

MZ

Series

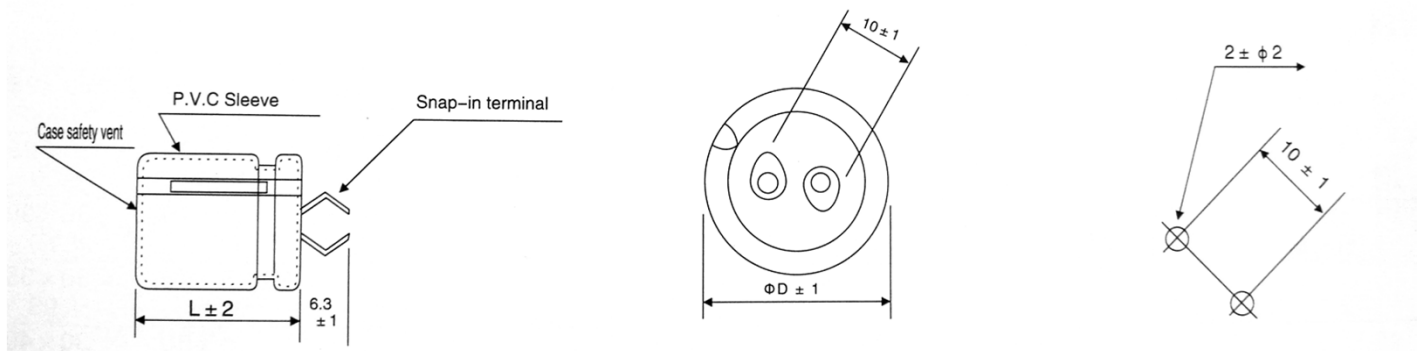
- Endurance with ripple current: 105°C 2000 to 3000 hours
- Non solvent-proof type



■ SPECIFICATIONS

Item	Characteristics		
Category Temperature Range	-25 ~ +105℃		
Voltage Range	160 ~ 450VDC		
Nominal Cap. Range	39 ~ 3300μF		
Capacitance Tolerance	± 20 % (at 120Hz , 20℃)		
Leakage Current	I= $3\sqrt{CV}$ (After 5 minutes) where, I: max leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20℃)		
Dissipation Factor (MAX) (tanδ) (at 120Hz ,20℃)	WV	160~400	420&450
	tanδ	0.15	0.2
Low Temp.Impedance Stability at 120Hz	WV	160~400	420&450
	Z-25℃ / Z+20℃	4	8
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3000 hours(2000 hours for Φ20x20L products) at 105℃.		
	Capacitance change	≤ ±20% of the initial value	
	Dissipation Factor	≤ 200% of the initial specified value	
	Leakage Current	≤ the initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1000 hours at 105℃ without voltage applied.		
	Capacitance Change	≤ ±15% of the initial value	
	Dissipation Factor	≤ 150% of the initial specified value	
	Leakage Current	≤ The initial specified value	

■ DRAWING



■ MULTIPLIER FOR RIPPLE CURRENT

(1) Frequency Coefficient

Freq.(Hz)	60(50)	120	500	1K	10K
Cap.(μF)					
82~470	0.70	1.00	1.10	1.15	1.20
560~1000	0.75	1.00	1.20	1.25	1.35
1200~4700	0.80	1.00	1.25	1.35	1.40
≥6800	0.85	1.00	1.30	1.40	1.45

(2) Temperature Coefficient

Ambient Temperature(°C)	40	60	70	85	105
Coefficient	2.40	2.10	1.78	1.65	1.00

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WV(vdc) ΦD Parameter Cap.(μF)	160					180				
	20	22	25	30	35	20	22	25	30	35
150	Case Size ΦDxL (mm) → Ripple Current(Arms) at 120Hz 105°C →					20x20				
180	20x20 0.68					20x25 0.77	22x20 0.8			
220	20x25 0.85	22x20 0.81				20x25 1		25x20 0.9		
270	20x25 1.1		25x20 0.98			20x30 1.1	22x25 1	25x20 0.95		
330	20x30 1.2	22x25 1.2	25x20 1.02			20x30 1.2	22x25 1.2	25x25 1.16	30x20 1.15	
390	20x30 1.3	22x25 1.3	25x25 1.26	30x20 1.25		20x35 1.3	22x30 1.35	25x25 1.35	30x20 1.2	
470	20x35 1.34	22x30 1.55	25x25 1.55	30x20 1.3		20x40 1.4	22x35 1.5	25x30 1.5	30x25 1.5	
560	20x40 1.5	22x35 1.67	25x30 1.67	30x25 1.67	35x20 1.46	20x45 1.55	22x40 1.67	25x30 1.67	30x25 1.67	35x20 1.36
680	20x45 1.7	22x40 1.82	25x30 1.82	30x25 1.82	35x20 1.51	20x50 1.75	22x45 1.78	25x35 1.78	30x30 1.78	35x20 1.43
820		22x45 2.04	25x35 2.04	30x30 2.04	35x25 2.04		22x50 2.04	25x40 2.04	30x30 2.04	35x25 2.04
1000		22x50 2.25	25x40 2.25	30x30 2.25	35x25 2.25			25x45 2.3	30x35 2.3	35x30 2.3
1200			25x45 2.49	30x35 2.49	35x30 2.49			25x50 2.55	30x40 2.55	35x30 2.55
1500			25x60 2.97	30x40 2.84	35x30 2.84				30x45 2.9	35x35 2.9
1800				30x45 3.32	35x35 3				30x60 3.49	35x40 3.3
2200				30x60 3.86	35x45 3.5					35x50 3.65
2700					35x50 4					35x60 4.19
3300					35x60 4.63					

WV(vdc) ΦD Parameter Cap.(μF)	200					220				
	20	22	25	30	35	20	22	25	30	35
120	20x20 0.56					20x20 0.56				
150	20x25 0.71	22x20 0.73				20x25 0.73	22x20 0.67			
180	20x25 0.77	22x20 0.8				20x25 0.9		25x20 0.76		
220	20x25 1		25x20 0.85			20x30 1	22x25 1	25x20 0.84		
270	20x30 1.1	22x25 1.1	25x20 1.1	30x20 1.05		20x35 1.15	22x30 1.15	25x25 1.08	30x20 0.98	
330	20x35 1.2	22x30 1.25		30x20 1.1		20x40 1.25	22x35 1.25	25x25 1.25		35x20 1.13
390	20x40 1.31	22x30 1.35	25x25 1.25		35x20 1.3	20x45 1.4	22x35 1.4	25x30 1.4	30x25 1.36	35x20 1.23
470	20x45 1.45	22x35 1.5	25x25 1.35	30x25 1.5	35x20 1.41	20x50 1.51	22x40 1.51	25x35 1.54	30x25 1.36	
560	20x50 1.58	22x40 1.67	25x30 1.5	30x25 1.67			22x45 1.7	25x40 1.72	30x25 1.5	35x25 1.71
680		22x45 1.78	25x30 1.67	30x30 1.78	35x25 1.78			25x45 1.94	30x30 1.7	35x25 1.89
820			25x35 1.78	30x30 2.04	35x25 2.04			25x50 2.18	30x35 1.93	35x30 2.16
1000			25x40 2.04	30x35 2.3	35x30 2.3			25x60 2.54	30x40 2.19	35x35 2.44
1200			25x50 2.3	30x40 2.65	35x35 2.65				30x45 2.5	35x40 2.79
1500			25x60 2.66	30x50 3.08	35x40 3.08				30x50 2.81	35x45 3.22
1800				30x60 3.49	35x45 3.48				30x60 3.3	35x50 3.63
2200					35x50 3.78					35x60 4.23

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Cap.(μF)	Parameter	250					315				
		20	22	25	30	35	20	22	25	30	35
56	Case Size ΦDxL (mm)						20x20				
	Ripple Current(Arms) at 120Hz 105°C						0.38				
68							20x25	22x20			
							0.47	0.45			
82							20x25	22x20			
							0.64	0.47			
100		20x20					20x30	22x25	25x20		
		0.51					0.69	0.61	0.56		
120		20x25	22x20				20x30	22x25	25x20	30x20	
		0.58	0.6				0.75	0.75	0.62	0.65	
150		20x25		25x20			20x35	22x30	25x25	30x20	
		0.79		0.74			0.82	0.82	0.82	0.7	
180		20x30	22x25	25x20			20x40	22x35	25x25	30x25	35x20
		0.9	0.78	0.75			0.9	0.92	0.92	0.9	0.76
220		20x30	22x25	25x25	30x20		20x50	22x40	25x30	30x25	35x20
		1	1	0.95	0.95		1	1.04	1.04	1.04	0.85
270		20x35	22x30	25x25	30x20			22x45	25x35	30x25	35x20
		1.1	1.18	1.18	1			1.16	1.16	1.16	0.9
330		20x40	22x35	25x30	30x25	35x20		22x50	25x40	30x30	35x25
		1.2	1.3	1.3	1.3	1.16		1.33	1.33	1.33	1.15
390		20x50	22x40	25x35	30x25				25x45	30x35	35x25
		1.45	1.49	1.49	1.49				1.47	1.47	1.33
470			22x45	25x35	30x30	35x25			25x50	30x40	35x30
			1.65	1.65	1.65	1.65			1.7	1.7	1.47
560			22x50	25x40	30x30	35x25				30x45	35x30
			1.67	1.8	1.8	1.8				2.05	1.7
680				25x50	30x35	35x30				30x50	35x35
				2	2	2				2.17	2.05
820				25x60	30x40	35x35					35x40
				2.2	2.3	2.3					2.17
1000					30x50	35x40					35x45
					2.47	2.47					2.2
1200					30x60	35x45					35x60
					2.85	2.6					2.22
1500						35x50					
						3					
1800						35x60					
						3.42					

Cap.(μF)	Parameter	350					400				
		20	22	25	30	35	20	22	25	30	35
39							20x20				
							0.32				
47		20x20					20x25	22x20			
		0.35					0.39	0.37			
56		20x25	22x20				20x25		25x20		
		0.43	0.41				0.51		0.42		
68		20x25		25x20			20x30	22x25	25x20		
		0.47		0.46			0.56	0.5	0.46		
82		20x30	22x25	25x20			20x30	22x25		30x20	
		0.54	0.55	0.51			0.64	0.64		0.55	
100		20x30	22x25		30x20		20x35	22x30	25x25	30x20	
		0.6	0.69		0.6		0.7	0.7	0.7	0.6	
120		20x35	22x30	25x25	30x20		20x40	22x35	25x25	30x25	35x20
		0.68	0.75	0.75	0.65		0.75	0.75	0.75	0.73	0.75
150		20x40	22x35	25x30	30x25	35x20	20x45	22x40	25x30	30x25	35x20
		0.78	0.82	0.83	0.82	0.76	0.83	0.88	0.88	0.88	0.8
180		20x45	22x40	25x30	30x25			22x45	25x35	30x30	35x25
		0.87	0.92	0.92	0.9			0.98	0.98	0.98	0.98
220		20x50	22x45	25x35	30x30	35x25		22x50	25x40	30x30	35x25
		1	1.05	1.04	1.02	1.04		1.1	1.1	1.1	1.1
270			22x50	25x40	30x30	35x25			25x45	30x35	35x30
			1.16	1.18	1.17	1.2			1.22	1.22	1.22
330				25x45	30x35	35x30			25x50	30x40	35x30
				1.29	1.34	1.22			1.44	1.44	1.44
390				25x50	30x40	35x35			25x60	30x45	35x35
				1.51	1.51	1.47			1.51	1.6	1.6
470				25x60	30x45	35x35				30x50	35x40
				1.66	1.65	1.69				1.9	1.9
560					30x50	35x40				30x60	35x45
					1.85	1.9				2.1	2.12
680					30x60	35x50					35x60
					2.31	1.99					2.27
820						35x60					
						2.31					

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Cap.(μF)	WV(vdc)	ΦD	Parameter	420					450				
				20	22	25	30	35	20	22	25	30	35
39	20x20						20x25						
	0.32						0.34						
47	20x25	22x20					20x25						
	0.39	0.37					0.39						
56	20x25		25x20				20x30	22x25					
	0.51		0.42				0.51	0.4					
68	20x30	22x25	25x20				20x35	22x30	25x25				
	0.56	0.5	0.46				0.56	0.53	0.5				
82	20x35	22x25	25x25	30x20			20x35	22x30	25x25				
	0.64	0.64	0.58	0.53			0.64	0.64	0.64				
100	20x35	22x30	25x25	30x20			20x45	22x35	25x30	30x25			
	0.7	0.7	0.7	0.59			0.69	0.69	0.69	0.64			
120	20x40	22x35	25x30	30x25	35x20		20x50	22x40	25x30	30x25	35x25		
	0.75	0.75	0.75	0.73	0.67		0.75	0.8	0.8	0.8	0.73		
150	20x50	22x40	25x35	30x25				22x45	25x35	30x30	35x25		
	0.88	0.88	0.88	0.88				0.88	0.88	0.88	0.75		
180		22x45	25x35	30x30	35x25			22x50	25x40	30x30			
		0.95	0.95	0.95	0.94			1	1	1			
220		22x50	25x45	30x35	35x25				25x45	30x35	35x30		
		1.1	1.1	1.1	1.1				1.12	1.12	1.12		
270			25x20	30x40	35x30				25x60	30x40	35x35		
			1.22	1.22	1.22				1.18	1.28	1.28		
330			25x60	30x45	35x35					30x50	35x40		
			1.41	1.45	1.45					1.45	1.45		
390				30x50	35x40					30x60	35x40		
				1.55	1.55					1.51	1.55		
470				30x60	35x45						35x50		
				1.79	1.9						1.85		
560					35x50						35x60		
					2.15						1.91		
680	Case Size ΦDxL (mm) →				35x60								
	Ripple Current(Arms) at 120Hz 105℃ →				2.27								