

# PHE844

**RoHS**  
Compliant

- EMI suppressor, class X1, metallized polypropylene
- 0.1 – 2.2  $\mu\text{F}$ , 440 VAC/480 VAC, +105°C

## TYPICAL APPLICATIONS

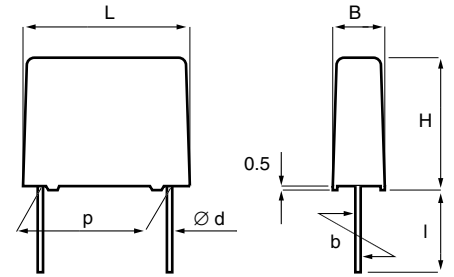
For worldwide use as electromagnetic interference suppressor in all X1 and across-the-line applications. Not for use in series with the mains. See [www.kemet.com](http://www.kemet.com) for more information.

## CONSTRUCTION

Series winding of metallized polypropylene. Encapsulated in self-extinguishing material meeting the requirements of UL 94 V-0.

## TECHNICAL DATA

| <b>Rated voltage</b>                  | 440 VAC 50/60 Hz (ENEC)<br>480 VAC 50/60 Hz (UL, CSA)   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
|---------------------------------------|---|--|--------------------------|--|---------------------|-------|------|------|------|--------|------|------|------|---------|------|---|---|
| <b>Capacitance range</b>              | 0.1 – 2.2 $\mu\text{F}$   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Capacitance tolerance</b>          | $\pm 20\%$ standard, $\pm 10\%$ option  |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Temperature range</b>              | -40 to +105°C   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Climatic category</b>              | 40/105/56/B   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Approvals</b>                      | ENEC, UL, cUL   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Dissipation factor</b>             | Maximum values at +23°C <table border="1"> <thead> <tr> <th></th> <th><math>C \leq 0.1 \mu\text{F}</math></th> <th><math>0.1 \mu\text{F} &lt; C \leq 1 \mu\text{F}</math></th> <th><math>C &gt; 1 \mu\text{F}</math></th> </tr> </thead> <tbody> <tr> <td>1 kHz</td> <td>0.1%</td> <td>0.1%</td> <td>0.1%</td> </tr> <tr> <td>10 kHz</td> <td>0.2%</td> <td>0.4%</td> <td>0.8%</td> </tr> <tr> <td>100 kHz</td> <td>0.6%</td> <td>-</td> <td>-</td> </tr> </tbody> </table> |  | $C \leq 0.1 \mu\text{F}$ | $0.1 \mu\text{F} < C \leq 1 \mu\text{F}$ | $C > 1 \mu\text{F}$ | 1 kHz | 0.1% | 0.1% | 0.1% | 10 kHz | 0.2% | 0.4% | 0.8% | 100 kHz | 0.6% | - | - |
|                                       | $C \leq 0.1 \mu\text{F}$  | $0.1 \mu\text{F} < C \leq 1 \mu\text{F}$ | $C > 1 \mu\text{F}$      |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| 1 kHz                                 | 0.1%  | 0.1%                                     | 0.1%                     |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| 10 kHz                                | 0.2%  | 0.4%                                     | 0.8%                     |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| 100 kHz                               | 0.6%  | -  | -                        |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Test voltage between terminals</b> | The 100% screening factory test is carried out at 3000 VDC. The voltage level is selected to meet the requirements in applicable equipment standards. All electrical characteristics are checked after the test.  |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Resonance frequency</b>            | Tabulated self-resonance frequencies $f_0$ refer to 5 mm lead length.   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>Insulation resistance</b>          | $C \leq 0.33 \mu\text{F}$ : $\geq 30\,000 \text{ M}\Omega$<br>$C > 0.33 \mu\text{F}$ : $\geq 10\,000 \text{ s}$   |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |
| <b>In DC application</b>              | Recommended voltage: $\leq 1000\text{VDC}$  |  |                          |  |                     |       |      |      |      |        |      |      |      |         |      |   |   |



| p              | d   | std l | max l | b         |
|----------------|-----|-------|-------|-----------|
| $22.5 \pm 0.4$ | 0.8 | 6     | 30    | $\pm 0.4$ |
| $27.5 \pm 0.4$ | 0.8 | 6     | 30    | $\pm 0.4$ |
| $37.5 \pm 0.5$ | 1.0 | 6     | 30    | $\pm 0.7$ |

Tolerance in lead length  
 $< 30 \text{ mm}$   $\begin{matrix} +0 \\ -1 \end{matrix} \text{ mm}$

$30 \text{ mm}$   $\begin{matrix} +5 \\ -0 \end{matrix} \text{ mm}$

## ENVIRONMENTAL TEST DATA

|                              |                                |  |   |
|------------------------------|--------------------------------|--|---|
| <b>Endurance</b>             | EN/IEC 60384-14:2005           | 1.25 x $U_R$ VAC 50 Hz, once every hour increased to 1000 VAC for 0.1 s, 1000 h at upper rated temperature |   |
| <b>Vibration</b>             | IEC 60068-2-6<br>Test Fc       | 3 directions at 2 hours each, 10-55 Hz at 0.75 mm or 98 m/s <sup>2</sup>                                   | No visible damage<br>No open or short circuit |
| <b>Bump</b>                  | IEC 60068-2-29<br>Test Eb      | 1000 bumps at 390 m/s <sup>2</sup>   | No visible damage<br>No open or short circuit |
| <b>Change of temperature</b> | IEC 60068-2-14<br>Test Na      | Upper and lower rated temperature 5 cycles   | No visible damage                             |
| <b>Active flammability</b>   | EN/IEC 60384-14:2005           |  |   |
| <b>Passive flammability</b>  | EN/IEC 60384-14:2005<br>UL1414 | Enclosure material of UL94V-0 flammability class   |   |
| <b>Humidity</b>              | IEC 60068-2-3<br>Test Ca       | +40°C and 90 – 95% R.H.  | 56 days                                       |

## ARTICLE TABLE

| Capacitance<br>$\mu\text{F}$ | Box code<br>B | Max dimensions<br>in mm<br>H L |  |  | $f_o$<br>MHz | Max<br>dU/dt<br>V/ $\mu\text{s}$ | Article code |
|------------------------------|---------------|--------------------------------|--|--|--------------|----------------------------------|--------------|
|------------------------------|---------------|--------------------------------|--|--|--------------|----------------------------------|--------------|

## LEAD SPACING 22.5 MM

|      |     |      |      |      |     |     |                    |
|------|-----|------|------|------|-----|-----|--------------------|
| 0.10 | D14 | 8.0  | 16.0 | 26.0 | 3.2 | 100 | PHE844RD6100MR06L2 |
| 0.15 | D15 | 9.0  | 18.5 | 26.0 | 2.6 | 100 | PHE844RD6150MR06L2 |
| 0.22 | D16 | 11.0 | 21.5 | 26.0 | 2.1 | 100 | PHE844RD6220MR06L2 |
| 0.33 | D20 | 13.5 | 23.0 | 26.0 | 1.8 | 100 | PHE844RD6330MR06L2 |
| 0.47 | D19 | 15.5 | 24.5 | 26.0 | 1.5 | 100 | PHE844RD6470MR06L2 |

## LEAD SPACING 27.5 MM

|      |     |      |      |      |     |     |                    |
|------|-----|------|------|------|-----|-----|--------------------|
| 0.22 | F11 | 10.5 | 20.5 | 31.5 | 2.2 | 100 | PHE844RF6220MR06L2 |
| 0.33 | F03 | 13.5 | 23.0 | 31.5 | 1.7 | 100 | PHE844RF6330MR06L2 |
| 0.47 | F13 | 14.5 | 24.5 | 31.5 | 1.4 | 100 | PHE844RF6470MR06L2 |
| 0.68 | F14 | 17.5 | 28.0 | 31.5 | 1.1 | 100 | PHE844RF6680MR06L2 |
| 1.0  | F16 | 21.0 | 30.0 | 31.5 | 1.0 | 100 | PHE844RF7100MR06L2 |

## LEAD SPACING 37.5 MM

|      |     |      |      |      |      |     |                    |
|------|-----|------|------|------|------|-----|--------------------|
| 0.47 | R05 | 13.0 | 24.0 | 41.0 | 1.3  | 100 | PHE844RR6470MR06L2 |
| 0.68 | R05 | 13.0 | 24.0 | 41.0 | 1.1  | 100 | PHE844RR6680MR06L2 |
| 1.0  | R04 | 15.0 | 26.0 | 41.0 | 0.92 | 100 | PHE844RR7100MR06L2 |
| 1.5  | R03 | 19.0 | 36.0 | 41.0 | 0.74 | 100 | PHE844RR7150MR06L2 |
| 2.2  | R06 | 21.0 | 38.0 | 41.0 | 0.60 | 100 | PHE844RR7220MR06L2 |

## APPROVALS

| Certification Body | Specification                |                                      |
|--------------------|------------------------------|--------------------------------------|
| ENEC               | EN/IEC 60384-14:2005         |                                      |
| UL                 | UL 1283<br>UL 1414           | ( $U_R=480$ VAC)<br>( $U_R=250$ VAC) |
| cUL recognition    | C 22.2 No. 8<br>C 22.2 No. 1 | ( $U_R=480$ VAC)<br>( $U_R=250$ VAC) |

## ORDERING INFORMATION

The article code for the standard part is given in the article table. For other options, see page 11.

## MARKING

- RIFA
- RIFA article code
- Rated capacitance
- Capacitance tolerance code
- Rated voltage
- X1
- Approval marks
- Manufacturing date code
- IEC climatic category
- Passive flammability class

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