

PHE820

- EMI suppressor, class X2, metallized polyester
- 0.01 – 2.2 μF , 275/300 VAC, +100°C

TYPICAL APPLICATIONS

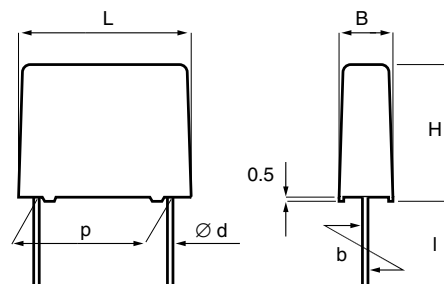
The capacitors are intended for use as Interference suppressor in X2 and across-the-line applications.

CONSTRUCTION

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

TECHNICAL DATA

	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/C	
Approvals	S, N, D, FI, VDE, SEV, IMQ, UL, CSA	
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.	



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
 $< 30 \text{ mm}$ $\begin{smallmatrix} +0 \\ -1 \end{smallmatrix} \text{ mm}$
 $\geq 30 \text{ mm}$ $\begin{smallmatrix} +5 \\ -0 \end{smallmatrix} \text{ mm}$

ENVIRONMENTAL TEST DATA

Endurance	IEC 60384-14	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 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 132400		
Passive flammability	IEC 60384-14 (1993) EN 132400		
Humidity	IEC 60068-2-3 Test Ca	+40°C and 90 – 95% R.H.	56 days

ARTICLE TABLE

Capaci- tance* μF	Max dimensions in mm				Quantity per package			f _o MHz	Max dU/dt V/μs	Approvals								Article code			
	B	H	L	p	Bulk pcs	Tray pcs	reel taped pcs			s	Z	D	E	VDE	SEV	IMQ	UL		CSA		
275 VAC, PHE820M																					
0.010	5.5	10.5	18.0	15.0	800		600	1.5	13	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB5100MR17
0.015	5.5	10.5	18.0	15.0	800		600	1.5	11	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB5150MR17
0.022	5.5	10.5	18.0	15.0	800		600	1.5	9.0	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB5220MR17
0.033	5.5	12.5	18.0	15.0	800		600	2.0	7.5	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB5330MR17
0.047	6.5	12.5	18.0	15.0	600		500	2.5	6.5	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB5470MR17
0.068	7.5	14.5	18.0	15.0	400		400	3.0	5.5	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB5680MR17
0.10	8.5	16.0	18.0	15.0	400		400	3.5	4.5	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MB6100MR17
0.10	6.5	14.5	26.0	22.5		234		3.5	4.5	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MD6100MR06L2
0.15	8.0	16.0	26.0	22.5		186		4.5	3.9	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MD6150MR06L2
0.22	9.0	18.5	26.0	22.5		168		6.0	2.7	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MD6220MR06L2
0.33	11.0	21.5	26.0	22.5		253		8.0	2.5	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MD6330MR06L2
0.47	11.5	22.5	31.5	27.5		198		10.5	1.9	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MF6470MR06L2
0.68	14.5	24.5	31.5	27.5		153		15.0	1.6	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MF6680MR06L2
1.0	17.5	28.0	31.5	27.5		126		20.0	1.3	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MF7100MR06L2
1.5	16.5	32.0	41.0	37.5		105		27.0	0.75	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MR7150MR06L2
2.2	19.0	36.0	41.0	37.5		91		37.0	0.65	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	PHE820MR7220MR06L2
300 VAC, PHE820E																					
0.010	5.5	10.5	18.0	15.0	800		600	1.5	13	100	✓								✓	✓	PHE820EB5100MR17
0.015	5.5	10.5	18.0	15.0	800		600	1.5	11	100	✓									✓	PHE820EB5150MR17
0.022	5.5	10.5	18.0	15.0	800		600	1.5	9.0	100	✓									✓	PHE820EB5220MR17
0.033	5.5	12.5	18.0	15.0	800		600	2.0	7.5	100	✓									✓	PHE820EB5330MR17
0.047	6.5	12.5	18.0	15.0	600		500	2.5	6.5	100	✓									✓	PHE820EB5470MR17
0.068	7.5	14.5	18.0	15.0	400		400	3.0	5.5	100	✓									✓	PHE820EB5680MR17
0.10	8.5	16.0	18.0	15.0	400		400	3.5	4.5	100	✓									✓	PHE820EB6100MR17
0.10	6.5	14.5	26.0	22.5		234		3.5	4.5	100	✓									✓	PHE820ED6100MR06L2
0.15	8.0	16.0	26.0	22.5		186		4.5	3.9	100	✓									✓	PHE820ED6150MR06L2
0.22	9.0	18.5	26.0	22.5		168		6.0	2.7	100	✓									✓	PHE820ED6220MR06L2
0.33	11.0	21.5	26.0	22.5		253		8.0	2.5	100	✓									✓	PHE820ED6330MR06L2
0.33	10.5	20.5	31.5	27.5		216		9.0	2.4	100	✓									✓	PHE820EF6330MR06L2
0.47	11.5	22.5	31.5	27.5		198		10.5	1.9	100	✓									✓	PHE820EF6470MR06L2
0.68	14.5	24.5	31.5	27.5		153		15.0	1.6	100	✓									✓	PHE820EF6680MR06L2
1.0	17.5	28.0	31.5	27.5		126		20.0	1.3	100	✓									✓	PHE820EF7100MR06L2
1.5	16.5	32.0	41.0	37.5		105		27.0	0.75	100	✓									✓	PHE820ER7150MR06L2
2.2	19.0	36.0	41.0	37.5		91		37.0	0.65	100	✓									✓	PHE820ER7220MR06L2

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

APPROVALS/REFERENCE DOCUMENTS				MARKING
Certification Body	Specification	Approval reference		• RIFA • RIFA article code • Rated capacitance • Capacitance tolerance code • Rated voltage • X2 • Approval marks • Manufacturing code (year, month) • Climatic category according to IEC 60068-1, appendix A • Passive flammability class
		PHE820M	PHE820E	
S	EN 132400	9510033,	9510034	
N	EN 132400	9719009-01		
D	EN 132400	P97101751		
F	EN 132400	306839		
VDE	EN 132400	196591-01		
SEV	EN 132400	89758, 101314		
IMQ	EN 132400	95.7 70721.01		
UL	EN 132400	V 2884		
CSA	UL 1283 ($U_R = 250$ VAC)	E 100117		
	UL 1414 ($U_R = 250$ VAC)	E 73869	E 73869	
	C 22.2 No.8	53108	53108	
	C 22.2 No.1 ($U_R = 125$ VAC) (≤ 0.47 μ F)	53108		

ORDERING INFORMATION	PACKING
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The article code for the standard part is given in the article table.
For other options, see page 21.

The box dimensions for bulk packaging are 245 x 145 x 80 mm. Quantity/package as per article table.

Reels with taped capacitors are packed 10 in a box with dimension 370 x 370 x 560 mm. Quantity/package as per article table. The standard quantity/reel is for 360 mm reel. If 500 mm reel is required, it must be specified when ordering and the quantity is 2 x the given quantity.