



REVOLUTIONIZING HOW THE WORLD MOVES PEOPLE.

Carbon emissions, the depletion of natural resources, traffic congestion and the rising costs of fossil fuels are all issues pushing the world to search for alternative means of transportation. Mass-transit buses, fleet vehicles, trains and heavy-transportation vehicles all benefit from the adoption of a hybrid powertrain that utilizes ultracapacitors.

Ultracapacitors can quickly capture braking energy and then use that energy to provide a short burst of power during acceleration to dramatically reduce the use of fuel in a conventional internal combustion engine or battery drain in an electric/hybrid system. Maxwell ultracapacitors are compact, light weight, have exceptionally long-life and are virtually impervious to any climate condition.*

Potential Ultracapacitor Applications

- Regenerative braking systems
- Rapid charging
- Hybrid powertrains with internal combustion engines
- Complementary energy source in electric powertrains
- Internal combustion engine starting

Features and Benefits

- Achieves fuel savings
- Reduces CO₂ emissions
- Low maintenance operation
- Non-toxic, lead-free materials
- Used in over 20,000 hybrid transit systems worldwide

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

Maxwell Technologies' ultracapacitors can meet or exceed the storage and power needs of today's most demanding bus applications. The new 2.85V cell, with DuraBlue™ Advanced Shock & Vibration Technology, continues Maxwell's leadership in ultracapacitor innovation. The 2.85V cell is the most rugged ultracapacitor cell in the market, and can withstand high vibration environments.

The 48V module series and the 125V module are also built to handle heavy usage in bus applications. Available in several configurations, these cells and modules are compact, rugged and easily integrated into buses and other transportation vehicles. The newest addition to the 48V module family includes the DuraBlue™ technology, and offers advanced capacitor management system options (CMS) for improved reliability, as well as safety enhancements which include a redundant over-voltage alarm, while maintaining typical product life characteristics.



Specifications

	K2 Series	48V Modules	125V Modules
Capacitance	650 - 3,400F	83 - 165F	63F
Voltage	2.70V - 2.85V	48V	125V
ESR_{DC}	0.28 - 0.8 mΩ	6.0 - 10 mΩ	18 mΩ
Leakage Current	1.5 - 18 mA	3.0 - 5.2 mA	10 mA
E_{max}	4.1 - 7.4 Wh/kg	2.6 - 3.9 Wh/kg	2.3 Wh/kg
P_{max}	12,000 - 14,000 W/kg	5,600 - 6,800 W/kg	3,600 W/kg

Images not to scale. Results may vary. For specific configuration needs, please contact Maxwell Technologies, Inc. at contactus@maxwell.com.

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, 7180726, 7295423, 7342770, 7352558, 7384433, 7440258, 7492571, 7508651, 7580243, 7791860, 7791861, 7816891, 7859826, 7883553, 7935155, 8072734, 8098481, 8279580, and patents pending.



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