■ Features

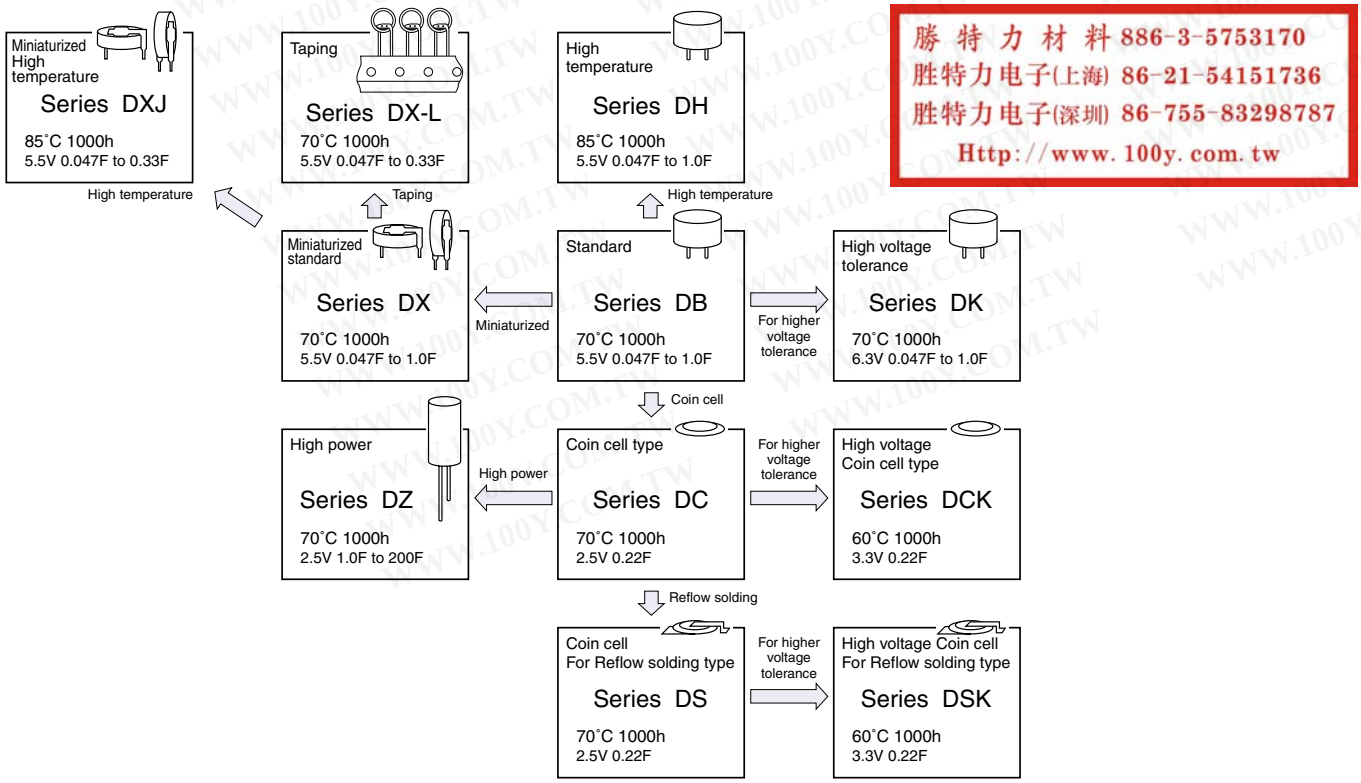
- **Can be used as a rechargeable battery and ideal for backing up purposes.**
- **Capable of several hundreds of thousands of charge/discharge cycles; free from throwaway disposal.**
- **It does not contain toxic materials such as nickel and cadmium.**

■ Type List for Electric Double Layer Capacitors (DYNACAP)

☆ : Extension series

Category	Series	Category temp. range ˚C Max.	Category temp. range ˚C Min.	Max.operating voltage V.DC	Capacitance range F	Color of sleeve	Page	Applications	Remarks
Standard type	DB	+70	–25	5.5	0.047 to 1.0	Indigo	130	Ideal for backing up of CMOS IC's, microcomputers, RAM's and the like used in VCR's, tuners, TV sets, telephone sets and others.	
Miniaturized Standard type	DX	+70	–25	5.5	0.047 to 1.0	Indigo	131	Ideal for backing up of CMOS IC's, microcomputers, RAM's and the like used in VCR's, tuners, TV sets, telephone sets, pager units, cameras and others.	☆
Miniaturized High temperature type	DXJ	+85	–10	5.5	0.047 to 0.33	Black	132	Ideal for backing up of CMOS IC's, microcomputers, RAM's and the like used in VCR's, tuners, TV sets, telephone sets, pager units, cameras and others.	
High voltage tolerance type	DK	+70	–25	6.3	0.047 to 1.0	Indigo	133	Ideal for backing up of Li -batterybacked equipment such as cameras, VCR's and telephone sets.	
High temperature type	DH	+85	–25	5.5	0.047 to 1.0	Indigo	134	Ideal for backing up of controls, electronic rice cooking jars, home bakeries and others.	
Coin type	DC	+70	–25	2.5	0.22	Silver	135	Ideal for backing up of pager, solar watches, solar calculators, solar remote control units, camaras and the like.	
	DCK	+60	–10	3.3	0.22				
Reflow solding Coin type	DS	+70	–25	2.5	0.22	Silver	136	Mountable on board with best suited for mainly memory and time functions as well as memory backup for PDA and DSC.	
	DSK	+60	–10	3.3	0.22				
High power type	DZ	+70	–25	2.5	1.0 to 200	Black	137	Ideal for power supplies of cellular phone, cordless telephone, moter, electromagnetic coil, and the storage battery of solar battery.	

■ Systematized Classification of Electric Double Layer Capacitors (DYNACAP)



NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

■ Product Symbol System for Electric Double Layer Capacitors

□□□ — □□□ □ □□□ □□□□ — □□□

Series code | Voltage Symbol | Shape Symbol | Capacitance Symbol | Additional Symbol | Forming Symbol

Refer to the examples on the page describing a particular series.

Leave the boxes balnk when no particular designation is made.

Enter the forming symbols given on page 129 for a taping a forming lead capacitor.

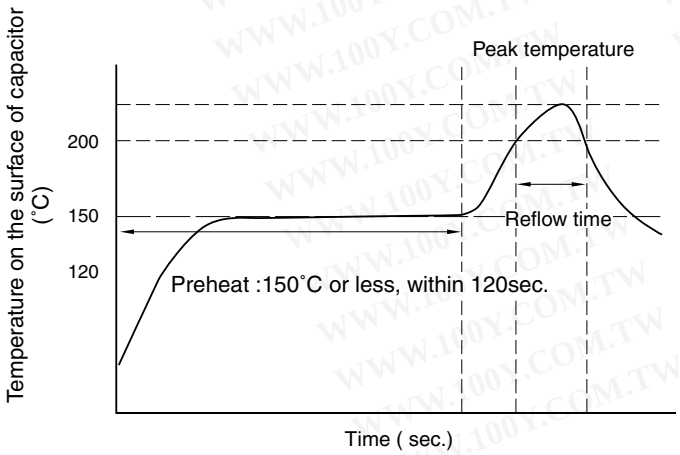
Max. voltage (V)	Voltage symbol
2.5	2R5
3.3	3R3
5.5	5R5
6.3	6R3

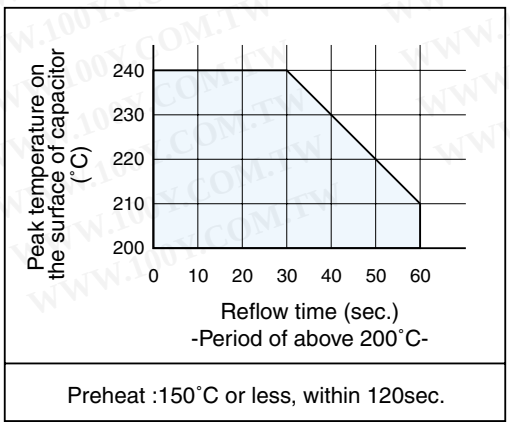
Capacitance (F)	Capacitance symbol
0.047	473
0.1	104
0.18	184
0.22	224
0.33	334
0.47	474
0.68	684
1	105
3.3	335
4.7	475
10	106
20	206
50	506
100	107
200	207

■ Recommended soldering method (DS, DSK series)

Method	Reflow soldering	Soldering iron	Flow soldering
Advisability	○	○	×

Reflow soldering conditions.





Attention : Carry out soldering work at low temperature and in the shortest time within above conditions.
Do NOT reflow solder, when cell voltage is above 0.3V.

Cautions for Using DYNACAP(Electric Double Layer Capacitor)

■Usage

1. Since DYNACAP is polarized, do not apply a reversed voltage.

DYNACAP is polarized. If a reversed voltage is applied for a long time, the leakage current will increase abruptly, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

2. Do not apply any voltage higher than the operating maximum voltage (this means the surge voltage in the case of short-time charge).

If an overvoltage is applied to the product, the leakage current will increase abruptly and the product will become overheated, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

3. Do not use smoothing a power supply (for absorbing its ripple).

Since the internal resistance of DYNACAP is high, the product will be overheated if it is used for smoothing a power supply (for absorbing its ripple), which may cause a decrease in the capacity. an increase in the internal resistance, and causing leakage or damage to the product in some cases.

4. Do not use in a circuit where quick charge and discharge are repeated very often.

In a circuit where quick charge and discharge are repeated very often, the product will become overheated, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

Reduce the charge and discharge currents while selecting a product with low internal resistance, and make sure that the product surface temperature does not rise.

5. DYNACAP life depends heavily on the ambient temperature.

①The lifetime of DYNACAP is seriously affected by change in ambient temperature. If the temperature is lowered by 10˚C, the lifetime will be approximately doubled. Therefore, the product should be used at a temperature lower than the guaranteed maximum value for maximum life.

②If the capacitor is used at a temperature exceeding its maximum guaranteed temperature, not only is its life shortened, but increased vapor pressure of electrolyte or electrochemical reactions may increase the internal pressure, and causing leakage or damage to the product in some cases.

6. Note that a voltage drop in DYNACAP occurs during backup.

In a case where discharge current is large, or a large current flows instantaneously. an electric double layer capacitor (DYNACAP) may not operate at the start of discharge because of a large voltage drop (IR drop) caused by the product with the DC internal resistance.

Please consult us for a large discharge current (in the case of other series except DZ series: when larger than I [mA] =1 x C[F]) as the internal resistance varies by each series. (Recommendation discharge current: 1 mA/F at 20˚C)

7. Do not use the product in an ambient atmosphere containing water droplets of toxic gases.

Although DYNACAP is sealed, water droplets or toxic gases may corrode the lead wires and the case, which may cause a breaking of the wires.

8. Contact us before connecting the products in series.

A series connection will cause an imbalance in the voltage, charged to the capacitors and an overvoltage may be charged to one or more them. This may cause a decrease in the capacity, an increase in the internal resistance and causing leakage or damage to the product in some cases.

9. About vibration.

A terminal blank, a terminal bend, and a crease may occur by adding too much vibration to a capacitor.

Moreover, depending on the case, a DYNACAP may do degradation of the characteristic, breakage, and a leakage.

When you become too much vibration, please contact our company.

10. When used on a double sided printed circuit board, do not overlap the wiring patterns on the mounted part.

A short circuit may be created by certain wiring conditions. Should the electrolyte leaks, the circuit pattern may cause a short circuit, resulting in tracking or migration.

11. Do not keep in high temperature and high humidity atmospheres.

①Avoid high temperature or high humidity or direct rays when storing capacitors.

②Keep the product in a place where the temperature is 5˚C~30˚C and the humidity is lower than 60%. Avoid an abrupt temperature change, which may cause condensation or deterioration of the product or liquid leakage.

③Do not store DYNACAP at a place where there is a possibility that they may get water, salt or oil spill.

④Do not store DYNACAP at place where the air contains dense hazardous gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine ammonia, etc.).

⑤Do not store DYNACAP at a place where it gets ultraviolet ray or radioactive ray.

12. Capacitors fitted with a relief valve

①The relief valve is provided with a valve function with part of the case made thin to avoid explosion by increased internal pressure when the capacitor is under abnormal load such as overvoltage or reverse voltage. After activation ofthe relief valve, the capacitor must be replaced as it does not restore.

②For the capacitors with a case relief valve, provide a void on the top of the relief valve so as not to hamper its activation. Make a void of 2 mm or more for the product of ø18 or less in diameter, and a void of 3 mm or more for the product of ø20 to ø35 mm in diameter on the top.

■Mounting

1. When soldering the capacitor to the wiring board, do not attach the body of the capacitor to the circuit board.

If the body of the capacitor is attached directly to the circuit board, the flux or solder can blow through the through holes in the circuit board, negatively impacting the capacitor.

2. Do not overheat when soldered.

Depending on the type and size of the board, the product may be subjected to overheat, leading to loss of airtightness. This may greatly shorten the product life or cause liquid leakage.

In case of a 1.6mm-thick printed board. for example, keep the following soldering conditions: temperature lower then 260˚C, time shorter than 5 seconds.

When a board thinner than 1.6 mm is used, contact us.

In the case of hand soldering, the iron tip temperature is lower than 360˚C, time is shorter than 3 seconds.

The coin types and multilayer coin types excluding the DZ and reflow-compatible coin types use polypropylene as the pacing material for sealing and therefore susceptible to excessive heat. Note that the component body temperature shall be controlled so as not to exceed 90˚C including preheating.

Recommended preheating conditions are as shown below : Conditions : At the time of flow, the peak temperature on the rear of the thermal shield shall be 120˚C or less, with the total heating time within 60 seconds. After that, dip the terminal tip of the component into the bath soldering temperature of 260 ± 3˚C for 5 +1/-0 seconds. The second flow, if conducted, shall be done after the product temperature has been cooled down to room temperature.

3. Contact us when cleaning is necessary after soldering.

Certain types of solvents are not compatible and may cause damage.

4. Contact us when the product is attached by adhesive bonding.

Certain types of adhesives are not compatible.

Paste bond partially between the product and the board so that the product will not adhere completely to the board.

Do not raise the temperature over the guaranteed value while the bond is hardening.

5. Heating conditions of adhesive curing oven

During heating of the adhesive curing oven, application of excessive heat may significantly shorten the product life or cause liquid leakage. Control the body temperature so as not to exceed 90˚C during work while setting the allowable atmospheric temperature below 110˚C, and allowable heating time within 30 seconds.

For the heating conditions deviating from the above, consult with us providing your temperature profile conditions.

6. Be careful not to apply an excessive force to the capacitor body, terminals or lead wires.

①Mount the capacitor while making sure that the terminal spacing of the capacitor and the spacing of the holes in the printed wiring board are aligned.

②If the capacitor body is subjected to stress such as grabbing, falling, pushing or twisting after mounted, its terminals may come off, leading to open, short or liquid leakage.

■Other cautions

1. Emergency procedures

If the DYNACAP overheats or starts to smell, immediately switch off the units main power supply to stop operation.

Keep your face and hands away from the DYNACAP, since the temperature may be high enough to cause the DYNACAP to ignite and burn.

2. Periodical inspections should be established fort he DYNACAP used in industrial appliances.

The following items should be checked:

①Appearance : Check if there is leakage.

②Electronic performance : Check the leakage current, the electrostatic, the internal resistance and other items described in the catalog or the product specifications.

3. Disposing of DYNACAP.

①Punch a hole or crush the DYNACAP (to prevent explosion) before incineration at approved facility.

②If they are not to be incinerated, bring them to a professional industrial waste disposal company.

4.Other notes.

Please refer to the following literature for anything not described in the product specifications or the catalog. (The Electronics Industry Association of Japan technical report #EIAJ RCR-2370 "The guideline of usage cautions for electric double layer capacitors for use with electronic appliances")

NOTE
Design, Specifications are subject to change without notice.
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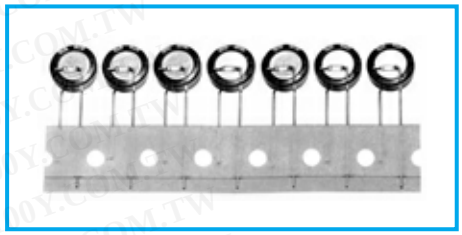
■ Taping (applicable to Series DX only)

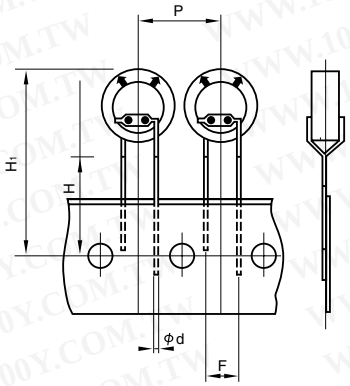
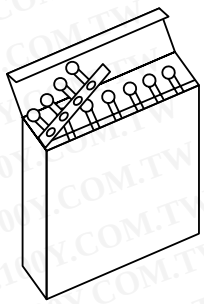


- For automatic insertion.
- The ø11.5x12.4L size can encase up to 0.33F.

Part numbering system (example: 5.5V0.1F)						
DX	—	5R5	L	104	—	T20
Series code		Voltage		Rated capacitance code		Taping machining designation

Taping Dimensions

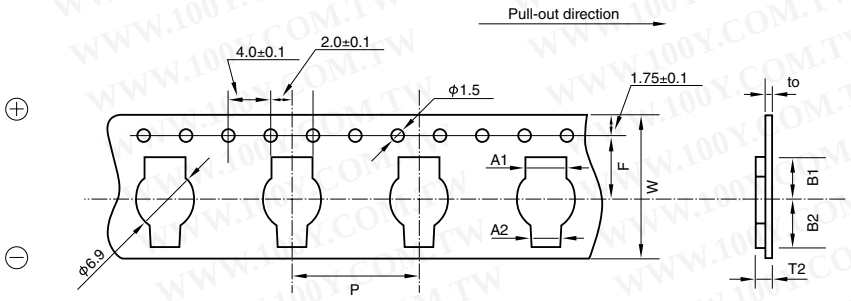
Unit: mm

Lead forming symbol	Taping dimension					Outline drawing	Packing method
	F	H	H1	P	ød		
T20	5.0	18.0	32.2Max.	12.7	0.6		Flat box 

Minimum Packing Quantity

Minimum Packing quantity
750 PCS.

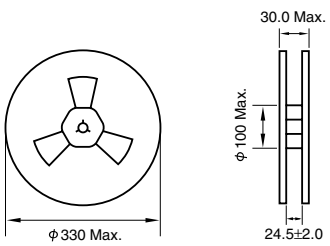
■ Carrier tape dimension (DS, DSK series) polarity L



(mm)

W	P	F	A1	A2	B1	B2	T2	to
24±0.2	12.0	11.5	4.4	3.4	5.9	6.5	3.2	0.3

■ Reel dimension



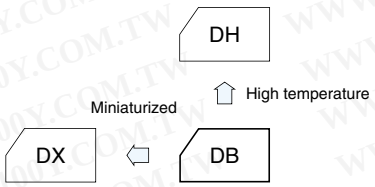
■ Packing quantity

Ourside size	Quantity
ø6.8x2.1L	1500PCS.

NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

5.5V Standard Capacitors Series DB

- **Small-sized, large capacity, excellent voltage holding.**
- **For all ratings, uniform 5mm pitch of terminal spacing.**
- **Wider temperature range(–25~+70˚C) than battery makes periodic change unnecessary.**
- **ø13.5x7.5 ℓ size can encase up to 0.33F.**
- **Ideal for backing up of CMOS's, microcomputers, RAM's and the like used in VCR's, tuners, TV sets, telephone sets and others.**



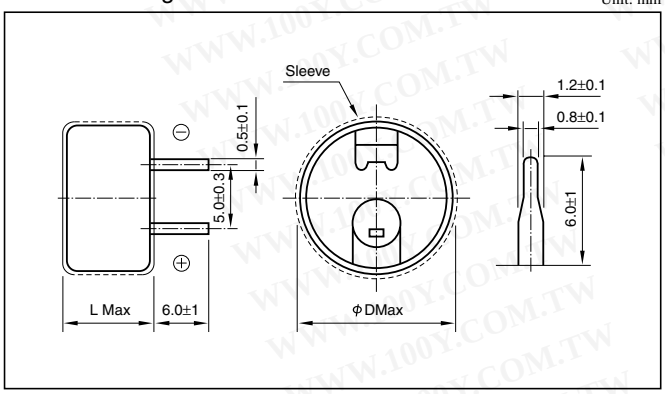
Marking color : White print on an indigo sleeve

Specifications

Item	Performance
Category temperature range (˚C)	–25 to +70
Tolerance at rated capacitance (%)	–20 to +80
Internal resistance at 1 kHz	Rated Capacitance (F): 0.047 / 0.1 / 0.22 / 0.33 / 0.47 / 1.0 Internal resistance (Ω): 120 / 75 / 75 / 75 / 30 / 30
Characteristics at high and low temperature	Percentage of capacitance change: Within ±30% of the value at 20˚C Internal resistance: Less than five times of the value at 20˚C
Endurance (70˚C)	Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value
Shelf life (70˚C)	Test time :1000 hours ; Same as endurance.

Outline Drawing

Unit: mm



Part numbering system (example: 5.5V0.047F)

DB	—	5R5	D	473
Series code		Voltage Symbol		Rated capacitance code

Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
5.5	0.047	DB-5R5D473	13.5x7.5
5.5	0.1	DB-5R5D104	13.5x7.5
5.5	0.22	DB-5R5D224	13.5x7.5
5.5	0.33	DB-5R5D334	13.5x7.5
5.5	0.47	DB-5R5D474	21.5x8.0
5.5	1.0	DB-5R5D105	21.5x8.0

NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

5.5V Miniaturized Standard Capacitors Series DX

- **Smaller and lighter than conventional Series DB.**
- **5mm tall. Max. thin profile(H-shaped).**
- **Miniaturized but can encase up to 0.33F in 11.5x5mm case.**

Miniaturized

DX ⇦ DB

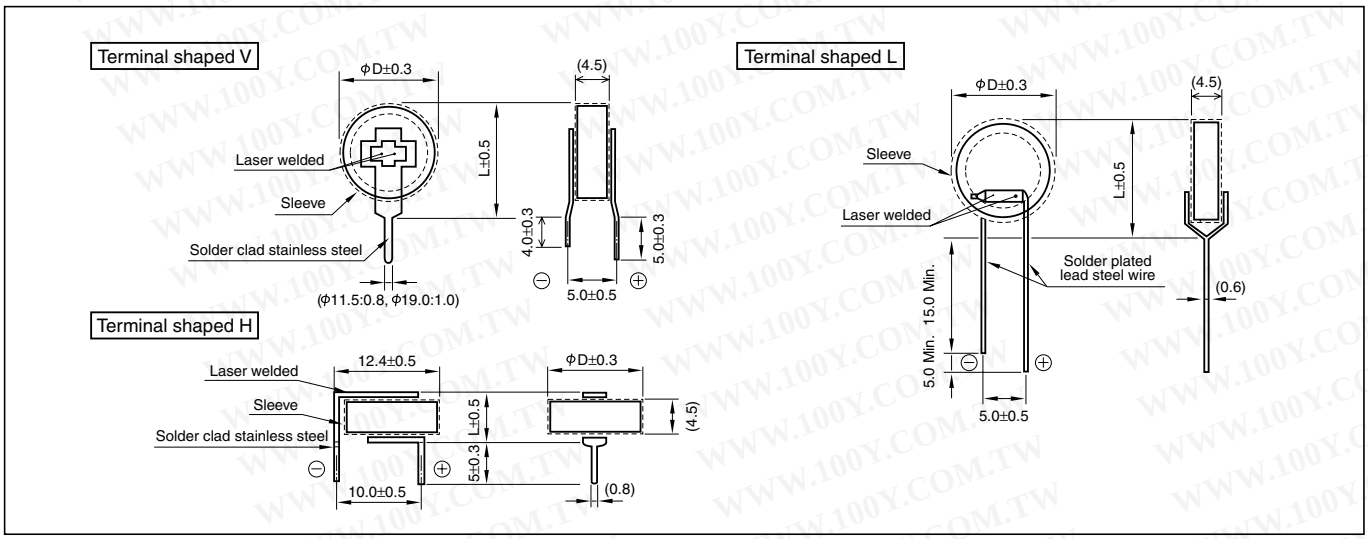
Marking color : White print on an indigo sleeve

Specifications

Item	Performance
Category temperature range (°C)	−25 to +70
Tolerance at rated capacitance (%)	−20 to +80
Internal resistance at 1 kHz	Rated Capacitance (F): 0.047 / 0.1 / 0.22 / 0.33 / 1.0 Internal resistance (Ω): 120 / 75 / 75 / 75 / 30
Characteristics at high and low temperature	Percentage of capacitance change: Within ±30% of the value at 20°C Internal resistance: Less than five times of the value at 20°C
Endurance (70°C)	Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value
Shelf life (70°C)	Test time :1000 hours ; Same as endurance.

Outline Drawing

Unit: mm



Part numbering system (example: 5.5V0.1F)				
DX	—	5R5	V	104
Series code		Voltage Symbol	Terminal shaped	Rated capacitance code

Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
5.5	0.047	DX-5R5V473	11.5x13.0
		DX-5R5H473	11.5x 5.0
		DX-5R5L473	11.5x12.4
5.5	0.1	DX-5R5V104	11.5x13.0
		DX-5R5H104	11.5x 5.0
		DX-5R5L104	11.5x12.4
5.5	0.22	DX-5R5V224	11.5x13.0
		DX-5R5H224	11.5x 5.0
		DX-5R5L224	11.5x12.4
5.5	0.33	DX-5R5V334	11.5x13.0
		DX-5R5H334	11.5x 5.0
		DX-5R5L334	11.5x12.4
5.5	1.0	DX-5R5V105	19.0x20.5

NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

DXJ ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"

ELNA®

5.5V Miniaturized High temperature Capacitors Series DXJ

- **High temperature type of Series DX.**
- **5mm tall. Max. thin profile(H-shaped).**
- **Miniaturized but can encase up to 0.33F in 11.5x5mm case.**

High temperature

DXJ ⇦ DX

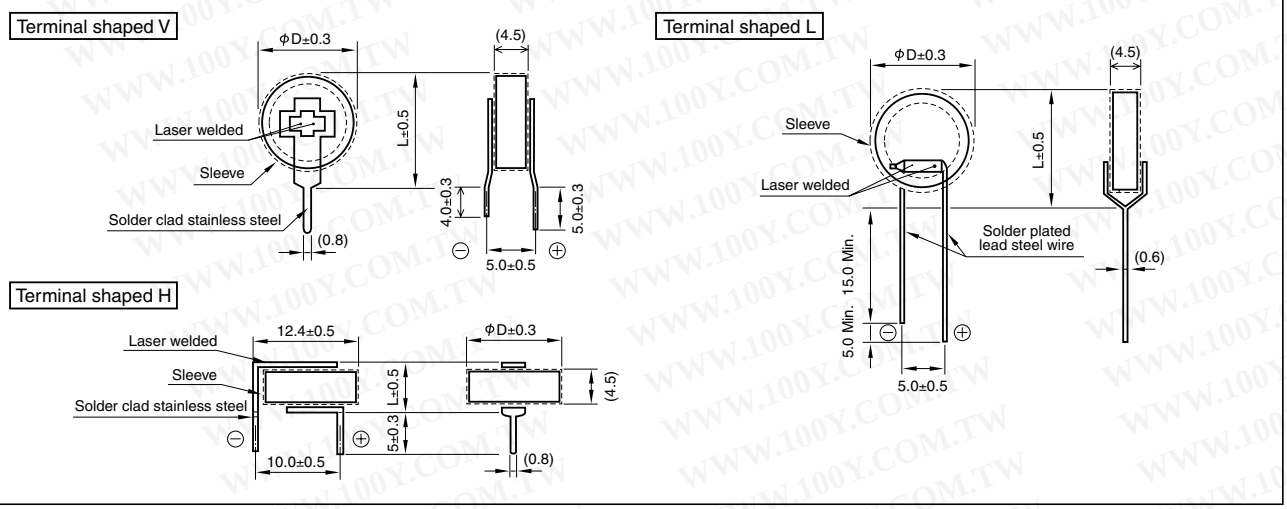
Marking color : Black print on an indigo sleeve

Specifications

Item	Performance				
Category temperature range (˚C)	−10 to +85				
Tolerance at rated capacitance (%)	−20 to +80				
Internal resistance at 1 kHz	Rated Capacitance (F)	0.047	0.1	0.22	0.33
	Internal resistance (Ω)	200	150	150	150
Characteristics at high and low temperature	Percentage of capacitance change	Within ±30% of the value at 20˚C			
	Internal resistance	Less than four times of the value at 20˚C			
Endurance (85˚C)	Test time	1000 hours			
	Percentage of capacitance change	Within ±30% of the initial measured value			
	Internal resistance	Within four times of the initial specified value			
Shelf life (85˚C)	Test time :1000 hours ; Same as endurance.				

Outline Drawing

Unit: mm



Part numbering system (example: 5.5V0.1F)

DXJ	—	5R5	V	104
Series code		Voltage Symbol	Terminal shaped	Rated capacitance code

Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
5.5	0.047	DXJ-5R5V473	11.5x13.0
		DXJ-5R5H473	11.5x 5.0
		DXJ-5R5L473	11.5x12.4
5.5	0.1	DXJ-5R5V104	11.5x13.0
		DXJ-5R5H104	11.5x 5.0
		DXJ-5R5L104	11.5x12.4
5.5	0.22	DXJ-5R5V224	11.5x13.0
		DXJ-5R5H224	11.5x 5.0
		DXJ-5R5L224	11.5x12.4
5.5	0.33	DXJ-5R5V334	11.5x13.0
		DXJ-5R5H334	11.5x 5.0
		DXJ-5R5L334	11.5x12.4

NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

High Voltage Tolerance Capacitors Series DK

- **High voltage tolerant(6.3V guaranteed) and highly reliable.**
- **Ideal for backing up of Li-battery-backed equipment such as cameras, VCR's and telephone sets.**

Miniaturized ⇦ DX | DB | DK ⇨ High voltage tolerant

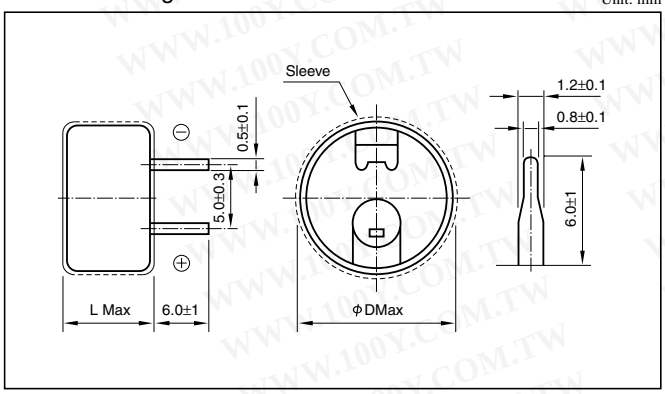
Marking color : White print on an indigo sleeve

Specifications

Item	Performance					
Category temperature range (˚C)	−25 to +70					
Tolerance at rated capacitance (%)	−20 to +80					
Internal resistance at 1 kHz	Rated Capacitance (F)	0.047	0.1	0.47	0.68	1.0
	Internal resistance (Ω)	300	200	50	50	30
Characteristics at high and low temperature	Percentage of capacitance change	Within ±30% of the value at 20˚C				
	Internal resistance	less than five times of the value at 20˚C				
Endurance (70˚C)	Test time	1000 hours				
	Percentage of capacitance change	Within ±30% of the initial measured value				
	Internal resistance	Within four times of the initial specified value				
Shelf life (70˚C)	Test time :1000 hours ; Same as endurance.					

Outline Drawing

Unit: mm



Part numbering system (example: 6.3V0.47F)

DK	—	6R3	D	474
Series code		Voltage Symbol		Rated capacitance code

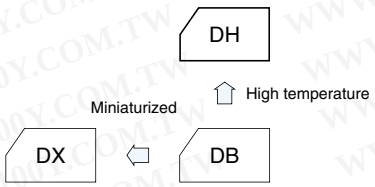
Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
6.3	0.047	DK-6R3D473	13.5x9.5
6.3	0.1	DK-6R3D104	13.5x9.5
6.3	0.47	DK-6R3D474	21.5x9.5
6.3	0.68	DK-6R3D684	21.5x9.5
6.3	1.0	DK-6R3D105	21.5x9.5

NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

High-Temperature Capacitors Series DH

- **High temperature tolerant(–25~+85˚C) and highly reliable.**
- **Ideal for backing up of controls, electronic rice cooking jars, home bakeries and the like.**



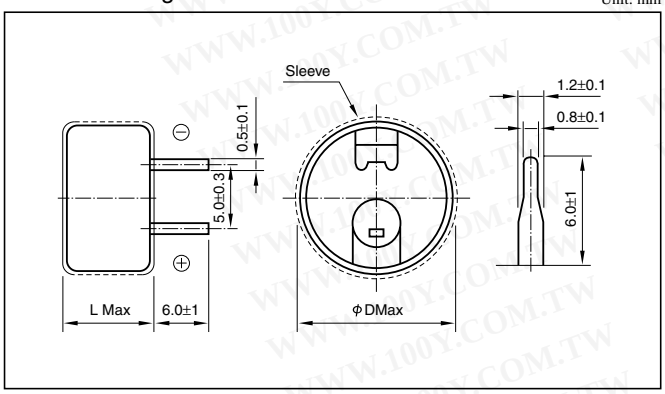
Marking color : White print on an indigo sleeve

Specifications

Item	Performance
Category temperature range (˚C)	–25 to +85
Tolerance at rated capacitance (%)	–20 to +80
Internal resistance at 1 kHz	Rated Capacitance (F): 0.047 / 0.1 / 0.22 / 0.47 / 0.68 / 1.0 Internal resistance (Ω): 300 / 200 / 120 / 50 / 50 / 30
Characteristics at high and low temperature	Percentage of capacitance change: Within ±30% of the value at 20˚C Internal resistance: less than five times of the value at 20˚C
Endurance (85˚C)	Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value
Shelf life (85˚C)	Test time :1000 hours ; Same as endurance.

Outline Drawing

Unit: mm



Part numbering system (example: 5.5V0.047F)

DH	—	5R5	D	473
Series code		Voltage Symbol		Rated capacitance code

Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
5.5	0.047	DH-5R5D473	13.5x9.5
5.5	0.1	DH-5R5D104	13.5x9.5
5.5	0.22	DH-5R5D224	13.5x9.5
5.5	0.47	DH-5R5D474	21.5x9.5
5.5	0.68	DH-5R5D684	21.5x9.5
5.5	1.0	DH-5R5D105	21.5x9.5

NOTE
Design, Specifications are subject to change without notice.
Ask factory for technical specifications before purchase and/or use.

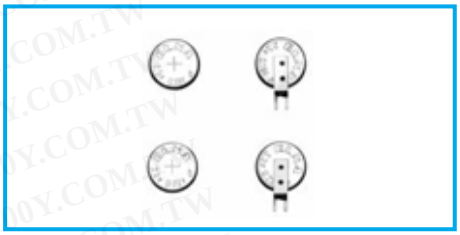
Coin Cell Capacitors Series DC,DCK

- **Small-sized, but large capacity.**
- **Unlike batteries, unlimited charge/discharge cycles; ideal for solar watches, solar calculators, solar remote control units, camaras and the like.**

Coin Cell

DB → DC

DC → (For higher voltage tolerant) → DCK

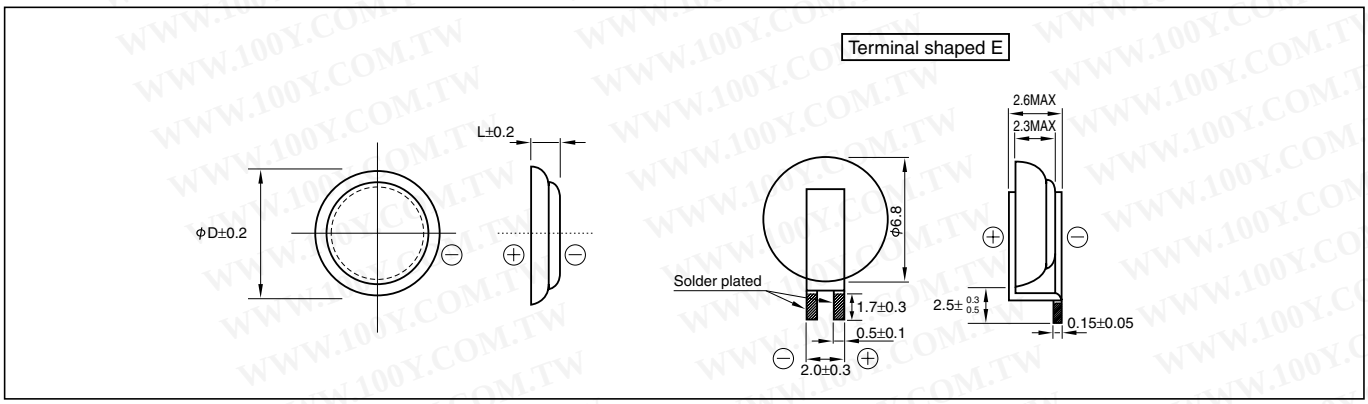


Specifications

Item	Performance	
Series Name	DC series	DCK series
Rated voltage (V)	2.5	3.3
Category temperature range (°C)	−25 to +70	−10 to +60
Tolerance at rated capacitance (%)	−20 to +80	−20 to +80
Rated Capacitance (F)	0.22	0.22
Internal resistance(Ω) at 1 kHz	100	200
Characteristics at high and low temperature	Percentage of capacitance change: Within ±30% of the value at 20°C Internal resistance: Less than five times of the value at 20°C	Percentage of capacitance change: Within ±50% of the value at 20°C Internal resistance: Within five times the initial specified value
Endurance	Test temperature: 70°C Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value	Test temperature: 60°C Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value
Shelf life	Test time :1000 hours ; Same as endurance.	

Outline Drawing

Unit: mm



Part numbering system (example: 2.5V0.22F)

DC	—	2R5	D	224
Series code		Voltage Symbol		Rated capacitance code

Part numbering system (example: 3.3V0.22F)

DCK	—	3R3	D	224
Series code		Voltage		Rated capacitance code

Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
2.5	0.22	DC-2R5D224	6.8x2.1
		DC-2R5E224-E	
3.3	0.22	DCK-3R3D224	6.8x2.1
		DCK-3R3E224-E	

NOTE
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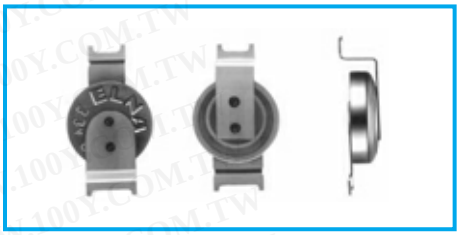
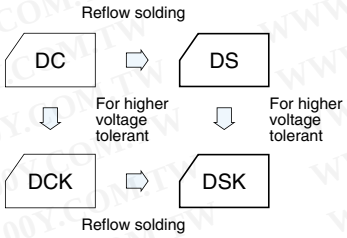
Coin Cell Capacitors Series DS,DSK

- **Reflow solding method available.**
- **Unlike batteries, the number of charging/ discharging cycles unlimited and rapid charging/ discharging is possible.**
- **High reliability, Safe and unlike secondary batteries, this is pollution free devices.**



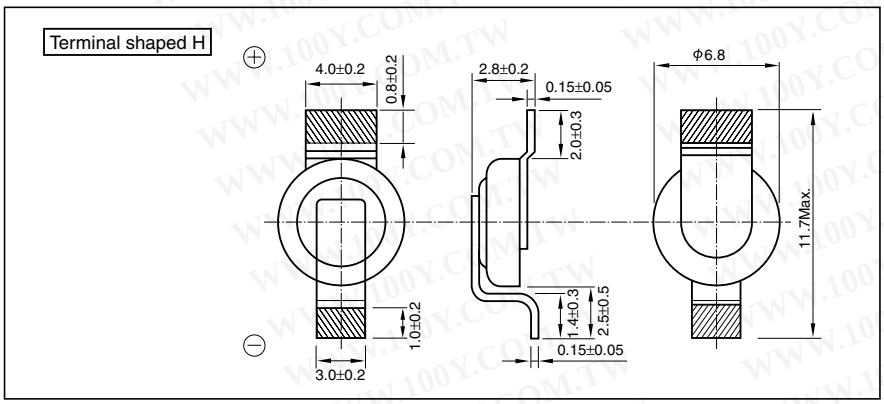


Specifications

Item	Performance	
Series Name	DS series	DSK series
Rated voltage (V)	2.5	3.3
Category temperature range (°C)	−25 to +70	−10 to +60
Tolerance at rated capacitance (%)	−20 to +80	−20 to +80
Rated Capacitance (F)	0.22	0.22
Internal resistance(Ω) at 1 kHz	100	200
Characteristics at high and low temperature	Percentage of capacitance change: Within ±30% of the value at 20°C Internal resistance: Less than five times of the value at 20°C	Percentage of capacitance change: Within ±50% of the value at 20°C Internal resistance: Within five times the initial specified value
Endurance	Test temperature: 70°C Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value	Test temperature: 60°C Test time: 1000 hours Percentage of capacitance change: Within ±30% of the initial measured value Internal resistance: Within four times of the initial specified value
Shelf life	Test time :1000 hours ; Same as endurance.	

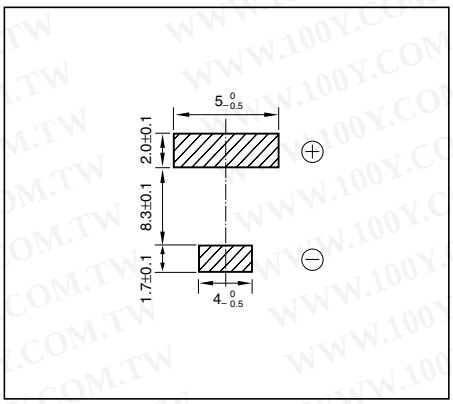
Outline Drawing

Unit: mm



Recommended land pattern size

Unit: mm



Part numbering system (example: 2.5V0.22F)

DS	—	2R5	H	224	—	H	L
Series code		Voltage Symbol		Rated capacitance code		Terminal code	Taping code

Part numbering system (example: 3.3V0.22F)

DSK	—	3R3	H	224	—	H	L
Series code		Voltage Symbol		Rated capacitance code		Terminal code	Taping code

Standard Ratings

Max. operating voltage(V)	Rated capacitance(F)	ELNA Parts No.	ø DxL(mm)
2.5	0.22	DS-2R5D224-HL	6.8x2.1
3.3	0.22	DSK-3R3H224-HL	6.8x2.1

* Reflow solding condition : 127 page.

NOTE
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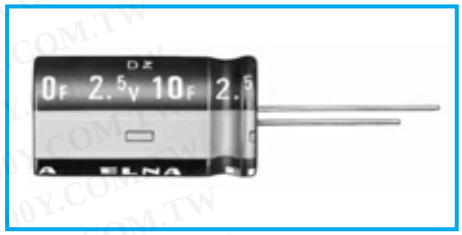
High power type Capacitors Series DZ

- **Low internal resistance allows boosting charge and heavy-current discharge. (ampere level)**
- **Pollution-Free ; with no pollutants such as Cd or Pb.**
- **Unlimited number of charges and discharges.**

High power　　High power

DZ-N ⇦ DZ ⇦ DC



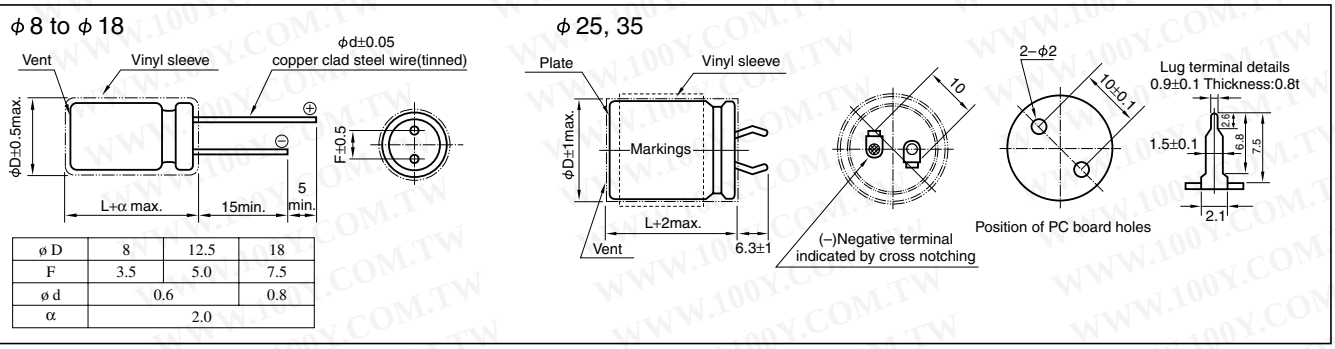
Marking color : White print on a black sleeve (Standard type)
Silver print on a black sleeve (Low resistance type)

Specifications

Item	Performance							
Category temperature range (°C)	−25 to +70							
Tolerance at rated capacitance (%)	−20 to +80							
Internal resistance at 1 kHz	Rated Capacitance (F)	1.0	3.3	4.7	10	20	50	100	200
	Internal resistance (Ω)	1.0	0.3	0.2	0.2	0.2	0.08	0.08	0.08
Characteristics at high and low temperature	Percentage of capacitance change	Within ±30% of value at 20°C							
	Internal resistance	Less than five times of the value at 20°C							
Endurance (70°C)	Test time	1000 hours							
	Percentage of capacitance change	Within ±30% of the initial measured value							
	Internal resistance	Within four times of the initial specified value							
Shelf life (70°C)	Test time :1000 hours ; Same as endurance.								

Outline Drawing

Unit: mm



ø D	8	12.5	18
F	3.5	5.0	7.5
ø d	0.6		0.8
α	2.0		

Standard type Ratings

Max. operating voltage(V)	Rated capacitance(F)	Max. Leakage Current(mA) after 24h	ELNA Parts No.	ø DxL(mm)	Real internal resistance(mΩ) at 1 kHz (reference value)
2.5	1.0	0.1	DZ-2R5D105	8.0x22.0	200
2.5	3.3	0.2	DZ-2R5D335	12.5x23.0	70
2.5	4.7	0.3	DZ-2R5D475	12.5x31.5	50
2.5	10	0.5	DZ-2R5D106	18.0x35.0	30
2.5	20	0.8	DZ-2R5D206	18.0x40.0	30
2.5	50	1.0	DZ-2R5D506	25.0x40.0	20
2.5	100	1.0	DZ-2R5D107	35.0x50.0	20
2.5	200	2.0	DZ-2R5D207S57	35.0x50.0	20

Low resistance type Ratings

Max. operating voltage(V)	Rated capacitance(F)	Max. Leakage Current(mA) after 24h	ELNA Parts No.	ø DxL(mm)	Real internal resistance(mΩ) at 1 kHz (reference value)
2.5	1.0	0.1	DZ-2R5D105N	8.0x22.0	100
2.5	3.3	0.2	DZ-2R5D335N	12.5x23.0	40
2.5	4.7	0.3	DZ-2R5D475N	12.5x31.5	30
2.5	10	0.5	DZ-2R5D106N	18.0x35.0	20
2.5	20	0.8	DZ-2R5D206N	18.0x40.0	20
2.5	50	1.0	DZ-2R5D506N	25.0x40.0	15
2.5	100	1.0	DZ-2R5D107N	35.0x50.0	8

Part numbering system (example: 2.5V10F)

Standard type	DZ	—	2R5	D	106	
	Series code		Voltage Symbol		Rated capacitance code	
Low resistance type	DZ	—	2R5	D	106	N
	Series code		Voltage Symbol		Rated capacitance code	Low resistance symbol

NOTE
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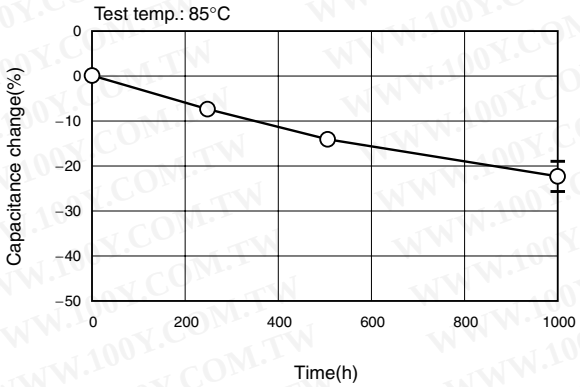
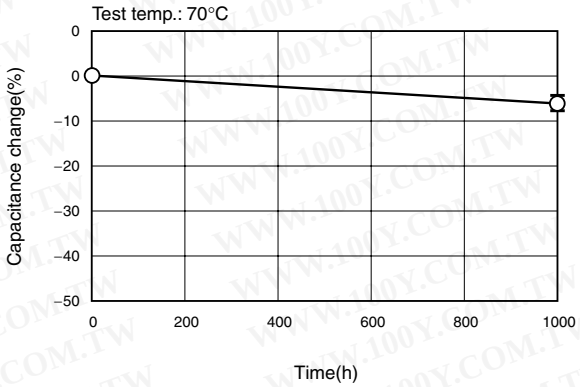
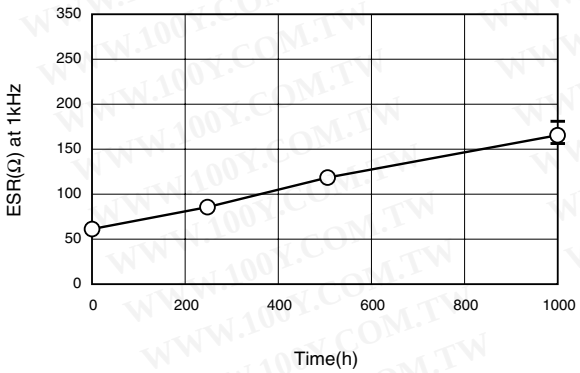
■ Endurance

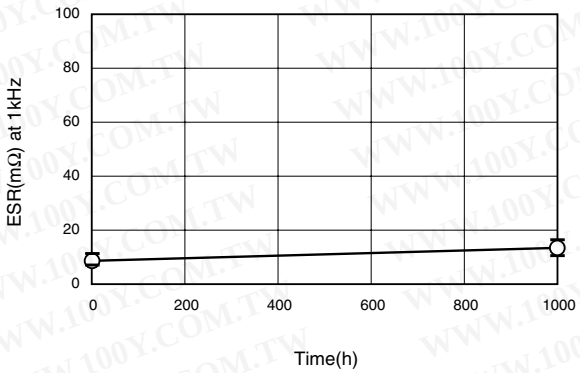
DYNACAP DXJseries
5.5V 0.33F/DXJ-5R5H334 φ11.5x5L(mm)



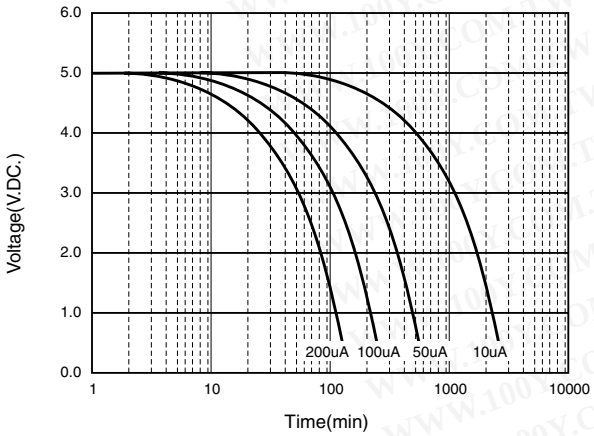
DYNACAP DZseries Low resistance type
2.5V100F/DZ-2R5D107N/ φ35x50L(mm)

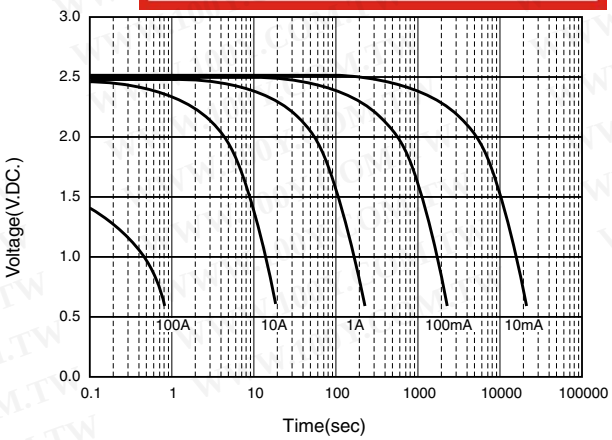






■ Discharge Characteristics





NOTE
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