

# ALUMINUM ELECTROLYTIC CAPACITORS

## PZ1 Series and ZL1 Series — Longer Life

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- **PZ1 Series** - Life rating to 3,000 hours at 85°C.
- Similar to HP3 Series in size and ripple current, with improved electrolyte and foil for longer life.
- This series offers R: 2-Claw Terminals as standard.  
 S: 4-Claw Terminals and T: T Terminals are also available.  
 Place the appropriate designation in the Part Number. (R is shown.)
- **ZL1 Series** - Life rating to 3,000 hours at 105°C.
- Similar to HU4 Series in size and ripple current, with improved electrolyte and foil for longer life.
- This series offers R: 2-Claw Terminals as standard.  
 U: Straight Short Terminals are also available.  
 Place the appropriate designation in the Part Number. (R is shown.)

For outline drawings and dimensions see page 47.

### PZ1 Series

Ripple Current Correction Coefficient

Temperature (°C)	40	55	70	85
Correction Coefficient	1.8	1.4	1.2	1.0

Frequency (Hz)	50/60	120	400	1K	≥10K
Correction Coefficient	0.8	1.0	1.1	1.3	1.4

### ZL1 Series

Ripple Current Correction Coefficient

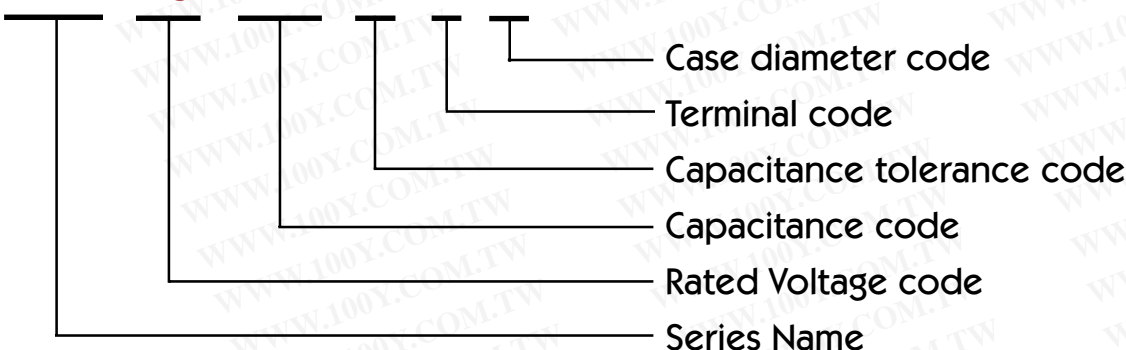
Temperature (°C)	40	55	70	85	105
Correction Coefficient	2.5	2.2	2.0	1.8	1.0

Frequency (Hz)	50/60	120	400	1K	≥10K
Correction Coefficient	0.7	1.0	1.1	1.3	1.4

### Product Numbering System for PZ1 and ZL1 Series

Example: ZL1 Series, 400V, 470μF, ±20%, 2-claw terminal, 35mm diameter case

**ZL1 2G 471 M R A**



**Capacitance Code:** To determine Capacitance code use the first 2 digits of the Capacitance followed by the number of zeros. Using the above example of 470: 47 + 1 zeros = 471.

# ALUMINUM ELECTROLYTIC CAPACITORS

## PZ1 Series



- Life rating to 3,000 hours at 85°C
- Temperature range -40°C to +85°C

Rated Voltage (WVDC)	Part Number	Capacitance	Case Size ØD x L (mm)	Maximum Ripple Current (A rms) @85° C, 120Hz	Maximum ESR (mΩ)	Typical ESL (nH)
<b>200 Volts (Code: 2D)</b>	PZ12D221MRX	220	22 X 25	1.36	485	5
	PZ12D271MRX	270	22 X 25	1.50	395	6
	PZ12D331MRX	330	22 X 30	1.76	325	7
	PZ12D331MRY	330	25 X 25	1.89	325	7
	PZ12D391MRX	390	22 X 30	1.92	275	7
	PZ12D391MRY	390	25 X 25	1.90	275	7
	PZ12D471MRX	470	22 X 35	2.23	230	9
	PZ12D471MRZ	470	30 X 25	2.23	230	9
	PZ12D561MRX	560	22 X 40	2.54	190	9
	PZ12D561MRZ	560	30 X 25	2.44	190	9
	PZ12D681MRX	680	22 X 45	2.92	160	11
	PZ12D681MRA	680	35 X 25	2.86	160	11
	PZ12D821MRY	820	25 X 40	3.26	130	11
	PZ12D821MRA	820	35 X 25	3.13	130	11
	PZ12D102MRY	1,000	25 X 50	3.92	110	13
	PZ12D102MRA	1,000	35 X 30	3.66	110	13
	PZ12D122MRZ	1,200	30 X 40	4.19	90	14
	PZ12D122MRA	1,200	35 X 36	4.25	90	14
	PZ12D152MRA	1,500	35 X 40	4.93	75	14
PZ12D182MSA	1,800	35 X 50	5.84	60	15	
<b>250 Volts (Code: 2E)</b>	PZ12E221MRX	220	22 X 25	1.36	485	5
	PZ12E271MRX	270	22 X 30	1.60	395	6
	PZ12E271MRY	270	25 X 25	1.58	395	6
	PZ12E331MRX	330	22 X 35	1.87	325	7
	PZ12E331MRY	330	25 X 30	1.86	325	7
	PZ12E391MRX	390	22 X 35	2.04	275	8
	PZ12E391MRZ	390	30 X 25	2.04	275	8
	PZ12E471MRX	470	22 X 40	2.35	230	8
	PZ12E471MRA	470	35 X 25	2.38	230	8
	PZ12E561MRX	560	22 X 50	2.81	190	9
	PZ12E561MRA	560	35 X 25	2.59	190	9
	PZ12E681MRY	680	25 X 45	3.11	160	9
	PZ12E681MRA	680	35 X 30	3.01	160	9
	PZ12E821MRY	820	25 X 50	3.55	130	10
	PZ12E821MRA	820	35 X 30	3.31	130	10
	PZ12E102MRZ	1,000	30 X 45	4.00	110	11
	PZ12E102MRA	1,000	35 X 36	3.88	110	11
	PZ12E122MRZ	1,200	30 X 50	4.55	90	11
	PZ12E122MRA	1,200	35 X 40	4.40	90	11
PZ12E152MSA	1,500	35 X 50	5.34	75	12	

# ALUMINUM ELECTROLYTIC CAPACITORS

## PZ1 Series

•Life rating to 3,000 hours at 85°C

•Temperature range -40°C to +85°C

Rated Voltage (WVDC)	Part Number	Capacitance	Case Size ØD x L (mm)	Maximum Ripple Current (A rms) @85° C, 120Hz	Maximum ESR (mΩ)	Typical ESL (nH)
400 Volts (Code: 2G)	PZ12G820MRX	82	22 X 25	0.83	1295	3
	PZ12G101MRX	100	22 X 30	0.97	1065	3
	PZ12G101MRY	100	25 X 25	0.96	1065	3
	PZ12G121MRX	120	22 X 30	1.07	885	3
	PZ12G121MRY	120	25 X 25	1.06	885	3
	PZ12G151MRX	150	22 X 35	1.26	710	4
	PZ12G151MRZ	150	30 X 25	1.26	710	4
	PZ12G181MRX	180	22 X 40	1.46	590	4
	PZ12G181MRZ	180	30 X 25	1.38	590	4
	PZ12G221MRX	220	22 X 50	1.76	485	5
	PZ12G221MRA	220	35 X 25	1.62	485	5
	PZ12G271MRY	270	25 X 45	1.96	395	5
	PZ12G271MRA	270	35 X 30	1.90	395	5
	PZ12G331MRY	330	25 X 50	2.12	325	6
	PZ12G331MRA	330	35 X 30	2.10	325	6
	PZ12G391MRZ	390	30 X 45	2.50	275	6
	PZ12G391MRA	390	35 X 36	2.42	275	6
	PZ12G471MRA	470	35 X 40	2.76	230	7
	PZ12G561MRA	560	35 X 45	3.13	190	8
	PZ12G681MSA	680	35 X 50	3.59	160	10
450 Volts (Code: 2W)	PZ12W820MRX	82	22 X 30	0.89	1340	3
	PZ12W820MRY	82	25 X 25	0.88	1340	3
	PZ12W101MRX	101	22 X 35	1.03	1100	3
	PZ12W101MRZ	101	30 X 25	1.03	1100	3
	PZ12W121MRX	120	22 X 40	1.19	915	4
	PZ12W121MRZ	120	30 X 25	1.13	915	4
	PZ12W151MRX	150	22 X 45	1.39	735	5
	PZ12W151MRZ	150	30 X 30	1.34	735	5
	PZ12W181MRX	180	22 X 50	1.60	610	5
	PZ12W181MRA	180	35 X 25	1.46	610	5
	PZ12W221MRY	220	25 X 45	1.76	500	5
	PZ12W221MRA	220	35 X 30	1.72	500	5
	PZ12W271MRZ	270	30 X 40	1.99	410	10
	PZ12W271MRA	270	35 X 36	2.02	410	10
	PZ12W331MRZ	330	30 X 45	2.29	335	10
	PZ12W331MRA	330	35 X 36	2.23	335	10
	PZ12W391MRA	390	35 X 40	2.51	285	12
	PZ12W471MRA	470	35 X 45	2.88	235	14

# ALUMINUM ELECTROLYTIC CAPACITORS

## ZL1 Series



- Life rating to 3,000 hours at 105°C
- Temperature range -40°C to +105°C

For outline drawings and dimensions see page 47.

Rated Voltage (WVDC)	Part Number	Capacitance	Case Size ØD x L (mm)	Maximum Ripple Current (A rms) @105° C, 120Hz	Maximum ESR (mΩ)	Typical ESL (nH)
200 Volts (Code: 2D)	ZL12D391MRX	390	22 X 30	1.24	275	7
	ZL12D471MRX	470	22 X 35	1.45	230	9
	ZL12D471MRY	470	25 X 30	1.40	230	9
	ZL12D561MRX	560	22 X 40	1.66	190	9
	ZL12D561MRY	560	25 X 35	1.61	190	9
	ZL12D561MRZ	560	30 X 25	1.45	190	9
	ZL12D681MRX	680	22 X 45	1.92	160	11
	ZL12D681MRY	680	25 X 40	1.86	160	11
	ZL12D821MRY	820	25 X 45	2.14	130	11
	ZL12D821MRZ	820	30 X 30	1.86	130	11
	ZL12D821MRA	820	35 X 25	1.52	130	11
	ZL12D102MRY	1,000	25 X 50	2.47	110	13
	ZL12D102MRZ	1,000	30 X 35	2.17	110	13
	ZL12D102MRA	1,000	35 X 30	1.78	110	13
	ZL12D122MRZ	1,200	30 X 40	2.49	90	14
	ZL12D122MRA	1,200	35 X 35	2.04	90	14
	ZL12D152MRZ	1,500	30 X 50	3.03	75	14
	ZL12D152MRA	1,500	35 X 40	2.39	75	14
	ZL12D182MRA	1,800	35 X 45	2.73	60	15
ZL12D222MRA	2,200	35 X 50	3.14	50	15	
250 Volts (Code: 2E)	ZL12E181MRX	180	22 X 25	0.86	540	5
	ZL12E221MRX	220	22 X 25	0.95	445	5
	ZL12E271MRX	270	22 X 30	1.12	360	6
	ZL12E331MRX	330	22 X 35	1.31	295	7
	ZL12E391MRX	390	22 X 40	1.50	250	8
	ZL12E391MRY	390	25 X 30	1.37	250	8
	ZL12E471MRX	470	22 X 45	1.72	210	8
	ZL12E471MRY	470	25 X 35	1.59	210	8
	ZL12E561MRX	560	22 X 50	1.96	175	9
	ZL12E561MRY	560	25 X 40	1.83	175	9
	ZL12E561MRZ	560	30 X 30	1.65	175	9
	ZL12E681MRY	680	25 X 45	2.11	145	9
	ZL12E681MRZ	680	30 X 35	1.91	145	9
	ZL12E821MRZ	820	30 X 40	2.20	120	10
	ZL12E821MRA	820	35 X 30	1.76	120	10
	ZL12E102MRZ	1,000	30 X 45	2.54	100	11
	ZL12E102MRA	1,000	35 X 35	2.04	100	11
	ZL12E122MRZ	1,200	30 X 50	2.90	85	11
	ZL12E122MRA	1,200	35 X 40	2.34	85	11
ZL12E152MRA	1,500	35 X 50	2.84	65	12	

# ALUMINUM ELECTROLYTIC CAPACITORS

## ZL1 Series

•Life rating to 3,000 hours at 105°C

•Temperature range -40°C to +105°C

Rated Voltage (WVDC)	Part Number	Capacitance	Case Size ØD x L (mm)	Maximum Ripple Current (A rms) @105°C, 120Hz	Maximum ESR (mΩ)	Typical ESL (nH)
400 Volts (Code: 2G)	ZL12G820MRX	82	22 X 25	0.58	1080	3
	ZL12G101MRX	100	22 X 30	0.68	890	3
	ZL12G121MRX	120	22 X 35	0.79	740	3
	ZL12G151MRX	150	22 X 40	0.93	590	4
	ZL12G151MRY	150	25 X 30	0.85	590	4
	ZL12G151MRZ	150	30 X 25	0.80	590	4
	ZL12G181MRX	180	22 X 45	1.07	490	4
	ZL12G181MRY	180	25 X 35	0.98	490	4
	ZL12G221MRX	220	22 X 50	1.23	400	5
	ZL12G221MRY	220	25 X 40	1.14	400	5
	ZL12G221MRZ	220	30 X 30	1.03	400	5
	ZL12G221MRA	220	35 X 25	0.96	400	5
	ZL12G271MRY	270	25 X 45	1.33	330	5
	ZL12G271MRZ	270	30 X 35	1.20	330	5
	ZL12G271MRA	270	35 X 30	1.13	330	5
	ZL12G331MRZ	330	30 X 40	1.40	270	6
	ZL12G391MRZ	390	30 X 45	1.59	230	6
	ZL12G391MRA	390	35 X 35	1.43	230	6
	ZL12G471MRZ	470	30 X 50	1.81	190	7
	ZL12G471MRA	470	35 X 40	1.64	190	7
ZL12G561MRA	560	35 X 45	1.87	160	8	
450 Volts (Code: 2W)	ZL12W560MRX	56	22 X 25	0.48	1580	3
	ZL12W820MRX	82	22 X 30	0.62	1080	3
	ZL12W820MRY	82	25 X 25	0.55	1080	3
	ZL12W101MRX	100	22 X 35	0.72	890	3
	ZL12W101MRY	100	25 X 30	0.64	890	3
	ZL12W121MRX	120	22 X 40	0.83	740	4
	ZL12W121MRY	120	25 X 35	0.74	740	4
	ZL12W121MRZ	120	30 X 25	0.72	740	4
	ZL12W151MRX	150	22 X 50	1.02	590	5
	ZL12W151MRY	150	25 X 40	0.88	590	5
	ZL12W151MRZ	150	30 X 30	0.85	590	5
	ZL12W151MRA	150	35 X 25	0.80	590	5
	ZL12W181MRY	180	25 X 45	1.00	490	5
	ZL12W221MRY	220	25 X 50	1.16	400	5
	ZL12W221MRZ	220	30 X 35	1.09	400	5
	ZL12W221MRA	220	35 X 30	1.02	400	5
	ZL12W271MRZ	270	30 X 45	1.32	330	10
	ZL12W271MRA	270	35 X 35	1.19	330	10
	ZL12W331MRZ	330	30 X 50	1.52	270	10
	ZL12W331MRA	330	35 X 40	1.37	270	10
ZL12W391MRA	390	35 X 45	1.56	230	12	
ZL12W471MRA	470	35 X 50	1.78	190	24	

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