

ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

PA
series

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



Smaller



Low Impedance



Long Life



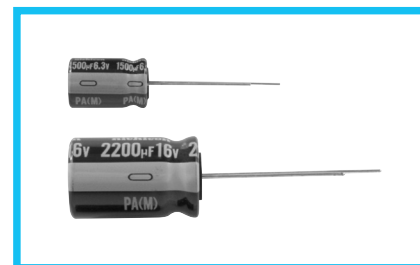
Anti-Solvent Feature

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

PA

Low Impedance

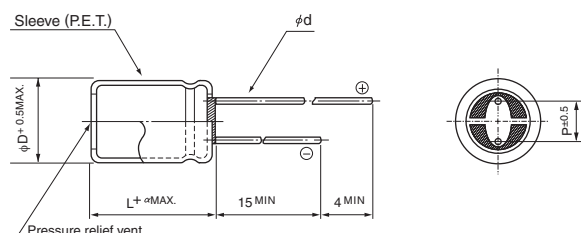
PW



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%)				
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.												
								Leakage current	Less than or equal to the initial specified value				
Marking	Printed with white color letter on dark brown sleeve.												

Radial Lead Type

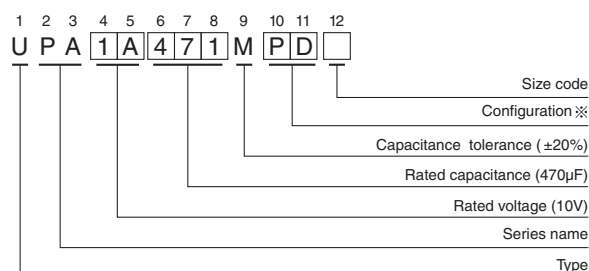


α	(L < 20) 1.5
	(L ≥ 20) 2.0

	(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) / Code		V (Code)		6.3 (0J)			10 (1A)			16 (1C)		
		Item		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	8 × 20 ▲10 × 16	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	10 × 20	0.035	0.070	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	10 × 25 ●12.5 × 20	0.033 0.029	0.066 0.058	12.5 × 20 ●12.5 × 25	0.029 0.022	0.058 0.044
2700	272			10 × 25	0.033	0.066	12.5 × 20	0.029	0.058	12.5 × 25	0.022	0.044
3300	332			12.5 × 20	0.029	0.058	12.5 × 25	0.022	0.044	12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052
3900	392			12.5 × 25	0.022	0.044	12.5 × 25	0.022	0.044	12.5 × 35.5	0.016	0.032
4700	472			12.5 × 25	0.022	0.044	12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050
5600	562			12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	12.5 × 35.5	0.016	0.032	16 × 31.5 ▲18 × 25	0.017 0.018	0.035 0.036
6800	682			12.5 × 35.5	0.016	0.032	16 × 25	0.019	0.038	18 × 25	0.018	0.036
8200	822			16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050	16 × 31.5 ▲18 × 25	0.017 0.018	0.034 0.036			
10000	103			16 × 31.5 ▲18 × 25	0.017 0.018	0.034 0.036						

Cap.(μF) / Code		V (Code)		25 (1E)			35 (1V)		
		Item		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	10 × 20	0.035	0.070
680	681			10 × 16	0.049	0.098	10 × 25	0.033	0.066
820	821			10 × 20	0.035	0.070	12.5 × 20	0.029	0.058
1000	102			10 × 25 ●12.5 × 20	0.033 0.029	0.066 0.058	12.5 × 20	0.029	0.058
1200	122			12.5 × 20	0.029	0.058	12.5 × 25	0.022	0.044
1500	152						12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052
1800	182			12.5 × 25	0.022	0.044	12.5 × 35.5 ▲16 × 20	0.016 0.026	0.032 0.052
2200	222			12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050
2700	272			12.5 × 35.5	0.016	0.032	16 × 31.5 ▲18 × 25	0.017 0.018	0.035 0.036
3300	332			16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050	18 × 31.5	0.016	0.032
4700	472			18 × 25	0.018	0.036			

▲ : 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.