Type 381LR 105 °C Highest Ripple, Snap-In Aluminum

Ultra-High Ripple Capabilities



Compared to standard 105 °C snap-ins like the Type 381L/LX Type 381LR can handle an extra 25% ripple current or more. This remarkable capability stems from advances in electrolyte that give extremely low ESR values.In high ripple current applications like motor drives you can save by using fewer capacitors.

Highlights

- The right choice for motor drive bus capacitors
- The right choice for UPS bus capacitors
- Compare to Type 381L
- Up to 2 times the ripple current

Specifications

Temperature Range	–40 °C to + 105 °C ≤ 315 Vdc –25 °C to + 105 °C ≥ 350 Vdc
Rated Voltage Range	200 Vdc to 450 Vdc
Capacitance Range	56 µF to 2,200 µF
Capacitance Tolerance	± 20%
Leakage Current	≤3 $\sqrt{CV}$ µA, 4 mA max, 5 minutes
Ripple Current Multipliers	Ambient Temperature **45 °C** / **60 °C** / **70 °C** / **85 °C** / **105 °C** 2.35 / 2.20 / 2.00 / 1.70 / 1.00 Frequency **50 Hz** / **60 Hz** / **120 Hz** / **500 kHz** / **1 kHz** / **10 kHz & Up** 0.75 / 0.80 / 1.00 / 1.20 / 1.25 / 1.40
Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 3 (200–450Vdc)
Endurance Life Test	3000 h at full load at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	1000 h at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h each plane
RoHS Compliant	

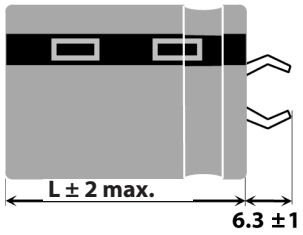
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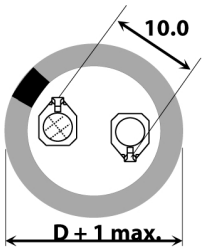
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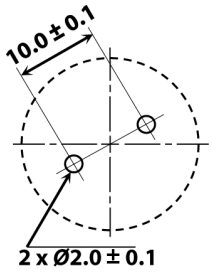
Part Numbering System

381LR	271	M	200	H01	2
Type	Cap	Tolerance	Voltage	Case Code	Insulating Sleeve
381LR	**271** = 270 µF **222** = 2200 µF	**M =** ±20%	**160** = 160 Vdc **450** = 450 Vdc		**2** = PVC

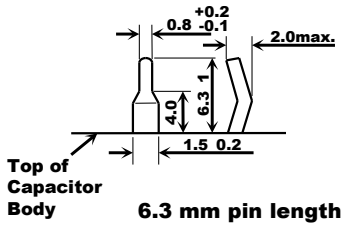
Outline Drawing



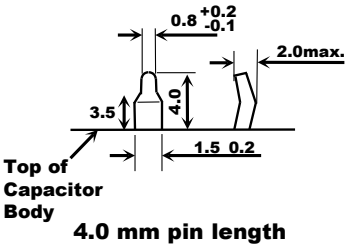




PC Board Mounting Holes



6.3 mm pin length



4.0 mm pin length option (add "A" to end of part#)

Dimensions shown are in mm

Insulated Case Dimensions

Case Code	DIAMETER D		LENGTH L		Typical Weight	Case Code	DIAMETER D		LENGTH L		Typical Weight
	mm	inches	mm	inches	(grams)		mm	inches	mm	inches	(grams)
H01	22	0.87	25	0.98	16	K01	30	1.18	25	0.98	30
H02	22	0.87	30	1.18	19	K02	30	1.18	30	1.18	35
H03	22	0.87	35	1.38	22	K03	30	1.18	35	1.38	40
H04	22	0.87	40	1.57	24	K04	30	1.18	40	1.57	44
H45	22	0.87	45	1.77	28	K45	30	1.18	45	1.77	49
H05	22	0.87	50	1.97	31	K05	30	1.18	50	1.97	53
J01	25	0.98	25	0.98	20	A01	35	1.38	25	0.98	42
J02	25	0.98	30	1.18	24	A02	35	1.38	30	1.18	48
J03	25	0.98	35	1.38	27	A03	35	1.38	35	1.38	54
J04	25	0.98	40	1.57	31	A04	35	1.38	40	1.57	60
J45	25	0.98	45	1.77	35	A45	35	1.38	45	1.77	67
J05	25	0.98	50	1.97	38	A05	35	1.38	50	1.97	74
						A55	35	1.38	55	2.17	80

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Ultra-High Ripple Capabilities

Ratings

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
200 Vdc (250 Vdc Surge)						
330	381LR331M200H012	0.603	0.271	1.25	1.79	22 x 25
390	381LR391M200H022	0.510	0.229	1.35	1.93	22 x 30
470	381LR471M200H032	0.423	0.191	1.50	2.14	22 x 35
470	381LR471M200J022	0.317	0.143	1.85	2.64	25 x 30
560	381LR561M200H042	0.355	0.180	1.67	2.38	22 x 40
680	381LR681M200J032	0.293	0.132	1.72	2.45	25 x 35
680	381LR681M200K022	0.219	0.099	2.42	3.45	30 x 30
820	381LR821M200J042	0.243	0.109	0.20	2.92	25 x 40
820	381LR821M200K022	0.182	0.082	2.63	3.76	30 x 30
1000	381LR102M200J452	0.149	0.067	2.84	4.06	25 x 45
1000	381LR102M200J052	0.199	0.090	2.42	3.46	25 x 50
1000	381LR102M200K032	0.149	0.067	2.84	4.06	30 x 35
1200	381LR122M200J052	0.166	0.083	2.63	3.76	25 x 50
1200	381LR122M200K042	0.124	0.062	3.13	4.47	30 x 40
1200	381LR122M200A032	0.124	0.062	3.13	4.47	35 x 35
1500	381LR152M200K052	0.099	0.050	3.56	5.06	30 x 50
1500	381LR152M200A042	0.099	0.050	3.56	5.06	35 x 40
1800	381LR182M200A452	0.083	0.041	3.84	5.48	35 x 45
2200	381LR222M200A052	0.066	0.040	4.12	5.89	35 x 50
250 Vdc (300 Vdc Surge)						
220	381LR221M250H012	0.905	0.407	1.00	1.43	22 x 25
270	381LR271M250H022	0.737	0.332	1.18	1.69	22 x 30
330	381LR331M250H022	0.603	0.271	1.30	1.65	22 x 30
390	381LR391M250J032	0.510	0.229	1.49	2.12	25 x 35
470	381LR471M250J032	0.423	0.191	1.65	2.35	25 x 35
470	381LR471M250K022	0.317	0.143	1.85	2.64	30 x 30
560	381LR561M250J032	0.355	0.160	1.80	2.57	25 x 35
560	381LR561M250K022	0.266	0.120	2.14	3.05	30 x 30
680	381LR681M250H052	0.219	0.099	2.42	3.45	22 x 50
680	381LR681M250J452	0.293	0.132	2.00	2.85	25 x 45
680	381LR681M250K032	0.219	0.099	2.42	3.45	30 x 35
820	381LR821M250K042	0.182	0.082	2.63	3.76	30 x 40
820	381LR821M250A032	0.182	0.082	2.63	3.76	35 x 35
1000	381LR102M250K052	0.149	0.067	2.84	4.06	30 x 50
1000	381LR102M250A042	0.149	0.067	2.84	4.06	35 x 40
1200	381LR122M250A452	0.124	0.062	3.13	4.47	35 x 45
1500	381LR152M250A052	0.099	0.050	3.56	5.06	35 x 50
400 Vdc (450 Vdc Surge)						
82	381LR820M400H012	2.440	0.853	0.55	0.80	22 x 25
100	381LR101M400H012	1.990	0.700	0.50	0.70	22 x 25
100	381LR101M400H022	1.326	0.700	0.50	0.70	22 x 30
100	381LR101M400J012	1.326	0.597	0.91	1.30	25 x 25

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Ultra-High Ripple Capabilities

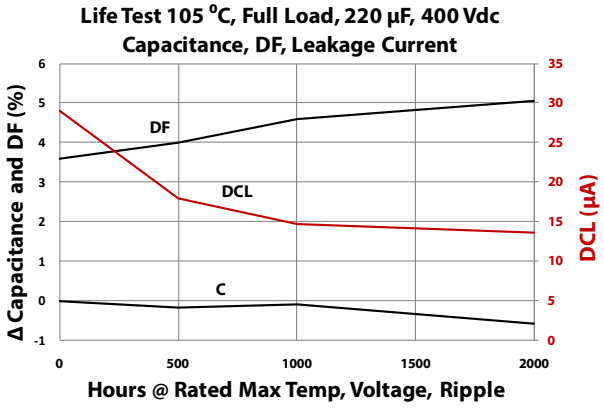
Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
400 Vdc (450 Vdc Surge)						
120	381LR121M400H022	1.659	0.746	0.70	0.98	22 x 30
150	381LR151M400H032	1.327	0.464	0.80	1.10	22 x 35
180	381LR181M400J032	1.106	0.500	0.95	1.33	25 x 35
180	381LR181M400K022	0.737	0.322	1.12	1.60	30 x 30
220	381LR221M400H452	0.905	0.407	1.00	1.40	22 x 45
220	381LR221M400J042	0.603	0.271	1.42	2.03	25 x 40
220	381LR221M400K022	0.603	0.271	1.42	2.03	30 x 30
220	381LR221M400A012	0.603	0.271	1.42	2.03	35 x 25
270	381LR271M400H452	0.603	0.271	1.42	2.03	22 x 45
270	381LR271M400K022	0.737	0.332	1.22	1.71	30 x 30
270	381LR271M400K032	0.491	0.221	1.56	2.23	30 x 35
330	381LR331M400K032	0.603	0.272	1.39	1.95	30 x 35
330	381LR331M400K042	0.402	0.181	1.71	2.44	30 x 40
330	381LR331M400A022	0.402	0.181	1.71	2.44	35 x 30
390	381LR391M400J452	0.340	0.153	1.85	2.64	25 x 45
390	381LR391M400K452	0.340	0.153	1.85	2.64	30 x 45
390	381LR391M400A032	0.340	0.153	1.85	2.64	35 x 35
470	381LR471M400A042	0.282	0.127	2.01	2.87	35 x 40
560	381LR561M400A452	0.237	0.107	2.35	3.36	35 x 45
420 Vdc (470 Vdc Surge)						
68	381LR680M420H012	2.930	1.320	0.56	0.80	22 x 25
82	381LR820M420H012	2.430	1.090	0.64	0.91	22 x 25
100	381LR101M420H012	1.990	0.900	0.70	1.00	22 x 25
120	381LR121M420H022	1.660	0.750	0.70	1.00	22 x 30
180	381LR181M420K022	0.737	0.332	1.12	1.60	30 x 30
220	381LR221M420H452	0.900	0.410	1.05	1.51	22 x 45
220	381LR221M420K032	0.603	0.271	1.42	2.03	30 x 35
270	381LR271M420J452	0.740	0.330	1.20	1.71	25 x 45
270	381LR271M420K042	0.491	0.221	1.68	2.40	30 x 40
330	381LR331M420A032	0.402	0.181	1.78	2.54	35 x 35
330	381LR331M420K452	0.402	0.181	1.78	2.54	30 x 45
390	381LR391M420K052	0.340	0.153	1.91	2.73	30 x 50
390	381LR391M420A042	0.340	0.153	1.91	2.73	35 x 40
470	381LR471M420A452	0.282	0.127	2.23	3.18	35 x 45
450 Vdc (500 Vdc Surge)						
56	381LR560M450H012	3.550	1.600	0.50	0.71	22 x 25
68	381LR680M450H012	2.930	1.320	0.53	0.75	22 x 25
82	381LR820M450H012	1.617	0.728	0.80	1.01	22 x 25
82	381LR820M450H022	2.430	1.090	0.64	0.91	22 x 30
100	381LR101M450H022	1.990	0.900	0.70	1.00	22 x 30
100	381LR101M450J022	1.326	0.597	0.91	1.30	25 x 30
120	381LR121M450H032	1.660	0.750	0.80	1.15	22 x 35

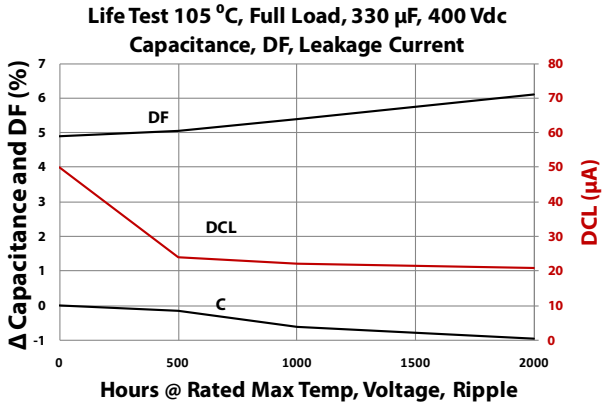
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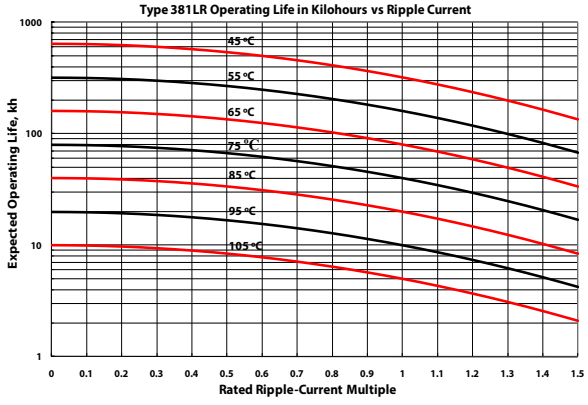
Ultra-High Ripple Capabilities

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
450 Vdc (500 Vdc Surge)						
150	381LR151M450H032	1.327	0.594	0.88	1.26	22 x 35
150	381LR151M450J022	1.330	0.464	0.830	1.04	25 x 30
150	381LR151M450J042	0.884	0.396	1.07	1.53	25 x 40
150	381LR151M450K022	0.884	0.396	1.07	1.53	30 x 30
180	381LR181M450H042	1.110	0.500	1.00	1.43	22 x 40
180	381LR181M450K022	0.737	0.332	1.12	1.60	30 x 30
220	381LR221M450J042	0.603	0.271	1.42	2.03	25 x 40
220	381LR221M450K032	0.603	0.271	1.42	2.03	30 x 35
220	381LR221M450A022	0.603	0.271	1.42	2.03	35 x 30
270	381LR271M450K042	0.491	0.221	1.72	2.45	30 x 40
270	381LR271M450A032	0.491	0.221	1.72	2.45	35 x 35
330	381LR331M450K052	0.402	0.181	1.85	2.64	30 x 50
330	381LR331M450A042	0.402	0.181	1.85	2.64	35 x 40
390	381LR391M450A042	0.340	0.153	1.97	2.82	35 x 40
470	381LR471M450A052	0.282	0.127	2.47	3.53	35 x 50

Typical Performance Curves







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