PHE840M

RoHS Compliant

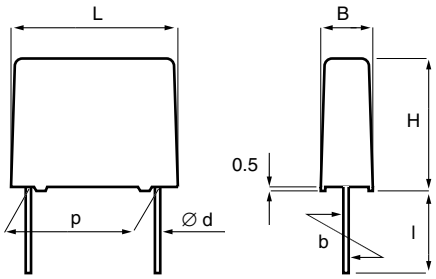
- **EMI suppressor, class X2, metallized polypropylene**
- **0.01 – 10.0 µF, 275/280 VAC, +105°C**
- **Small dimensions including low profile capacitors**

TYPICAL APPLICATIONS

For worldwide use as electromagnetic interference suppressor in all X2 and across-the-line applications.
Not for use in series with the mains.
See www.kemet.com for more information.

CONSTRUCTION

Metallized polypropylene film encapsulated with selfextinguishing epoxy resin in a box of material recognized to UL 94 V–0.



p	d	std l	max l	b
7.5 ± 0.4	0.6	17	20	±0.4
10.0 ± 0.4	0.6	17	30	±0.4
15.0 ± 0.4	0.8	17	30	±0.4
22.5 ± 0.4	0.8	6	30	±0.4
27.5 ± 0.4	0.8	6	30	±0.4
37.5 ± 0.5	1.0	6	30	±0.7

Tolerance in lead length
< 30 mm $^{+0}_{-1}$ mm

30 mm $^{+5}_{-0}$ mm

TECHNICAL DATA

Rated voltage
275 VAC 50/60 Hz (ENEC)
280 VAC 50/60 Hz (UL, CSA)

Capacitance range
0.01 – 10.0 µF

Capacitance tolerance
± 20% standard, ± 10% option, ± 5% on request

Temperature range
–55 to +105°C

Climatic category
55/105/56/B

Approvals
ENEC, UL, cUL

Dissipation factor
Maximum values at +23°C

	C ≤ 0.1 µF	0.1µF < C ≤ 1 µF	C > 1 µF
1 kHz	0.1%	0.1%	0.1%
10 kHz	0.2%	0.4%	0.8%
100 kHz	0.6%	–	–

Test voltage between terminals
The 100% screening factory test is carried out at 2200 VDC. The voltage level is selected to meet the requirements in applicable equipment standards. All electrical characteristics are checked after the test.

Insulation resistance
C ≤ 0.33 µF: ≥ 30 000 MΩ
C > 0.33 µF: ≥ 10 000 s

In DC applications
Recommended voltage ≤ 760 VDC

ENVIRONMENTAL TEST DATA

Endurance	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	
Vibration	IEC 60068–2–6 Test Fc	3 directions at 2 hours each, 10–55 Hz at 0.75 mm or 98 m/s²	No visible damage No open or short circuit
Bump	IEC 60068–2–29 Test Eb	1000 bumps at 390 m/s²	No visible damage No open or short circuit
Change of temperature	IEC 60068–2–14 Test Na	Upper and lower rated temperature 5 cycles	No visible damage
Active flammability	EN/IEC 60384-14:2005		
Passive flammability	EN/IEC 60384-14:2005 UL1414	Enclosure material of UL94V–0 flammability class	
Humidity	IEC 60068-2-3 Test Ca	+40°C and 90 – 95% R.H.	56 days

ARTICLE TABLE

LEAD SPACING 7.5 MM

Capacitance µF	Box code	Max dimensions in mm B	H	L	f_o MHz	Max dU/dt V/µs	Article code
0.010	K01	4.0	8.0	10.0	14	100	PHE840MK5100MK01R17
0.012	K01	4.0	8.0	10.0	13	100	PHE840MK5120MK01R17
0.015	K01	4.0	8.0	10.0	12	100	PHE840MK5150MK01R17
0.018	K03	5.0	11.0	10.0	11	100	PHE840MK5180MK03R17
0.022	K03	5.0	11.0	10.0	10	100	PHE840MK5220MK03R17
0.027	K03	5.0	11.0	10.0	9.5	100	PHE840MK5270MK03R17
0.033	K03	5.0	11.0	10.0	8.8	100	PHE840MK5330MK03R17
0.039	K03	5.0	11.0	10.0	8.3	100	PHE840MK5390MK03R17
0.047	K04	6.0	12.0	10.0	7.5	100	PHE840MK5470MK04R17

LEAD SPACING 10 MM

Capacitance µF	Box code	Max dimensions in mm B	H	L	f_o MHz	Max dU/dt V/µs	Article code
0.022	A01	4.0	9.0	13.0	8.5	100	PHE840MA5220MA01R17
0.027	A01	4.0	9.0	13.0	8.0	100	PHE840MA5270MA01R17
0.033	A01	4.0	9.0	13.0	7.6	100	PHE840MA5330MA01R17
0.039	A02	4.5	10.5	13.0	6.7	100	PHE840MA5390MA02R17
0.047	A02	4.5	10.5	13.0	5.9	100	PHE840MA5470MA02R17
0.056	A03	5.0	11.0	13.0	5.5	100	PHE840MA5560MA03R17
0.068	A03	5.0	11.0	13.0	4.9	100	PHE840MA5680MA03R17
0.082	A04	6.0	12.0	13.0	4.4	100	PHE840MA5820MA04R17
0.10	A05	9.5	7.5	13.0	4.0	100	PHE840MP6100MA05R17
0.10	A04	6.0	12.0	13.0	4.0	100	PHE840MA6100MA04R17

LEAD SPACING 15 MM

Capacitance µF	Box code	Max dimensions in mm B	H	L	f_o MHz	Max dU/dt V/µs	Article code
0.047	B04	5.5	10.5	18.0	5.0	100	PHE840MB5470MB04R17
0.056	B04	5.5	10.5	18.0	4.6	100	PHE840MB5560MB04R17
0.068	B04	5.5	10.5	18.0	4.2	100	PHE840MB5680MB04R17
0.082	B05	5.5	12.5	18.0	3.9	100	PHE840MB5820MB05R17
0.10	B05	5.5	12.5	18.0	3.7	100	PHE840MB6100MB05R17
0.12	B10	6.5	12.5	18.0	3.3	100	PHE840MB6120MB10R17
0.15	B10	6.5	12.5	18.0	2.8	100	PHE840MB6150MB10R17
0.18	B06	7.5	14.5	18.0	2.7	100	PHE840MB6180MB06R17
0.22	B06	7.5	14.5	18.0	2.6	100	PHE840MX6220MB06R17*
0.22	B17	13.0	12.5	18.0	2.5	100	PHE840MQ6220MB17R17
0.22	B12	8.0	15.0	18.0	2.5	100	PHE840MB6220MB12R17
0.27	B11	8.5	16.0	18.0	2.3	100	PHE840MB6270MB11R17
0.33	B11	8.5	16.0	18.0	2.2	100	PHE840MX6330MB11R17*
0.33	B17	13.0	12.5	18.0	2.2	100	PHE840MH6330MB17R17*
0.33	B14	9.5	17.5	18.0	2.0	100	PHE840MB6330MB14R17
0.39	B16	11.0	19.0	18.0	1.9	100	PHE840MB6390MB16R17
0.47	B16	11.0	19.0	18.0	1.8	100	PHE840MB6470MB16R17

LEAD SPACING 22.5 MM

Capacitance µF	Box code	Max dimensions in mm B	H	L	f_o MHz	Max dU/dt V/µs	Article code
0.22	D13	6.5	14.5	26.0	2.1	100	PHE840MD6220MD13R06L2
0.27	D17	7.0	16.5	26.0	1.9	100	PHE840MD6270MD17R06L2
0.33	D17	7.0	16.5	26.0	1.8	100	PHE840MD6330MD17R06L2
0.39	D14	8.0	16.0	26.0	1.7	100	PHE840MD6390MD14R06L2
0.47	D14	8.0	16.0	26.0	1.6	100	PHE840MY6470MD14R06L2*
0.47	D15	9.0	18.5	26.0	1.5	100	PHE840MD6470MD15R06L2
0.56	D15	9.0	18.5	26.0	1.4	100	PHE840MD6560MD15R06L2
0.68	D15	9.0	18.5	26.0	1.3	100	PHE840MY6680MD15R06L2*
0.68	D18	10.5	19.0	26.0	1.2	100	PHE840MD6680MD18R06L2
0.82	D16	11.0	21.5	26.0	1.1	100	PHE840MD6820MD16R06L2
1.0	D16	11.0	21.5	26.0	1.1	100	PHE840MY7100MD16R06L2*
1.0	D20	13.5	23.0	26.0	1.0	100	PHE840MD7100MD20R06L2
1.2	D19	15.5	24.5	26.0	0.90	100	PHE840MD7120MD19R06L2
1.5	D19	15.5	24.5	26.0	0.85	100	PHE840MD7150MD19R06L2

LEAD SPACING 27.5 MM

Capacitance µF	Box code	Max dimensions in mm B	H	L	f_o MHz	Max dU/dt V/µs	Article code
0.82	F11	10.5	20.5	31.5	1.0	100	PHE840MF6820MF11R06L2
1.0	F11	10.5	20.5	31.5	1.0	100	PHE840MZ7100MF11R06L2 *
1.0	F12	11.5	22.5	31.5	0.95	100	PHE840MF7100MF12R06L2
1.2	F03	13.5	23.0	31.5	0.82	100	PHE840MF7120MF03R06L2
1.5	F13	14.5	24.5	31.5	0.73	100	PHE840MF7150MF13R06L2
1.8	F14	17.5	28.0	31.5	0.65	100	PHE840MF7180MF14R06L2
2.2	F14	17.5	28.0	31.5	0.64	100	PHE840MZ7220MF14R06L2 *
2.2	F15	19.0	29.0	31.5	0.62	100	PHE840MF7220MF15R06L2
2.7	F15	19.0	29.0	31.5	0.58	100	PHE840MF7270MF15R06L2
3.3	F15	19.0	29.0	31.5	0.54	100	PHE840MZ7330MF15R06L2 *
3.3	F16	21.0	30.0	31.5	0.50	100	PHE840MF7330MF16R06L2
3.3	F18	31.0	19.0	31.5	0.50	100	PHE840MT7330MF18R06L2

LEAD SPACING 37.5 MM

Capacitance µF	Box code	Max dimensions in mm B	H	L	f_o MHz	Max dU/dt V/µs	Article code
1.8	R05	13.0	24.0	41.0	0.60	100	PHE840MR7180MR05R06L2
2.2	R05	13.0	24.0	41.0	0.58	100	PHE840MR7220MR05R06L2
2.7	R04	15.0	26.0	41.0	0.53	100	PHE840MR7270MR04R06L2
3.3	R04	15.0	26.0	41.0	0.49	100	PHE840MR7330MR04R06L2
3.9	R02	16.5	32.0	41.0	0.46	100	PHE840MR7390MR02R06L2
4.7	R03	19.0	36.0	41.0	0.44	100	PHE840MR7470MR03R06L2
5.6	R06	21.0	38.0	41.0	0.41	100	PHE840MR7560MR06R06L2
6.8	R06	21.0	38.0	41.0	0.39	100	PHE840MR7680MR06R06L2
8.2	R08	28.0	43.0	41.0	0.30	100	PHE840MR7820MR08R06L2
10.0	R08	28.0	43.0	41.0	0.26	100	PHE840MR8100MR08R06L2

* Only ± 20% tolerance

APPROVALS

Certification Body	Specification	
ENEC	EN/IEC 60384-14:2005	
UL	UL 1283	(U_R = 280 VAC)
	UL 1414	(U_R = 250 VAC)
cUL recognition	C 22.2 No. 8	(U_R = 280 VAC)
	C 22.2 No. 1	(U_R = 250 VAC)

MARKING

- RIFA
- RIFA article code
- Rated capacitance
- Capacitance tolerance code
- Rated voltage
- X2
- 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.