

Excellent Integrated System Limited

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[Maxwell Technologies Inc.](#)

[BCAP3400 P285 K04](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

DATASHEET

K2 ULTRACAPACITORS - 2.85V/3400F

NEW

FEATURES AND BENEFITS

- DuraBlue™ Shock and Vibration Technology
- Up to 1,000,000 duty cycles or 10 year DC life*
- Highest power and energy
- Up to 18 kW/kg of Specific Power²
- Up to 4.00 Wh of Stored Energy²
- Threaded terminals or laser-weldable posts

TYPICAL APPLICATIONS

- High shock and vibration environments
- Automotive subsystems
- Wind turbine pitch control
- Hybrid vehicles
- Rail
- Heavy industrial equipment
- UPS & telecom systems



PRODUCT SPECIFICATIONS

ELECTRICAL	BCAP3400	TEMPERATURE	BCAP3400
Rated Capacitance ¹	3,400 F	Operating temperature range (Cell case temperature)	
Minimum Capacitance, initial ¹	3,400 F	Minimum	-40°C
Typical Capacitance, initial ^{1,2}	3,550 F	Maximum	65°C
Maximum Capacitance, initial ¹	3,740 F	Storage temperature range (Stored uncharged)	
Typical ESR _{DC} , initial ^{1,2}	0.22 mΩ	Minimum	-40°C
Maximum ESR _{DC} , initial ¹	0.28 mΩ	Maximum	70°C
Test Current for Capacitance and ESR _{DC} ¹	100 A		
Rated Voltage	2.85 V		
Absolute Maximum Voltage ³	3.0 V		
Absolute Maximum Current	2,500 A		
POWER & ENERGY		ELECTRICAL	
Minimum Usable Specific Power, P _d ⁵	6.7 kW/kg	Leakage Current at 25°C, typical ⁴	15 mA
Typical Usable Specific Power, P _d ^{2,5}	8.5 kW/kg		
Minimum Impedance Match Specific Power, P _{max} ⁶	14 kW/kg		
Typical Impedance Match Specific Power, P _{max} ^{2,6}	18 kW/kg		
Minimum Specific Energy, E _{max} ⁷	7.4 Wh/kg		
Typical Specific Energy, E _{max} ^{2,7}	7.7 Wh/kg		
Minimum Stored Energy, E _{stored} ^{8,12}	3.84 Wh		
Typical Stored Energy, E _{stored} ^{2,8,12}	4.00 Wh		
SHOCK & VIBRATION		LIFE	
Vibration Specification	ISO 16750-3, Tables 12 & 14	DC Life at High Temperature ¹ (held continuously at Rated Voltage & Maximum Operating Temperature)	1,500 hours
Shock Specification	SAE J2464, IEC 60068-2-27, -29	Capacitance Change (% decrease from minimum initial value)	25%
		ESR Change (% increase from maximum initial value)	110%
		Projected DC Life at 25°C ¹ (held continuously at Rated Voltage)	10 years
SAFETY			
Short Circuit Current, typical (Current possible with short circuit from rated voltage. Do not use as an operating current.)	10,000 A	Capacitance Change (% decrease from minimum initial value)	20%
Certifications	UL810a, RoHS, REACH	ESR Change (% increase from maximum initial value)	100%
		Projected Cycle Life at 25°C ^{1, 10, 11}	1,000,000 cycles
		Capacitance Change (% decrease from minimum initial value)	20%
		ESR Change (% increase from maximum initial value)	100%
		Test Current	100 A
		Shelf Life (Stored uncharged at 25°C)	4 years

*Results may vary. Additional terms and conditions, including the limited warranty, apply at the time of purchase.
See the warranty details for applicable operating and use requirements.

DATASHEET

K2 ULTRACAPACITORS - 2.85V/3400F

NEW

PRODUCT SPECIFICATIONS (Cont'd)

THERMAL	BCAP3400	PHYSICAL	BCAP3400
Thermal Resistance (R_{th} , Case to Ambient), typical ⁹	3.2°C/W	Mass, typical	520 g
Thermal Capacitance (C_{th}), typical	640 J/°C	Terminals	Threaded or Weldable
Maximum Continuous Current ($\Delta T = 15^{\circ}\text{C}$) ⁹	131 A _{RMS}	Maximum Terminal Torque (K04)	14 Nm
Maximum Continuous Current ($\Delta T = 40^{\circ}\text{C}$) ⁹	211 A _{RMS}		

MOUNTING RECOMMENDATIONS

Do not reverse polarity. Please refer to document number 1016419, available at maxwell.com for welding recommendations.

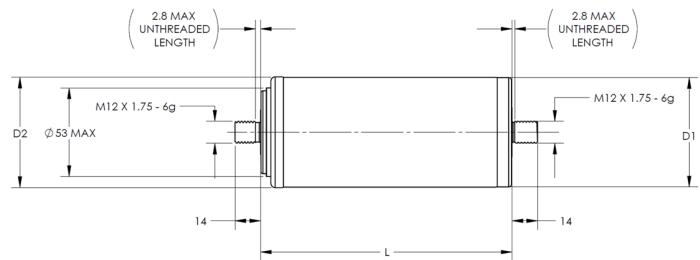
NOTES

1. Capacitance and ESR_{DC} measured at 25°C using specified test current in K2 2.7V Series Datasheet.
2. Typical values represent mean values of a production sample.
3. Absolute maximum voltage, non-repeated. Not to exceed 1 second.
4. After 72 hours at rated voltage. Initial leakage current can be higher.
5. Per IEC 62391-2, $P_d = \frac{0.12V^2}{\text{ESR}_{\text{DC}} \times \text{mass}}$
6. $P_{\text{max}} = \frac{V^2}{4 \times \text{ESR}_{\text{DC}} \times \text{mass}}$
7. $E_{\text{max}} = \frac{\frac{1}{2} CV^2}{3,600 \times \text{mass}}$
8. $E_{\text{stored}} = \frac{\frac{1}{2} CV^2}{3,600}$
9. $\Delta T = I_{\text{RMS}}^2 \times \text{ESR} \times R_{\text{ca}}$
10. Cycle using specified test current per waveform in K2 2.7V Series Datasheet.
11. Cycle life varies depending upon application-specific characteristics. Actual results will vary.
12. Per United Nations material classification UN3499, all Maxwell ultracapacitors have less than 10 Wh capacity to meet the requirements of Special Provisions 361. When packaged according to the regulation, both individual ultracapacitors and modules composed of those ultracapacitors shipped by Maxwell can be transported without being treated as dangerous goods (hazardous materials).

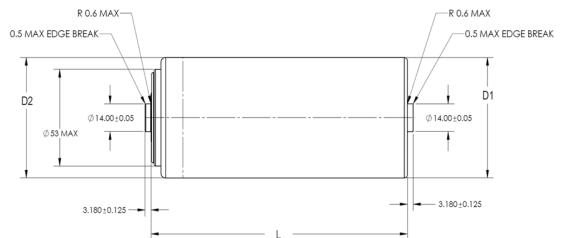
MARKINGS

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

BCAP3400 P285 K04



BCAP3400 P285 K05



Part Description	L (±0.3mm)	Dimensions (mm)	Package Quantity
	D1 (±0.2mm)	D2 (±0.7mm)	
BCAP3400 P285 K04/05	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. All products featured on this datasheet are covered by the following U.S. patents and their respective foreign counterparts: 6643119, 7295423, 7342770, 7352558, 7384433, 7440258, 7492571, 7508651, 7580243, 7791860, 7791861, 7859826, 7883553, 7935155, 8072734, 8098481, 8279580.



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