BCAP0650 P270
BCAP1200 P270
BCAP1500 P270
BCAP2000 P270
BCAP3000 P270

FEATURES AND BENEFITS

- 2.7 V operating voltage
- Highest power performance available
- Lowest RC time constant
- Over 1,000,000 duty cycles
- Proprietary material science and packaging technology
- Threaded terminal or weldable post versions
- Ultra-low internal resistance

TYPICAL APPLICATIONS

- Automotive subsystems
- Back-up power
- Grid stabilization
- Hybrid drive trains
- Rail system power
- Transportation
- Utility vehicles

PRODUCT SPECIFICATIONS

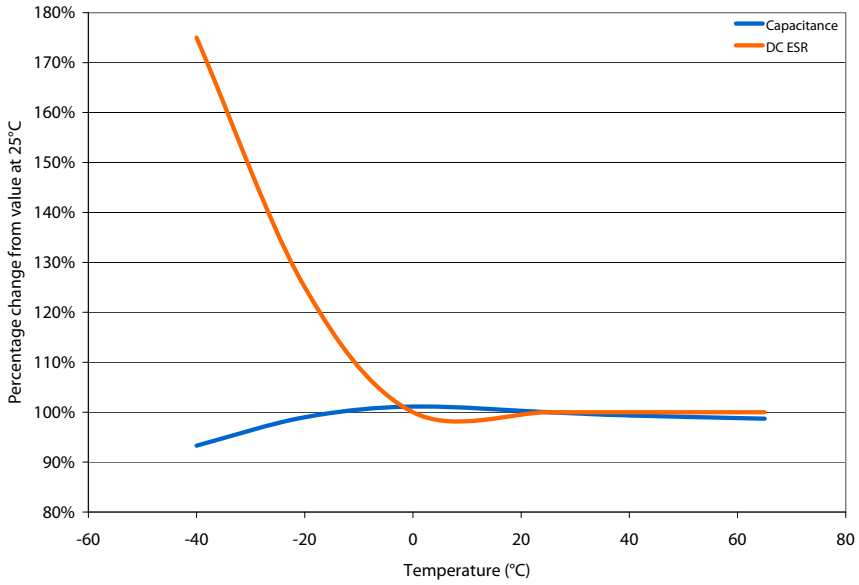
	BCAP0650	BCAP1200	BCAP1500	BCAP2000	BCAP3000
ELECTRICAL					
Capacitance					
Nominal capacitance	650 F	1,200 F	1,500 F	2,000 F	3,000 F
Tolerance capacitance	-0% / +20%	-0% / +20%	-0% / +20%	-0% / +20%	-0% / +20%
Voltage					
Rated voltage	2.7 V DC	2.7 V DC	2.7 V DC	2.7 V DC	2.7 V DC
Resistance					
ESR, DC (max., room temperature)	0.8 mΩ	0.58 mΩ	0.47 mΩ	0.35 mΩ	0.29 mΩ
ESR, AC (max., room temperature, 1kHz)	0.6 mΩ	0.44 mΩ	0.35 mΩ	0.26 mΩ	0.24 mΩ
Current					
Maximum continuous current (20°C temperature rise)	62 A	81 A	97 A	123 A	147 A
Maximum peak current, 1 sec.	577 A	955 A	1190 A	1590 A	2170 A
Leakage current (After 72 hours at 25°C. Initial leakage current can be higher.)	1.5 mA	2.7 mA	3 mA	4.2 mA	5.2 mA
TEMPERATURE					
Operating temperature range (Cell case temperature)	-40°C to +65°C	-40°C to +65°C	-40°C to +65°C	-40°C to +65°C	-40°C to +65°C
Storage temperature range (Stored uncharged)	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
POWER AND ENERGY					
Usable power density, Pd	6,800 W/kg	5,800 W/kg	6,600 W/kg	6,900 W/kg	5,900 W/kg
Usable power	1,090 W	1,510 W	1,860 W	2,500 W	3,020 W
Impedance match power, Pmax	14,200 W/kg	12,100 W/kg	13,800 W/kg	14,500 W/kg	12,300 W/kg
Gravimetric energy density, Emax	4.11 Wh/kg	4.67 Wh/kg	5.42 Wh/kg	5.63 Wh/kg	5.96 Wh/kg
Energy available	0.66 Wh	1.22 Wh	1.52 Wh	2.03 Wh	3.04 Wh

PRODUCT SPECIFICATIONS (cont.)

	BCAP0650	BCAP1200	BCAP1500	BCAP2000	BCAP3000
DC LIFESPAN					
Endurance (at rated voltage and temperature)	1,500 hours	1,500 hours	1,500 hours	1,500 hours	1,500 hours
Capacitance change (% decrease from rated value)	≤20%	≤20%	≤20%	≤20%	≤20%
ESR change (% increase from rated value)	≤60%	≤60%	≤60%	≤60%	≤60%
Life Test (at rated voltage and 25°C)	10 years	10 years	10 years	10 years	10 years
Capacitance change (% decrease from rated value)	≤20%	≤20%	≤20%	≤20%	≤20%
ESR change (% increase from rated value)	≤100%	≤100%	≤100%	≤100%	≤100%
Cycle Test (Number of cycles)	1 million	1 million	1 million	1 million	1 million
Capacitance change (% decrease from rated value)	≤20%	≤20%	≤20%	≤20%	≤20%
ESR change (% increase from rated value)	≤100%	≤100%	≤100%	≤100%	≤100%
Shelf Life (Storage uncharged up to maximum storage temperature)	2 years	2 years	2 years	2 years	2 years
Capacitance change (% change from rated value)	10%	10%	10%	10%	10%
ESR change (% change from rated value)	50%	50%	50%	50%	50%
CONNECTION					
Power output terminals	Threaded (K04) or Weldable (K05)				
PHYSICAL					
Dimensions	See drawings				
Weight	0.16 kg	0.26 kg	0.28 kg	0.36 kg	0.51 kg
SAFETY					
Short circuit current (Current possible with short circuit from rated voltage. Do not use as an operating current.)	3,400 A	4,700 A	5,700 A	7,700 A	9,300 A
Certifications	RoHS	RoHS	RoHS	RoHS	UL810a, RoHS
Surge voltage (voltage above this level can cause catastrophic failure)	2.8 V DC	2.8 V DC	2.8 V DC	2.8 V DC	2.8 V DC
Isolation voltage	N/A	N/A	N/A	N/A	N/A

TYPICAL CHARACTERISTICS

	BCAP0650	BCAP1200	BCAP1500	BCAP2000	BCAP3000
THERMAL CHARACTERISTICS					
Thermal resistance (Rth, case to ambient)	6.5°C/W	5.3°C/W	4.5°C/W	3.8°C/W	3.2°C/W



ADDITIONAL TECHNICAL INFORMATION

Capacitance and ESR, DC measured per document no. 1007239 available at www.maxwell.com.
Unless specified, all specifications are at 25°C.

Short circuit current (Isc) $= \frac{V_{RATED}}{ESR(DC)}$

Emax $= \frac{½\ CV^2}{3{,}600 \times mass}$

Pmax $= \frac{V^2}{4 \times ESR(DC) \times mass}$

Pd $= \frac{0.12V^2}{ESR(DC) \times mass}$

Maximum peak current (1 sec) $= \frac{½\ CV}{C \times ESR(DC) + 1}$

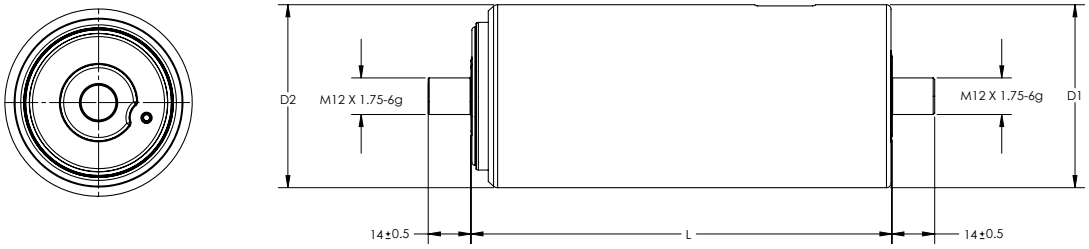
MOUNTING RECOMMENDATIONS

Do not reverse polarity. Maximum torque for M12 screw terminals is 14Nm. Cells are designed to be connected into series or parallel strings. Clean terminals before mounting..

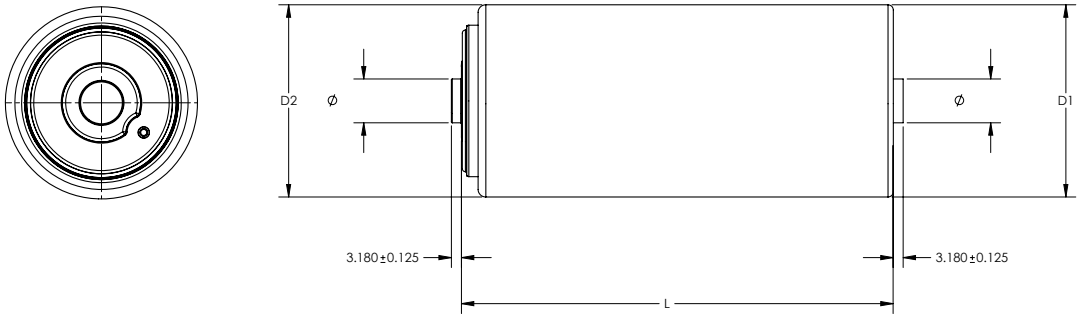
MARKINGS

Products are marked with the following information: Rated capacitance, rated voltage, product number, name of manufacturer, positive and negative terminal, warning marking, serial number.

DIMENSIONS



Part Description	Vol (l)	Dimensions (mm)			Package Quantity
		L (±0.3mm)	D1 (±0.2mm)	D2 (±0.7mm)	
BCAP0650 P270 K04 02	0.211	51.5	60.4	60.7	15
BCAP1200 P270 K04 02	0.294	74	60.4	60.7	15
BCAP1500 P270 K04 02	0.325	85	60.4	60.7	15
BCAP2000 P270 K04 02	0.373	102	60.4	60.7	15
BCAP3000 P270 K04 02	0.475	138	60.4	60.7	15



Part Description	Vol (l)	Dimensions (mm)			Package Quantity
		L (±0.3mm)	D1 (±0.2mm)	D2 (±0.7mm)	
BCAP0650 P270 K05 02	0.15	51.5	60.4	60.7	15
BCAP1200 P270 K05 02	0.133	74	60.4	60.7	15
BCAP1500 P270 K05 02	0.264	85	60.4	60.7	15
BCAP2000 P270 K05 02	0.312	102	60.4	60.7	15
BCAP3000 P270 K05 02	0.414	138	60.4	60.7	15

Product dimensions are for reference only unless otherwise identified. Product dimensions and specifications may change without notice.
Please contact Maxwell Technologies directly for any technical specifications critical to application.

Maxwell Technologies, Inc.
Worldwide Headquarters
9244 Balboa Avenue
San Diego, CA 92123
USA
Tel: +1 858 503 3300
Fax: +1 858 503 3301

Maxwell Technologies SA
CH-1728 Rossens
Switzerland
Tel: +41 (0)26 411 85 00
Fax: +41 (0)26 411 85 05

Maxwell Technologies, GmbH
Brucker Strasse 21
D-82205 Gilching
Germany
Tel: +49 (0)8105 24 16 10
Fax: +49 (0)8105 24 16 19

Maxwell Technologies, Inc.
Shanghai Representative Office
13E, CR Times Square
500 Zhangyang Road, Pudong
Shanghai 200122, P.R. China
Tel: +86 21 5836 8780
Fax: +86 21 5836 8790

Online: www.maxwell.com • Email: info@maxwell.com