

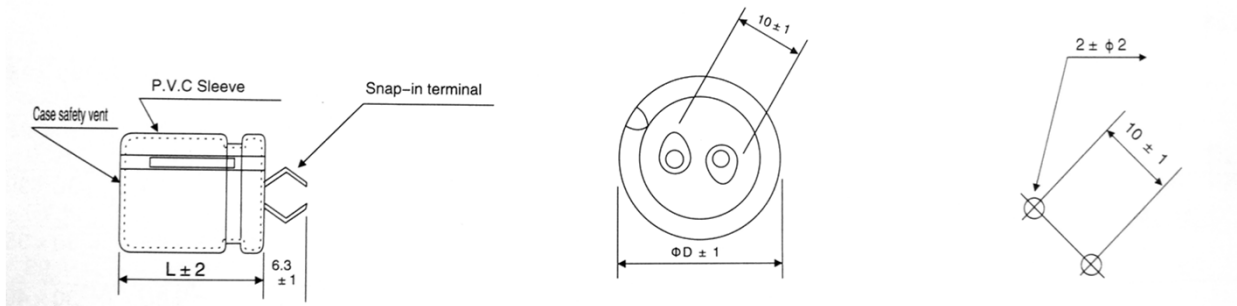
- Endurance with ripple current: 105°C 4000 hours
- Non solvent-proof type



### SPECIFICATIONS

Item	Characteristics		
Category Temperature Range	-25 ~ +105℃		
Voltage Range	160 ~ 450VDC		
Nominal Cap. Range	82 ~ 2700μF		
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 4000 hours 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) WV(V)	60(50)	120	300	1K	10K	50K
160~250	0.81	1.00	1.17	1.32	1.45	1.50
315~450	0.77	1.00	1.16	1.30	1.41	1.43

#### (2) Temperature Coefficient

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

MP

Series

STANDARD RATINGS

WV(vdc) ΦD Parameter Cap.(μF)	160				180				200			
	22	25	30	35	22	25	30	35	22	25	30	35
270	Case Size ΦDxL (mm) →								22x25			
	Ripple Current(Arms) at 120Hz 105°C →								1.1			
330					22x25							
					1.21							
390	22x25								22x30	25x25		
	1.32				22x30	25x25			1.38	1.39		
470					1.52	1.52			22x35			
					22x35		30x25		1.55			
560	22x30	25x25			1.7		1.78		22x40	25x30	30x25	
	1.66	1.68			22x40	25x30			1.73	1.71	1.78	
680	22x35	25x30	30x25		1.91	1.88			22x45	25x30	30x30	35x25
	1.87	1.88	1.96		22x45	25x35	30x30		1.811	1.87	1.98	2.1
820	22x40				1.99	2.16	2.17	35x25	22x50	25x35	30x35	
	2.09				22x50	25x40(45)	30x35	2.31	2.18	2.09	2.22	
1000	22x45(50)	25x35	30x30	35x25	2.25	2.43(2.47)	2.46			25x40(45)	30x40	35x30
	2.36(2.41)	2.38	2.4	2.55		25x50	30x35			2.35(2.88)	2.53	2.61
1200		25x40(45)	30x35(40)	35x30		2.75	2.77	35x30			30x45(50)	35x35
		2.66(2.71)	2.69(2.77)	2.86			30x45(50)	2.86			2.84(2.88)	2.88
1500		25x50	30x45	35x35			3.17(3.22)	35x35				35x40
		3.08	3.17	3.22				3.22				3.34
1800			30x50	35x40				35x40(45)				35x45(50)
			3.53	3.66				3.66(3.74)				3.74(3.82)
2200				35x45				35x50				
				4.14				4.22				
2700				35x50								
				4.68								

WV(vdc) ΦD Parameter Cap.(μF)	220				250				315			
	22	25	30	35	22	25	30	35	22	25	30	35
150									22x25			
									0.8			
180									22x30	25x25		
									0.92	0.94		
220					22x25				22x35		30x25	
					1.01				1.04		1.17	
270	22x25				22x30				22x40	25x30		
	1.1				1.2				1.18	1.19		
330	22x30					25x25			22x45	25x35	30x30	35x25
	1.19					1.32			1.33	1.37	1.4	1.49
390		25x25			22x35	25x30	30x25		22x50	25x40		
		1.39			1.62	1.43	1.51		1.48	1.52		35x30
470	22x35	25x30	30x25		22x40					25x45	30x35	1.82
	1.55	1.56	1.63		1.62					1.7	1.71	35x35
560	22x40		30x30		22x45(50)	25x35	30x30	35x25		25x50	30x40(45)	2
	1.73		1.79		1.8(1.82)	1.78	1.83	1.91		1.88	1.92(1.97)	35x40
680	22x45(50)	25x35	30x35	35x25		25x40(45)	30x35	35x30			30x50	2.29
	1.94(1.99)	1.96	2.02	2.1		2.0(2.4)	2.06	2.15			2.21	35x45
820		25x40(45)	30x40	35x30		25x50	30x40(45)	35x35				2.57
		2.2(2.24)	2.29	2.36		2.28	2.33(2.39)	2.38				35x50
1000		25x45	30x45	35x35			30x50	35x40				2.89
		2.51	2.59	2.63			2.68	2.72				
1200			30x50	35x40				35x45				
			2.88	2.98				3.05				
1500				35x45				35x50				
				3.41				3.49				
1800				35x50								
				3.82								

### MP

#### Series

#### ■ STANDARD RATINGS

WV(vdc) ΦD Parameter Cap.(μF)	350				400				420			
	22	25	30	35	22	25	30	35	22	25	30	35
100	Case Size ΦDxL (mm) → 22x25				22x25				22x25			
	Ripple Current(Arms) at 120Hz 105°C → 0.66				0.66				0.66			
120	22x25				22x30				22x30	25x25		
	0.72				0.75				0.75	0.77		
150	22x30				22x35	25x25			22x35			
	0.84				0.86	0.83			0.86			
180		25x25			22x40	25x30	30x25		22x40(45)	25x30(35)	30x25	
		0.94			0.96	0.97	1.02		0.96(0.98)	0.97(1.01)	1.02	
220	22x35(40)	25x30	30x225		22x45	25x35		35x25	22x50	25x40	30x30	35x25
	1.04(1.06)	1.07	1.13		1.09	1.12		1.22	1.11	1.14	1.14	1.22
270	22x45	25x35	30x30	35x25	22x50	25x40(45)	30x30			25x45	30x35	35x30
	1.2	1.24	1.27	1.35	1.23	1.26(1.29)	1.27			1.29	1.3	1.38
330	22x50	25x40	30x35			25x50	30x35	35x30		25x50	30x40	35x35
	1.36	1.39	1.43			1.44	1.43	1.52		1.44	1.48	1.54
390		25x45	30x40	35x30			30x40	35x35			30x45	35x40
		1.55	1.6	1.66			1.6	1.52			1.64	1.73
470		25x50	30x45	35x35			30x45(50)	35x40			30x50	35x45
		1.72	1.81	1.83			1.81(1.84)	1.9			1.84	1.94
560			30x50	35x40				35x45				35x50
			2	2.07				2.12				2.17
680				35x45				35x50				
				2.34				2.39				
820				35x50								
				2.62								

WV(vdc) ΦD Parameter Cap.(μF)	450			
	22	25	30	35
82	22x25			
	0.59			
100	22x30	25x25		
	0.69	0.7		
120	22x35			
	0.77			
150	22x40(45)	25x30(35)	30x25	
	0.88(0.9)	0.88(0.92)	0.93	
180	22x50	25x40	30x30	35x25
	1.01	1.03	1.03	1.1
220		25x45	30x35	35x30
		1.16	1.17	1.24
270		25x50	30x40	35x25
		1.31	1.33	1.39
330			30x45	
			1.51	
390			30x50	35x40(45)
			1.67	1.73(1.77)
470				35x50
				1.98