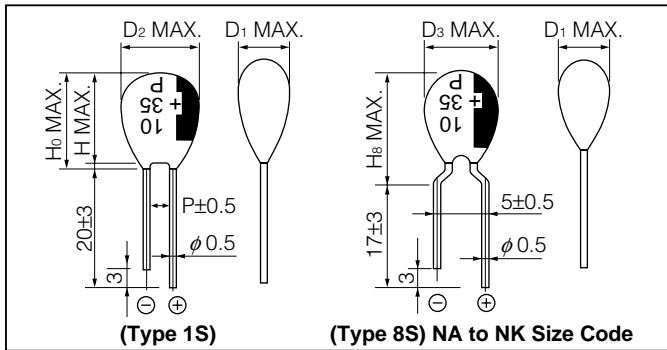


DN Series Tantalum Chip Capacitors

DIMENSIONS [mm]



Size Code	D ₁	D ₂	H	H ₀	D ₃ *	H ₈	P
NA	3.0	3.6	5.4	6.2	4.4	8.9	2.5
NB	3.0	3.6	5.7	6.5	4.4	9.2	"
NC	3.2	3.6	5.9	6.7	4.4	9.4	"
ND	3.4	3.8	6.5	7.3	4.4	10.0	"
NE	3.7	4.0	7.0	7.8	4.4	10.5	"
NF	4.2	4.5	7.4	8.2	4.5	10.9	"
NG	4.4	4.7	7.9	8.7	4.7	11.4	"
NH	4.9	5.2	8.4	9.2	5.2	11.9	"
NJ	5.2	5.4	9.4	10.2	5.4	12.9	"
NK	7.0	7.0	11.0	11.8	7.0	14.5	"
NL	8.5	8.5	12.5	14.5	-	-	5.0
NM	9.0	9.0	13.5	15.5	-	-	"
NN	10.0	10.0	15.5	17.5	-	-	"
NO	10.0	10.0	16.5	18.5	-	-	"
NP	10.0	10.0	17.0	19.0	-	-	"

DC rated voltage μF	4	6.3	10	16	20	25	35	50
0.1							NA	NA
0.15							NA	NB
0.22							NA	NB
0.33							NB	NC
0.47							NB	NC
0.68							NB	NE
1						NB	NC	NF
1.5					NB	NC	ND	NG
2.2				NB	NC	ND	NE	NH
3.3			NB	NC	ND	NE	NF	NJ
4.7		NB	NC	ND	NE	NF	NG	NK
6.8	NB	NC	ND	NE	NF	NG	NH	NL
10	NC	ND	NE	NF	NG	NH	NJ	NM
15	ND	NE	NF	NG	NH	NJ	NL	NN
22	NE	NF	NG	NH	NJ	NL	NM	NP
33	NF	NG	NH	NJ	NK	NL	NM	
47	NG	NH	NJ	NK	NL	NN	NO	
68	NH	NJ	NK	NL	NM			
100	NJ	NK	NL	NM	NN			
150	NK	NL	NM	NN				
220	NL	NM	NN					
330	NM	NN						
470	NN							

PERFORMANCE CHARACTERISTICS

Operating temperature range
-55 to +85°C with no voltage derating

Surge voltage

Rated voltage	4	6.3	10	16	20	25	35	50
Surge	5	8	13	20	26	32	46	65

Capacitance (at 25°C, 120 Hz)

Range 0.1 to 470 μF
Tolerance ±20%, ±10%

Capacitance change with temperature

Not to exceed -12% at -55°C, and +10% at 85°C

Tangent of loss angle (at 25°C, 120 Hz)

0.1 μF to 1.0 μF less than 0.04
1.5 μF to 6.8 μF less than 0.06
10 μF to 68 μF less than 0.08
100 μF to 330 μF less than 0.10
470 μF less than 0.12

DC leakage current (at 25°C)

0.01 C•V* μA or 0.5 μA whichever is greater

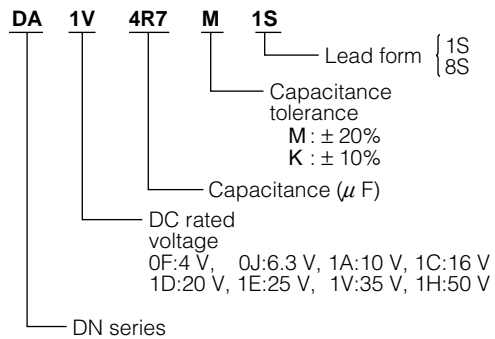
Damp heat (90 to 95% RH at 40°C, 21 days (504 h))

Capacitance change ±5%
Tangent of loss angle initial requirements
DC Leakage current initial requirements

Endurance (at 85°C, DC rated voltage, 1000 h)

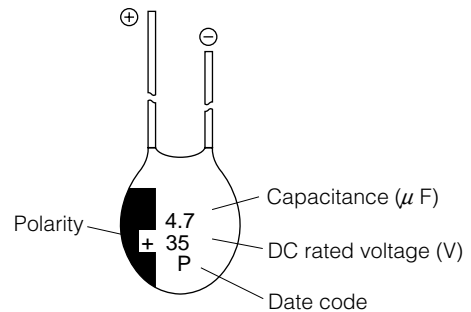
Capacitance change ±10%
Tangent of loss angle initial requirements
DC Leakage current initial requirements

PART NUMBER SYSTEM



MARKINGS

The standard marking shows capacitance, DC rated voltage, and polarity.



* : Product of capacitance in μF and voltage in V.

STANDARD RATINGS

Part Number	Capacitance (μF)	Size Code	DC Leakage Current (μA)	Tangent of Loss Angle
50 V Rating				
DN1H0R1 []()	0.1	NA	0.5	0.04
DN1HR15 []()	0.15	NB	0.5	0.04
DN1HR22 []()	0.22	NB	0.5	0.04
DN1HR33 []()	0.33	NC	0.5	0.04
DN1HR47 []()	0.47	ND	0.5	0.04
DN1HR68 []()	0.68	NE	0.5	0.04
DN1H010 []()	1	NF	0.5	0.04
DN1H1R5 []()	1.5	NG	0.7	0.06
DN1H2R2 []()	2.2	NH	1.1	0.06
DN1H3R3 []()	3.3	NJ	1.6	0.06
DN1H4R7 []()	4.7	NK	2.3	0.06
DN1H6R8 []1S	6.8	NL	3.4	0.06
DN1H100 []1S	10	NM	5.0	0.08
DN1H150 []1S	15	NN	7.5	0.08
DN1H220 []1S	22	NP	11.0	0.08
35 V Rating				
DN1V0R1 []()	0.1	NA	0.5	0.04
DN1VR15 []()	0.15	NA	0.5	0.04
DN1VR22 []()	0.22	NA	0.5	0.04
DN1VR33 []()	0.33	NB	0.5	0.04
DN1VR47 []()	0.47	NB	0.5	0.04
DN1VR68 []()	0.68	NB	0.5	0.04
DN1V010 []()	1	NC	0.5	0.04
DN1V1R5 []()	1.5	ND	0.5	0.06
DN1V2R2 []()	2.2	NE	0.7	0.06
DN1V3R3 []()	3.3	NF	1.1	0.06
DN1V4R7 []()	4.7	NG	1.6	0.06
DN1V6R8 []()	6.8	NH	2.3	0.06
DN1V100 []()	10	NJ	3.5	0.08
DN1V150 []1S	15	NL	5.2	0.08
DN1V220 []1S	22	NM	7.7	0.08
DN1V330 []1S	33	NN	11.5	0.08
DN1V470 []1S	47	NO	16.4	0.08
25 V Rating				
DN1E010 []()	1	NB	0.5	0.04
DN1E1R5 []()	1.5	NC	0.5	0.06
DN1E2R2 []()	2.2	ND	0.5	0.06
DN1E3R3 []()	3.3	NE	0.8	0.06
DN1E4R7 []()	4.7	NF	1.1	0.06
DN1E6R8 []()	6.8	NG	1.7	0.06
DN1E100 []()	10	NH	2.5	0.08
DN1E150 []()	15	NJ	3.7	0.08
DN1E220 []1S	22	NL	5.5	0.08
DN1E330 []1S	33	NM	8.2	0.08
DN1E470 []1S	47	NN	11.7	0.08
DN1E680 []1S	68	NO	17.0	0.08
20 V Rating				
DN1D1R5 []()	1.5	NB	0.5	0.06
DN1D2R2 []()	2.2	NC	0.5	0.06
DN1D3R3 []()	3.3	ND	0.6	0.06
DN1D4R7 []()	4.7	NE	0.9	0.06
DN1D6R8 []()	6.8	NF	1.3	0.06
DN1D100 []()	10	NG	2.0	0.08
DN1D150 []()	15	NH	3.0	0.08
DN1D220 []()	22	NJ	4.4	0.08
DN1D330 []()	33	NK	6.6	0.08
DN1D470 []1S	47	NL	9.4	0.08
DN1D680 []1S	68	NM	13.6	0.08
DN1D101 []1S	100	NN	20.0	0.10

Part Number	Capacitance (μF)	Size Code	DC Leakage Current (μA)	Tangent of Loss Angle
16 V Rating				
DN1C2R2 []()	2.2	NB	0.5	0.06
DN1C3R3 []()	3.3	NC	0.5	0.06
DN1C4R7 []()	4.7	ND	0.7	0.06
DN1C6R8 []()	6.8	NE	1.0	0.06
DN1C100 []()	10	NF	1.6	0.08
DN1C150 []()	15	NG	2.4	0.08
DN1C220 []()	22	NH	3.5	0.08
DN1C330 []()	33	NJ	5.0	0.08
DN1C470 []()	47	NK	7.5	0.08
DN1C680 []1S	68	NL	10.8	0.08
DN1C101 []1S	100	NM	16.0	0.10
DN1C151 []1S	150	NN	24.0	0.10
10 V Rating				
DN1A3R3 []()	3.3	NB	0.5	0.06
DN1A4R7 []()	4.7	NC	0.5	0.06
DN1A6R8 []()	6.8	ND	0.6	0.06
DN1A100 []()	10	NE	1.0	0.08
DN1A150 []()	15	NF	1.5	0.08
DN1A220 []()	22	NG	2.2	0.08
DN1A330 []()	33	NH	3.3	0.08
DN1A470 []()	47	NJ	4.7	0.08
DN1A680 []()	68	NK	6.8	0.08
DN1A101 []1S	100	NL	10.0	0.10
DN1A151 []1S	150	NM	15.0	0.10
DN1A221 []1S	220	NN	22.0	0.10
6.3 V Rating				
DN0J4R7 []()	4.7	NB	0.5	0.06
DN0J6R8 []()	6.8	NC	0.5	0.06
DN0J100 []()	10	ND	0.6	0.08
DN0J150 []()	15	NE	0.9	0.08
DN0J220 []()	22	NF	1.3	0.08
DN0J330 []()	33	NG	2.0	0.08
DN0J470 []()	47	NH	2.9	0.08
DN0J680 []()	68	NJ	4.2	0.08
DN0J101 []()	100	NK	6.3	0.10
DN0J151 []1S	150	NL	9.4	0.10
DN0J221 []1S	220	NM	13.8	0.10
DN0J331 []1S	330	NN	20.7	0.10
4 V Rating				
DN0F6R8 []()	6.8	NB	0.5	0.06
DN0F100 []()	10	NC	0.5	0.08
DN0F150 []()	15	ND	0.6	0.08
DN0F220 []()	22	NE	0.8	0.08
DN0F330 []()	33	NF	1.3	0.08
DN0F470 []()	47	NG	1.8	0.08
DN0F680 []()	68	NH	2.7	0.08
DN0F101 []()	100	NJ	4.0	0.10
DN0F151 []()	150	NK	6.0	0.10
DN0F221 []1S	220	NL	8.8	0.10
DN0F331 []1S	330	NM	13.2	0.10
DN0F471 []1S	330	NN	18.8	0.12

NOTES : In the [], capacitance tolerance, and in the (), lead form will be coded by the part number system.