# THE DATASHEET OF

# S01PM5805K016A

# S01 Series, Molded Plastic Cell Module

## Overview

KEMET S01 Series Supercapacitors are bank modules in which the cells are encased in a plastic holder.

## Applications

Typical applications include wind turbine pitch control, starting systems, automotive subsystems, backup power/UPS, ride through/power conditioning, and renewable energy systems.

## Benefits

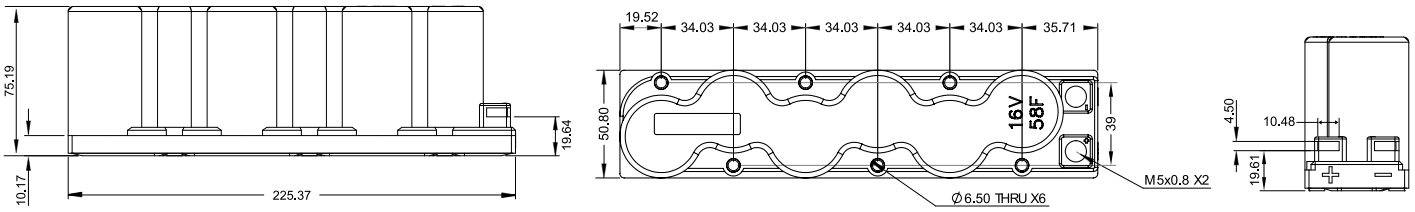
- 16 – 80 V working voltage
- Individually balanced cells
- IP–54 rated
- Threaded, protected terminals
- Operating temperature range of -40˚C to +65˚C
- Optional voltage and over temperature signal
- Cycle life > 500,000 cycles
- RoHS Compliant
- Made in USA


## Part Number System

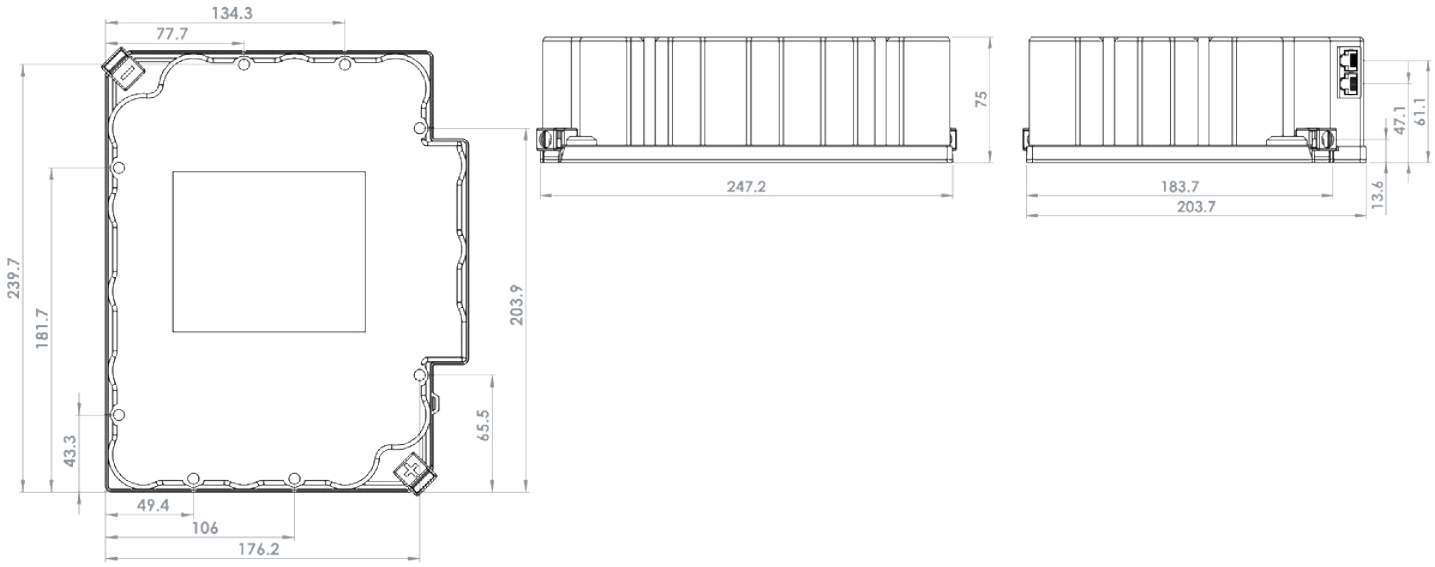
| S01 | P | M | 5805 | K | 16 | A | Uxxx |
|---|---|---|---|---|---|---|---|
| Series | Configuration Code Balancing | Configuration Code Capacitor Type | Capacitance Code (µF) | Capacitance Tolerance | Rated Voltage (VDC) | Termination Code | C-Spec |
| Supercapacitor, Bank Module, Molded Plastic Holder | P = Passive without clamping | M = Snap-in, multi-pin style | First three digits represent significant figures. Fourth digit specifies number of zeros. | K = ±10%<br>R = -0% | 016 = 16 V<br>080 = 80 V | A = The first mechanical configuration of a particular part number | Blank = No monitor<br>U808 = Digital Overvoltage and analog over temperature monitor<br>U809 = Digital Overvoltage and digital over temperature monitor<br>U810 = Overvoltage and Overtemperature monitor through CAN Bus |

## Dimensions – Millimeters

**S01PM5805K016A**




**S01PM1205R080A**
**S01PM1205R080AU809**




| Part Number | L | | W | | H | |
|---|---|---|---|---|---|---|
| | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance |
| S01PM5805K016A | 225.37 | +/-1.0 | 50.8 | +/-1.0 | 75.19 | +/-1.0 |
| S01PM1205R080A | 238 | +/-1.0 | 247 | +/-1.0 | 74 | +/-1.0 |
| S01PM1205R080AU809 | 238 | +/-1.0 | 247 | +/-1.0 | 74 | +/-1.0 |

## Performance Characteristics

| Item | Performance Characteristics |
|---|---|
| Rated Voltage | 16 – 81 VDC |
| Surge Voltage | 17 – 85 VDC |
| Isolation Voltage/High Potential | 2,500 V |
| Capacitance Range | 12 – 58 F |
| Capacitance Tolerance | ±10%, -0% |
| Temperature Range | -40°C to +65°C |
| Storage Temperature Range | -40°C to +70°C |
| Temperature Characteristics | Capacitance Change: Within ±5% of initial specified value |
| | Internal Resistance (ESR): Within 100% of initial specified value |
| Life, DC | 10 years, rated voltage, 25°C |
| | Δ C < 30% decrease, ESR < 100% increase |
| Life, Endurance | 1,000 hours, rated voltage, 65°C |
| | Δ C < 30% decrease, ESR < 100% increase |
| Life, Shelf | 1,000 hours, no voltage, 70°C |
| | Δ C < 20% decrease, ESR < 100% increase |
| Life, Cycle | > 500,000 cycles, rated to half rated voltage, 25°C |
| | Δ C < 30% decrease, ESR < 100% increase |
| Maximum Number in Series | 40 (750 V) |
| Standards Compliance | RoHS, UL810a |

## Approvals

| Series / Partnumber | Test Type | Test Standard | Date completed (or estimated) |
|---|---|---|---|
| S01PM5805K016A | Vibration | IEC 60068-2-6 | January 2011 |
| | Mechanical shock | IEC 60068-2-27 | |
| | Underwriters Laboratory | UL810A | March 2011 |
| | SAE Safety And Abuse | SAE J2464 | pending Q1 2014 |
| S01PM1205R080A<br>S01PM1205R080AU809<br>S02AT5006R016AU808<br>S02AT1656R048AU808 | pending | | pending Q1 2014 |

## Environmental Compliance

All KEMET supercapacitors are RoHS Compliant.


RoHS Compliant

## Table 1 – Ratings & Part Number Reference

| Part Number | S01PM5805K016A | S01PM1205R080A[1] | S01PM1205R080AU809[1] |
|---|---|---|---|
| Parameter | | | |
| Capacitance (F) | 58 | 11.6 | 11.6 |
| Capacitance Tolerance | ±10% | -0% | -0% |
| Rated Voltage (V) | 16 | 81 | 81 |
| Surge Voltage (V) | 17 | 85 | 85 |
| Impedance [AC 1 kHz] (mΩ) | ≤15 | ≤80 | ≤80 |
| ESR [DC] (mΩ) | ≤23 | ≤90 | ≤90 |
| Leakage Current [72 h] (mA) | <25 | 125 | 125 |
| Continuous Current Rating (A) | 19 | 10 | 10 |
| Maximum Peak Current 1 s (A) | 200 | 200 | 200 |
| Short Circuit Peak Current (A) | 1,000 | 700 | 700 |
| Cell Management | Passive | Passive | Passive |
| Overvoltage & Over Temperature Monitor | No | No | Yes |
| Energy/Power | | | |
| Maximum Stored Energy (Wh) | 2.1 | 10.6 | 10.6 |
| Energy Density (Wh/kg) | 2.8 | 2.7 | 2.7 |
| Energy Density (Wh/L) | 3.6 | 3.5 | 3.5 |
| Power Density (kW/kg) | 5.8 | 6.3 | 6.3 |
| Power Density (kW/L) | 7.4 | 2.3 | 2.3 |
| Maximum Power (kW/kg) | 1.8 | 3 | 3 |
| Physical | | | |
| Configuration Code | PM | PM | PM |
| L x W x H (mm) | 225 x 51 x 76 | 238 x 247 x 74 | 238 x 247 x 74 |
| Weight (kg) | 0.76 | 3 | 3 |
| Volume (ml) | 594 | 3900 | 3900 |

[1]*Preliminary (See Prototype Sample Disclaimer)*

## Mounting

Specific users guide with mounting instructions ship with module.

## Packaging Quantities

| Part Number | Capacitance (F) | Rated Voltage | Package Type | Package Quantity | Box Weight | Box Length | Box Width | Box Height |
|---|---|---|---|---|---|---|---|---|
| S01PM5805K016A | 58 | 16 | Box | 1 | 2 lbs (0.9 kgs) | 10.0" (254 mm) | 6.0" (153 mm) | 3.5" (89 mm) |
| S01PM1205R080A | 12 | 80 | Carton | 1 | 7 lbs (3.2 kgs) | 11.0" (279 mm) | 8.5" (216 mm) | 3.5" (89 mm) |
| S01PM1205R080AU809 | 12 | 80 | Carton | 1 | 7 lbs (3.2 kgs) | 11.0" (279 mm) | 8.5" (216 mm) | 3.5" (89 mm) |

## Standard Marking

- KEMET logo
- Rated voltage
- Rated capacitance
- Terminal markings

## KEMET Corporation World Headquarters

2835 KEMET Way
Simpsonville, SC 29681

Mailing Address:
P.O. Box 5928
Greenville, SC 29606

www.kemet.com
Tel: 864-963-6300
Fax: 864-963-6521

**Corporate Offices**
Fort Lauderdale, FL
Tel: 954-766-2800

## North America

**Southeast**
Lake Mary, FL
Tel: 407-855-8886

**Northeast**
Wilmington, MA
Tel: 978-658-1663

**Central**
Novi, MI
Tel: 248-306-9353

**West**
Milpitas, CA
Tel: 408-433-9950

**Mexico**
Guadalajara, Jalisco
Tel: 52-33-3123-2141

## Europe

**Southern Europe**
Paris, France
Tel: 33-1-4646-1006

Sasso Marconi, Italy
Tel: 39-051-939111

**Central Europe**
Landsberg, Germany
Tel: 49-8191-3350800

Kamen, Germany
Tel: 49-2307-438110

**Northern Europe**
Bishop's Stortford, United Kingdom
Tel: 44-1279-460122

Espoo, Finland
Tel: 358-9-5406-5000

## Asia

**Northeast Asia**
Hong Kong
Tel: 852-2305-1168

Shenzhen, China
Tel: 86-755-2518-1306

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**Southeast Asia**
Singapore
Tel: 65-6586-1900

Penang, Malaysia
Tel: 60-4-6430200

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Tel: 91-806-53-76817

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