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KELTRON®
A Government of Kerala Undertaking

POWERING THE FUTURE

INDIA'S FIRST SUPERCAPACITOR MANUFACTURER LEADS THE CHARGE

50 years
Excellence In Electronic Components Manufacturing

Keltron has launched India's first commercial supercapacitor production facility, featuring fully automated equipment.

India's First Supercapacitor Factory Sparks a New Energy Revolution

Meet India's Pioneers in Supercapacitor Manufacturing

SUPER CAPACITORS / EDLC

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WHAT IS A SUPERCAPACITOR / ULTRACAPACITOR

An EDLC (Electric Double Layer Capacitor), also referred to as a Super-Capacitor or Ultra-Capacitor, is an advanced energy storage solution with a lower energy density but a significantly higher power density compared to traditional batteries. Our EDLCs offer key advantages, such as rapid charging and discharging, a long lifespan of over 500,000 cycles, a broad operating temperature range (-40°C to 70°C), and a safe, explosion-free design.

APPLICATIONS

Smart Meter | Electric Vehicle | Jump Starter

UPS | Solar Energy | Wind Energy | Drones | Internet of Things | Regenerative Braking

A supercapacitor, also known as an Electrical Double-Layer Capacitor (EDLC), is a high-power density storage device used in various applications. It enables the opening of aircraft doors during failures, facilitates energy harvesting, assists with lifting operations, bridges power gaps in data centers, powers consumer electronics and portable speakers, enhances photographic flash performance, stabilizes power in space vehicles during eclipses, and supports defibrillators.

OTHER APPLICATIONS

Open Aircraft doors during failures

Harvest Energy, Assist Lifting

Bridge Power Gaps For Data Centers

Consumer Electronics

Portables Speakers

Photographic Flash

Stabilize Power During Eclipses In Space Vehicles

Defibrillators

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FEATURES OF SUPERCAPACITORS

Supercapacitors offer high power density, fast charging, long cycle life, low internal resistance, and wide operating temperature. They ensure high efficiency, instantaneous power delivery, and reliable energy storage. Eco-friendly and low maintenance, they bridge power gaps, stabilize voltage, support energy harvesting, assist regenerative braking, and enhance power quality in various applications.

Parameter	Super Capacitor	Ordinary Capacitor	Battery
Energy Storage	Watt-hour energy	Watt-second energy	Watt-hour energy
Power Supply	Fast discharge, linear or exponential voltage decay	Fast discharge, linear or exponential voltage decay	Maintain a constant voltage for a long time
Charging / Discharging time	Milliseconds to seconds	Picoseconds to Milliseconds	1 to 10 hours
Dimensions	Small	Small to Large	Large
Energy Density	1 to 5Wh/kg	0.01 to 0.05Wh/kg	8 to 600Wh/kg
Specific Power	2-10 W/gm	>100W/gm	0.3-1.5W/gm
Operating Voltage of Single Unit	2.3V to 2.75V	6V to 800V	1.2V to 4.2V
Life	>500,000 Cycles	>100,000 Cycles	150 to 1500 Cycles
Working Temperature	-40 to +70^{0}C	-40 to +125^{0}C	-20 to +65^{0}C

PART NUMBER DESCRIPTION

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EA 030 C Q CG R B G

Serial Name

EA	Supercapacitor Radial Series
GA	High CV Supercapacitors
XA	Axial Supercapacitors
BA	Supercapacitor Bank

Capacitance Value

Symbol	Capacitance
030	3F
3R3	3.3F
050	5F
100	10F
150	15F
180	18F
200	20F
250	25F
600	60F
700	70F
201	200F
451	450F
501	500F

Rated Voltage

Symbol	Voltage
B	2.5V
C	2.7V

Tolerance Code

Symbol	Tolerance
J	± 5%
K	± 10%
M	± 20%
N	± 30%
Q	± 20% + 30%

Size Code - High CV

Symbol	Size Code (D x Lmm)
BC	25x35
CG	30x55
DG	35x55
DK	35x70

Size Code - Radial

Symbol	Size Code (D x Lmm)
CG	10 x 21
CK	10x25
DG	12.5x21
DK	12.5x25
EK	16x25

Terminal Type

Code	Terminal Type
R	Radial
M	Snap-in Power Terminal and Mount Terminal
N	Snap-in Power Terminal only
L	Lug Terminal
S	Screw Terminal

Packaging Type

Code	Packing Type
B	Bulk

Application

Code	Application / Purpose / Custom
G	General

PRODUCTS

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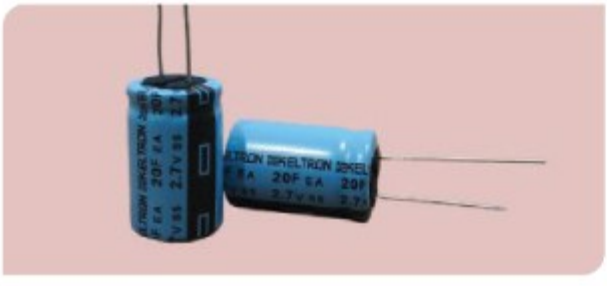
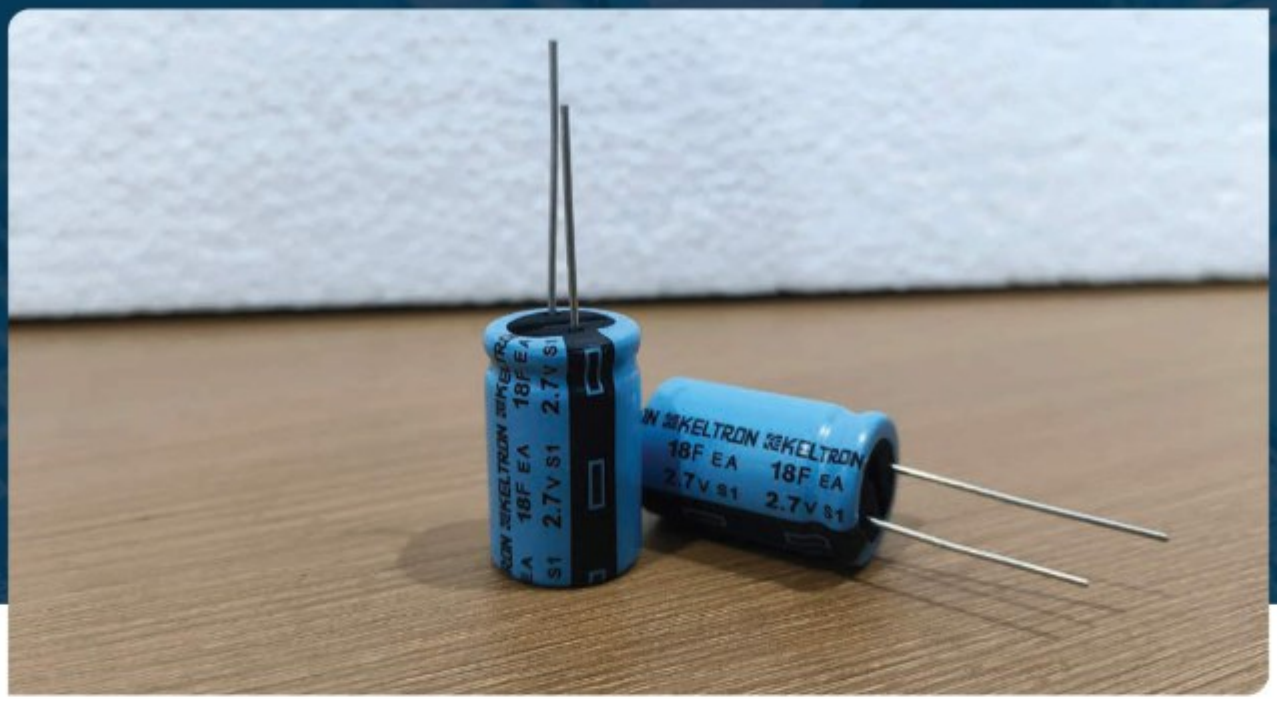
EA - SERIES

- Radial lead type.
- Product marking : Blue color sleeve.
- Applications : Automobiles, Smart control device, Smart TV set, Digital camera, Electric toys
- Operating temperature : -40°C to +65°C for 2.5V, -40°C to +55°C for 2.7V
- Capacitor Range : 3F to 25F
- Voltage : 2.5V/2.7V



LIFE TEST SUMMARY

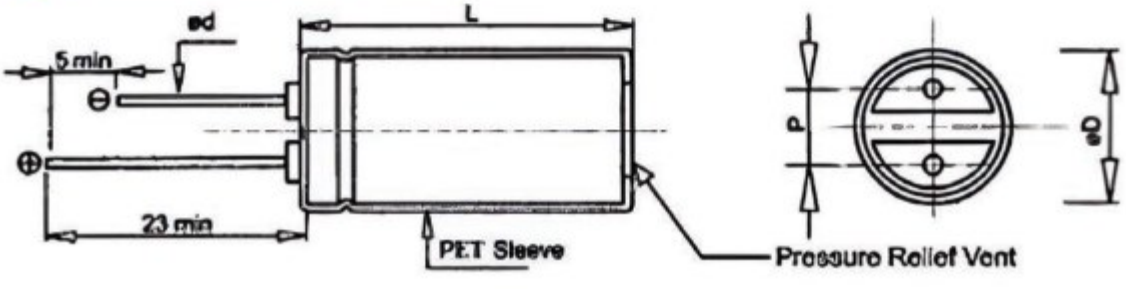
Tests	Life Cycle	High Temperature Load Life	Storage Temperature Characteristics	Vibration Resistance	Humidity
Test condition Parameters	Capacitors are cycled between rated voltage and half rated voltage under constant current at +30°C for 300000 cycles	Temperature: +65°C Voltage: Rated voltage Test duration: 1000hrs	Storage duration :2years No load temperature : +35°C	Amplitude :1.5mm Frequency: 10-55Hz Direction : x,y,z for 2 hrs each	Voltage: Rated voltage RH: 90% Temperature:+60°C Test duration: 1000hrs
Capacitance	≤ 30% of initial measured value	≤ 30% of initial measured value	≤ 30% of initial measured value	≤ 30% of initial measured value	≤ 30% of initial measured value
ESR	≤ 200% of initial measured value	≤ 200% of initial measured value	≤ 200% of initial measured value	≤ 200% of initial measured value	≤ 200% of initial measured value
Appearance	No remarkable defects	No remarkable defects	No remarkable defects	No remarkable defects	No remarkable defects



STANDARD RATING TABLE

Sl No	Rated Capacitance (F)	Rated Voltage (v)	Dia (mm)	Length (mm)	DCL max at 72 Hrs (mA)	ESR Max @ DC	Peak Current (A)	Max. Continuous current (A)
1	3	2.7	10	21	12	290	2	0.8
2	3.3	2.7	10	21	12	290	2.28	0.8
3	4	2.7	10	21	13	240	2.98	1
4	5	2.7	10	21	15	180	3.21	1.1
5	7	2.7	10	21	20	150	4.61	1.4
6	10	2.7	12.5	21	30	75	7.71	2.45
7	12	2.7	12.5	21	30	75	8	2.6
8	15	2.7	12.5	25	50	80	9.2	2.75
9	18	2.7	16	25	55	60	9.6	3.4
10	20	2.7	16	25	58	58	9.6	4
11	22	2.7	16	25	58	58	9.6	4.4
12	25	2.7	16	25	60	50	9.6	5.63

PHYSICAL OUTLINE



With safety Vent on Rubber Seal/Aluminium casings.

DIMENSIONAL SPECIFICATION

Case Code	Diameter ØD±0.5(mm)	Length L±1	Pitch P±0.5(mm)	Lead Dia ØD±0.05(mm)
CG	10	21	5	0.6
CK	10	25	5	0.6
DG	12.5	21	5	0.6
DK	12.5	25	5	0.6
EK	16	25	7.5	0.8

PACKING

EA series capacitors are generally BULK PACKED in thick polythene bags which are heat sealed to avoid direct atmospheric exposure. Individual primary packing in polythene bag is provided with a LABEL which carries outgoing Inspection Report No, Work Order No, Capacitor Series, Capacitance Value, Working Voltage, Capacitor tolerance, Capacitor size, Capacitor Part No, Temperature, Quantity and Date of packing. IT IS CUSTOMARY TO RETURN THE PACKING LABEL TO THE FACTORY IN CASE OF QUANTITY/ QUALITY NON-CONFORMANCE.

BULK PACKING QUANTITY DETAILS

Size (Ø D X L)	10x21	10x25	12.5x21	12.5x25	16x25
Case code	CG	CK	DG	DK	EK
Nos/ Bag	300	200	200	200	100
Nos/ Carton	1200	1000	800	600	400
Wt. (Kg) 1000 Nos	2.3	2.8	4	4.5	7

GA - SERIES

- High CV capacitors
- Product marking : Blue color sleeve and black print
- Applications : Wind power system, LED lighting, UPS, Printing machine, Elevator etc.
- Operating temperature : -40°C to +65°C for 2.5V, -40°C to +55°C for 2.7V
- Capacitor Range : 50F to 500F
- Voltage : 2.5V/2.7V

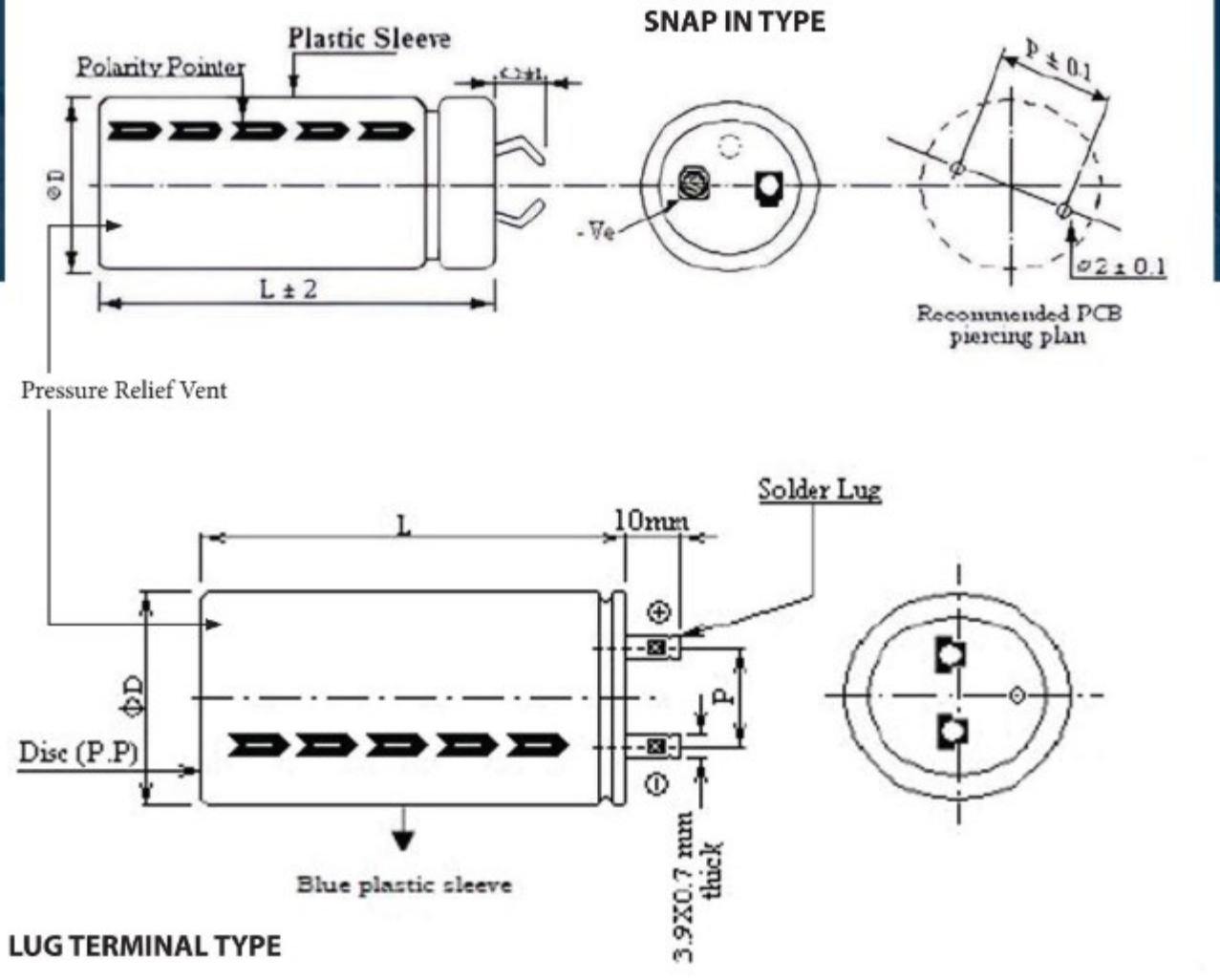
LIFE TEST SUMMARY

Tests	Life Cycle	High Temperature Load Life	Storage temperature characteristics	Vibration resistance	Humidity
Test condition Parameters	Capacitors are cycled between rated voltage and half rated voltage under constant current at +30°C for 300000 cycles	Temperature: +65°C Voltage: Rated voltage Test duration: 1000hrs	Storage duration: 2years No load temperature: +35°C	Amplitude :1.5mm Frequency : 10-55Hz Direction: x,y,z for 2 hrs each	Voltage: Rated voltage RH: 90% Temperature: +60°C Test duration: 1000hrs
Capacitance	≤ 30% of initial measured value	≤ 30% initial measured value	≤ 30% of initial measured value	≤ 30% of initial measured value	≤ 30% of initial measured value
ESR	≤ 200% of initial measured value	≤ 200% of initial measured value	≤ 200% of initial measured value	≤ 200% of initial measured value	≤ 200% of initial measured value
Appearance	No remarkable defects	No remarkable defects	No remarkable defects	No remarkable defects	No remarkable defects

STANDARD RATING TABLE

Sl #	Rated Capacitance (F)	Rated Voltage (v)	Dia (mm)	Length (mm)	DCL max at 72 Hrs (mA)	ESR Max @ DC	Peak Current (A)	Max. Continuous current (A)	Max. Energy (Wh)
1	50	2.7	25	35	0.22	20	30	12	0.0501
2	60	2.7	25	35	0.24	18	30	12	0.0601
3	70	2.7	25	35	0.25	17	35	12	0.071
4	100	2.7	25	35	0.3	15	50	15	0.101
5	150	2.7	30	55	0.5	15	55	16	0.152
6	160	2.7	30	55	0.6	15	55	18	0.162
7	200	2.7	35	55	0.7	14	60	20	0.203
8	300	2.7	35	70	0.8	14	75	25	0.304
9	320	2.7	35	70	0.8	13	75	25	0.324
10	350	2.7	35	70	0.8	14	75	25	0.354
11	360	2.7	35	70	0.9	12	75	25	0.365
12	400	2.7	35	70	1	12	80	25	0.405
13	450	2.7	35	70	1	10	80	25	0.455
14	500	2.7	35	70	1.1	8	80	25	0.506

PHYSICAL OUTLINE



DIMENSIONAL SPECIFICATION

Case code		BC	CG	DG	DK
Diameter	Ø D ± 1(mm)	25	30	35	35
Length	L ± 2 (mm)	35	55	55	70
Pitch	P ± 0.1 (mm)	10	10	14	14

PACKING

GA Series capacitors are generally packed in PRIMARY cardboard cartons by employing suitable separators to avoid damage during transit. The primary cartons are then inserted into MOTHER cardboard cartons before shipment.

Case code	BC	CG	DG	DK
No.s/Carton	288	200	81	81

SUPERCAPACITOR PRODUCTION FACILITY

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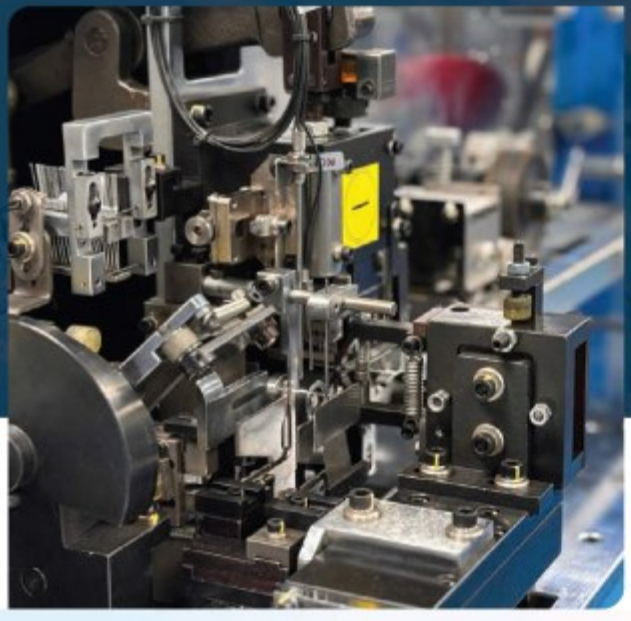

SUPERCAPACITOR PRODUCTION FACILITY


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MAKE IN INDIA

ISO

DSIR

KPP ERDC

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CE

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