

ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

PA
series

Miniature Sized, Low Impedance,
High Reliability For Switching Power Supplies



Smaller



Low Impedance



Long Life



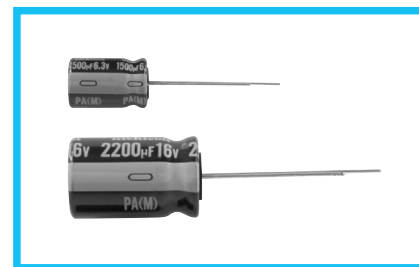
Anti-Solvent
Feature

- Lower impedance than PW series.
- Smaller case size and high ripple current.
- Compliant to the RoHS directive (2011/65/EU).

PA

Low
Impedance

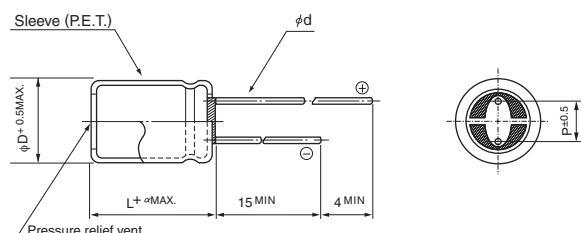
PW



Specifications

Item	Performance Characteristics												
Category Temperature Range	-55 to +105℃												
Rated Voltage Range	6.3 to 35V												
Rated Capacitance Range	180 to 10000μF												
Capacitance Tolerance	±20% at 120Hz, 20℃												
Leakage Current	After 1 minute's application of rated voltage at 20℃, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.												
Tangent of loss angle (tan δ)	Rated voltage (V)	6.3	10	16	25	35	120Hz 20℃						
	tan δ (MAX.)	0.22	0.19	0.16	0.14	0.12							
	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.												
Stability at Low Temperature	Rated voltage (V)	6.3	10	16	25	35	120Hz						
	Impedance ratio ZT / Z20 (MAX.)	Z-55℃ / Z+20℃	3	3	3	3							
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20℃ after D.C. bias plus rated ripple current is applied for 5000 hours (3000 hours for φD=8, 4000 hours for φD=10) at 105℃, the peak voltage shall not exceed the rated voltage.												
								Capacitance change	Within ±20% of the initial capacitance value (6.3V, 10V : ±30%)				
								tan δ	200% or less than the initial specified value (6.3V, 10V : 300%)				
	Leakage current	Less than or equal to the initial specified value											
Shelf Life	After storing the capacitors under no load at 105℃ for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20℃, they shall meet the specified values for the endurance characteristics listed above.												
Marking	Printed with white color letter on dark brown sleeve.												

Radial Lead Type

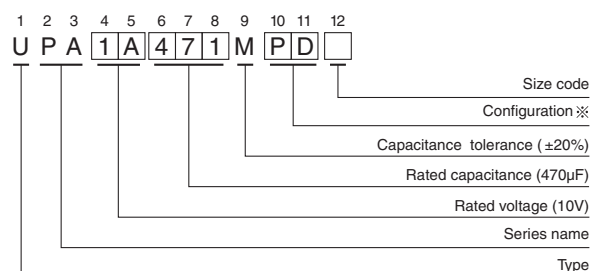


α	(L < 20) 1.5
	(L ≥ 20) 2.0

	(mm)				
φD	8	10	12.5	16	18
P	3.5	5.0	5.0	7.5	7.5
φd	0.6	0.6	*0.6	0.8	0.8

※ : In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm.

Type numbering system (Example : 10V 470µF)



※ Configuration

φD	Pb-free leadwire
8-10	Pb-free PET sleeve
12.5 to 18	PD

Frequency coefficient of rated ripple current

Cap. (µF)	Frequency	50Hz	120Hz	300Hz	1kHz	10kHz or more
180 to 330		0.55	0.65	0.75	0.85	1.00
390 to 1000		0.70	0.75	0.80	0.90	1.00
1200 to 10000		0.80	0.85	0.90	0.95	1.00

- Please refer to page 20 about the end seal configuration.

Please refer to page 20, 21, 22 about the formed or taped product spec.
Please refer to page 4 for the minimum order quantity.

- Dimension table in next page.

CAT.8100D

PA_{series}

■ Standard Ratings

Cap.(μF)	V (Code)	Item	6.3 (0J)			10 (1A)			16 (1C)		
			Case size φD × L (mm)	Impedance (Ω) MAX.		Case size φD × L (mm)	Impedance (Ω) MAX.		Case size φD × L (mm)	Impedance (Ω) MAX.	
				20°C / 100kHz	-10°C / 100kHz		20°C / 100kHz	-10°C / 100kHz		20°C / 100kHz	-10°C / 100kHz
330	331								8 × 11.5	0.090	0.180
390	391								8 × 11.5	0.090	0.180
470	471					8 × 11.5	0.090	0.180	10 × 12.5	0.063	0.126
560	561		8 × 11.5	0.090	0.180	8 × 11.5	0.090	0.180			
680	681		8 × 11.5	0.090	0.180				8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126
820	821					8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126	8 × 20 ▲10 × 16	0.044 0.049	0.088 0.098
1000	102		8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126	8 × 20 ▲10 × 12.5 ●10 × 16	0.044 0.063 0.049	0.088 0.126 0.098	10 × 16 ●10 × 20	0.049 0.035	0.098 0.070
1200	122		10 × 12.5 ●10 × 16	0.063 0.049	0.126 0.098	900 1240	0.044 0.049	0.088 0.098	10 × 20	0.035	0.070
1500	152		8 × 20 ▲10 × 16 ●10 × 20	0.044 0.049 0.035	0.088 0.098 0.070	1220 1240 1490			10 × 25	0.033	0.066
1800	182					10 × 20 ▲10 × 25	0.035 0.033	0.070 0.066			
2200	222		10 × 20 ●10 × 25	0.035 0.033	0.070 0.066	1490 1680	10 × 25 ●12.5 × 20	0.033 0.029	1680 1890	12.5 × 20 ●12.5 × 25	0.029 0.022
2700	272		10 × 25	0.033	0.066	1680	12.5 × 20	0.029	1890	12.5 × 25	0.022
3300	332		12.5 × 20	0.029	0.058	1890	12.5 × 25	0.022	2280	12.5 × 31.5 ▲16 × 20	0.018 0.026
3900	392		12.5 × 25	0.022	0.044	2280	12.5 × 25	0.022	2280	12.5 × 35.5	0.016
4700	472		12.5 × 25	0.022	0.044	2280	12.5 × 31.5 ▲16 × 20	0.018 0.026	2720 2330	16 × 25 ▲18 × 20	0.019 0.025
5600	562		12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	2720 2330	12.5 × 35.5	0.016	2940	16 × 31.5 ▲18 × 25	0.017 0.018
6800	682		12.5 × 35.5	0.016	0.032	2940	16 × 25	0.019	2760	18 × 25	0.018
8200	822		16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050	2760 2640	16 × 31.5 ▲18 × 25	0.017 0.018	2810 2850		
10000	103		16 × 31.5 ▲18 × 25	0.017 0.018	0.034 0.036	2810 2850					

Cap.(μF)	V (Code)	Item	25 (1E)			35 (1V)		
			Case size φD × L (mm)	Impedance (Ω) MAX.		Case size φD × L (mm)	Impedance (Ω) MAX.	
				20°C / 100kHz	-10°C / 100kHz		20°C / 100kHz	-10°C / 100kHz
180	181					8 × 11.5	0.090	0.180
270	271		8 × 11.5	0.090	0.180	8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126
330	331		8 × 11.5	0.090	0.180			
390	391		8 × 15	0.062	0.124	8 × 20 ▲10 × 16	0.044 0.049	0.088 0.098
470	471		8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126			
560	561		8 × 20 ▲10 × 16	0.044 0.049	0.088 0.098	1220 1240		
680	681		10 × 16	0.049	0.098	1240	10 × 20	0.035
820	821		10 × 20	0.035	0.070	1490	10 × 25	0.033
1000	102		10 × 25 ●12.5 × 20	0.033 0.029	0.066 0.058	1680 1890	12.5 × 20	0.029
1200	122		12.5 × 20	0.029	0.058	1890	12.5 × 25	0.022
1500	152						12.5 × 31.5 ▲16 × 20	0.018 0.026
1800	182		12.5 × 25	0.022	0.044	2280	12.5 × 35.5 ▲16 × 20	0.016 0.026
2200	222		12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	2720 2330	16 × 25 ▲18 × 20	0.019 0.025
2700	272		12.5 × 35.5	0.016	0.032	2940	16 × 31.5 ▲18 × 25	0.017 0.018
3300	332		16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050	2760 2640	18 × 31.5	0.016
4700	472		18 × 25	0.018	0.036	2850		

▲: In this case, [6] will be put at 12th digit of type numbering system.

●: In this case, [3] will be put at 12th digit of type numbering system.