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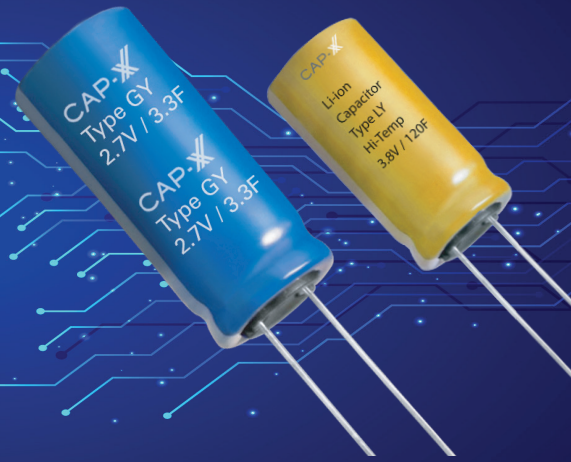
ASTUTE

CAP-**X**

SUPERCAPACITORS

Powering next generation products





Take advantage of our wide product range – partner with us

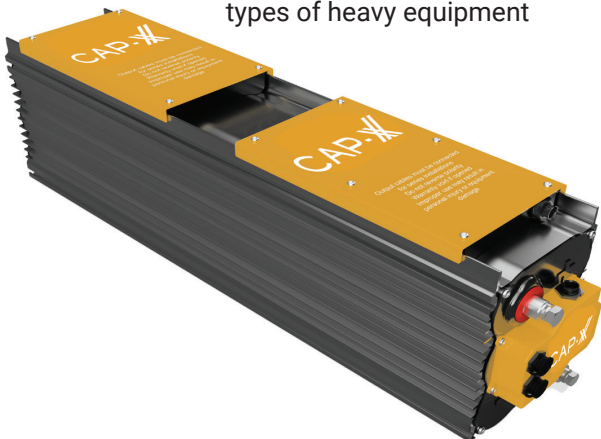
CAP-XX is an independent manufacturer of supercapacitor products. Our global manufacturing operations serves the world with high power, cost effective, green energy storage solutions.

World's biggest range of supercapacitors and modules

CAP-XX is the only supplier offering the full range of supercapacitors and modules demanded by the world's biggest industries.

Our comprehensive product range includes:

- Small ultra-thin prismatic supercapacitors
- Small board mounted cylindrical supercapacitors
- Lithium ion hybrid supercapacitors
- Large supercapacitor cells – both threaded and weldable terminals
- Large microgrid modules from 16 Volts to 2000 Volts including water cooling options
- 12 Volt and 24 Volt Truck Start modules for all types of heavy equipment



Massive range of Applications

We help customers manufacture:

- IoT devices
- Medical and wearable devices
- Electric vehicles
- Other automotive systems
- Wind turbines
- Solar installations
- Defence systems





CAP-XX Cylindrical EDLC Supercapacitors

Unparalleled combination of performance and value

The CAP-XX single cell and dual cell **supercapacitor** range provides excellent peak power performance at a very competitive cost.

CAP-XX GY and HY series cylindrical supercapacitor offering excellent value. They are available as single cells, or dual cell modules with a choice of cell balancing options.

Main Features

- High power output to support peak current loads
- On-board energy storage to handle power surges (high capacitance and energy density)
- Long cycle life
- Up to 85°C operation

Applications

- Energy harvesting for wireless sensors
- Peak power support for GSM/GPRS transmission
- Peak power support for low power batteries such as Lithium Thionyl Chloride batteries during automatic meter reading data transmission and last gasp transmission at the end of battery life
- Peak power support for locks and actuators
- Peak power support for portable drug delivery systems
- Short term bridging power to ride through power interruptions or for battery hot swap



CAP-XX Single Cell Supercapacitors

Part Numbering Code

G	Y	N	vvv	dd	mm	S	ccc	R
Model	Cylindrical	no of cells 1 or 2	Voltage 2R7 = 2.7V 100 = 100V	Diameter 6C = 6.3mm 08 = 8.0mm 10 = 10mm 1B = 12.5mm	Length 012 = 12mm 068 = 68mm 120 = 120mm	Tolerance M \pm 20% S +30% / -10% V +25% / -5%	μF (micro-F) Two digits + number of zeros.	Lead format R = radial S = 2 solder pins W = 4 Cu tabs

High Capacitance Cylindrical Supercapacitors

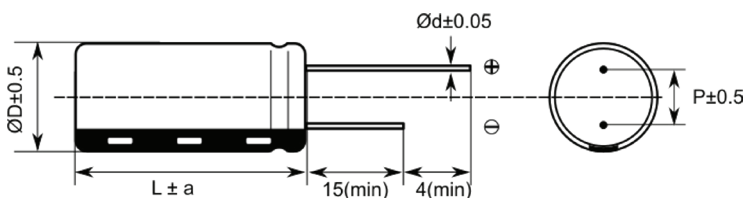
Rated Voltage 2.7V (Surge 2.85V) / **Temperature Range** -40°C to +70°C (-40°C ~ +85°C @ 2.3V)

CAP-XX Part No.	Cap (F)	DC ESR Max (m Ω)	AC ESR Max @ 1KHz (m Ω)	IL Max @ 72 Hrs (μ A)	Diameter (mm)	Length (mm)
GY12R705012V504R	0.5	570	450	1	5	12
GY12R708012V105R	1	250	200	2	8	12
GY12R708025V505R	5	120	90	10	8	25
GY12R710025V106R	10	60	45	20	10	25
GY12R716025V256R	25	30	22	50	16	25
GY12R718040V506R	50	20	16	100	18	40
GY12R722045V107R	100	20	16	200	22	45

Rated Voltage 3.0V (Surge 3.2V) / **Temperature Range** -40°C to +65°C (+85°C @ 2.5V)

CAP-XX Part No.	Cap (F)	DC ESR Max (m Ω)	AC ESR Max @ 1KHz (m Ω)	IL Max @ 72 Hrs (μ A)	Diameter (mm)	Length (mm)
GY13R008014V105R	1	520	400	3	8	14
GY13R008025V505R	5	125	95	15	8	25
GY13R010030V106R	10	65	50	30	10	30
GY13R018040V506R	50	25	20	150	18	40
GY13R022045V107R	100	25	18	300	22	45

GY1 Series Radial Lead



Φ D	P	a	Φ d
5	2	1.5	0.5
6.3	3.5	1.5	0.5
8	5.5	1.5	0.6
10	5	2	0.6
12.5	5	2	0.6
16	7.5	2	0.8
18	7.5	2	0.8
22	10	3.5	1

CAP-XX Dual Cell Supercapacitor

Dual Cell Module Part Numbering Explanation

G	Y	N	vvv	dd	mm	S	ccc	R	B
Model	Cylindrical	no of cells	Voltage	Diameter	Length	Tolerance	µF (micro-F)	Lead format	Balancing
		2	5R5 = 5.5V	8E = 8.5mm 11 = 11mm 13 = 13mm 17 = 17mm	17 = 17mm 44 = 44mm	M ± 20% S +50% / -20% V +30% / -10% P +80% / -20% N +20% / -0% T +25% / -5%	Two digits + number of zeros.	R = Radial leads T = Wire & connector B = Bent radial lead	R = Resistor* N = No balancing

*A pair of balancing 0402 resistors are used. CAP-XX strongly recommends balancing when operating above 5V to ensure longevity. Please contact CAP-XX for more information.

High Capacitance Supercapacitors Modules

Rated Voltage 5.5V (Surge 5.7V) / **Temperature Range** -40°C to +70°C (-40°C ~ +85°C @ 4.5V)

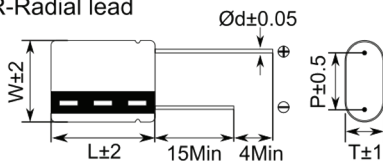
CAP-XX Part No.	Cap (F)	DC ESR Max (mΩ)	AC ESR Max @ 1KHz (mΩ)	IL Max @ 72 Hrs (µA)	Thick x Width (mm)	Length (mm)
GY25R55E14V224RN	0.22	1130	900	1	5.5 x 11	14
GY25R58E16V105RN	1	330	260	4	8.5 x 17	16
GY25R51127V505RN	5	140	110	20	11 x 22	27
GY25R51724V106RN	10	90	70	40	17 x 34	24
GY25R51843V256RN	25	65	52	100	18 x 36	43
GY25R51861V506RN	50	65	52	200	18 x 36	61

Rated Voltage 5.5V (Surge 5.7V) / **Temperature Range** -40°C to +85°C

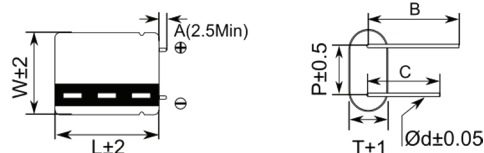
CAP-XX Part No.	Cap (F)	DC ESR Max (mΩ)	AC ESR Max @ 1KHz (mΩ)	IL Max @ 72 Hrs (µA)	Thick x Width (mm)	Length (mm)
HY25R58E16V504RN	0.5	1120	800	2	8.5 x 17	16
HY25R58E16V105RN	1	475	340	4	8.5 x 17	16
HY25R51127V505RN	5	280	200	20	11 x 22	27
HY25R51724V106RN	10	105	76	40	17 x 34	24
HY25R51843V256RN	25	85	60	100	18 x 36	43

GY2/HY2 Series Radial Lead

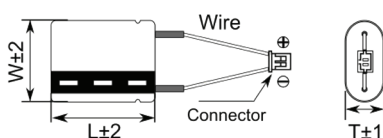
R-Radial lead



B-Bent lead



T-Wire & connector



T	P	Ød
5.5	7.5	0.5
6.5	8.8	0.5
8.5	12	0.6
11	15.5	0.6
13	18	0.6
17	24	0.8
18	26	0.8



CAP-XX Prismatic Supercapacitors

Micro sized dynamic pulse power and energy harvesting

The CAP-XX Prismatic **Supercapacitor** range provides excellent peak power performance in a wafer-thin package.

The CAP-XX Prismatic range of Supercapacitors provide a low profile, small foot print and low impedance solution to the power and performance limitations of batteries and other current-limited energy sources.

With built-in award-winning technologies, these Prismatic Supercapacitors deliver a combination of high capacitance and low equivalent series resistance (ESR). This produces very high energy density and power density, in a small, wafer-thin and lightweight package.

When used in conjunction with a low power energy source such as an energy harvester and/or low power battery, the CAP-XX Prismatic range of Supercapacitors enables extended backup time, longer battery life, and the provision of peak power as required.

Main features

- Very small low profile footprint
- High pulse power capability
- Very low ESR
- Low leakage current
- Operates across a wide temperature range (-40° to +70°C)
- Meets environmental standards for disposal/operation RoHs.

Applications

- Energy harvesting for wireless sensors & actuators
- Peak power support to GSM/GPRS transmission
- Last gasp power for remote sensor status transmission
- Peak power support for locks and actuators
- Peak power support for portable drug delivery systems
- Short term bridging power for battery hot swaps
- Extend battery run time.



Not actual size, for illustration only.

CAP-XX Prismatic Supercapacitors



S



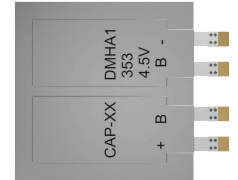
W



A



DMF/DMT/DMV



DMH

G Series

Voltage : 2.50V/cell

Temperature : -40°C/+70°C

H Series

Voltage : 2.75V/cell

Temperature : -40°C/+85°C

PN	Voltage(V)	Cap(mF)	ESR(mΩ)	Temperature range	L x W Dimesions (mm)	Thickness (mm)
DMV3N3R0V704M2DTA0	3	700	150	-20°C ~ 85°C	21x14	2.2
DMT3N4R2U224M3DTA0	4.2	220	300	-40°C ~ 85°C		2.2
DMT334R2S474M3DTA0		470	130			3.5
DMF3Z5R5H474M3DTA0	5.5	470	45	-40°C ~ 70°C		3.2
DMF4B5R5G105M3DTA0		1000	40		3.7	
DMHA14R5V353M4ATA0	2.25	140	75	-40°C ~ 85°C	20x20	0.4
	4.5	35	300			
GA109F	2.5	170	50	-40°C ~ 70°C	20x18	1
GA130F		800	40			1.7
GW109F		320	30		28.5x17	1
GW101F		800	30			1.3
GS106F		1360	20			1.3
GS130F		2400	15			1.9
HA102F	2.75	240	60	-40°C ~ 85°C	20x18	1.2
HA130F		800	65			1.7
HW109F		320	50		28.5x17	1
HW103F		1000	40			1.7
HS103F		500	30		39x17	1
HS130F		2400	15			1.9
GZ215F	5	90	110	-40°C ~ 70°C	20x15	2.5
GA209F		90	95		20x18	2.1
GA230F		400	75			3.5
GW209F		160	55		28.5x17	2.1
GW201F		400	55			2.7
GS203F		270	35		39x17	2.1
GS230F	1200	25	3.9			
HA202F	5.5	120	120	-40°C ~ 85°C	20x18	2.5
HA230F		400	130			3.5
HW209F		150	100		28.5x17	2.1
HW203F		500	75			3.4
HS203F		250	55		39x17	2.1
HS230F		1200	45			3.9



CAP-XX Stacked Coin Supercapacitors

Power, Longevity & Resilience

CAP-XX's stacked coin **supercapacitors** redefine energy density and cycle life, delivering unmatched performance.

CAP-XX GF and HF series are 5.5V rated high energy density stacked coin type supercapacitor.

Main Features

- High power density
- Long cycle life
- Up to 85°C operation

Applications

- RTC power backup
- Volatile memory power backup



CAP-XX Stacked Coin Supercapacitors

Part Numbering Code

X	Y	N	vvv	dd	ll	S	ccc	R
Model G, H	Cylindrical	no of cells 1	Voltage 5R5 = 5.5V	Diameter 11 = 11.5mm 13 = 13.5mm 19 = 19mm 20 = 20.5mm	Thickness 04 = 4.8mm 05 = 5.2mm 07 = 7.0mm 08 = 8.0mm 09 = 9.0mm 10 = 9.8mm	Tolerance P +80% / -20% O +80% / 0% V +30% / -10%	μF (micro-F) Two digits + number of zeros. 155 = 150000μF = 1.5F	Lead format V, H, C refer to mechanical drawings

GF Product Range

Temperature Range -25°C to +70°C

CAP-XX Part No.	Cap (F)	AC ESR Max @ 1KHz (Ω)	IL Max @ 72 Hrs (μA)
V Type			
GF15R51105P224V	0.22	75	5
GF15R51105P334V	0.33	50	8
GF15R51105P474V	0.47	50	8
GF15R51905P105V	1	30	12
GF15R51905P155V	1.5	30	12

H Type

GF15R51105P224H	0.22	75	5
GF15R51105P334H	0.33	50	8
GF15R51105P474H	0.47	50	8
GF15R51905P105H	1	30	12
GF15R51905P155H	1.5	30	12

C Type

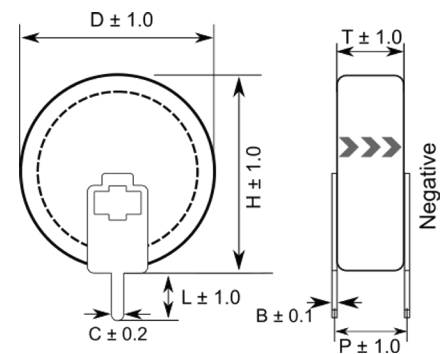
GF15R51307P224C	0.22	75	5
GF15R51307P334C	0.33	50	8
GF15R51307P474C	0.47	50	8
GF15R52008P105C	1	30	12
GF15R52008P155C	1.5	30	12

HF Product Range, C Type

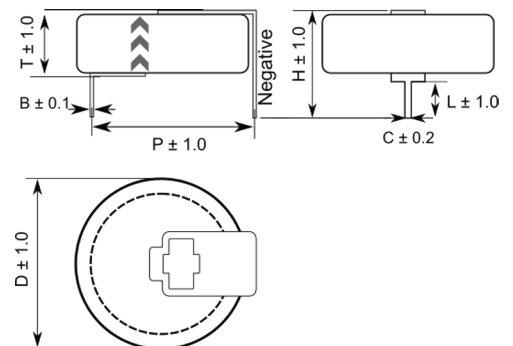
Temperature Range -40°C to +85°C

CAP-XX Part No.	Cap (F)	AC ESR Max @ 1KHz (Ω)	IL Max @ 72 Hrs (μA)
C Type			
HF15R51309P104C	0.1	75	5
HF15R51309P224C	0.22	75	5
GF15R51309P334C	0.33	50	8
GF15R52010P684C	0.68	30	15
GF15R52010P105C	1	30	15

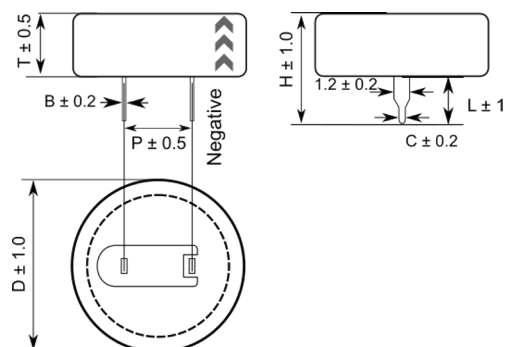
V Type



H Type



C Type





CAP-XX Lithium-Ion Capacitors

The ultimate fusion of battery power and supercapacitor efficiency

CAP-XX Lithium-Ion **capacitors** harness the advantages of batteries and supercapacitors in one.

The LY13R8 radial lead Lithium-ion capacitors are 3.8V rated cylindrical cells offering excellent value, providing an order of magnitude higher capacitance for the same size compared to our standard GY/HY cells.

Main Features

- Very high energy density, up to 10x higher than GY Cylindrical EDLC
- Extremely long cycle life, up to 500,000 cycles
- Very low leakage current
- Extremely slow self-discharge
- Wide temperature range
- Intrinsically safe, no thermal runaway

Applications

- Powering remote sensors with energy harvesters
- Replacing small batteries
- Long term power backup



CAP-XX Lithium-Ion Capacitors

Part Numbering Code

L	Y	N	vvv	dd	mm	S	ccc	R
Model Li-ion Cap	Cylindrical	no of cells 1	Voltage 3R8 = 3.8V	Diameter 08 = 8.0mm 10 = 10mm 1B = 12.5mm 16 = 16mm 18 = 18mm	Length 012 = 12mm 068 = 68mm 120 = 120mm	Tolerance M \pm 20% S +30% / -10% V +25% / -5%	μF (micro-F) Two digits + number of zeros. 106 = 1000000 μ F = 10F	Lead format R = radial

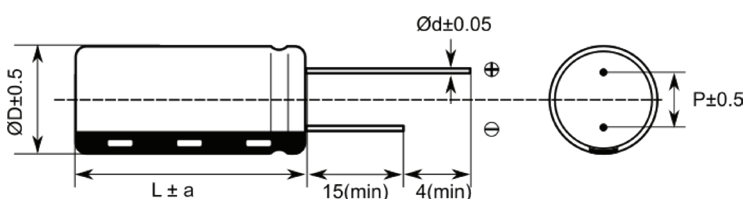
High Capacitance Lithium-Ion Capacitors

Rated Voltage 2.5V ~ 3.8V* (Surge 4.2V) / **Temperature Range** -25°C to +70°C

*Do NOT discharge below 2.5V

CAP-XX Part No.	Cap (F)	DC ESR (m Ω)	AC ESR Max @ 1KHz (m Ω)	IL Max @ 120 Hrs (μ A)	Diameter (mm)	Length (mm)
Low Temperature Variant						
LY13R808014M106R-L	10	800	270	3	8	14
LY13R808020M256R-L	25	370	175	3.3	8	20
LY13R808025M306R-L	30	350	125	4	8	25
LY13R810016M306R-L	30	280	125	4	10	16
LY13R810020M506R-L	50	220	95	6	10	20
LY13R810025M706R-L	70	165	65	8	10	25
LY13R810030M117R-L	110	125	50	10	10	30
LY13R81B025M127R-L	120	125	50	20	12.5	25
LY13R816025M227R-L	220	70	40	40	16	25
High Energy Variant						
LY13R86C012M805R-E	8	2600	1200	2	6.3	12
LY13R86C022M226R-E	22	1000	450	3.5	6.3	22
LY13R808014M246R-E	24	900	400	2.5	8	14
LY13R808020M406R-E	40	550	250	3.2	8	20
LY13R808025M556R-E	55	450	200	5	8	25
LY13R810016M556R-E	55	450	200	5	10	16
LY13R810020M856R-E	85	250	120	8	10	20
LY13R810025M117R-E	110	220	90	9	10	25
LY13R810030M157R-E	150	140	70	15	10	30
LY13R81B025M207R-E	200	130	65	18	12.5	25
LY13R81B030M307R-E	300	100	50	30	12.5	30
LY13R81B040M357R-E	350	90	45	35	12.5	40
LY13R81B045M407R-E	400	80	45	70	12.5	45

LY1 Series Radial Lead



Φ D	P	a	Φ d
8	3.5	1.5	0.6
10	5	2	0.6
12.5	5	2	0.6
16	7.5	2	0.8

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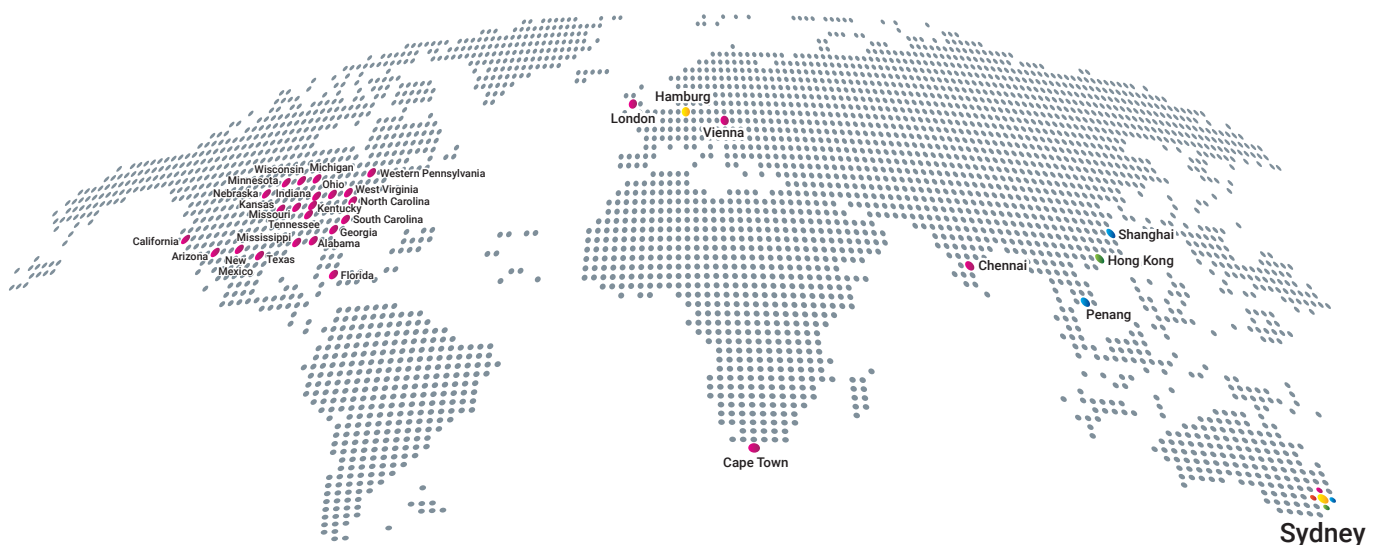
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