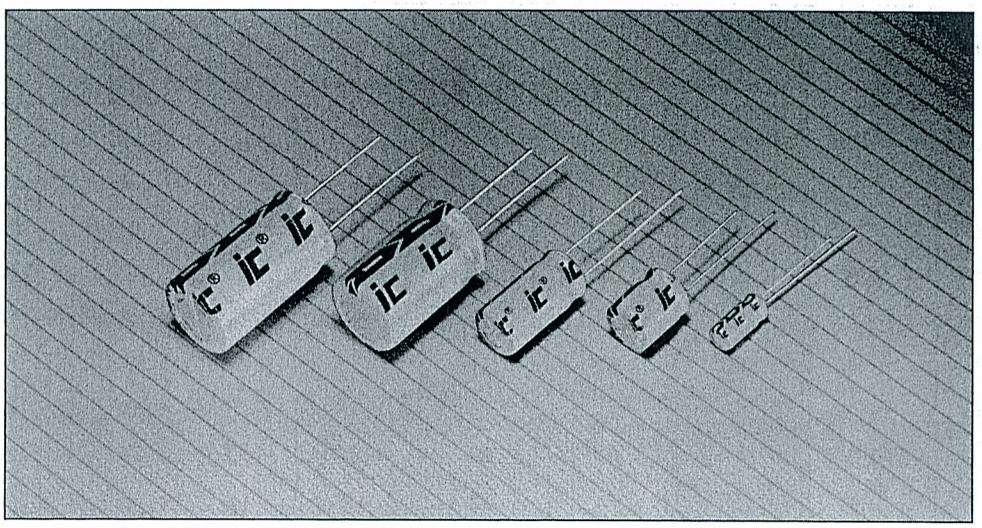
RLR

+85°C LOW LEAKAGE RADIAL LEAD ALUMINUM ELECTROLYTIC CAPACITORS



FEATURES

- Wide Capacitance Range
- Low Leakage Current
- Long Life
- Alternative to Tantalum Capacitor
- **See RLS For New Designs and Smaller Case Sizes**

SPECIFICATIONS

Capacitance Range: 0.1 Mfd. to 2,200 Mfd.
Voltage Range: 6.3WVDC to 50WVDC
Capacitance Tolerance: ±20% (M) Standard
Leakage Current: ≤0.002CV or 0.4μA min.
Operating Temperature: −40°C to +85°C
Solvent Tolerant Seal: Standard

SPECIAL ORDER OPTIONS

- Epoxy End Seal
- Tape & Reel
- Tape—Ammo pack
- Polyester Sleeve
- Cut & Formed Leads
- Special Tolerances: ±10% (K)

RLR +85°C Low Leakage Electrolytic Capacitors

PHYSICAL DIMENSIONS

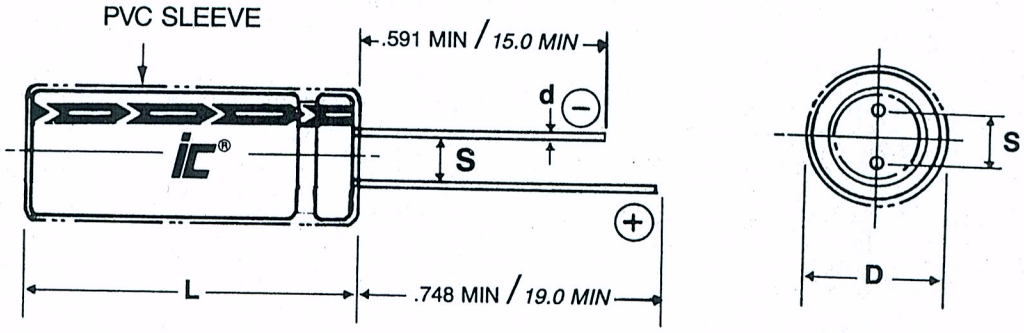
PHYSICAL DIMENSIONS: DIAMETER (D) x LENGTH (L) (inches/*mm*)

WV(SV) / MFD	6.3 (8)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)
0.1						.197x.433 / *5.0x11.0*
0.15						.197x.433 / *5.0x11.0*
.22						.197x.433 / *5.0x11.0*
.33						.197x.433 / *5.0x11.0*
.47						.197x.433 / *5.0x11.0*
.68						.197x.433 / *5.0x11.0*
1.0						.197x.433 / *5.0x11.0*
1.5						.197x.433 / *5.0x11.0*
2.2						.197x.433 / *5.0x11.0*
3.3						.197x.433 / *5.0x11.0*
4.7					.197x.433 / *5.0x11.0*	.248x.433 / *6.3x11.0*
6.8					.197x.433 / *5.0x11.0*	.248x.433 / *6.3x11.0*
10			.197x.433 / *5.0x11.0*		.248x.433 / *6.3x11.0*	.315x.453 / *8.0x11.5*
15			.197x.433 / *5.0x11.0*		.248x.433 / *6.3x11.0*	.315x.453 / *8.0x11.5*
22		.197x.433 / *5.0x11.0*	.248x.433 / *6.3x11.0*		.315x.453 / *8.0x11.5*	.394x.492 / *10.0x12.5*
33			.248x.433 / *6.3x11.0*	.315x.453 / *8.0x11.5*	.394x.492 / *10.0x12.5*	.394x.630 / *10.0x16.0*
47		.248x.433 / *6.3x11.0*	.315x.453 / *8.0x11.5*		.394x.492 / *10.0x12.5*	.394x.630 / *10.0x16.0*
68		.248x.433 / *6.3x11.0*	.315x.453 / *8.0x11.5*	.394x.492 / *10.0x12.5*	.394x.630 / *10.0x16.0*	.394x.787 / *10.0x20.0*
100		.315x.453 / *8.0x11.5*	.394x.492 / *10.0x12.5*	.394x.630 / *10.0x16.0*	.394x.787 / *10.0x20.0*	.492x.787 / *12.5x20.0*
150	.315x.453 / *8.0x11.0*	.394x.492 / *10.0x12.5*	.394x.630 / *10.0x16.0*	.394x.787 / *10.0x20.0*	.492x.787 / *12.5x20.0*	.492x.984 / *12.5x25.0*
220	.394x.492 / *10.0x12.5*	.394x.630 / *10.0x16.0*	.394x.630 / *10.0x16.0*	.492x.787 / *12.5x20.0*	.492x.984 / *12.5x25.0*	.630x.984 / *16.0x25.0*
330	.394x.630 / *10.0x16.0*		.394x.787 / *10.0x20.0*	.492x.787 / *12.5x25.0*	.630x.984 / *16.0x25.0*	.630x1.240 / *16.0x31.5*
470	.394x.787 / *10.0x20.0*		.492x.787 / *12.5x20.0*	.630x.984 / *16.0x25.0*	.630x.984 / *16.0x25.0*	.630x1.240 / *16.0x31.5*
680	.394x.787 / *10.0x20.0*	.492x.787 / *12.5x20.0*	.492x.984 / *12.5x25.0*	.630x.984 / *16.0x25.0*	.630x1.240 / *16.0x31.5*	
1,000		.492x.787 / *12.5x20.0*	.630x.984 / *16.0x25.0*	.630x1.240 / *16.0x31.5*	.709x1.398 / *18.0x35.5*	
1,500	.492x.984 / *12.5x25.0*	.630x.984 / *16.0x25.0*	.630x1.240 / *16.0x31.5*			
2,200	.630x.984 / *16.0x25.0*	.630x1.240 / *16.0x31.5*	.709x1.398 / *18.0x35.5*			

RLR

+85°C Low Leakage Electrolytic Capacitors

PHYSICAL DIMENSIONS



RLR LEAD INFORMATION vs. CASE SIZE inches / mm			
Case Diameter (D)	Lead Spacing (S)	Lead Spacing Tol (S)	Lead Wire (d)
.197 / 5.0	.079 / 2.0	±.02 / ±0.5	.020 / 0.5
.248 / 6.3	.098 / 2.5	±.02 / ±0.5	.020 / 0.5
.315 / 8.0	.138 / 3.5	±.02 / ±0.5	.024 / 0.6
.394 / 10.0	.197 / 5.0	±.02 / ±0.5	.024 / 0.6
.492 / 12.5	.197 / 5.0	±.02 / ±0.5	.024 / 0.6
.630 / 16.0	.295 / 7.5	±.02 / ±0.5	.032 / 0.8
.709 / 18.0	.295 / 7.5	±.02 / ±0.5	.032 / 0.8

CASE TOLERANCE inches / mm			
Case Diameter (D)	Tolerance Case Diameter (D)	Case Length (L)	Tolerance Case Length (L)
≤.394 / ≤10.0	+.020 / +0.5	≤.492 / ≤12.5	+.059 / +1.5
≥.492 / ≥12.5	+.020 / +0.5	≥.630 / ≥16.0	+.078 / +2.0

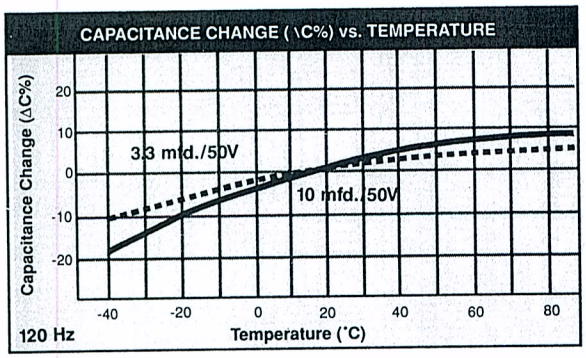
Note 1: Dimensions shown do not include sleeve thickness.

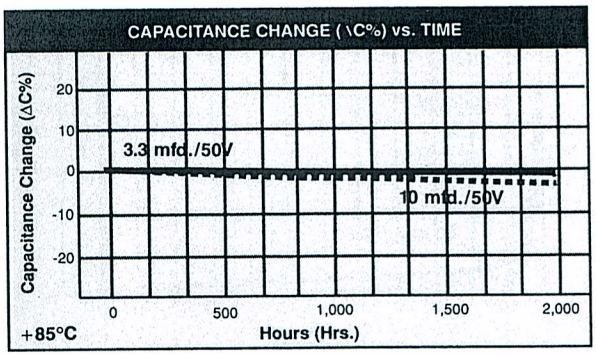
Note 2: Case Vent is standard on all diameters ≥.315 in./8.0mm

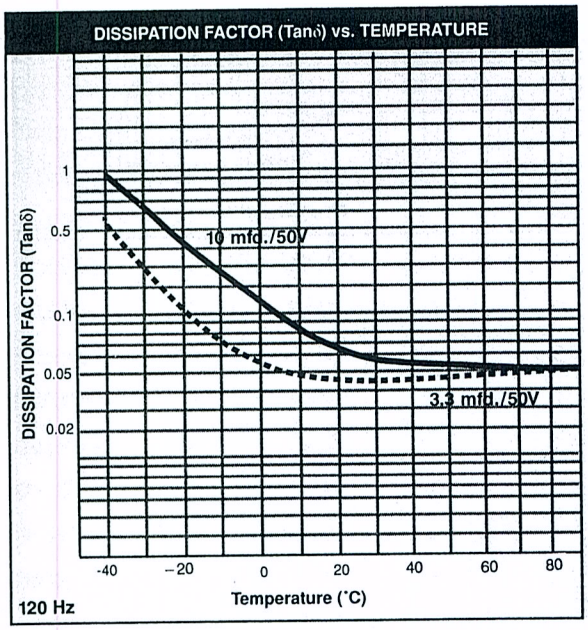
RLR

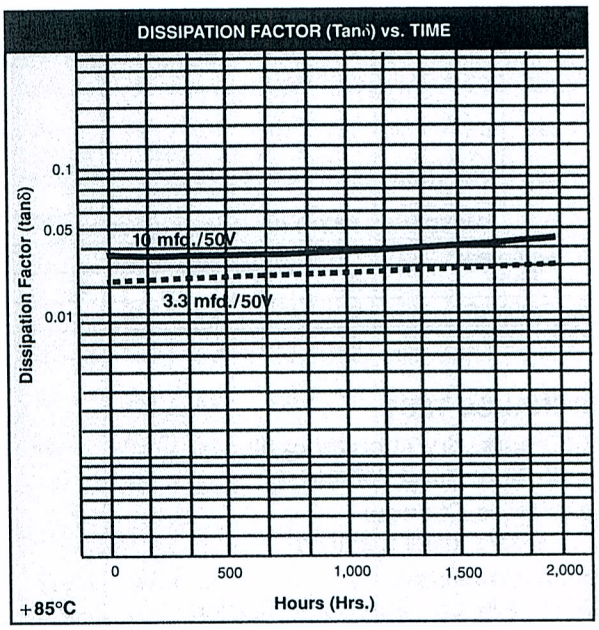
+85°C Low Leakage Electrolytic Capacitors

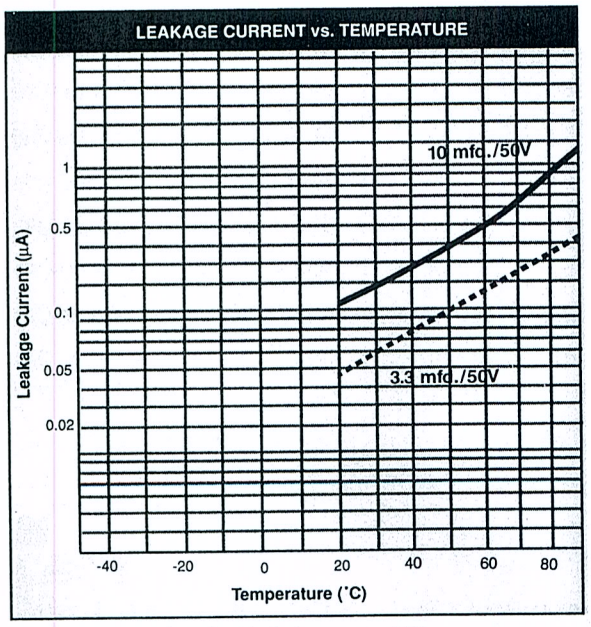
ENVIRONMENTAL / ENDURANCE DATA

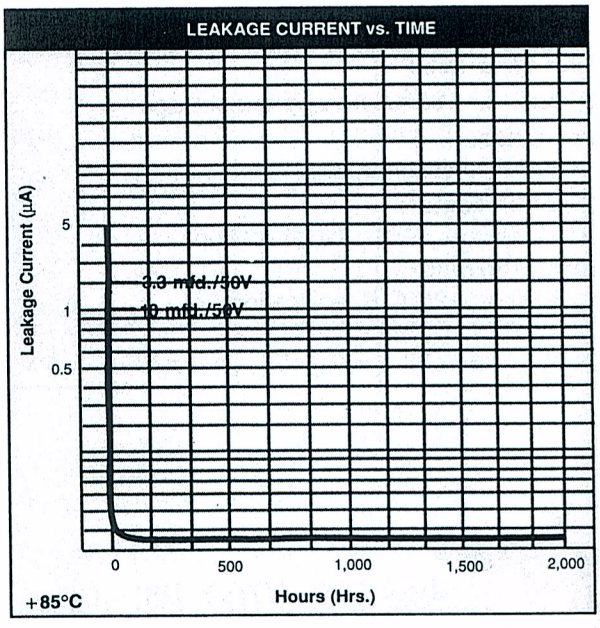










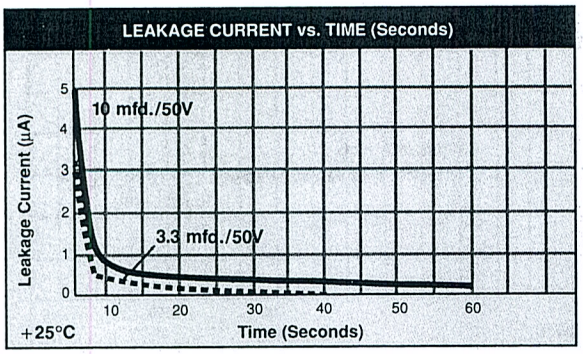


NOTE: These graphs reflect typical measurements.

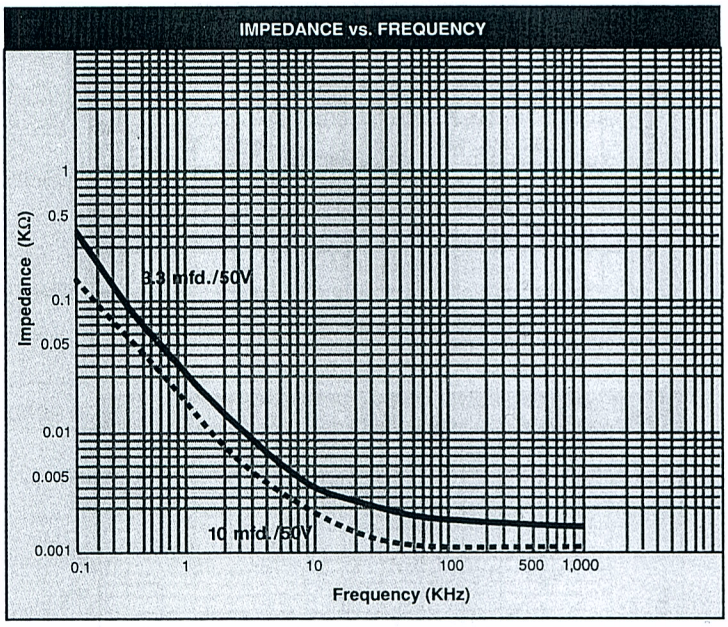
RLR

+85°C Low Leakage Electrolytic Capacitors

ENVIRONMENTAL / ENDURANCE DATA



NOTE: These graphs reflect typical measurements.



IMPEDANCE RATIO (Maximum) @ 120 Hz					
Temporary Ratio	Rated WVDC				
	10	16	25	35	50
−25°C/+25°C	3	2	2	2	2
−40°C/+25°C	6	4	4	3	3

ENDURANCE TEST

2,000 hours, dry circulating air, @ +85°C @ rated voltage

Capacitance Change:
△C≤20% initial readings

Dissipation Factor:
DF≤200% of +25°C Specification

Leakage Current:
≤+25°C Max. allowable values

SHELF LIFE TEST

1,000 hours, +85°C, no applied voltage

Capacitance:
△C≤20% initial readings

Dissipation Factor:
DF≤200% of +25°C Specification

Leakage Current:
≤200% of +25°C Specification

RLR +85°C Low Leakage Aluminum Electrolytic
STANDARD PART LISTING

STANDARD PART LISTING: Tolerance ±20%(M) Standard

PART NUMBER	Capacitance MFD.	WVDC (SVDC)	Maximum Dissipation Factor (tanδ) 120Hz, +25°C	Maximum ESR Ω 120Hz, +25°C	Leakage Current (μA) @2min, +25°C	RMS Ripple Current (mA) 120Hz, +85°C	PHYSICAL DIMENSIONS in/mm			
							Case Diameter	Case Length	Lead Spacing	Lead Thickness
104RLR050M	0.1	50(63)	.10	1,327	.4	8	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
154RLR050M	0.15	50(63)	.10	884	.4	10	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
224RLR050M	0.22	50(63)	.10	603	.4	15	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
334RLR050M	0.33	50(63)	.10	402	.4	20	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
474RLR050M	0.47	50(63)	.10	282	.4	24	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
684RLR050M	0.68	50(63)	.10	195	.4	27	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
105RLR050M	1.0	50(63)	.10	132	.4	29	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
155RLR050M	1.5	50(63)	.10	88	.4	34	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
225RLR050M	2.2	50(63)	.10	60	.4	44	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
335RLR050M	3.3	50(63)	.10	40	.4	65	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
475RLR035M	4.7	35(44)	.12	34	.4	70	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
475RLR050M	4.7	50(63)	.10	28	.47	80	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
685RLR035M	6.8	35(44)	.12	23	.48	86	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
685RLR050M	6.8	50(63)	.10	19	.68	95	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
106RLR016M	10	16(20)	.17	23	.4	75	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
106RLR035M	10	35(44)	.12	16	.70	105	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
106RLR050M	10	50(63)	.10	13	1.0	125	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
156RLR016M	15	16(20)	.17	15	.48	95	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
156RLR035M	15	35(44)	.12	11	1.0	135	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
156RLR050M	15	50(63)	.10	8.8	1.5	150	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
226RLR010M	22	10(13)	.20	12	.44	105	.197 / 5.0	.433 / 11.0	.079 / 2.0	.020 / 0.5
226RLR016M	22	16(20)	.17	10	.70	120	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
226RLR035M	22	35(44)	.12	7.2	1.5	165	.315 / 8.0	.433 / 11.5	.138 / 3.5	.024 / 0.6
226RLR050M	22	50(63)	.10	6.0	2.2	185	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
336RLR016M	33	16(20)	.17	6.8	1.1	150	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
336RLR025M	33	25(32)	.17	6.8	1.6	175	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
336RLR035M	33	35(44)	.12	4.8	2.3	205	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
336RLR050M	33	50(63)	.10	4.0	3.3	230	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6

RLR +85°C Low Leakage Aluminum Electrolytic
STANDARD PART LISTING

STANDARD PART LISTING: Tolerance ±20%(M) Standard *(Continued)*

PART NUMBER	Capacitance MFD.	WVDC (SVDC)	Maximum Dissipation Factor (tanδ) 120Hz, +25°C	Maximum ESR Ω 120Hz, +25°C	Leakage Current (μA) @2min, +25°C	RMS Ripple Current (mA) 120Hz, +85°C	PHYSICAL DIMENSIONS in/mm			
							Case Diameter	Case Length	Lead Spacing	Lead Thickness
476RLR010M	47	10(13)	.20	5.6	.94	165	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
476RLR016M	47	16(20)	.17	4.8	1.5	185	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
476RLR035M	47	35(44)	.12	3.4	3.3	245	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
476RLR050M	47	50(63)	.10	2.8	4.7	275	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
686RLR010M	68	10(13)	.20	3.9	1.4	205	.248 / 6.3	.433 / 11.0	.098 / 2.5	.020 / 0.5
686RLR016M	68	16(20)	.17	3.3	2.2	220	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
686RLR025M	68	25(32)	.17	3.3	3.4	255	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
686RLR035M	68	35(44)	.12	2.3	4.7	295	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
686RLR050M	68	50(63)	.10	1.9	6.8	345	.394 / 10.0	.787 / 20.0	.197 / 5.0	.024 / 0.6
107RLR010M	100	10(13)	.20	2.6	2.0	245	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
107RLR016M	100	16(20)	.17	2.2	3.2	275	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
107RLR025M	100	25(32)	.17	2.2	5.0	315	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
107RLR035M	100	35(44)	.12	1.6	7.0	365	.394 / 10.0	.787 / 20.0	.197 / 5.0	.024 / 0.6
107RLR050M	100	50(63)	.10	1.3	10	420	.492 / 12.5	.787 / 20.0	.197 / 5.0	.024 / 0.6
157RLR6R3M	150	6.3(8)	.22	1.9	1.9	255	.315 / 8.0	.453 / 11.5	.138 / 3.5	.024 / 0.6
157RLR010M	150	10(13)	.20	1.8	3.0	305	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
157RLR016M	150	16(20)	.17	1.5	4.8	340	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
157RLR025M	150	25(32)	.17	1.5	7.5	395	.394 / 10.0	.787 / 20.0	.197 / 5.0	.024 / 0.6
157RLR035M	150	35(44)	.12	1.1	11	460	.492 / 12.5	.787 / 20.0	.197 / 5.0	.024 / 0.6
157RLR050M	150	50(63)	.10	.88	15	520	.492 / 12.5	.984 / 25.0	.197 / 5.0	.024 / 0.6
227RLR6R3M	220	6.3(8)	.22	1.3	2.7	355	.394 / 10.0	.492 / 12.5	.197 / 5.0	.024 / 0.6
227RLR010M	220	10(13)	.20	1.2	4.4	380	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
227RLR016M	220	16(20)	.17	1.0	7.0	420	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
227RLR025M	220	25(32)	.17	1.0	11	490	.492 / 12.5	.787 / 20.0	.197 / 5.0	.024 / 0.6
227RLR035M	220	35(44)	.12	.72	15	560	.492 / 12.5	.984 / 25.0	.197 / 5.0	.024 / 0.6
227RLR050M	220	50(63)	.10	.60	22	650	.630 / 16.0	.984 / 25.0	.295 / 7.5	.024 / 0.6

RLR +85°C Low Leakage Aluminum Electrolytic
STANDARD PART LISTING

STANDARD PART LISTING: Tolerance ±20%(M) Standard *(Continued)*

PART NUMBER	Capacitance MFD.	WVDC (SVDC)	Maximum Dissipation Factor (tanδ) 120Hz, +25°C	Maximum ESR Ω 120Hz, +25°C	Leakage Current (μA) @2min, +25°C	RMS Ripple Current (mA) 120Hz, +85°C	PHYSICAL DIMENSIONS in/mm			
							Case Diameter	Case Length	Lead Spacing	Lead Thickness
337RLR6R3M	330	6.3(8)	.22	.89	4.2	445	.394 / 10.0	.630 / 16.0	.197 / 5.0	.024 / 0.6
337RLR016M	330	16(20)	.17	.68	11	520	.394 / 10.0	.787 / 20.0	.197 / 5.0	.024 / 0.6
337RLR025M	330	25(32)	.17	.68	16	600	.492 / 12.5	.984 / 25.0	.197 / 5.0	.024 / 0.6
337RLR035M	330	35(44)	.12	.48	23	710	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
337RLR050M	330	50(63)	.10	.40	33	820	.630 / 16.0	1.240 / 31.5	.295 / 7.5	.032 / 0.8
477RLR6R3M	470	6.3(8)	.22	.62	5.9	530	.394 / 10.0	.787 / 20.0	.197 / 5.0	.024 / 0.6
477RLR016M	470	16(20)	.17	.47	15	620	.492 / 12.5	.787 / 20.0	.197 / 5.0	.024 / 0.6
477RLR025M	470	25(32)	.17	.47	23	740	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
477RLR035M	470	35(44)	.12	.34	33	850	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
477RLR050M	470	50(63)	.10	.28	47	880	.630 / 16.0	1.240 / 31.5	.295 / 7.5	.032 / 0.8
687RLR6R3M	680	6.3(8)	.22	.43	8.6	680	.394 / 10.0	.787 / 20.0	.197 / 5.0	.024 / 0.6
687RLR010M	680	10(13)	.20	.39	13	710	.492 / 12.5	.787 / 20.0	.197 / 5.0	.024 / 0.6
687RLR016M	680	16(20)	.17	.33	22	760	.492 / 12.5	.984 / 25.0	.197 / 5.0	.024 / 0.6
687RLR025M	680	25(32)	.17	.33	34	930	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
687RLR035M	680	35(44)	.12	.23	47	980	.630 / 16.0	1.240 / 31.5	.295 / 7.5	.032 / 0.8
108RLR010M	1,000	10(13)	.20	.26	20	850	.492 / 12.5	.787 / 20.0	.197 / 5.0	.024 / 0.6
108RLR016M	1,000	16(20)	.17	.22	32	950	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
108RLR025M	1,000	25(32)	.17	.22	50	1,120	.630 / 16.0	1.240 / 31.5	.295 / 7.5	.032 / 0.8
108RLR035M	1,000	35(44)	.12	.16	70	1,320	.709 / 18.0	1.398 / 35.5	.295 / 7.5	.032 / 0.8
158RLR6R3M	1,500	6.3(8)	.24	.21	19	950	.492 / 12.5	.984 / 25.0	.197 / 5.0	.024 / 0.6
158RLR010M	1,500	10(13)	.20	.19	30	1,020	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
158RLR016M	1,500	16(20)	.17	.17	48	1,080	.630 / 16.0	1.240 / 31.5	.295 / 7.5	.032 / 0.8
228RLR6R3M	2,200	6.3(8)	.26	.16	27	1,240	.630 / 16.0	.984 / 25.0	.295 / 7.5	.032 / 0.8
228RLR010M	2,200	10(13)	.20	.14	44	1,330	.630 / 16.0	1.240 / 31.5	.295 / 7.5	.032 / 0.8
228RLR016M	2,200	16(20)	.17	.13	70	1,510	.709 / 18.0	1.398 / 35.5	.295 / 7.5	.032 / 0.8

Note 1: WVDC: Maximum rated DC Working Voltage at +85°C.
Note 2: SVDC: Maximum rated DC Surge Voltage at +85°C.
Note 3: Dissipation Factor (tan δ) Maximum; 120Hz, +25°C.
Note 4: ESR: Maximum Equivalent Series Resistance; 120Hz, +25°C nominal capacitance, maximum dissipation factor.
Note 5: Maximum Leakage Current; Rated WVDC, 2 Minutes, +25°C.
Note 6: RMS Ripple Current; 120Hz, +85°C.
Note 7: Capacitance Tolerance is measured at 120Hz, +25°C.
Note 8: All measurements are performed using the bridge method.