

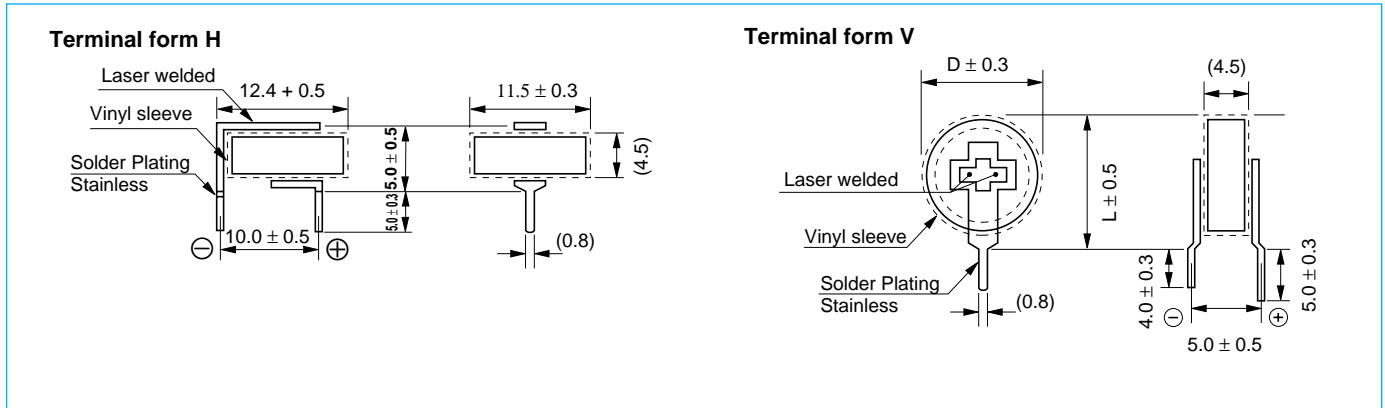
DYNACAP – Double Layer Capacitor

DX Series (Terminal shaped V, H)

Combines two coin cells using laser welding technology to obtain a rated voltage of 5.5V. Available in either vertical or horizontal terminal leads, they are 11.5 mm in diameter by 5 mm high. They deliver 0.33 F-among the highest capacitance in the industry. They are ideal for IC memory and other back-up, and of particular value where down-sizing is desired.



Construction and Dimensions



Specifications	Performance				
Temperature range (°C)	-25 to +70				
Capacitance tolerance (%)	-20 to +80				
Internal resistance at 1KHz	Capacitance (F)	0.047	0.1	0.22	0.33
	Internal resistance (Ω)	120	75	75	75
Stability at low & high temperature	Change in capacitance	Within ±30% of value at 20°C			
	Internal resistance	Less than five times of the value at 20°C			
Endurance (70°C) (Applied ripple current)	Test time	1000 hrs			
	Change in capacitance	Within ±30% of the initial measured value			
	Internal resistance	Within four times the initial specified value			
Max. storage temp. (70°C)	Test time 1000hrs. Same as Endurance				

Standard Ratings

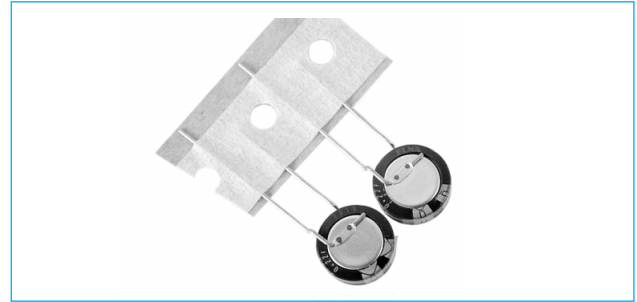
ELNA Part No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)	øD x L (mm)
DX-5R5 □ 473	5.5	0.047	≤120	11.5 x 13.5
DX-5R5 □ 104	5.5	0.1	≤75	11.5 x 13.5
DX-5R5 □ 224	5.5	0.22	≤75	11.5 x 13.5
DX-5R5 □ 334	5.5	0.33	≤75	11.5 x 13.5

□ Select from V or H

DYNACAP – Double Layer Capacitor

DX-L Series (T20 Taping)

Ideal for use with automated insertion equipment, these laser-welded capacitors feature round leads, and are available in tape-and-reel styles. They have a rated voltage of 5.5V, in a capacitance range from 0.047 to 0.33F. Excellent for IC memory back-up.



Construction and Dimensions (T20 Taping)

Unit: mm

F	H	H1	P	Ød
5.0	18.0	32.2	12.7	0.6

Only Available in L Shape Terminal Lead
Package Quantity: 750 pcs/box

Specifications	Performance										
Temperature range (°C)	-25 to +70										
Capacitance tolerance (%)	-20 to +80										
Internal resistance at 1KHz	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Capacitance (F)</th> <th style="width: 10%;">0.047</th> <th style="width: 10%;">0.1</th> <th style="width: 10%;">0.22</th> <th style="width: 10%;">0.33</th> </tr> </thead> <tbody> <tr> <td>Internal resistance (Ω)</td> <td style="text-align: center;">120</td> <td style="text-align: center;">75</td> <td style="text-align: center;">75</td> <td style="text-align: center;">75</td> </tr> </tbody> </table>	Capacitance (F)	0.047	0.1	0.22	0.33	Internal resistance (Ω)	120	75	75	75
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Internal resistance (Ω)	120	75	75	75							
Stability at low & high temperature	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Change in capacitance</td> <td style="width: 50%;">Within ±30% of value at 20°C</td> </tr> <tr> <td>Internal resistance</td> <td>Less than five times of the value at 20°C</td> </tr> </table>	Change in capacitance	Within ±30% of value at 20°C	Internal resistance	Less than five times of the value at 20°C						
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Endurance (70°C) (Applied ripple current)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Test time</td> <td style="width: 50%;">1000 hrs</td> </tr> <tr> <td>Change in capacitance</td> <td>Within ±30% of the initial measured value</td> </tr> <tr> <td>Internal resistance</td> <td>Within four times the initial specified value</td> </tr> </table>	Test time	1000 hrs	Change in capacitance	Within ±30% of the initial measured value	Internal resistance	Within four times the initial specified value				
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Internal resistance	Within four times the initial specified value										
Max. storage temp. (70°C)	Test time 1000hrs. Same as Endurance										

Standard Ratings

ELNA Parts No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)
DX-5R5L473-T20	5.5	0.047	≤120
DX-5R5L104-T20	5.5	0.1	≤75
DX-5R5L224-T20	5.5	0.22	≤75
DX-5R5L334-T20	5.5	0.33	≤75

DYNACAP – Double Layer Capacitor

DB Series

Has a total withstand voltage rating of 5.5V. Utilizing ELNA's unique flat spring technology, which enhances the reliability of the internal coin cells, this series is ideal for a wide range of applications from consumer appliances to sophisticated instrumentation.



Construction and Dimensions

CAP (F)	∅D x L (mm)
0.047	13.5 x 7.5
0.1	
0.22	
0.33	
0.47	21.5 x 8.0
1.0	

Unit: mm

Specifications	Performance														
Temperature range (°C)	-25 to +70														
Capacitance tolerance (%)	-20 to +80														
Internal resistance at 1KHz	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>Capacitance (F)</td> <td>0.047</td> <td>0.1</td> <td>0.22</td> <td>0.33</td> <td>0.47</td> <td>1.0</td> </tr> <tr> <td>Internal resistance (Ω)</td> <td>120</td> <td>75</td> <td>75</td> <td>75</td> <td>30</td> <td>30</td> </tr> </table>	Capacitance (F)	0.047	0.1	0.22	0.33	0.47	1.0	Internal resistance (Ω)	120	75	75	75	30	30
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Max. storage temp. (70°C)	Test time 1000hrs. Same as Endurance														

Standard Ratings

ELNA Part No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)
DB-5R5D473	5.5	0.047	≤120
DB-5R5D104	5.5	0.1	≤75
DB-5R5D224	5.5	0.22	≤75
DB-5R5D334	5.5	0.33	≤75
DB-5R5D474	5.5	0.47	≤30
DB-5R5D105	5.5	1.0	≤30

DYNACAP – Double Layer Capacitor

DK Series

The DK Series is composed of three coin cells that incorporate ELNA flat spring technology, and delivers a rated voltage of 6.3V. It is ideal for 6 volt circuits traditionally using two lithium or five ni-cad batteries in series.



Construction and Dimensions

CAP (F)	∅D x L (mm)
0.047 0.1	13.5 x 9.5
0.47 1.0	21.5 x 9.5

Unit: mm

Specifications	Performance										
Temperature range (°C)	-25 to +70										
Capacitance tolerance (%)	-20 to +80										
Internal resistance at 1KHz	<table border="1" style="width: 100%;"> <tr> <td>Capacitance (F)</td> <td>0.047</td> <td>0.1</td> <td>0.47</td> <td>1.0</td> </tr> <tr> <td>Internal resistance (Ω)</td> <td>300</td> <td>200</td> <td>50</td> <td>30</td> </tr> </table>	Capacitance (F)	0.047	0.1	0.47	1.0	Internal resistance (Ω)	300	200	50	30
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Test time	1000 hrs										
Change in capacitance	Within ±30% of the initial measured value										
Internal resistance	Within four times the initial specified value										
Max. storage temp. (70°C)	Test time 1000hrs. Same as Endurance										

Standard Ratings

ELNA Part No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)
DK-6R3D473	6.3	0.047	≤300
DK-6R3D104	6.3	0.1	≤200
DK-6R3D474	6.3	0.47	≤50
DK-6R3D105	6.3	1.0	≤30

DYNACAP – Double Layer Capacitor

DH Series

DH Series is the most reliable of its type in the industry, with a guaranteed 1,000 hours life between charges at 85°C. A rated voltage of 5.5V is achieved by internally joining three coin cells incorporating ELNA flat spring technology. It is ideal for equipment operating at 40°C or higher.



Construction and Dimensions

CAP (F)	∅D x L (mm)
0.047 0.1 0.22	13.5 x 9.5
0.47 1.0	21.5 x 9.5

Unit: mm

Specifications	Performance												
Temperature range (°C)	-25 to +85												
Capacitance tolerance (%)	-20 to +80												
Internal resistance at 1KHz	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Capacitance (F)</th> <th>0.047</th> <th>0.1</th> <th>0.22</th> <th>0.47</th> <th>1.0</th> </tr> </thead> <tbody> <tr> <td>Internal resistance (Ω)</td> <td>300</td> <td>200</td> <td>120</td> <td>50</td> <td>30</td> </tr> </tbody> </table>	Capacitance (F)	0.047	0.1	0.22	0.47	1.0	Internal resistance (Ω)	300	200	120	50	30
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Internal resistance	Less than five times of the value at 20°C												
Endurance (85°C)	<table border="1" style="width: 100%; text-align: center;"> <tbody> <tr> <td>Test time</td> <td>1000 hrs</td> </tr> <tr> <td>Change in capacitance</td> <td>Within ±30% of the initial measured value</td> </tr> <tr> <td>Internal resistance</td> <td>Within four times the initial specified value</td> </tr> </tbody> </table>	Test time	1000 hrs	Change in capacitance	Within ±30% of the initial measured value	Internal resistance	Within four times the initial specified value						
Test time	1000 hrs												
Change in capacitance	Within ±30% of the initial measured value												
Internal resistance	Within four times the initial specified value												
Max. storage temp. (85°C)	Test time 1000hrs. Same as Endurance												

Standard Ratings

ELNA Part No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)
DH-5R5D473	5.5	0.047	≤300
DH-5R5D104	5.5	0.1	≤200
DH-5R5D224	5.5	0.22	≤120
DH-5R5D474	5.5	0.47	≤50
DH-5R5D105	5.5	1.0	≤30

DYNACAP – Double Layer Capacitor

DC, DCK Series

This coin-style memory back-up capacitor is ideal for use in devices requiring low-profile design. Select from diameters of 6.8mm, 11.0mm and 18.3mm, with from 0.18 to 2.2F capacitance. This is excellent choice for miniature and sub-miniature applications such as pagers and cellular phones.



Construction and Dimensions

Series	CAP (F)	ØD x L (mm)
DC	0.18	6.8 x 2.1
	0.33	11.0 x 1.6
	2.2	18.3 x 2.0
DCK	0.22	6.8 x 2.1

Specifications	Performance				
Series	Series DC			Series DCK	
Temperature range (°C)	-25 to +70			-10 to +60	
Capacitance tolerance (%)	-20 to +80			-20 to +80	
Internal resistance at 1KHz	Capacitance (F)	0.18	0.33	2.2	0.22
	Internal resistance (Ω)	120	40	20	200
Stability at low & high temperature	Change in capacitance	Within ±30% of value at 20°C			
	Internal resistance	Less than five times of the value at 20°C			
Endurance (DC: 70°C, DCK: 60°C)	Test time	1000 hrs			
	Change in capacitance	Within ±30% of the initial measured value			
	Internal resistance	Within four times the initial specified value			
Max. storage temp. (DC: 70°C, DCK: 60°C)	Test time 1000hrs. Same as Endurance				

Standard Ratings

ELNA Part No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)
DC-2R5D184	2.5	0.18	≤120
DC-2R4D334	2.4	0.33	≤40
DC-2R4D225	2.4	2.2	≤20
DCK-3R3D224	3.3	0.22	≤200

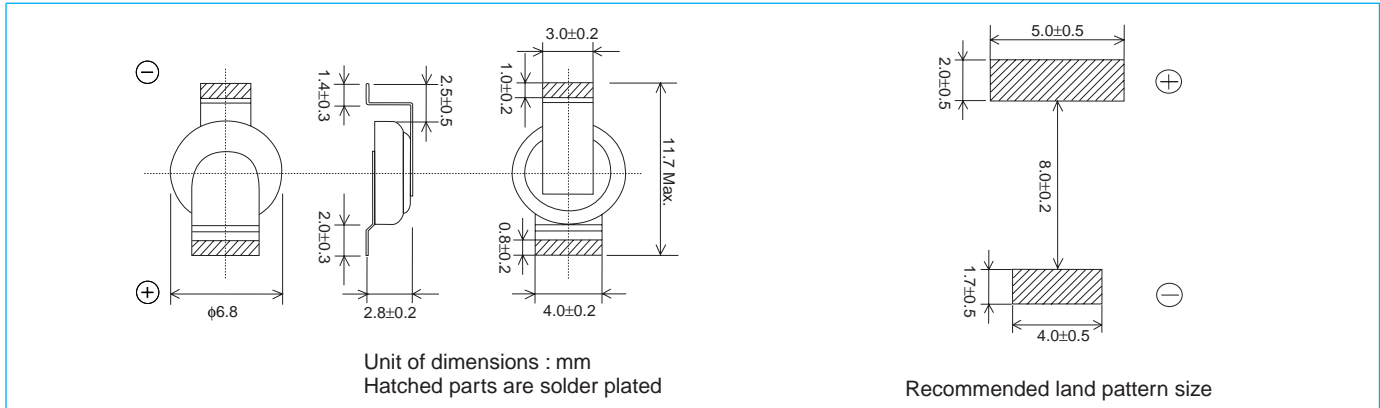
DYNACAP – Double Layer Capacitor

DS DSK Series

- Re-flow soldering method available.
- 2.5V and 3.3V items available, ideally suited for use back-up.
- Smallest case size with a high capacitance.
- High reliability, safe and, unlike secondary batteries, pollution free.
- Unlike batteries, the number of charging/discharging cycles is unlimited and rapid charging/discharging is possible.



Construction and Dimensions



Specifications	Performance		
Series	Series DS		DSK
Temperature range (°C)	-25 to +70		-10 to +60
Capacitance tolerance (%)	-20 to +80		-20 to +80
Internal resistance at 1KHz	Capacitance (F)	0.18	0.22
	Internal resistance (Ω)	120	200
Stability at low & high temperature	Change in capacitance	Within ±30% of value at 20°C	Within ±50% of value at 20°C
	Internal resistance	Less than five times of the value at 20°C	Less than five times of the initial specified value
Endurance (DS: 70°C, DSK: 60°C)	Test time	1000 hrs	
	Change in capacitance	Within ±30% of the initial measured value	
	Internal resistance	Within four times the initial specified value	
Max. storage temp. (DS: 70°C, DSK: 60°C)	Test time 1000hrs. Same as Endurance		

Standard Ratings

ELNA Part No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)
DS-2R5H184-H	2.5	0.18	120
DSK-3R3H224-H	3.3	0.22	220

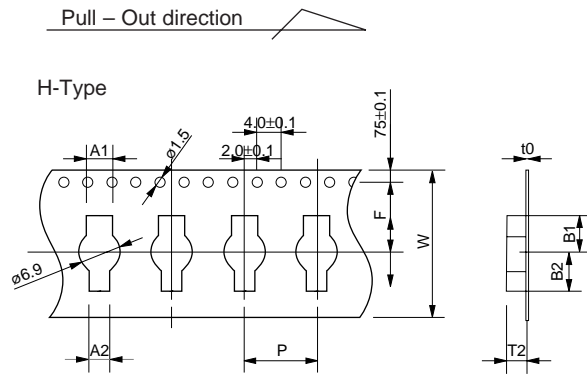
This catalog printed in U.S.A. on 1/2001. Specification and dimensions in this catalog are subject to change without notice. If necessary, drawings can be provided.

DYNACAP – Double Layer Capacitor

DS, DSK Series

Taping

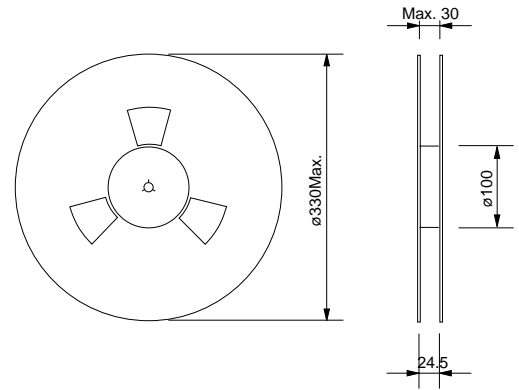
- Carrier tape dimension



Size	dimension
Out side	H-Type
W	24±0.3
P	12.0
F	11.5
A1	4.4
A2	3.4
B1	5.9
B2	6.5
T2	3.2
t0	0.3

Unit: mm

- Reel dimension



Package Quantity: 1500 pcs.

Recommended soldering conditions

- Methods

See the following.

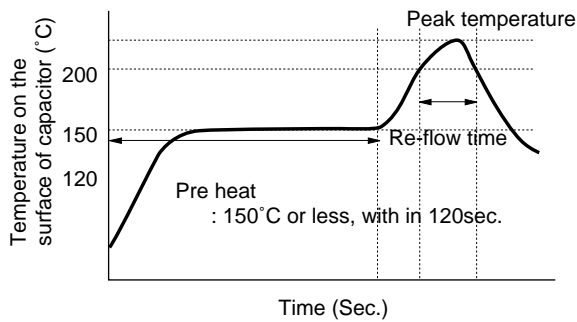
Methods	Re-flow soldering	Soldering iron	Flowm soldering
Application	○	○	X

- Methods

Iron tip temperature shall be 350±5°C within the duration 3 seconds.

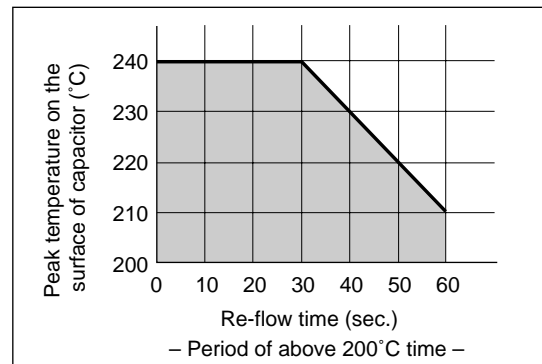
- Re-flow soldering conditions

– Profile –



The measurement temperature point is the cell top.

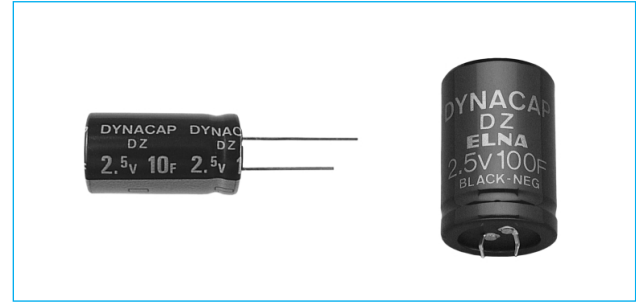
– Peak temp. matrix –



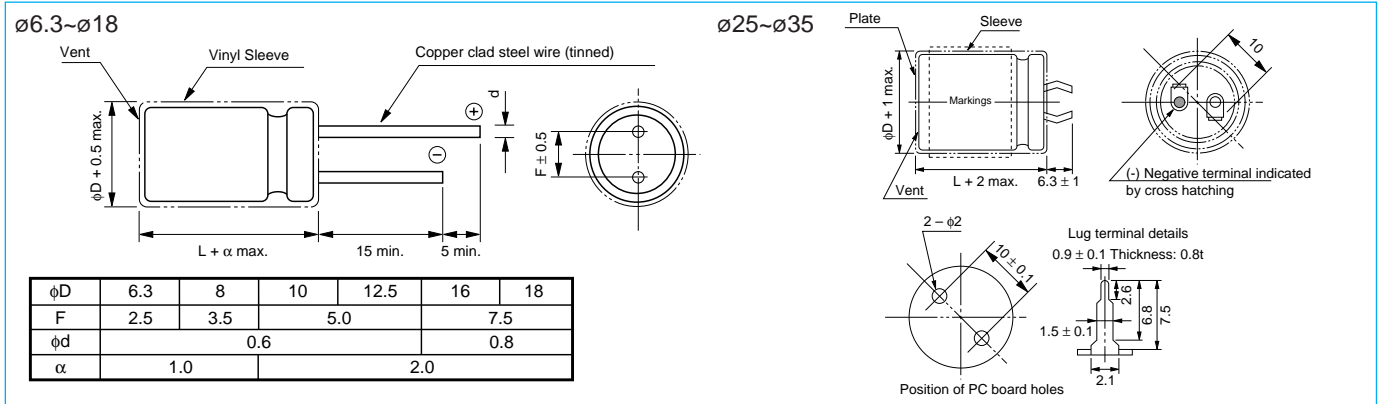
DYNACAP – Double Layer Capacitor

DZ Series

The DZ Series is an entirely new type of high current capacitor that has extremely low internal resistance (only 10% of standard double layer caps), capable of undergoing virtually unlimited charge/discharge cycles with no deterioration. With capacitance ranging from 1.0 to 100F and internal resistance from ≤ 0.08 to 1.0 ohms, they are ideal for CMOS backup, or they can function as a simple power supply.



Construction and Dimensions



Specifications	Performance														
Temperature range (°C)	-40 to +70														
Capacitance tolerance (%)	-20 to +80														
Internal resistance at 1KHz	<table border="1"> <tr> <td>Capacitance (F)</td> <td>1.0</td> <td>3.3</td> <td>4.7</td> <td>10</td> <td>50</td> <td>100</td> </tr> <tr> <td>Internal resistance (Ω)</td> <td>1.0</td> <td>0.3</td> <td>0.2</td> <td>0.1</td> <td>0.08</td> <td>0.08</td> </tr> </table>	Capacitance (F)	1.0	3.3	4.7	10	50	100	Internal resistance (Ω)	1.0	0.3	0.2	0.1	0.08	0.08
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Internal resistance (Ω)	1.0	0.3	0.2	0.1	0.08	0.08									
Stability at low & high temperature	<table border="1"> <tr> <td>Change in capacitance (-25 to 70°C)</td> <td>Within ±30% of value at 20°C</td> </tr> <tr> <td>Internal resistance (-40 to 70°C)</td> <td>Less than five times of the value at 20°C</td> </tr> </table>	Change in capacitance (-25 to 70°C)	Within ±30% of value at 20°C	Internal resistance (-40 to 70°C)	Less than five times of the value at 20°C										
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Endurance (70°C)	<table border="1"> <tr> <td>Test time</td> <td>1000 hrs</td> </tr> <tr> <td>Change in capacitance</td> <td>Within ±30% of the initial measured value</td> </tr> <tr> <td>Internal resistance</td> <td>Within four times the initial specified value</td> </tr> </table>	Test time	1000 hrs	Change in capacitance	Within ±30% of the initial measured value	Internal resistance	Within four times the initial specified value								
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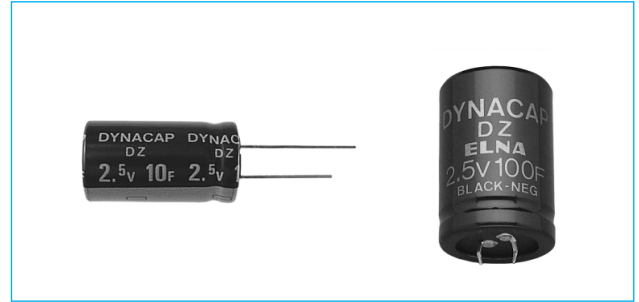
Standard Ratings

ELNA Parts No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)	φD x L (mm)
DZ-2R5D105	2.5	1.0	≤1.00	φ8.0 x 22.0
DZ-2R5D335	2.5	3.3	≤0.30	φ12.5 x 23.0
DZ-2R5D475	2.5	4.7	≤0.20	φ12.5 x 31.5
DZ-2R5D106	2.5	10	≤0.10	φ18.0 x 35.0
DZ-2R5D506	2.5	50	≤0.08	φ25.0 x 40.0
DZ-2R5D107	2.5	100	≤0.08	φ35.0 x 50.0

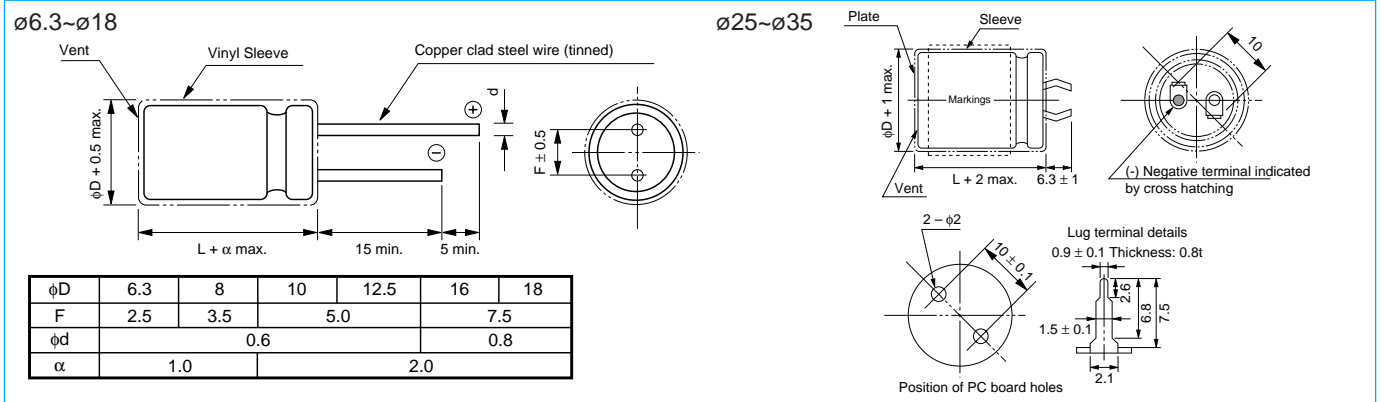
DYNACAP – Double Layer Capacitor

DZ-N Series

The DZ Series is an entirely new type of high current capacitor that has extremely low internal resistance (only 10% of standard double layer caps), capable of undergoing virtually unlimited charge/discharge cycles with no deterioration. With capacitance ranging from 1.0 to 100F and internal resistance from ≤ 0.01 to 0.12 ohms, they are ideal for CMOS backup, or they can function as a simple power supply.



Construction and Dimensions



Specifications	Performance														
Temperature range (°C)	-40 to +70														
Capacitance tolerance (%)	-20 to +80														
Internal resistance at 1KHz	<table border="1"> <tr> <td>Capacitance (F)</td> <td>1.0</td> <td>3.3</td> <td>4.7</td> <td>10</td> <td>50</td> <td>100</td> </tr> <tr> <td>Internal resistance (Ω)</td> <td>0.12</td> <td>0.08</td> <td>0.06</td> <td>0.04</td> <td>0.02</td> <td>0.01</td> </tr> </table>	Capacitance (F)	1.0	3.3	4.7	10	50	100	Internal resistance (Ω)	0.12	0.08	0.06	0.04	0.02	0.01
	Capacitance (F)	1.0	3.3	4.7	10	50	100								
Internal resistance (Ω)	0.12	0.08	0.06	0.04	0.02	0.01									
Stability at low & high temperature	<table border="1"> <tr> <td>Change in capacitance (-25 to 70°C)</td> <td>Within $\pm 30\%$ of value at 20°C</td> </tr> <tr> <td>Internal resistance (-40 to 70°C)</td> <td>Less than five times of the value at 20°C</td> </tr> </table>	Change in capacitance (-25 to 70°C)	Within $\pm 30\%$ of value at 20°C	Internal resistance (-40 to 70°C)	Less than five times of the value at 20°C										
	Change in capacitance (-25 to 70°C)	Within $\pm 30\%$ of value at 20°C													
Internal resistance (-40 to 70°C)	Less than five times of the value at 20°C														
Endurance (70°C)	<table border="1"> <tr> <td>Test time</td> <td>1000 hrs</td> </tr> <tr> <td>Change in capacitance</td> <td>Within $\pm 30\%$ of the initial measured value</td> </tr> <tr> <td>Internal resistance</td> <td>Within four times the initial specified value</td> </tr> </table>	Test time	1000 hrs	Change in capacitance	Within $\pm 30\%$ of the initial measured value	Internal resistance	Within four times the initial specified value								
	Test time	1000 hrs													
	Change in capacitance	Within $\pm 30\%$ of the initial measured value													
Internal resistance	Within four times the initial specified value														
Max. storage temp. (70°C)	Test time 1000hrs. Same as Endurance														

Standard Ratings

ELNA Parts No.	Rated Volt (V)	Capacitance (F)	Internal Resistance (Ω)	$\phi D \times L$ (mm)
DZ-2R5D105N	2.5	1.0	≤ 0.12	$\phi 8.0 \times 22.0$
DZ-2R5D335N	2.5	3.3	≤ 0.08	$\phi 12.5 \times 23.0$
DZ-2R5D475N	2.5	4.7	≤ 0.06	$\phi 12.5 \times 31.5$
DZ-2R5D106N	2.5	10	≤ 0.04	$\phi 18.0 \times 35.0$
DZ-2R5D506N	2.5	50	≤ 0.02	$\phi 25.0 \times 40.0$
DZ-2R5D107N	2.5	100	≤ 0.01	$\phi 35.0 \times 50.0$