

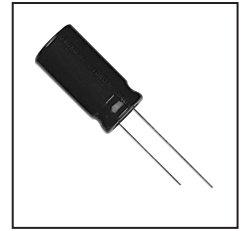
# RADIAL TYPE

**WL** Series

Low Impedance, Miniature Sized

**JAMICON**

- Smaller case sizes than WG series.
- Lower impedance at high frequency and high ripple current.
- Suitable for output of Motherboard and Switching power supplies.
- Corresponding product to RoHS

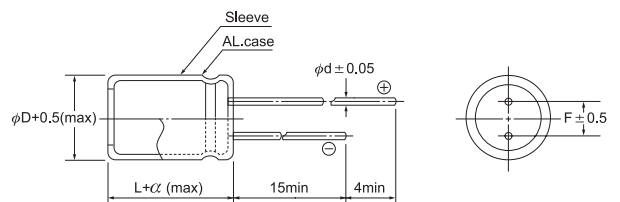


## ● SPECIFICATION

Item	Characteristic							
Operation Temperature Range	-55 ~ +105°C							
Rated Working Voltage	6.3 ~ 50VDC							
Capacitance Tolerance (120Hz 20°C)	±20%(M)							
Leakage Current (20°C)	$I \leq 0.01CV$ or $3 (\mu A)$				I : Leakage Current ( $\mu A$ )			
	*Whichever is greater after 3 minutes				C : Rated Capacitance ( $\mu F$ )			
					V : Working Voltage (V)			
Surge Voltage (20°C)	W.V.	6.3	10	16	25	35	50	
	S.V.	8	13	20	32	44	63	
Dissipation Factor (tan $\delta$ ) (120Hz 20°C)	Add 0.02 per 1000 $\mu F$ for more than 1000 $\mu F$							
	W.V.	6.3	10	16	25	35	50	
	tan $\delta$	0.22	0.19	0.16	0.14	0.12	0.10	
Low Temperature Stability	Impedance ratio at 120Hz							
	Rated Voltage (V)	6.3~16			25~50			
	-25°C / +20°C	3			2			
	-55°C / +20°C	6			4			
Load Life	After hours ( $\phi D \leq 8mm$ 1000 hours, $\phi D \geq 10mm$ 2000 hours) application of W.V. and +105°C ripple current value, the capacitor shall meet the following limits. (DC + ripple peak voltage $\leq$ rate working voltage)							
	Capacitance Change	$\leq \pm 20\%$ of initial value						
	Dissipation Factor	$\leq 200\%$ of initial specified value						
	Leakage current	$\leq$ initial specified value						
Shelf Life	At +105°C no voltage application after 1000 hours the capacitor shall meet the limits for load life characteristics. (with voltage treatment)							

## ● DIMENSIONS (mm)

$\phi D$	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
$\alpha$	1.5	1.5	1.5	1.5	2.0	2.0	2.0



## ● RIPPLE CURRENT COEFFICIENTS

Temperature(°C)	65	75	85	95	105
Multiplier	2.12	1.92	1.69	1.50	1.00

Frequency(Hz)	60	120	400	1k	10k	100k
W.V.	Multiplier					
10~16V	0.45	0.60	0.83	0.94	0.98	1.00
25~35V	0.38	0.50	0.75	0.90	0.97	1.00
50V	0.36	0.46	0.70	0.88	0.94	1.00

RADIAL TYPE

● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)  
 Max impedance : Ω 100kHz  
 Max ripple current : mA(rms) 105°C 100kHz

μF	V(DC) Item	6.3			10				
		DxL	IMP.		R.C.	DxL	IMP.		
			20°C	-10°C			20°C	-10°C	
100				→	5x11	0.312	0.937	230	
120				→	5x11	0.266	0.798	250	
150		5x11	0.219	0.656	250	5x11	0.218	0.653	280
180		5x11	0.190	0.571	270	5x15	0.189	0.568	360
					→	6.3x11	0.189	0.568	350
220		5x11	0.162	0.487	300	5x15	0.161	0.484	400
					→	6.3x11	0.161	0.484	390
270		5x15	0.148	0.444	380	5x15	0.147	0.442	440
		6.3x11	0.148	0.444	380	6.3x11	0.147	0.442	430
330		5x15	0.130	0.389	420	6.3x15	0.129	0.387	550
		6.3x11	0.130	0.389	420	8x11	0.129	0.387	560
390		6.3x15	0.117	0.351	520	6.3x15	0.116	0.349	600
		8x11	0.117	0.351	530	8x11	0.116	0.349	610
470		6.3x15	0.106	0.319	570	6.3x15	0.106	0.317	660
		8x11	0.106	0.319	580	8x11	0.106	0.317	670
560		6.3x15	0.094	0.283	620	6.3x15	0.094	0.281	720
		8x11	0.094	0.283	630	8x11	0.094	0.281	730
680		6.3x15	0.084	0.252	680	8x15	0.083	0.250	900
		8x11	0.084	0.252	700	10x12.5	0.083	0.250	950
820		8x15	0.077	0.230	860	8x15	0.076	0.228	990
		10x12.5	0.077	0.230	900	10x12.5	0.076	0.228	1040
1000		8x15	0.069	0.206	950	8x20	0.068	0.204	1240
		10x12.5	0.069	0.206	990	10x16	0.068	0.204	1280
1200		8x20	0.059	0.178	1180	10x20	0.059	0.177	1540
		10x16	0.059	0.178	1210	12.5x15	0.059	0.148	1480
1500		10x20	0.036	0.107	1450	10x25	0.035	0.106	1830
		12.5x15	0.036	0.089	1390	12.5x18	0.035	0.089	1720
1800		10x20	0.031	0.094	1590	10x25	0.031	0.094	2000
		12.5x15	0.031	0.078	1520	12.5x18	0.031	0.078	1880
2200		10x25	0.028	0.083	1880	10x28	0.027	0.082	2250
		12.5x18	0.028	0.069	1770	16x15	0.027	0.068	1960
2700		10x28	0.025	0.075	2140	12.5x20	0.025	0.062	2250
		16x15	0.025	0.063	1870	16x15	0.025	0.062	2100
3300		12.5x20	0.023	0.058	2150	12.5x25	0.023	0.057	2650
		16x15	0.023	0.058	2010	18x15	0.023	0.057	2300
3900		12.5x25	0.022	0.055	2520	12.5x30	0.022	0.055	3030
		18x15	0.022	0.055	2190	16x20	0.022	0.055	2670
4700		12.5x30	0.021	0.053	2860	12.5x35	0.021	0.053	3210
		16x20	0.021	0.053	2520	16x25	0.021	0.053	3050
5600		12.5x35	0.020	0.050	3060	12.5x40	0.020	0.049	3550
		16x25	0.020	0.050	2900	18x20	0.020	0.049	2940
6800		12.5x40	0.019	0.047	3450	16x32	0.019	0.047	3680
		18x20	0.019	0.047	2850	18x25	0.019	0.047	3390
8200		16x32	0.018	0.045	3540	16x36	0.018	0.044	4010
		18x25	0.018	0.045	3260	18x32	0.018	0.044	3870
10000		16x36	0.017	0.043	3880				
		18x32	0.017	0.043	3740	18x36	0.017	0.042	4190

All blank voltage on sleeve marking is the same voltage as" → "point to.

RADIAL TYPE

● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)  
 Max impedance : Ω 100kHz  
 Max ripple current : mA(rms) 105°C 100kHz

μF	V(DC) Item	16			25			
		DxL	IMP.		R.C.	DxL	IMP.	
			20°C	-10°C			20°C	-10°C
47				→	5x11	0.283	0.085	220
56	5x11	0.253	0.759	190	5x11	0.253	0.758	240
68	5x11	0.221	0.662	210	5x11	0.220	0.661	270
82	5x11	0.203	0.610	230	5x15	0.203	0.609	340
				→	6.3x11	0.203	0.609	330
100	5x11	0.183	0.550	250	5x15	0.183	0.549	370
				→	6.3x11	0.183	0.549	370
120	5x15	0.156	0.469	320	5x15	0.156	0.468	410
	6.3x11	0.156	0.469	320	6.3x11	0.156	0.468	400
150	5x15	0.128	0.383	360	6.3x15	0.128	0.383	510
	6.3x11	0.128	0.383	350	8x11	0.128	0.383	520
180	5x15	0.111	0.333	390	6.3x15	0.111	0.333	560
	6.3x11	0.111	0.333	390	8x11	0.111	0.333	570
220	5x15	0.095	0.284	430	6.3x15	0.095	0.284	620
	6.3x11	0.095	0.284	430	8x11	0.095	0.284	630
270	6.3x15	0.086	0.259	550	8x15	0.086	0.259	790
	8x11	0.086	0.259	550	10x12.5	0.086	0.259	830
330	6.3x15	0.076	0.227	600	8x15	0.076	0.227	870
	8x11	0.076	0.227	610	10x12.5	0.076	0.227	910
390	8x15	0.068	0.205	750	8x20	0.068	0.205	1080
	10x12.5	0.068	0.205	790	10x16	0.068	0.205	1100
470	8x15	0.062	0.186	820	8x20	0.062	0.186	1180
	10x12.5	0.062	0.186	860	10x16	0.062	0.186	1210
560	8x20	0.055	0.165	1020	8x20	0.055	0.165	1290
	10x16	0.055	0.165	1050	10x16	0.055	0.165	1320
680	8x20	0.049	0.147	1120	10x20	0.049	0.147	1610
	10x16	0.049	0.147	1150	12.5x15	0.049	0.122	1550
820	8x20	0.045	0.134	1230	10x25	0.045	0.134	1950
	10x16	0.045	0.134	1270	12.5x18	0.045	0.112	1830
1000	10x20	0.040	0.120	1540	10x28	0.040	0.120	2270
	12.5x15	0.040	0.100	1480	16x15	0.040	0.100	1980
1200	10x25	0.035	0.104	1870	12.5x20	0.035	0.104	2320
	12.5x18	0.035	0.087	1750	16x15	0.035	0.087	2170
1500	10x28	0.029	0.088	2100	12.5x25	0.029	0.074	2710
	16x15	0.029	0.074	1830	18x15	0.029	0.074	2480
1800	12.5x20	0.026	0.065	2140	12.5x30	0.026	0.065	3230
	16x15	0.026	0.065	2000	16x20	0.026	0.065	2840
2200	12.5x25	0.023	0.057	2500	12.5x35	0.023	0.057	3470
	18x15	0.023	0.057	2170	16x25	0.023	0.057	3290
2700	12.5x30	0.021	0.052	2890	12.5x40	0.021	0.052	3910
	16x20	0.021	0.052	2540	18x20	0.021	0.052	3240
3300	12.5x35	0.019	0.048	3130	16x32	0.019	0.047	4100
	16x25	0.019	0.048	2970	18x25	0.019	0.047	3770
3900	12.5x40	0.018	0.046	3500	16x36	0.018	0.046	4530
	18x20	0.018	0.046	2900	18x32	0.018	0.046	4360
4700	16x32	0.016	0.040	3560				
	18x25	0.016	0.040	3280	18x36	0.016	0.040	4720
5600	16x36	0.015	0.038	3880				
	18x32	0.015	0.038	3740				

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RADIAL TYPE

● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)  
 Max impedance : Ω 100kHz  
 Max ripple current : mA(rms) 105°C 100kHz

μF	V(DC) Item	35			50			
		DxL	IMP.		R.C.	DxL	IMP.	
			20°C	-10°C			20°C	-10°C
4.7				→	5x11	1.061	3.182	85
6.8				→	5x11	0.916	2.749	100
10	5x11	0.832	2.495	110	5x11	0.831	2.493	130
15	5x11	0.610	1.829	130	5x11	0.609	1.828	150
18	5x11	0.531	1.594	150	5x11	0.531	1.593	170
22	5x11	0.454	1.361	160	5x11	0.453	1.360	190
27	5x11	0.400	1.201	180	5x11	0.400	1.200	210
33	5x11	0.353	1.058	200	5x11	0.353	1.058	230
39	5x11	0.320	0.096	210	5x15	0.320	0.959	290
47				→	6.3x11	0.320	0.959	280
	5x11	0.283	0.849	230	5x15	0.283	0.849	310
				→	6.3x11	0.283	0.849	310
56	5x15	0.252	0.757	290	5x15	0.252	0.757	340
	6.3x11	0.252	0.757	290	6.3x11	0.252	0.757	340
68	5x15	0.220	0.660	320	6.3x15	0.220	0.660	430
	6.3x11	0.220	0.660	320	8x11	0.220	0.660	430
82	5x15	0.203	0.608	360	6.3x15	0.203	0.608	470
	6.3x11	0.203	0.608	350	8x11	0.203	0.608	480
100	6.3x15	0.183	0.549	450	8x15	0.183	0.548	590
	8x11	0.183	0.549	450	10x12.5	0.183	0.548	620
120	6.3x15	0.109	0.327	490	8x15	0.109	0.327	650
	8x11	0.109	0.327	500	10x12.5	0.109	0.327	680
150	6.3x15	0.089	0.268	550	8x20	0.089	0.268	820
	8x11	0.089	0.268	550	10x16	0.089	0.268	840
180	8x15	0.078	0.233	680	8x20	0.078	0.233	900
	10x12.5	0.078	0.233	720	10x16	0.078	0.233	920
220	8x15	0.066	0.198	750	8x20	0.066	0.198	1000
	10x12.5	0.066	0.198	790	10x16	0.066	0.198	1020
270	8x20	0.060	0.181	950	10x20	0.060	0.181	1250
	10x16	0.060	0.181	970	12.5x15	0.060	0.151	1200
330	8x20	0.053	0.159	1050	10x25	0.053	0.159	1530
	10x16	0.053	0.159	1080	12.5x18	0.053	0.132	1430
390	10x20	0.048	0.143	1290	10x25	0.048	0.143	1660
	12.5x15	0.048	0.119	1240	12.5x18	0.048	0.119	1560
470	10x20	0.043	0.130	1420	12.5x20	0.043	0.108	1790
	12.5x15	0.043	0.108	1360	16x15	0.043	0.108	1680
560	10x25	0.038	0.115	1710	12.5x25	0.038	0.096	2150
	12.5x18	0.038	0.096	1610	18x15	0.038	0.096	1870
680	10x28	0.034	0.103	1990	12.5x30	0.034	0.086	2580
	16x15	0.034	0.086	1730	16x20	0.034	0.086	2260
820	10x30	0.031	0.094	2250	12.5x35	0.031	0.078	2880
	16x15	0.031	0.078	1900	16x25	0.031	0.078	2730
1000	12.5x25	0.028	0.070	2480	12.5x40	0.028	0.070	3390
	18x15	0.028	0.070	2150	18x20	0.028	0.070	2800
1200	12.5x30	0.024	0.061	2940	16x32	0.024	0.061	3660
	16x20	0.024	0.061	2590	18x25	0.024	0.061	3370
1500	12.5x35	0.021	0.051	3160	16x36	0.021	0.051	4040
	16x25	0.021	0.051	3000	18x32	0.021	0.051	3890
1800	12.5x40	0.018	0.045	3690				
	18x20	0.018	0.045	3050				
2200	16x32	0.016	0.040	3810				
	18x25	0.016	0.040	3510				

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● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)  
 Max impedance : Ω 100kHz  
 Max ripple current : mA(rms) 105°C 100kHz

μF	V(DC) Item	DxL	63		R.C.
			IMP.		
			20°C	-10°C	
10		5x11	0.997	2.991	130
22		5x11	0.544	1.632	190
		6.3x11	0.544	1.632	210
33		5x15	0.423	1.269	260
		6.3x11	0.423	1.269	260
47		8x11	0.339	1.018	360
68		8x15	0.220	0.660	490
100		10x12.5	0.183	0.548	620
220		10x20	0.094	0.283	1130
330		10x30	0.076	0.227	1660
470		12.5x25	0.062	0.155	1970
680		12.5x35	0.039	0.098	2760
1000		16x25	0.032	0.080	3020

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