

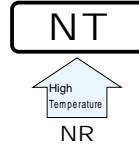
# ALUMINUM ELECTROLYTIC CAPACITORS



**NT** series Screw Terminal Type, Wide Temperature Range



- Load life of 5,000 hours (2,000 hours for 10~250V, 500V) application of rated ripple current at +105°C.
- Extended voltage range from 10V up to 500V.
- Extended range up to φ100 × 250L 2size.
- Available for adapted to the RoHS directive (2002/95/EC).

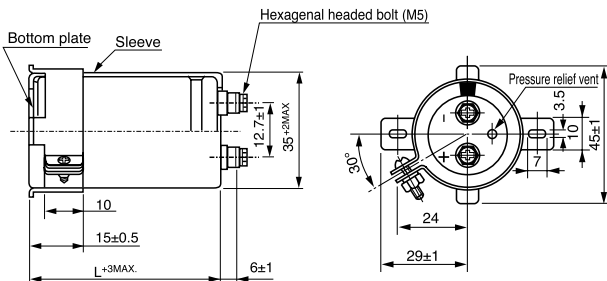


## Specifications

Item	Performance Characteristics																																																																																																								
Category Temperature Range	- 40 ~ +105°C (10~100V) , - 25 ~ +105°C (160~500V)																																																																																																								
Rated Voltage Range	10 ~ 500V																																																																																																								
Rated Capacitance Range	220 ~ 1500000μF																																																																																																								
Capacitance Tolerance	± 20% at 120Hz, 20°C																																																																																																								
Leakage Current	After 5 minutes' application of rated voltage, leakage current is not more than $3\sqrt{CV}$ (μA) or 5mA, whichever is smaller. (at 20°C) [C:Rated Capacitance (μF), V:Voltage(V)]																																																																																																								
tan δ (MAX)	Measurement frequency:120Hz, Temperature:20°C																																																																																																								
	<table border="1"> <thead> <tr> <th>φD</th> <th>V</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160~250</th> <th>250~500</th> </tr> </thead> <tbody> <tr> <td rowspan="2">35</td> <td>80~100</td> <td>0.65</td> <td>0.45</td> <td>0.4</td> <td>0.3</td> <td>0.25</td> <td>0.25</td> <td>0.2</td> <td>0.12</td> <td>0.15</td> <td>0.2</td> </tr> <tr> <td>120</td> <td>0.85</td> <td>0.6</td> <td>0.5</td> <td>0.4</td> <td>0.3</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>0.2</td> </tr> <tr> <td rowspan="2">51</td> <td>100</td> <td>—</td> <td>—</td> <td>0.65</td> <td>—</td> <td>0.35</td> <td>0.3</td> <td>0.25</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> </tr> <tr> <td>110~130</td> <td>1.2</td> <td>0.8</td> <td>0.7</td> <td>0.5</td> <td>0.35</td> <td>0.3</td> <td>—</td> <td>—</td> <td>0.2</td> <td>0.2</td> </tr> <tr> <td rowspan="2">63.5</td> <td>100</td> <td>2.0</td> <td>1.2</td> <td>0.9</td> <td>0.7</td> <td>0.55</td> <td>0.5</td> <td>0.3</td> <td>0.3</td> <td>—</td> <td>0.2</td> </tr> <tr> <td>120~150</td> <td>2.0</td> <td>1.2</td> <td>0.9</td> <td>0.7</td> <td>0.55</td> <td>0.5</td> <td>0.35</td> <td>0.3</td> <td>0.2</td> <td>0.2</td> </tr> <tr> <td rowspan="2">76.2</td> <td>140~220</td> <td>2.4</td> <td>2.0</td> <td>1.5</td> <td>1.0</td> <td>0.75</td> <td>0.6</td> <td>0.4</td> <td>0.3</td> <td>0.25</td> <td>0.2</td> </tr> <tr> <td>220,250</td> <td>2.4</td> <td>2.0</td> <td>1.5</td> <td>1.0</td> <td>0.75</td> <td>0.6</td> <td>0.4</td> <td>0.3</td> <td>0.25</td> <td>0.2</td> </tr> </tbody> </table>	φD	V	10	16	25	35	50	63	80	100	160~250	250~500	35	80~100	0.65	0.45	0.4	0.3	0.25	0.25	0.2	0.12	0.15	0.2	120	0.85	0.6	0.5	0.4	0.3	—	—	—	—	0.2	51	100	—	—	0.65	—	0.35	0.3	0.25	0.2	0.2	0.2	110~130	1.2	0.8	0.7	0.5	0.35	0.3	—	—	0.2	0.2	63.5	100	2.0	1.2	0.9	0.7	0.55	0.5	0.3	0.3	—	0.2	120~150	2.0	1.2	0.9	0.7	0.55	0.5	0.35	0.3	0.2	0.2	76.2	140~220	2.4	2.0	1.5	1.0	0.75	0.6	0.4	0.3	0.25	0.2	220,250	2.4	2.0	1.5	1.0	0.75	0.6	0.4	0.3	0.25	0.2
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Endurance	After an application of DC voltage (in the range of rated DC voltage even after over-lapping the specified ripple current) for 5000 hours (2000 hours for 10~250V, 500V) at 105°C, capacitors meet the characteristic requirements listed at right.																																																																																																								
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Shelf Life	After storing the capacitors under no load at 105°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the requirements listed at right.																																																																																																								
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Marking	Printed with white color letter on black sleeve.																																																																																																								

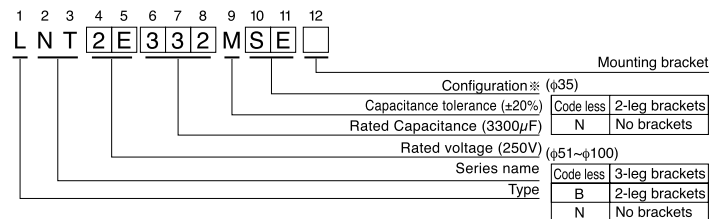
## Drawing

φ35 Screw terminal type

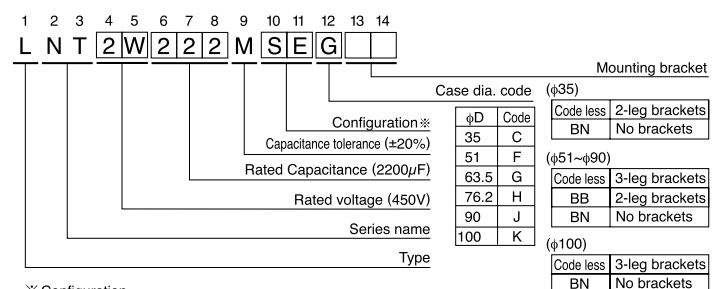


## Type numbering system

Voltage 250V or less (Example : 250V 3300μF)



Voltage 350V or more (Example : 450V 2200μF)



※ Configuration

Cr (III) Plating (RoHS compliant)	Cr (VI) Plating
SE	SM

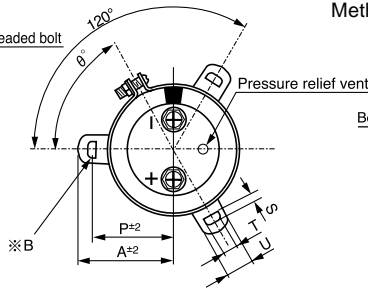
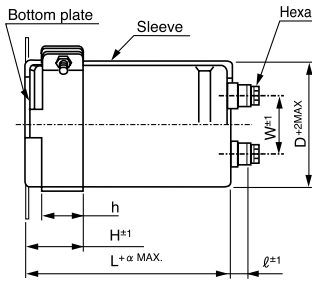
Resin bushing available upon request.

※ Please contact to us if PVC less products are required.

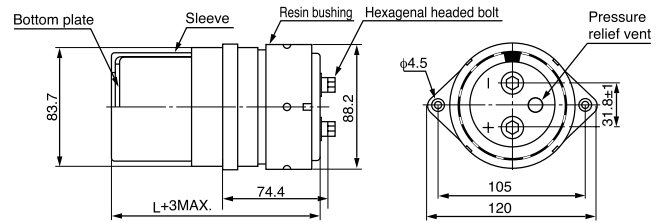
● Dimension table in next page.

## NT series

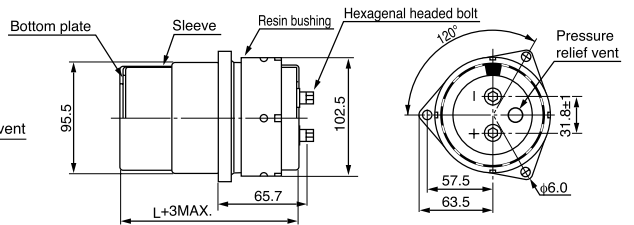
Screw terminal type for  $\phi 51$  and larger



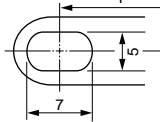
Method to mount resin bushing ( $\phi 76.2$ ) (Apply to  $L=150$  or more)



Method to mount resin bushing ( $\phi 90$ ) (Apply to  $L=150$  or more)



※B  
3-leg brackets for  $\phi 90$  capacitors have different hole shapes from the ordinary ones as illustrated below.



● Dimension of terminal pitch (W) and length ( $\ell$ ) and Nominal dia. of bolt (mm)

$\phi D$	W	$\ell$	$\alpha$	Nominal. of bolt
51	22.0	6	3	M5
63.5	28.6	6	3	M5
76.2	31.8	6	3	M5
90	31.8	6	3	M5
100	41.5	10	4	M8

● Dimensions of mounting bracket (mm)

Symbol	Leg Shape									
	$\phi D$	3-Legs					2-Legs			
P	51	63.5	76.2	90	100	51	63.5	76.2	90	
A	32.5	38.1	44.5	50.8	56.3	33.2	40.5	46.5	53	
T	7.5	8.0	7.0	8.0	8.0	6.0	7.0	6.0	6.0	
S	5.0	5.0	5.0	5.0	5.0	4.5	4.5	4.5	4.5	
U	12	14	14	18	16	14	14	14	14	
$\theta^\circ$	60	60	60	60	60	30	30	30	30	
H	20	25	30	35	36	25	35	35	35	
h	15	20	24	25	30	15	20	20	20	

### ■ Dimensions

V(Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Surge		13V		20V		32V		44V	
Cap. ( $\mu F$ )	Code	Case size $\phi D \times L$ (mm)	Rated ripple	Case size $\phi D \times L$ (mm)	Rated ripple	Case size $\phi D \times L$ (mm)	Rated ripple	Case size $\phi D \times L$ (mm)	Rated ripple
10000	103							35×80	4.7
15000	153							35×80	5.1
22000	223					35×80	4.9	35×100	5.6
33000	333	35×80	4.8	35×80	5.2	35×100	6.2	51×80	7.4
47000	473	35×100	6.2	35×100	6.8	51×80	8.3	51×100	8.4
68000	683	51×80	6.8	51×80	7.1	51×120	10.2	51×120	12.3
100000	104	51×100	8.6	51×100	9.6	63.5×100	11.5	63.5×120	13.6
150000	154	51×120	10.8	51×120	11.0	63.5×120	13.8	76.2×120	15.1
220000	224	63.5×120	13.2	63.5×120	14.1	76.2×120	17.0	90×140	17.4
330000	334	76.2×120	15.8	76.2×120	20.6	90×140	20.8	90×170	21.3
470000	474	90×140	17.0	90×140	22.1	90×170	22.4	90×220	25.4
680000	684	90×170	18.4	90×170	24.0	90×220	24.2	100×250	27.5
1000000	105	90×220	20.1	90×220	26.1	100×220	26.4		
1500000	155	100×220	22.1	100×250	28.8				

Rated Ripple (Arms) at 105°C 120Hz

# ALUMINUM ELECTROLYTIC CAPACITORS

NT series

## ■ Dimensions

V(Code) Surge		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	63V		79V		100V		125V	
		Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple
2200	222							35×80	2.4
3300	332							35×80	3.3
4700	472					35×80	3.5	35×100	3.8
6800	682					35×100	3.9	51×80	5.2
10000	103	35×80	4.9	35×100	5.0	51×80	5.4	51×100	6.7
15000	153	35×100	5.5	51×80	5.9	51×100	6.4	63.5×100	7.8
22000	223	51×80	6.3	51×100	6.9	63.5×100	8.4	76.2×100	9.9
33000	333	51×120	8.0	63.5×100	9.4	76.2×100	9.9	76.2×140	12.7
47000	473	63.5×100	9.9	63.5×120	11.2	76.2×120	13.4	90×140	17.0
68000	683	63.5×120	12.8	76.2×120	13.5	90×140	17.0	90×170	18.2
100000	104	76.2×120	16.8	90×140	17.8	90×170	18.6	90×220	20.6
150000	154	90×140	19.5	90×170	21.0	90×220	21.6	100×220	23.4
220000	224	90×170	22.0	90×220	23.7	100×250	24.8		
330000	334	90×220	24.3	100×250	26.1				
470000	474	100×250	26.1						

V(Code) Surge		160V (2C)		200V (2D)		250V (2E)	
Cap. (μF)	Code	200V		250V		300V	
		Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple
680	681					35×80	1.4
1000	102	35×80	1.6	35×80	1.7	35×100	1.9
1500	152	35×80	2.1	35×100	2.3	51×80	2.4
2200	222	35×100	2.7	51×80	2.9	51×100	3.2
3300	332	51×80	3.8	51×100	3.9	63.5×100	4.3
4700	472	51×100	4.5	63.5×100	5.1	63.5×120	5.9
6800	682	63.5×100	6.8	63.5×120	7.0	76.2×120	7.1
10000	103	63.5×120	7.8	76.2×120	8.2	90×140	9.6
15000	153	76.2×120	9.8	76.2×140	10.4	90×170	12.7
22000	223	76.2×140	12.5	90×140	15.1	90×220	15.4
33000	333	90×140	13.4	90×220	16.6	100×250	17.0
47000	473	90×220	17.2	90×250	19.9		
68000	683	100×250	19.2				

V(Code) Surge		350V (2V)		400V (2G)		450V (2W)		500V (2H)	
Cap. (μF)	Code	400V		450V		500V		550V	
		Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple	Case size φD×L (mm)	Rated ripple
220	221			35×80	1.6	35×80	1.8		
330	331	35×80	2.1	35×80	2.3	35×100	2.4	51×80	2.7
470	471	35×80	2.8	35×100	3.1	51×80	3.4	51×80	3.2
680	681	51×80	4.1	51×80	4.2	51×100	4.4	51×100	4.2
1000	102	51×80	6.5	51×80	6.6	51×100	7.0	51×120	5.5
1500	152	51×100	8.6	51×120	9.1	51×120	9.2	63.5×110	7.1
2200	222	51×120	11.0	63.5×100	11.5	63.5×110	11.8	63.5×130	9.3
2700	272	63.5×100	12.7	63.5×110	13.1	63.5×130	13.8	63.5×150	11.0
3300	332	63.5×110	14.4	63.5×130	15.4	76.2×110	14.5	76.2×130	11.0
3900	392	63.5×130	16.8	63.5×150	17.9	63.5×150	16.5	63.5×170	12.9
4700	472	63.5×150	19.8	76.2×110	18.2	76.2×130	17.1	76.2×150	13.0
5600	562	76.2×120	19.7	76.2×130	20.3	63.5×170	18.3		
6800	682	63.5×170	22.7	76.2×150	23.7	76.2×150	21.7	76.2×190	17.2
8200	822	76.2×130	22.2	76.2×170	27.6	90×150	24.1	90×150	16.3
10000	103	76.2×150	26.2	90×150	26.9	90×170	28.3	90×150	17.8
12000	123	90×150	29.3	90×170	31.0	90×190	32.5	90×170	20.7
15000	153	90×190	32.4	90×190	32.9	90×220	35.1	90×220	25.5
22000	223	90×220	42.9	100×220	44.5	90×230	39.2	90×250	29.9
		100×250	48.0			90×250	45.6		

Rated Ripple (Arms) at 105°C 120Hz

## ● Frequency coefficient of rated ripple current

Frequency (Hz)	60	120	360	1k	10k~
10~100V	0.90	1.00	1.08	1.15	1.15
160~250V	0.88	1.00	1.08	1.15	1.20
350~500V	0.82	1.00	1.20	1.35	1.40