Type LP 105 °C Snap-In Aluminum Electrolytic Capacitors

Stable ESR, Long Life, Snap-In

Type LP radial snap-in aluminum electrolytic capacitors are small in size and are rated for low voltage applications. Their durable construction guarantees a long life while operating up to 105 °C with a stable ESR. These features make the Type LP ideal for use in switch-mode power supplies.

Highlights

- High Reliability
- 105 °C
- 22 to 35 mm diameter with 10 mm lead spacing

Specifications

Capacitance Range	100 to 47,000 µF
Capacitance Tolerance	±20%
Rated Voltage	16 to 250 Vdc
Operating Temperature Range	–40 °C to +105 °C
DC Leakage Test	I = .02CV C = capacitance in µF V = rated voltage I = leakage current in µA
Dissipation Factor	**DF at 120 Hz, +25 °C** **Vdc**: 16 | 25 - 35 | 50 - 63 | 100- 250 **DF %**: 30 | 25 | 20 | 15 For values that are >1000 µF, the DF (%) increases 2% for every additional 1000 µF
Temperature Ripple Multipliers	**Temperature** / **Ripple Multiplier** +85 °C: 1.65 +65 °C: 2.25 +45 °C: 2.55 The maximum ripple current at 105 °C and 120 Hz are the Ratings Table. Adjust to other temperature and frequencies using the tables here.
Voltage/Frequency Ripple Multipliers	**Rated Vdc** / **Ripple Multipliers**: 60 Hz | 100 Hz | 300 Hz | 1000 Hz | 10 kHz | 100 kHz 10 to 50: 0.90 | 1.00 | 1.03 | 1.05 | 1.10 | 1.10 63 to 100: 0.85 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 160 to 250: 0.80 | 1.00 | 1.15 | 1.25 | 1.35 | 1.40
Load Life Test	1,000 h @ full load at +105 °C per EIA IS-749 Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	500 h @ 105 °C, capacitance, ≤200% ESR and DC ±20%, initial requirements
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h in each plane
RoHS Compliant	

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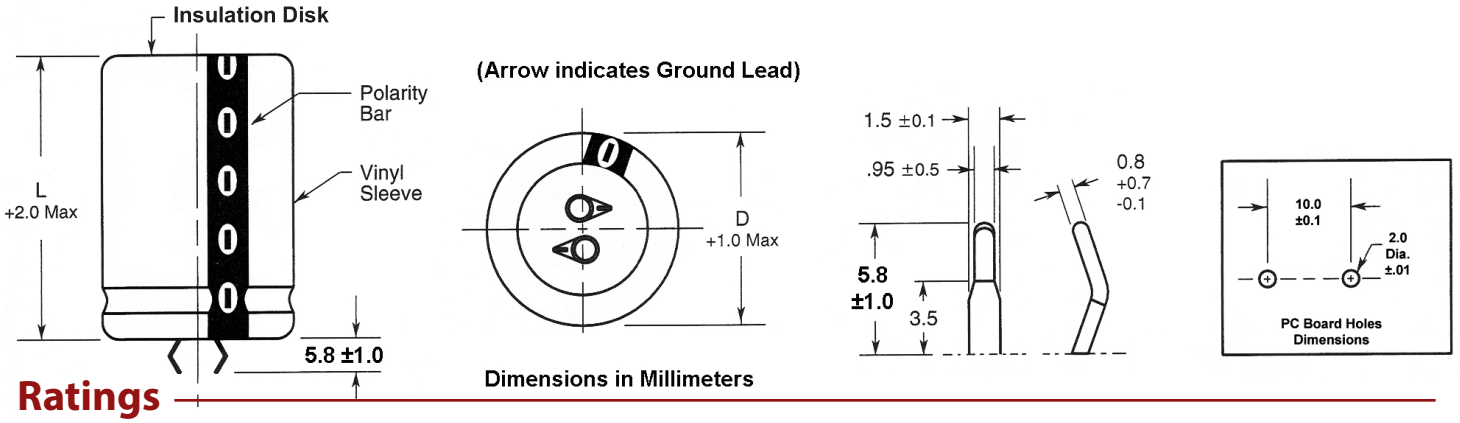
Part Numbering System

LP	332	M	025	A1	P	3
Type	Cap	Tolerance	Voltage	Case Code	Polarity	Insulating Sleeve
LP	**821** = 820 µF **332** = 3300 µF **103** = 10,000 µF	**M =** ±20%	**025** = 25 Vdc **250** = 250 Vdc		**P** = Polarized	**3** = PVC or PET (PET for all date codes after October 2017)

Diameter		Length mm (in)					
		25 (1.00)	30 (1.18)	35 (1.38)	40 (1.57)	45 (1.77)	50 (2.00)
mm	(in)						
22	(0.87)	A1	A3	A5	A7	A4	A9
25	(1.00)	C1	C3	C5	C7	C4	C9
30	(1.18)	E1	E3	E5	E7	E4	E9
35	(1.38)	H1	H3	H5	H7	H4	H9

Outline Drawing



Ratings

Cap (µF)	Catalog Part Number	Max ESR @ 120 Hz +25 °C (Ω)	Max Ripple @ 120 Hz +105 °C (A)	Size (Inches) D	Size (Inches) L	Size (mm) D	Size (mm) L
16 Vdc; 20 Vdc Surge							
4,700	LP472M016A1P3	0.141	1.20	0.866	0.984	22	25
5,600	LP562M016C1P3	0.120	1.43	0.984	0.984	25	25
8,200	LP822M016A5P3	0.081	1.82	0.866	1.378	22	35
12,000	LP123M016E3P3	0.055	2.38	1.181	1.181	30	30
15,000	LP153M016H3P3	0.046	3.00	1.378	1.181	35	30
22,000	LP223M016E7P3	0.030	3.53	1.181	1.575	30	40
27,000	LP273M016H7P3	0.025	4.27	1.378	1.575	35	40
33,000	LP333M016H9P3	0.020	5.00	1.378	1.969	35	50
47,000	LP473M016E9P3	0.020	6.80	1.181	1.969	30	50
25 Vdc; 32 Vdc Surge							
2,700	LP272M025C1P3	0.180	1.000	0.984	0.984	25	25
3,300	LP332M025A1P3	0.151	1.160	0.866	0.984	22	25
3,300	LP332M025C1P3	0.150	1.143	0.984	0.984	25	25
4,700	LP472M025C1P3	0.106	1.480	0.984	0.984	25	25
5,600	LP562M025E1P3	0.090	1.857	1.181	0.984	30	25
5,600	LP562M025C3P3	0.089	1.730	0.984	1.181	25	30
6,800	LP682M025C5P3	0.073	1.940	0.984	1.378	25	35
10,000	LP103M025H3P3	0.050	3.333	1.378	1.181	35	30
12,000	LP123M025H3P3	0.041	2.970	1.378	1.181	35	30
15,000	LP153M025E7P3	0.033	3.360	1.181	1.575	30	40
22,000	LP223M025H9P3	0.023	4.857	1.378	1.969	35	50

Cap (µF)	Catalog Part Number	Max ESR @ 120 Hz +25 °C (Ω)	Max Ripple @ 120 Hz +105 °C (A)	Size (Inches) D	Size (Inches) L	Size (mm) D	Size (mm) L
35 Vdc; 44 Vdc Surge							
1,800	LP182M035A1P3	0.188	1.040	0.866	0.984	22	25
2,700	LP272M035C1P3	0.155	1.257	0.984	0.984	25	25
3,900	LP392M035E1P3	0.108	1.571	1.181	0.984	30	25
5,600	LP562M035E3P3	0.074	2.050	1.181	1.181	30	30
6,800	LP682M035E5P3	0.060	2.286	1.181	1.378	30	35
6,800	LP682M035C7P3	0.061	2.320	0.984	1.575	25	40
8,200	LP822M035H3P3	0.051	2.690	1.378	1.181	35	30
10,000	LP103M035E7P3	0.041	3.000	1.181	1.575	30	40
12,000	LP123M035H7P3	0.035	3.590	1.378	1.575	35	40
15,000	LP153M035H9P3	0.028	4.000	1.378	1.969	35	50
50 Vdc; 63 Vdc Surge							
1,200	LP122M050A1P3	0.280	0.860	0.866	0.984	22	25
1,500	LP152M050A1P3	0.225	0.983	0.866	0.984	22	25
2,200	LP222M050A5P3	0.151	1.330	0.866	1.378	22	35
2,200	LP222M050E1P3	0.150	1.429	1.181	0.984	30	25
3,300	LP332M050E3P3	0.101	1.760	1.181	1.181	30	30
3,300	LP332M050C5P3	0.101	1.710	0.984	1.378	25	35
3,300	LP332M050C3P3	0.101	1.710	0.984	1.181	25	30
3,900	LP392M050C7P3	0.085	1.970	0.984	1.575	25	40
4,700	LP472M050H3P3	0.071	2.270	1.378	1.181	35	30

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Cap (µF)	Catalog Part Number	Max ESR @ 120 Hz +25 ºC (Ω)	Max Ripple @ 120 Hz +105 ºC (A)	Size (Inches)		Size (mm)	
				D	L	D	L
50 Vdc; 63 Vdc Surge							
5,600	LP562M050H5P3	0.059	2.60	1.378	1.378	35	35
6,800	LP682M050E7P3	0.049	3.16	1.181	1.575	30	40
6,800	LP682M050E9P3	0.049	3.16	1.181	1.969	30	50
8,200	LP822M050H9P3	0.040	3.43	1.378	1.969	35	50
63 Vdc; 75 Vdc Surge							
820	LP821M063A1P3	0.300	0.77	0.866	0.984	22	25
1,200	LP122M063C1P3	0.210	0.99	0.984	0.984	25	25
1,800	LP182M063A7P3	0.138	1.34	0.866	1.575	22	40
1,800	LP182M063E1P3	0.140	1.37	1.181	0.984	30	25
2,200	LP222M063E3P3	0.113	1.55	1.181	1.181	30	30
3,300	LP332M063H3P3	0.076	2.20	1.378	1.181	35	30
4,700	LP472M063E9P3	0.053	2.84	1.181	1.969	30	50
6,800	LP682M063H9P3	0.037	3.36	1.378	1.969	35	50
100 Vdc; 125 Vdc Surge							
820	LP821M100E1P3	0.3	0.98	1.181	0.984	30	25
2,200	LP222M100H7P3	0.113	2.03	1.378	1.575	35	40
2,700	LP272M100H9P3	0.092	2.32	1.378	1.969	35	50
2,700	LP272M100H7P3	0.092	2.32	1.378	1.575	35	40
200 Vdc; 250 Vdc Surge							
150	LP151M200C1P3	1.650	0.509	0.984	0.984	25	25
150	LP151M200A1P3	1.650	0.509	0.866	0.984	22	25
180	LP181M200C1P3	1.400	0.571	0.984	0.984	25	25
220	LP221M200C1P3	1.100	0.646	0.984	0.984	25	25
220	LP221M200E1P3	1.100	0.646	1.181	0.984	30	25
220	LP221M200A3P3	1.130	0.660	0.866	1.181	22	30
270	LP271M200E1P3	0.920	0.790	1.181	0.984	30	25
270	LP271M200C3P3	0.920	0.790	0.984	1.181	25	30
330	LP331M200E3P3	0.750	0.886	1.181	1.181	30	30
390	LP391M200C5P3	0.640	0.980	0.984	1.378	25	35
470	LP471M200E5P3	0.540	1.143	1.181	1.378	30	35

Cap (µF)	Catalog Part Number	Max ESR @ 120 Hz +25 ºC (Ω)	Max Ripple @ 120 Hz +105 ºC (A)	Size (Inches)		Size (mm)	
				D	L	D	L
200 Vdc; 250 Vdc Surge							
470	LP471M200E1P3	0.540	1.140	1.181	0.984	30	25
470	LP471M200H3P3	0.540	1.143	1.378	1.181	35	30
560	LP561M200H3P3	0.440	1.310	1.378	1.181	35	30
680	LP681M200E3P3	0.370	1.520	1.181	1.181	30	30
680	LP681M200E5P3	0.370	1.510	1.181	1.378	30	35
680	LP681M200H1P3	0.370	1.510	1.378	0.984	35	25
820	LP821M200H7P3	0.300	1.750	1.378	1.575	35	40
820	LP821M200H3P3	0.300	1.750	1.378	1.181	35	30
1,000	LP102M200H9P3	0.250	2.114	1.378	1.969	35	50
1,000	LP102M200H5P3	0.250	2.114	1.378	1.378	35	35
1200	LP122M200E9P3	0.165	2.810	1.181	1.969	30	50
1,200	LP122M200H5P3	0.165	2.740	1.378	1.378	35	35
1,500	LP152M200H4P3	0.134	3.330	1.378	1.772	35	45
1,800	LP182M200H9P3	0.112	3.800	1.378	1.969	35	50
250 Vdc; 300 Vdc Surge							
100	LP101M250A1P3	2.500	0.410	0.866	0.984	22	25
150	LP151M250C1P3	1.660	0.540	0.984	0.984	25	25
180	LP181M250C3P3	1.400	0.686	0.984	1.181	25	30
220	LP221M250E1P3	1.130	0.710	1.181	0.984	30	25
270	LP271M250C3P3	0.922	0.840	0.984	1.181	25	30
330	LP331M250E3P3	0.750	0.914	1.181	1.181	30	30
390	LP391M250H3P3	0.640	1.090	1.378	1.181	35	30
470	LP471M250E7P3	0.530	1.260	1.181	1.575	30	40
470	LP471M250H1P3	0.530	1.260	1.378	0.984	35	25
560	LP561M250H3P3	0.347	1.800	1.378	1.181	35	30
680	LP681M250E9P3	0.370	1.920	1.181	1.969	30	50
680	LP681M250H5P3	0.370	2.070	1.378	1.378	35	35
820	LP821M250H7P3	0.243	2.400	1.378	1.575	35	40
1,000	LP102M250H4P3	0.200	2.720	1.378	1.772	35	45
1,200	LP122M250H9P3	0.165	3.100	1.378	1.969	35	50

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