CAP-XX

Power Management Redefined

Product Bulletin
GS1 series – Single Cell Supercapacitors

GS1 series supercapacitors offer a very low profile, cost-effective and low impedance solution to the power delivery limitations of batteries and other current-limited energy sources, and the energy delivery limitations of conventional capacitors.

CAP-XX supercapacitors:

- Provide the power to meet peak current loads (low ESR)
- Store sufficient energy to meet large power surges (high capacitance)
- Operate across a wide environmental range (from -40ºC - +75ºC)
- Offer the smallest and thinnest form factor available for any given ESR and capacitance

CAP-XX Product Name	DC Capacitance[1] (± 20%)[2]	ESR[1] (± 20%)[2]	Maximum Thickness
GS103F	**400 mF**	**26 mΩ**	**1.10 mm**
GS106F	**1100 mF**	**26 mΩ**	**1.20 mm**

Other products available to order			
GS102F	300 mF	34 mΩ	0.90 mm
GS104F	550 mF	22 mΩ	1.20 mm
GS111F	650 mF	18 mΩ	1.40 mm
GS121F	800 mF	34 mΩ	1.00 mm
GS113F	1400 mF	20 mΩ	1.40 mm

Parameter	Minimum	Nominal	Maximum
Operating Temp	-40°C	+25°C	+75°C[3]
Storage Temp	-40°C	+25°C	+75°C
Operating Voltage		2.3V	2.5V
Leakage Current[4]		1µA	2µA
Pulse Current	30A (single pulse. +ve & -ve terminal short circuited)		
ESR change with Temp	75% of nominal @ +75°C		150% of nominal @ -20°C
Dimensions	38.5 x 16.5mm	39.0 x 17.0mm	39.5 x 17.5mm

RoHS Compliant

Reduce voltage drops and DC/DC requirements in consumer and industrial devices

Extend battery life, run-time and stand-by time, particularly at low temperatures

Protect against voltage transients (e.g., drop test) and electromagnetic interference

Solve current limitations of e.g., USB, PCMCIA, PCI & CF ports, fuel cells, solar cells, etc.

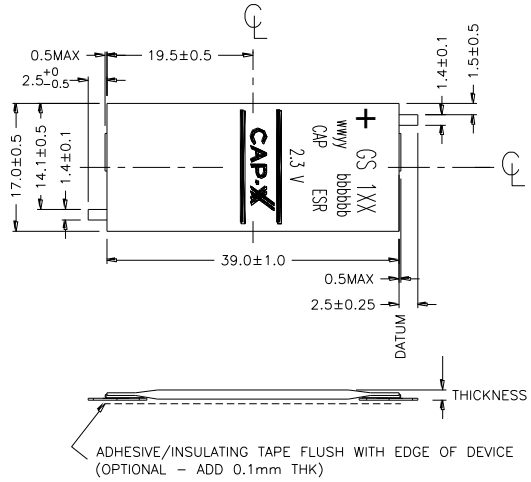
Notes

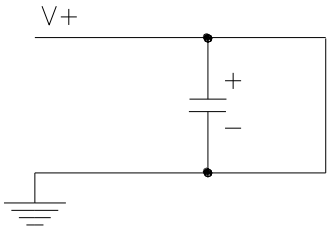
1. Capacitance will decline and ESR will rise over time, at a rate which depends on both voltage and temperature. Further information on supercapacitor ageing and lifetime is available from CAP-XX.
2. Tolerances for Capacitance and ESR are measured at +25°C
3. The maximum recommended temperature for sustained operation is 70°C
4. Leakage current is measured after 72h at voltage at +25°C

Mounting: Adhesive/insulating tape can be added to the underside of the product to assist with mounting as shown in the following Mechanical Drawings. The mounting tape increases the overall device thickness by 0.1mm with the release layer removed. To order this option, replace the “F” suffix with a “G” in the CAP-XX Product Name, e.g., GS103**G**.

Specifications may be subject to change without notice
The technology referred to in this Product Bulletin is protected by patent no. US06631072B1 and other patents and pending patents throughout the world.

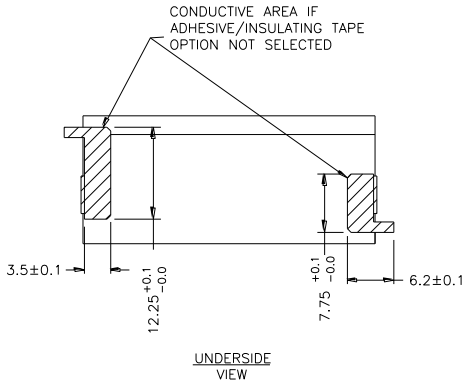
Mechanical & Electrical Drawings

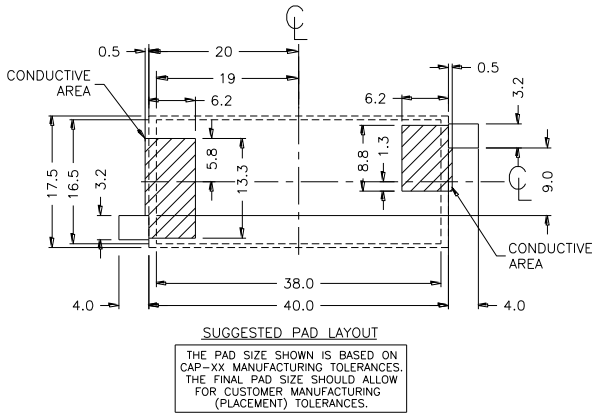




PLEASE CONTACT CAP–XX
FOR FURTHER INFORMATION

SUGGESTED CONNECTION
DETAILS FOR SINGLE CELL
SUPERCAP





For further information on all CAP-XX products and applications, please contact us at

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CAP-XX

Power Management Redefined

Product Bulletin
GS2 series – Dual Cell Supercapacitors

GS2 series supercapacitors offer a cost-effective, low profile, low impedance solution to the power delivery limitations of batteries and other current-limited energy sources, and the energy delivery limitations of conventional capacitors.

CAP-XX supercapacitors:

- Provide the power to meet peak current loads (low ESR)
- Store sufficient energy to meet large power surges (high capacitance)
- Operate across a wide environmental range (from -40ºC - +75ºC)
- Offer the smallest and thinnest form factor available for any given ESR and capacitance

CAP-XX Product Name	DC Capacitance[1] (± 20%)[2]	ESR[1] (± 20%)[2]	Maximum Thickness
GS203F	**200 mF**	**50 mΩ**	**2.15 mm**
GS206F	**550 mF**	**50 mΩ**	**2.40 mm**

Other products available to order			
GS202F	160 mF	70 mΩ	1.90 mm
GS204F	250 mF	40 mΩ	2.50 mm
GS211F	300 mF	34 mΩ	2.90 mm
GS221F	400 mF	65 mΩ	2.00 mm
GS213F	700 mF	40 mΩ	2.90 mm

Parameter	Minimum	Nominal	Maximum
Operating Temp	-40°C	+25°C	+75°C[3]
Storage Temp	-40°C	+25°C	+75°C
Operating Voltage		4.5V	5.0V
Leakage Current[4]		1µA	2µA
Pulse Current	30A (single pulse. +ve & -ve terminal short circuited)		
ESR change with Temp	75% of nominal @ +75°C		150% of nominal @ -20°C
Dimensions	38.5 x 16.5mm	39.0 x 17.0mm	39.5 x 17.5mm

RoHS Compliant

Reduce voltage drops and DC/DC requirements in consumer and industrial devices

Extend battery life, run-time and stand-by time, particularly at low temperatures

Protect against voltage transients (e.g., drop test) and electromagnetic interference

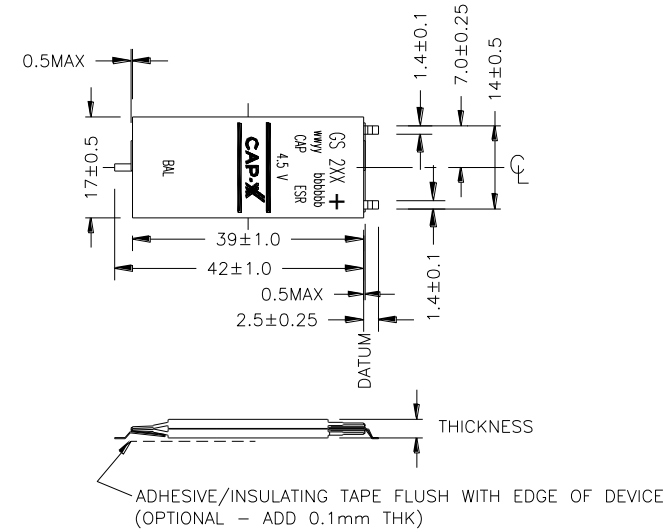
Solve current limitations of e.g., USB, PCMCIA, PCI & CF ports, fuel cells, solar cells, etc.

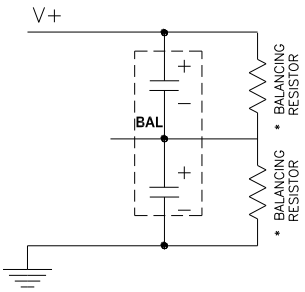
Notes

1. Capacitance will decline and ESR will rise over time, at a rate which depends on both voltage and temperature. Further information on supercapacitor ageing and lifetime is available from CAP-XX.
2. Tolerances for Capacitance and ESR are measured at +25°C
3. The maximum recommended temperature for sustained operation is 70°C
4. Leakage current is measured after 72h at voltage at +25°C

Mounting: Adhesive/insulating tape can be added to the underside of the product to assist with mounting as shown in the following Mechanical Drawings. The mounting tape increases the overall device thickness by 0.1mm with the release layer removed. To order this option, replace the “F” suffix with a “G” in the CAP-XX Product Name, e.g., GS203**G**.

Mechanical & Electrical Drawings





PLEASE CONTACT CAP–XX
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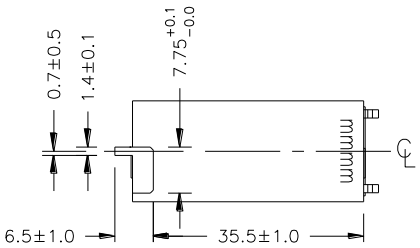
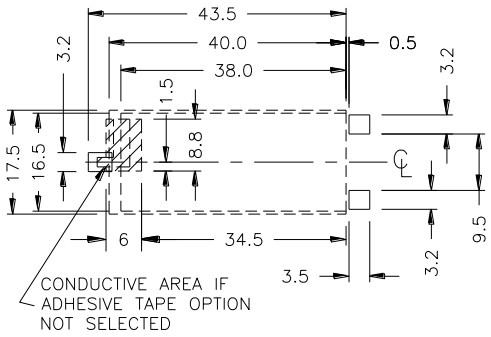
SUGGESTED CONNECTION
DETAILS FOR 2 – CELL
SUPERCAP



UNDERSIDE
VIEW



SUGGESTED PAD LAYOUT

THE PAD SIZE SHOWN IS BASED ON CAP–XX MANUFACTURING TOLERANCES. THE FINAL PAD SIZE SHOULD ALLOW FOR CUSTOMER MANUFACTURING (PLACEMENT) TOLERANCES.

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