

# ULR Series

+105°C, Higher Ripple Current, Lower ESR than ULG

## Features

- Higher Ripple Current, Lower ESR than ULG
- Wide Temperature Range
- RoHS Compliant

## Applications

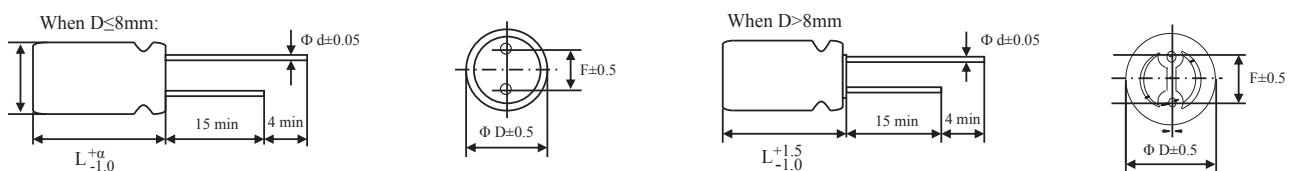
- Suitable for DC-DC Converters, Voltage Regulators, Decoupling Applications for Computer Motherboards, etc.



## Specifications

Item	Performance Characteristics				
Operating Temperature Range	-55 to +105°C				
Rated Working Voltage Range	2.5VDC to 35VDC				
Surge Voltage, SV	SV=WVx1.15VDC (Normal temperature)				
Nominal Capacitance Range	22 to 2700μF (120Hz, +20°C)				
Capacitance Tolerance	±20% (120Hz, +20°C)				
tan δ	0.10 (120Hz, +20°C)				
Leakage Current, Lc	I ≤ 0.2CV or 280 (μA) whichever is greater measured, after 2 minutes application of rated working voltage at +20°C				
Temperature Characteristics, Impedance Ratio	At -55°C 100kHz (Low temperature)			Z/Z20°C ≤ 1.25	
	At +105°C 100kHz (High temperature)			Z/Z20°C ≤ 1.25	
Frequency Coefficient for Allowable Ripple Current	Frequency	120Hz ≤ f < 1kHz	1kHz ≤ f < 10kHz	10kHz ≤ f < 100kHz	100kHz ≤ f < 500kHz
	Coefficient	0.05	0.30	0.70	1.00
Endurance	Test conditions +105°C, 2,000 hours Rated voltage applied	ΔC/C	Within ±20% of the initial measured value		
		tan δ	≤ 150% of the initial specified value		
		ESR	≤ 150% of the initial specified value		
		Lc	≤ The initial specified value		
Damp Heat Test (Steady State)	Test conditions +60°C, 90% to 95% RH 1,000 hours No applied voltage	ΔC/C	Within ±20% of the initial measured value		
		tan δ	≤ 150% of the initial specified value		
		ESR	≤ 150% of the initial specified value		
		Lc	≤ The initial specified value		
Surge Voltage Test	At normal temperature, charge at surge voltage for 30 sec. and discharge via a 1kΩ protective resistor for 330 sec. Repeat for 1,000 cycles.	ΔC/C	Within ±20% of the initial measured value		
		tan δ	≤ 150% of the initial specified value		
		ESR	≤ 150% of the initial specified value		
		Lc	≤ The initial specified value		
Others	JIS-C-5101-4				

## Dimensions



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### Size List

 New item | RV: Rated Voltage

RV μF	Code	2.5 (OE)	4 (OG)	6.3 (OJ)	6.8 (OE)	7 (OS)	7.5 (O7)	10 (1A)	12 (1O)	14 (14)	16 (1C)	20 (1D)	25 (1E)	35 (1V)
22	226							E08			E06 <sup>Ⓢ</sup>		E08	
33	336							E08				E08	F08	
47	476							E08			E08	F08	F08	
100	107			E55			D07 <sup>Ⓢ</sup>				D09, E06, E07, E08, E11	F1A	F1A	F1A <sup>Ⓢ</sup> , G1B
150	157			C65		D06 <sup>Ⓢ</sup>		E11 <sup>Ⓢ</sup>				G1B		
180	187							E08			F1A			
220	227	E06		D07, E06, E08				E06, E07, E08			E11, F08, F1A		F1A <sup>Ⓢ</sup>	G1B
270	277		E08	D07, E06 <sup>Ⓢ</sup>				F08, F1A			E11, F08, F1A			
330	337	E08		D08, D09, X08 <sup>Ⓢ</sup> , E55 <sup>Ⓢ</sup> , E06, E08, F08		D09 <sup>Ⓢ</sup>	D09 <sup>Ⓢ</sup>	E08, F08 <sup>Ⓢ</sup> , F1A	D09 <sup>Ⓢ</sup>		E1K <sup>Ⓢ</sup> , E11 <sup>Ⓢ</sup> , F07, F08, F1A, G09, G1B		F1A <sup>Ⓢ</sup> , G1B	
390	397	E06		D09, F08				F08, F1A						
470	477	D09		D95 <sup>Ⓢ</sup> , D11 <sup>Ⓢ</sup> , X10 <sup>Ⓢ</sup> , E06 <sup>Ⓢ</sup> , E08, F08, F1A			E07 <sup>Ⓢ</sup>	E85 <sup>Ⓢ</sup> , E11 <sup>Ⓢ</sup> , F08, F1A, G1B			F1A, G1B			
500	507						D85 <sup>Ⓢ</sup>							
560	567	D08, D09, E06, E08, F08	E08, F08, F1A	E07 <sup>Ⓢ</sup> , E08, F08				F08, F1A		E10 <sup>Ⓢ</sup>				
680	687	F65 <sup>Ⓢ</sup> , F08	F08, F1A	E08, F08, F1A, G1B			E85 <sup>Ⓢ</sup>	F1A, G1B			F1A <sup>Ⓢ</sup> , G1B		F16 <sup>Ⓢ</sup>	
820	827	E08, F07 <sup>Ⓢ</sup> , F08, F1A	F08, F1A	E85 <sup>Ⓢ</sup> , E95 <sup>Ⓢ</sup> , E11 <sup>Ⓢ</sup> , F08, F1A, G1B		E10 <sup>Ⓢ</sup> , F08 <sup>Ⓢ</sup>	E11 <sup>Ⓢ</sup>	F1A			G1B			
1000	108	F08, F09, F1A	F08, G1B	E1K, F08, F1A, G1B	E11 <sup>Ⓢ</sup>			F1A <sup>Ⓢ</sup> , G1B			F16 <sup>Ⓢ</sup> , G1B		G16 <sup>Ⓢ</sup>	
1200	128	F08	F08, F1A, G1B	F1A				G1B						
1500	158	F1A, G1B		F1A, G1B										
2200	228			G1B <sup>Ⓢ</sup>										
2500	258			F16 <sup>Ⓢ</sup>										
2700	278	G1B	G1B											

(Unit: mm)

Size Code	C65	D06	D07	D08	D85	D09	D95	D11	X08	X10	E55	E06	E07	E08
ΦDxL	4 x 6.5	5 x 6	5 x 7	5 x 8	5 x 8.5	5 x 9	5 x 9.5	5 x 11	5.5 x 8	5.5 x 10	6.3 x 5.5	6.3 x 6	6.3 x 7	6.3 x 8
F±0.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5
Φd	0.45	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.45	0.45	0.5	0.6
α	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0

Size Code	E85	E95	E10	E1K	E11	F65	F07	F08	F09	F1A	F16	G09	G1B	G16
ΦDxL	6.3 x 8.5	6.3 x 9.5	6.3 x 10	6.3 x 10.5	6.3 x 11	8 x 6.5	8 x 7	8 x 8	8 x 9	8 x 11.5	8 x 16	10 x 9	10 x 12.5	10 x 16
F±0.5	2.5	2.5	2.5	2.5	2.5	3.5	3.5	3.5	3.5	3.5	3.5	5.0	5.0	5.0
Φd	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
α	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5

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### Characteristics List

Rated Vol. (V)	Rated Cap. (μF)	Case Size ΦD x L (mm)	Size Code	Part Number	ESR (mΩ, max/ 20°C, 100kHz)	Rated Ripple (mArms/ 105°C, 100kHz)	DF (%max)	Leakage Current (μA/2 mins)
2.5	220	6.3 x 6	E06	ULR227M0EE06	15	3400	10	280
2.5	330	6.3 x 8	E08	ULR337M0EE08	7	4200	10	280
2.5	390	6.3 x 6	E06	ULR397M0EE06	15	3400	10	280
2.5	470	5 x 9	D09	ULR477M0ED09	7	4180	10	280
2.5	560	5 x 8	D08	ULR567M0ED08	7	4180	10	280
2.5	560	5 x 9	D09	ULR567M0ED09	7	4180	10	280
2.5	560	6.3 x 6	E06	ULR567M0EE06	15	3400	10	280
2.5	560	6.3 x 8	E08	ULR567M0EE08	7	4000	10	280
2.5	560	8 x 8	F08	ULR567M0EF08	7	6100	10	280
2.5	680	8 x 6.5	F65	ULR687M0EF65	8	4900	10	340
2.5	680	8 x 8	F08	ULR687M0EF08	7	6100	10	390
2.5	820	6.3 x 8	E08	ULR827M0EE08	7	5600	10	410
2.5	820	8 x 7	F07	ULR827M0EF07	8	5600	10	410
2.5	820	8 x 8	F08	ULR827M0EF08	7	6100	10	410
2.5	820	8 x 11.5	F1A	ULR827M0EF1A	7	6100	10	410
2.5	1000	8 x 8	F08	ULR108M0EF08	7	6100	10	500
2.5	1000	8 x 9	F09	ULR108M0EF09	7	6100	10	500
2.5	1000	8 x 11.5	F1A	ULR108M0EF1A	7	6100	10	500
2.5	1200	8 x 8	F08	ULR128M0EF08	7	6100	10	600
2.5	1500	8 x 11.5	F1A	ULR158M0EF1A	7	6100	10	750
2.5	1500	10 x 12.5	G1B	ULR158M0EG1B	7	6100	10	750
2.5	2700	10 x 12.5	G1B	ULR278M0EG1B	8	5560	10	1350
4	270	6.3 x 8	E08	ULR277M0GE08	12	3200	10	280
4	560	6.3 x 8	E08	ULR567M0GE08	7	5600	10	448
4	560	8 x 8	F08	ULR567M0GF08	7	6100	10	448
4	560	8 x 11.5	F1A	ULR567M0GF1A	7	6100	10	448
4	680	8 x 8	F08	ULR687M0GF08	7	6100	10	544
4	680	8 x 11.5	F1A	ULR687M0GF1A	7	6100	10	544
4	820	8 x 8	F08	ULR827M0GF08	7	6100	10	656
4	820	8 x 11.5	F1A	ULR827M0GF1A	7	6100	10	656
4	1000	8 x 8	F08	ULR108M0GF08	7	6100	10	800
4	1000	10 x 12.5	G1B	ULR108M0GG1B	7	6640	10	800
4	1200	8 x 8	F08	ULR128M0GF08	7	6100	10	960
4	1200	8 x 11.5	F1A	ULR128M0GF1A	7	6100	10	960
4	1200	10 x 12.5	G1B	ULR128M0GG1B	8	5600	10	960
4	2700	10 x 12.5	G1B	ULR278M0GG1B	8	6900	10	2160
6.3	100	6.3 x 5.5	E55	ULR107M0JE55	80	1200	10	280
6.3	150	4 x 6.5	C65	ULR157M0JC65	100	2000	10	280
6.3	220	5 x 7	D07	ULR227M0JD07	11	3700	10	280
6.3	220	6.3 x 6	E06	ULR227M0JE06	20	3160	10	280
6.3	220	6.3 x 8	E08	ULR227M0JE08	20	3400	10	280
6.3	270	5 x 7	D07	ULR277M0JD07	11	3700	10	340
6.3	270	6.3 x 6	E06	ULR277M0JE06	20	3160	10	340
6.3	330	5 x 8	D08	ULR337M0JD08	12	2900	10	416
6.3	330	5 x 9	D09	ULR337M0JD09	11	3100	10	416
6.3	330	5.5 x 8	X08	ULR337M0JX08	12	2900	10	416
6.3	330	6.3 x 5.5	E55	ULR337M0JE55	20	3160	10	416
6.3	330	6.3 x 6	E06	ULR337M0JE06	20	3160	10	416
6.3	330	6.3 x 8	E08	ULR337M0JE08	10	4500	10	416
6.3	330	8 x 8	F08	ULR337M0JF08	8	5700	10	416
6.3	390	5 x 9	D09	ULR397M0JD09	11	3100	10	492
6.3	390	8 x 8	F08	ULR397M0JF08	8	5700	10	492
6.3	470	5 x 9.5	D95	ULR477M0JD95	10	3100	10	592
6.3	470	5 x 11	D11	ULR477M0JD11	11	3700	10	592
6.3	470	5.5 x 10	X10	ULR477M0JX10	11	3100	10	592

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Rated Vol. (V)	Rated Cap. (µF)	Case Size ΦD x L (mm)	Size Code	Part Number	ESR (mΩ, max/ 20°C, 100kHz)	Rated Ripple (mArms/ 105°C, 100kHz)	DF (%max)	Leakage Current (µA/2 mins)
6.3	470	6.3 x 6	E06	ULR477M0JE06	20	3160	10	592
6.3	470	6.3 x 8	E08	ULR477M0JE08	8	4700	10	592
6.3	470	8 x 8	F08	ULR477M0JF08	8	5700	10	593
6.3	470	8 x 11.5	F1A	ULR477M0JF1A	7	6100	10	592
6.3	560	6.3 x 7	E07	ULR567M0JE07	16	3500	10	706
6.3	560	6.3 x 8	E08	ULR567M0JE08	8	4700	10	706
6.3	560	8 x 8	F08	ULR567M0JF08	8	5700	10	706
6.3	680	6.3 x 8	E08	ULR687M0JE08	8	4700	10	857
6.3	680	8 x 8	F08	ULR687M0JF08	8	5700	10	857
6.3	680	8 x 11.5	F1A	ULR687M0JF1A	7	6100	10	857
6.3	680	10 x 12.5	G1B	ULR687M0JG1B	7	6640	10	857
6.3	820	6.3 x 8.5	E85	ULR827M0JE85	8	4700	10	1033
6.3	820	6.3 x 9.5	E95	ULR827M0JE95	8	5030	10	1033
6.3	820	6.3 x 11	E11	ULR827M0JE11	8	5400	10	1033
6.3	820	8 x 8	F08	ULR827M0JF08	7	6100	10	1033
6.3	820	8 x 11.5	F1A	ULR827M0JF1A	7	6100	10	1033
6.3	820	10 x 12.5	G1B	ULR827M0JG1B	7	6640	10	1033
6.3	1000	6.3 x 10.5	E1K	ULR108M0JE1K	8	4700	10	1260
6.3	1000	8 x 8	F08	ULR108M0JF08	7	6100	10	1260
6.3	1000	8 x 11.5	F1A	ULR108M0JF1A	7	6100	10	1260
6.3	1000	10 x 12.5	G1B	ULR108M0JG1B	10	5500	10	1260
6.3	1200	8 x 11.5	F1A	ULR128M0JF1A	7	6100	10	1512
6.3	1500	8 x 11.5	F1A	ULR158M0JF1A	10	5500	10	1890
6.3	1500	10 x 12.5	G1B	ULR158M0JG1B	10	5560	10	1890
6.3	2200	10 x 12.5	G1B	ULR228M0JG1B	10	5560	10	2772
6.3	2500	8 x 16	F16	ULR258M0JF16	8	6100	10	3150
6.8	1000	6.3 x 11	E11	ULR108M06E11	11	4650	10	1033
7	150	5 x 6	D06	ULR157M0SD06	12	2900	10	280
7	330	5 x 9	D09	ULR337M0SD09	11	3100	10	462
7	820	6.3 x 10	E10	ULR827M0SE10	10	4930	10	1148
7	820	8 x 8	F08	ULR827M0SF08	10	5030	10	1148
7.5	100	5 x 7	D07	ULR107M07D07	12	2900	10	280
7.5	330	5 x 9	D09	ULR337M07D09	12	3100	10	495
7.5	470	6.3 x 7	E07	ULR477M07E07	12	4050	10	705
7.5	500	5 x 8.5	D85	ULR507M07D85	12	4000	10	750
7.5	680	6.3 x 8.5	E85	ULR687M07E85	8	4700	10	1020
7.5	820	6.3 x 11	E11	ULR827M07E11	11	4700	10	1230
10	22	6.3 x 8	E08	ULR226M1AE08	45	1870	10	280
10	33	6.3 x 8	E08	ULR336M1AE08	35	2000	10	280
10	47	6.3 x 8	E08	ULR476M1AE08	32	2100	10	280
10	150	6.3 x 11	E11	ULR157M1AE11	25	2820	10	300
10	180	6.3 x 8	E08	ULR187M1AE08	25	2820	10	360
10	220	6.3 x 6	E06	ULR227M1AE06	15	2700	10	440
10	220	6.3 x 7	E07	ULR227M1AE07	15	2700	10	440
10	220	6.3 x 8	E08	ULR227M1AE08	12	3200	10	440
10	270	8 x 8	F08	ULR277M1AF08	14	4420	10	540
10	270	8 x 11.5	F1A	ULR277M1AF1A	11	5100	10	540
10	330	6.3 x 8	E08	ULR337M1AE08	11	3500	10	660
10	330	8 x 8	F08	ULR337M1AF08	11	5000	10	660
10	330	8 x 11.5	F1A	ULR337M1AF1A	11	5100	10	660
10	390	8 x 8	F08	ULR397M1AF08	11	5000	10	780
10	390	8 x 11.5	F1A	ULR397M1AF1A	9	6100	10	780
10	470	6.3 x 8.5	E85	ULR477M1AE85	12	3500	10	940
10	470	6.3 x 11	E11	ULR477M1AE11	12	3750	10	940
10	470	8 x 8	F08	ULR477M1AF08	11	5000	10	940
10	470	8 x 11.5	F1A	ULR477M1AF1A	9	5650	10	940
10	470	10 x 12.5	G1B	ULR477M1AG1B	8	6100	10	940

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Rated Vol. (V)	Rated Cap. (µF)	Case Size ΦD x L (mm)	Size Code	Part Number	ESR (mΩ, max/ 20°C, 100kHz)	Rated Ripple (mArms/ 105°C, 100kHz)	DF (%max)	Leakage Current (µA/2 mins)
10	560	8 x 8	F08	ULR567M1AF08	9	5600	10	1120
10	560	8 x 11.5	F1A	ULR567M1AF1A	9	5650	10	1120
10	680	8 x 11.5	F1A	ULR687M1AF1A	10	5800	10	1360
10	680	10 x 12.5	G1B	ULR687M1AG1B	8	6100	10	1360
10	820	8 x 11.5	F1A	ULR827M1AF1A	8	6100	10	1640
10	1000	8 x 11.5	F1A	ULR108M1AF1A	10	5200	10	2000
10	1000	10 x 12.5	G1B	ULR108M1AG1B	9	6100	10	2000
10	1200	10 x 12.5	G1B	ULR128M1AG1B	8	6200	10	2400
12	330	5 x 9	D09	ULR337M1OD09	12	2690	10	792
14	560	6.3 x 10	E10	ULR567M14E10	12	3800	10	1568
16	22	6.3 x 6	E06	ULR226M1CE06	80	1200	10	280
16	47	6.3 x 8	E08	ULR476M1CE08	60	1500	10	280
16	100	5 x 9	D09	ULR107M1CD09	24	2820	10	320
16	100	6.3 x 6	E06	ULR107M1CE06	25	2700	10	320
16	100	6.3 x 7	E07	ULR107M1CE07	24	2820	10	320
16	100	6.3 x 8	E08	ULR107M1CE08	24	2820	10	320
16	100	6.3 x 11	E11	ULR107M1CE11	24	2820	10	320
16	180	8 x 11.5	F1A	ULR187M1CF1A	13	5000	10	576
16	220	6.3 x 11	E11	ULR227M1CE11	20	3100	10	704
16	220	8 x 8	F08	ULR227M1CF08	13	4300	10	704
16	220	8 x 11.5	F1A	ULR227M1CF1A	13	5000	10	704
16	270	6.3 x 11	E11	ULR277M1CE11	20	3100	10	864
16	270	8 x 8	F08	ULR277M1CF08	13	4300	10	864
16	270	8 x 11.5	F1A	ULR277M1CF1A	13	5000	10	864
16	330	6.3 x 10.5	E1K	ULR337M1CE1K	18	3200	10	1056
16	330	6.3 x 11	E11	ULR337M1CE11	18	3200	10	1056
16	330	8 x 7	F07	ULR337M1CF07	13	4300	10	1056
16	330	8 x 8	F08	ULR337M1CF08	13	4300	10	1056
16	330	8 x 11.5	F1A	ULR337M1CF1A	10	5800	10	1056
16	330	10 x 9	G09	ULR337M1CG09	13	4300	10	1056
16	330	10 x 12.5	G1B	ULR337M1CG1B	10	6100	10	1056
16	470	8 x 11.5	F1A	ULR477M1CF1A	11	5100	10	1504
16	470	10 x 12.5	G1B	ULR477M1CG1B	10	6100	10	1504
16	680	8 x 11.5	F1A	ULR687M1CF1A	11	5100	10	2176
16	680	10 x 12.5	G1B	ULR687M1CG1B	10	6100	10	2176
16	820	10 x 12.5	G1B	ULR827M1CG1B	10	6100	10	2624
16	1000	8 x 16	F16	ULR108M1CF16	10	5950	10	3200
16	1000	10 x 12.5	G1B	ULR108M1CG1B	10	6100	10	3200
20	33	6.3 x 8	E08	ULR336M1DE08	35	2000	10	280
20	47	8 x 8	F08	ULR476M1DF08	33	2100	10	280
20	100	8 x 11.5	F1A	ULR107M1DF1A	32	2750	10	400
20	150	10 x 12.5	G1B	ULR157M1DG1B	28	2900	10	600
25	22	6.3 x 8	E08	ULR226M1EE08	45	1870	10	280
25	33	8 x 8	F08	ULR336M1EF08	40	2050	10	280
25	47	8 x 8	F08	ULR476M1EF08	36	2100	10	280
25	100	8 x 11.5	F1A	ULR107M1EF1A	32	2750	10	500
25	220	8 x 11.5	F1A	ULR227M1EF1A	32	2750	10	1100
25	330	8 x 11.5	F1A	ULR337M1EF1A	32	2750	10	1650
25	330	10 x 12.5	G1B	ULR337M1EG1B	45	2700	10	1650
25	680	8 x 16	F16	ULR687M1EF16	16	4700	10	3400
25	1000	10 x 16	G16	ULR108M1EG16	10	6100	10	5000
35	100	8 x 11.5	F1A	ULR107M1VF1A	55	2000	10	700
35	100	10 x 12.5	G1B	ULR107M1VG1B	60	2000	10	700
35	220	10 x 12.5	G1B	ULR227M1VG1B	50	2500	10	1540

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