 | 0.97 | 1.00 |
| 4,700 ~ 18,000        | 0.85 | 0.95 | 0.98 | 0.99 | 1.00 |

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