

Typical applications

The capacitors are intended for use as Interference suppressor in X2 and across-the-line applications.

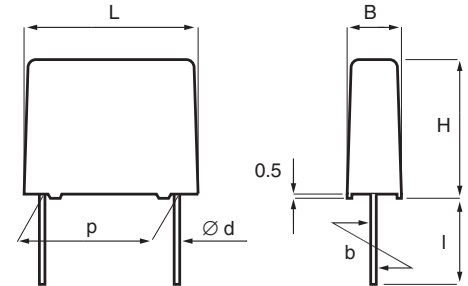
Construction

Series winding of metallized polyester, encapsulated in self-extinguishing material meeting the requirements of UL 94V-0.

Technical data

RoHS
Compliant

	PHE820 M	PHE820 E
Rated voltage	275 VAC 50/60 Hz	300 VAC 50/60 Hz
Capacitance range	0.01 – 2.2 μF	0.01 – 2.2 μF
Capacitance tolerance	$\pm 20\%$ standard, $\pm 10\%$ option	
Temperature range	-40 to +100°C	
Climatic category	40/100/56/B, IEC 60068-1	
Approvals	ENEC, UL, cUL	
Dissipation factor $\tan\delta$	$\leq 1.0\%$ at 1 kHz	
Insulation resistance	C $\leq 0.33 \mu\text{F}$ $\geq 30\,000 \text{ M}\Omega$ C $> 0.33 \mu\text{F}$ $\geq 10\,000 \text{ s}$	
Resonance frequency	Tabulated self-resonance frequencies f_0 refer to 5 mm lead length.	
Test voltage between terminals	The 100% screening factory test is carried out at 2150 VDC. The voltage level is selected to meet the requirements in applicable equipment standards. All electrical characteristics are checked after the test.	
In DC applications	Recommended voltage $\leq 760 \text{ VDC}$	



p	d	std l	max l	b
15.0 \pm 0.4	0.8	17	30	± 0.4
22.5 \pm 0.4	0.8	6	30	± 0.4
27.5 \pm 0.4	0.8	6	30	± 0.4
37.5 \pm 0.5	1.0	6	30	± 0.7
Tolerance in lead length		< 30 mm	+0/-1 mm	
		30 mm	+5/-0 mm	

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 temp.	
Vibration	IEC 60068-2-6 Test Fc	3 directions at 2 hours each, 10 – 55 Hz at 0.75 mm or 98 m/s ²	No visible damage No open or short circuit
Bump	IEC 60068-2-29 Test Eb	1000 bumps at 390 m/s ² No open or short circuit	No visible damage
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		
Humidity	IEC 60068-2-3 Test Ca	+40°C and 90 – 95% R.H.	56 days

Article table

Capacitance* μF	Size code	Max dimensions in mm			f_o MHz	Max dU/dt V/ μs	Article code
		B	H	L			

275 VAC, PHE820M

Lead spacing 15 mm

0.010	B04	5.5	10.5	18.0	13	100	PHE820MB5100MR17
0.015	B04	5.5	10.5	18.0	11	100	PHE820MB5150MR17
0.022	B04	5.5	10.5	18.0	9.0	100	PHE820MB5220MR17
0.033	B05	5.5	12.5	18.0	7.5	100	PHE820MB5330MR17
0.047	B10	6.5	12.5	18.0	6.5	100	PHE820MB5470MR17
0.068	B06	7.5	14.5	18.0	5.5	100	PHE820MB5680MR17
0.10	B11	8.5	16.0	18.0	4.5	100	PHE820MB6100MR17

Lead spacing 22.5 mm

0.10	D13	6.5	14.5	26.0	4.5	100	PHE820MD6100MR06L2
0.15	D14	8.0	16.0	26.0	3.9	100	PHE820MD6150MR06L2
0.22	D15	9.0	18.5	26.0	2.7	100	PHE820MD6220MR06L2
0.33	D16	11.0	21.5	26.0	2.5	100	PHE820MD6330MR06L2

Lead spacing 27.5 mm

0.47	F12	11.5	22.5	31.5	1.9	100	PHE820MF6470MR06L2
0.68	F13	14.5	24.5	31.5	1.6	100	PHE820MF6680MR06L2
1.0	F14	17.5	28.0	31.5	1.3	100	PHE820MF7100MR06L2

Lead spacing 37.5 mm

1.5	R02	16.5	32.0	41.0	0.75	100	PHE820MR7150MR06L2
2.2	R03	19.0	36.0	41.0	0.65	100	PHE820MR7220MR06L2

Capacitance* μF	Size code	Max dimensions in mm			f_o MHz	Max dU/dt V/ μs	Article code
		B	H	L			

300 VAC, PHE820E

Lead spacing 15 mm

0.010	B04	5.5	10.5	18.0	13	100	PHE820EB5100MR17
0.015	B04	5.5	10.5	18.0	11	100	PHE820EB5150MR17
0.022	B04	5.5	10.5	18.0	9.0	100	PHE820EB5220MR17
0.033	B05	5.5	12.5	18.0	7.5	100	PHE820EB5330MR17
0.047	B10	6.5	12.5	18.0	6.5	100	PHE820EB5470MR17
0.068	B06	7.5	14.5	18.0	5.5	100	PHE820EB5680MR17
0.10	B11	8.5	16.0	18.0	4.5	100	PHE820EB6100MR17

Lead spacing 22.5 mm

0.10	D13	6.5	14.5	26.0	4.5	100	PHE820ED6100MR06L2
0.15	D14	8.0	16.0	26.0	3.9	100	PHE820ED6150MR06L2
0.22	D15	9.0	18.5	26.0	2.7	100	PHE820ED6220MR06L2
0.33	D16	11.0	21.5	26.0	2.5	100	PHE820ED6330MR06L2

Lead spacing 27.5 mm

0.33	F11	10.5	20.5	31.5	2.4	100	PHE820EF6330MR06L2
0.47	F12	11.5	22.5	31.5	1.9	100	PHE820EF6470MR06L2
0.68	F13	14.5	24.5	31.5	1.6	100	PHE820EF6680MR06L2
1.0	F14	17.5	28.0	31.5	1.3	100	PHE820EF7100MR06L2

Lead spacing 37.5 mm

1.5	R02	16.5	32.0	41.0	0.75	100	PHE820ER7150MR06L2
2.2	R03	19.0	36.0	41.0	0.65	100	PHE820ER7220MR06L2

*The complete serie includes C values according to the E12 series. Details on request.

Approvals

Certification Body	Specification	
ENEC	EN/IEC 60384-14:2005	
UL	UL 1283 UL 1414	($U_R = 250 \text{ VAC}$) ($U_R = 250 \text{ VAC}$)
cUL recognition	C 22.2 No.8 C 22.2 No.1	($U_R = 125 \text{ VAC}$) ($\leq 0.47 \mu\text{F}$)

Marking

- Manufacturer's logo
- Article code
- Rated capacitance
- Capacitance tolerance code
- Rated voltage
- X2
- Approval marks
- Manufacturing code (year, month)
- 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.

Statements of suitability for certain applications are based on our knowledge of typical operating conditions for such applications, but are not intended to constitute – and we specifically disclaim – any warranty concerning suitability for a specific customer application or use. This Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by us with reference to the use of our products is given gratis, and we assume no obligation or liability for the advice given or results obtained.