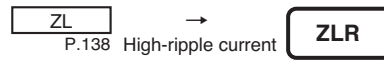


## ZLR Series Useful of 5,000 hours at 105°C

• Conform RoHS

### Features

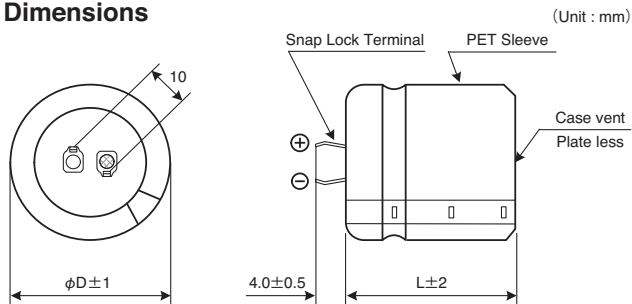
• ZLR series has higher ripple current (ave 30%) compared with ZL series. These features are accomplished by low ESR material.



### Product Specifications

Items	Specifications
Temperature range	-25°C ~ +105°C
Rated voltage	400 ~ 450V.DC
Capacitance tolerance	±20% (20°C, 120Hz)
Leakage current	0.02CV (µA) or 3 mA, whichever is smaller or less (20°C, after 5 minutes) [C = nominal capacitance (µF), V = rated voltage (V)]
Dissipation factor	Less than the value specified in the standard products table. (20°C, 120Hz)
Permissible ripple current	As specified in the standard products table. (105°C, 120Hz)
Endurance	After the rated voltage with specified ripple current is applied at 105°C for 3,000 hours : Capacitance change : Within ±20% of the initial value Dissipation factor : Not more than 200% of initial value specified Leakage current : Not more than initial value specified
Shelf life	The following specification shall be meet when the capacitor are restored to 20°C after storage of 500 hours at 105°C with no voltage applied. Before the measurement, the capacitor shall be preconditioned by applying the voltage treatment according to Item 4.1 of JIS C 5101-4. Capacitance change : Within ±20% of the initial value measured Dissipation factor : Not more than 175% of initial value specified Leakage current : Not more than initial value specified
Others	JIS C 5101-4

### Dimensions



### Ripple current correction coefficient

Temperature (°C)	60	70	85	105	
Correction coefficient	1.9	1.7	1.4	1.0	
Frequency (Hz)	50/60	120	300	1K	≥10K
Correction coefficient	0.7	1.0	1.1	1.3	1.4

A continuous load should be avoided over 10 Arms at the terminal in accordance with the permissible current. Please consult us when the ripple voltage exceeds 70Vp-p.

### Product code

(Example) ZLR Series 400V 220µF ±20%

**ZLR 2G 221 M C X S6 WP EC**

- Type of series
- Rated voltage code
- Capacitance code
- Capacitance tolerance code
- Terminal code
- Case dia code
- Case height code
- Without plate (standard)
- PVC-Free (standard)
- Lead-Free and

Refer to page 124-125 for other terminal shape available on request.

**Standard Products Table**

Rated Voltage (V. DC)	Capacitance (μF)	Case size φ D × L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms)		ESR(typ.) (mΩ) 20°C, 100Hz	Product name
				105°C, 120Hz	20°C, 100Hz		
400	100	22×25	0.20	0.83	770	ZLR2G101MCXS2WPEC	
		22×30	0.20	0.94	640	ZLR2G121MCXS3WPEC	
	120	25×25	0.20	0.95	640	ZLR2G121MCYS2WPEC	
		22×35	0.20	1.09	520	ZLR2G151MCXS4WPEC	
	180	22×40	0.20	1.22	440	ZLR2G181MCXS5WPEC	
		25×30	0.20	1.21	440	ZLR2G181MCYS3WPEC	
		30×25	0.20	1.26	330	ZLR2G181MCZS2WPEC	
	220	22×45	0.20	1.37	360	ZLR2G221MCXS6WPEC	
		25×35	0.20	1.38	360	ZLR2G221MCYS4WPEC	
		30×30	0.20	1.44	270	ZLR2G221MCZS3WPEC	
	270	22×50	0.20	1.54	290	ZLR2G271MCXS7WPEC	
		25×40	0.20	1.56	290	ZLR2G271MCYS5WPEC	
		30×35	0.20	1.65	220	ZLR2G271MCZS4WPEC	
		35×25	0.20	1.61	220	ZLR2G271MCAS2WPEC	
	330	25×50	0.20	1.77	240	ZLR2G331MCYS7WPEC	
		30×40	0.20	1.85	180	ZLR2G331MCZS5WPEC	
	390	30×45	0.20	2.05	150	ZLR2G391MCZS6WPEC	
		35×35	0.20	2.05	150	ZLR2G391MCAS4WPEC	
	470	30×50	0.20	2.27	130	ZLR2G471MCZS7WPEC	
		35×40	0.20	2.29	130	ZLR2G471MCAS5WPEC	
560	35×45	0.20	2.54	110	ZLR2G561MCAS6WPEC		
680	35×50	0.20	2.82	90	ZLR2G681MCAS7WPEC		

Rated Voltage (V. DC)	Capacitance (μF)	Case size φ D × L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms)		ESR(typ.) (mΩ) 20°C, 100Hz	Product name
				105°C, 120Hz	20°C, 100Hz		
450	68	22×25	0.20	0.66	1,200	ZLR2W820MCXS2WPEC	
		22×30	0.20	0.83	820	ZLR2W101MCXS3WPEC	
	100	25×25	0.20	0.84	820	ZLR2W101MCYS2WPEC	
		22×35	0.20	0.94	680	ZLR2W121MCXS4WPEC	
	120	25×30	0.20	0.95	680	ZLR2W121MCYS3WPEC	
		22×40	0.20	1.07	550	ZLR2W151MCXS5WPEC	
	150	25×35	0.20	1.10	550	ZLR2W151MCYS4WPEC	
		30×25	0.20	1.11	410	ZLR2W151MCZS2WPEC	
		22×45	0.20	1.19	460	ZLR2W181MCXS6WPEC	
	180	25×40	0.20	1.23	460	ZLR2W181MCYS5WPEC	
		30×30	0.20	1.26	350	ZLR2W181MCZS3WPEC	
	220	22×50	0.20	1.34	380	ZLR2W221MCXS7WPEC	
		25×45	0.20	1.38	380	ZLR2W221MCYS6WPEC	
		30×35	0.20	1.43	290	ZLR2W221MCZS4WPEC	
		35×25	0.20	1.42	290	ZLR2W221MCAS2WPEC	
	270	25×50	0.20	1.54	310	ZLR2W271MCYS7WPEC	
		30×40	0.20	1.62	230	ZLR2W271MCZS5WPEC	
	330	35×30	0.20	1.63	230	ZLR2W271MCAS3WPEC	
		30×45	0.20	1.81	190	ZLR2W331MCZS6WPEC	
	390	35×35	0.20	1.84	190	ZLR2W331MCAS4WPEC	
30×50		0.20	1.99	170	ZLR2W391MCZS7WPEC		
470	35×40	0.20	2.04	170	ZLR2W391MCAS5WPEC		
	35×45	0.20	2.27	140	ZLR2W471MCAS6WPEC		
560	35×50	0.20	2.50	120	ZLR2W561MCAS7WPEC		

\* When a 61mm high 2-claw short terminal is mounted on printed circuit board, reinforce it with any mounting adhesives.

**Life time graph**

Useful life depending on ambient temperature  $T_a$  and ripple current operating conditions  $I$  versus rated ripple current at 105°C, 120Hz.

