

# PHE841

**RoHS**  
Compliant

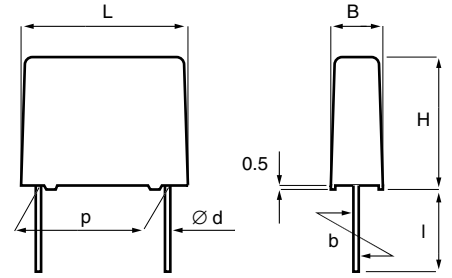
- EMI suppressor, class X1, metallized polypropylene
- 0.01 – 2.2  $\mu\text{F}$ , 330 VAC, +100°C

## 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

Metallized polypropylene winding, encapsulated in self-extinguishing material meeting the requirements of UL 94 V-0.



## TECHNICAL DATA

<b>Rated voltage</b>	330 VAC 50/60 Hz		
<b>Capacitance range</b>	0.01 – 2.2 $\mu\text{F}$		
<b>Capacitance tolerance</b>	$\pm 20\%$ standard, $\pm 10\%$ option		
<b>Temperature range</b>	–40 to +100°C		
<b>Climatic category</b>	40/100/56/B		
<b>Approvals</b>	ENEC, UL, cUL		
<b>Dissipation factor <math>\tan\delta</math></b>	Maximum values at +23°C		
	$C \leq 0.1 \mu\text{F}$	$0.1 \mu\text{F} < C \leq 1 \mu\text{F}$	$C > 1 \mu\text{F}$
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>	$C \leq 0.33 \mu\text{F}$ : $\geq 30\,000 \text{ M}\Omega$ $C > 0.33 \mu\text{F}$ : $\geq 10\,000 \text{ s}$		
<b>In DC applications</b>	Recommended voltage: $\leq 1000 \text{ VDC}$		

p	d	std l	max l	b
$10.0 \pm 0.4$	0.6	17	30	$\pm 0.4$
$15.0 \pm 0.4$	0.8	17	30	$\pm 0.4$
$22.5 \pm 0.4$	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 mm  $^{+0}_{-1}$  mm

30 mm  $^{+5}_{-0}$  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 Test Fc	3 directions at 2 hours each, 10–55 Hz at 0.75 mm or 98 $\text{m/s}^2$	No visible damage No open or short circuit
<b>Bump</b>	IEC 60068-2-29 Test Eb	1000 bumps at 390 $\text{m/s}^2$	No visible damage No open or short circuit
<b>Change of temperature</b>	IEC 60068-2-14 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 UL1414	Enclosure material of UL94V-0 flammability class	
<b>Humidity</b>	IEC 60068-2-3 Test Ca	+40°C and 90 – 95% R.H.	56 days

## ARTICLE TABLE

Capaci- Box Max dimensions Max  
tance code in mm f<sub>o</sub> dU/dt Article code  
μF B H L MHz V/μs

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μF B H L MHz V/μs

## LEAD SPACING 10 MM

0.010	A02	4.5	10.5	13.0	11	100	PHE841EA5100MR17
0.012	A03	5.0	11.0	13.0	10	100	PHE841EA5120MR17
0.015	A03	5.0	11.0	13.0	9.4	100	PHE841EA5150MR17
0.018	A04	6.0	12.0	13.0	8.7	100	PHE841EA5180MR17
0.022	A04	6.0	12.0	13.0	8.1	100	PHE841EA5220MR17

## LEAD SPACING 15 MM

0.010	B04	5.5	10.5	18.0	10	100	PHE841EB5100MR17
0.012	B04	5.5	10.5	18.0	9.4	100	PHE841EB5120MR17
0.015	B04	5.5	10.5	18.0	8.7	100	PHE841EB5150MR17
0.018	B04	5.5	10.5	18.0	7.9	100	PHE841EB5180MR17
0.022	B05	5.5	12.5	18.0	7.2	100	PHE841EB5220MR17
0.027	B15	6.0	12.0	18.0	6.5	100	PHE841EB5270MR17
0.033	B10	6.5	12.5	18.0	5.9	100	PHE841EB5330MR17
0.039	B06	7.5	14.5	18.0	5.4	100	PHE841EB5390MR17
0.047	B06	7.5	14.5	18.0	5.0	100	PHE841EB5470MR17
0.056	B12	8.0	15.0	18.0	4.6	100	PHE841EB5560MR17
0.068	B11	8.5	16.0	18.0	4.2	100	PHE841EB5680MR17
0.082	B14	9.5	17.5	18.0	3.8	100	PHE841EB5820MR17
0.10	B14	9.5	17.5	18.0	3.7	100	PHE841EB6100MR17

## LEAD SPACING 22.5 MM

0.068	D13	6.5	14.5	26.0	2.9	100	PHE841ED5680MR06L2
0.082	D17	7.0	16.5	26.0	2.8	100	PHE841ED5820MR06L2
0.10	D17	7.0	16.5	26.0	2.7	100	PHE841ED6100MR06L2
0.12	D14	8.0	16.0	26.0	2.6	100	PHE841ED6120MR06L2
0.15	D15	9.0	18.5	26.0	2.5	100	PHE841ED6150MR06L2
0.18	D18	10.5	19.0	26.0	2.3	100	PHE841ED6180MR06L2
0.22	D18	10.5	19.0	26.0	2.2	100	PHE841ED6220MR06L2
0.27	D16	11.0	21.5	26.0	2.0	100	PHE841ED6270MR06L2
0.33	D16	11.0	21.5	26.0	1.9	100	PHE841EY6330MR06L2 *
0.39	D19	15.5	24.5	26.0	1.6	100	PHE841ED6390MR06L2
0.47	D19	15.5	24.5	26.0	1.5	100	PHE841ED6470MR06L2

## LEAD SPACING 27.5 MM

0.22	F11	10.5	20.5	31.5	2.0	100	PHE841EF6220MR06L2
0.27	F11	10.5	20.5	31.5	1.8	100	PHE841EF6270MR06L2
0.33	F12	11.5	22.5	31.5	1.6	100	PHE841EF6330MR06L2
0.39	F03	13.5	23.0	31.5	1.4	100	PHE841EF6390MR06L2
0.47	F03	13.5	23.0	31.5	1.3	100	PHE841EF6470MR06L2
0.56	F13	14.5	24.5	31.5	1.2	100	PHE841EF6560MR06L2
0.68	F14	17.5	28.0	31.5	1.1	100	PHE841EF6680MR06L2
0.82	F15	19.0	29.0	31.5	1.0	100	PHE841EF6820MR06L2
1.0	F16	21.0	30.0	31.5	1.0	100	PHE841EF7100MR06L2

## LEAD SPACING 37.5 MM

0.68	R05	13.0	24.0	41.0	1.1	100	PHE841ER6680MR06L2
0.82	R04	15.0	26.0	41.0	1.0	100	PHE841ER6720MR06L2
1.0	R04	15.0	26.0	41.0	0.92	100	PHE841ER7100MR06L2
1.2	R02	16.5	32.0	41.0	0.84	100	PHE841ER7120MR06L2
1.5	R03	19.0	36.0	41.0	0.74	100	PHE841ER7150MR06L2
1.8	R06	21.0	38.0	41.0	0.67	100	PHE841ER7180MR06L2
2.2	R06	21.0	38.0	41.0	0.60	100	PHE841ER7220MR06L2

\* Only ±20 %

## APPROVALS

Certification Body	Specification
ENEC	EN/IEC 60384-14:2005
UL	UL 1283 (U <sub>R</sub> = 330 VAC) UL 1414 (U <sub>R</sub> = 250 VAC)
cUL recognition	C 22.2 No. 8 (U <sub>R</sub> = 330 VAC) C 22.2 No. 1 (U <sub>R</sub> = 250 VAC)

## MARKING

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

## ORDERING INFORMATION

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