



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



Smaller



Low Impedance

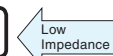


Long Life

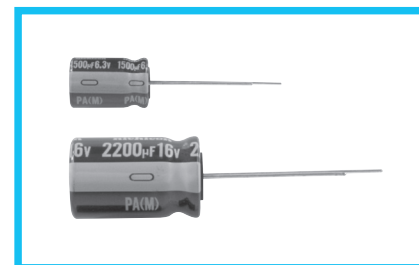


Anti-Solvent
Feature

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



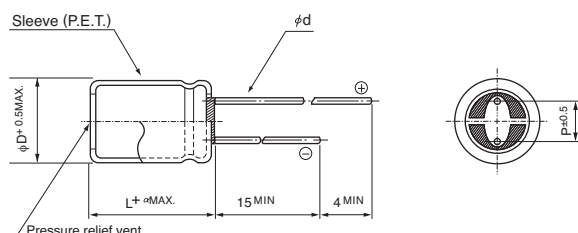
UPW



Specifications

Item	Performance Characteristics												
Category Temperature Range	-55 to +105°C												
Rated Voltage Range	6.3 to 35V												
Rated Capacitance Range	180 to 10000μF												
Capacitance Tolerance	±20% at 120Hz, 20°C												
Leakage Current	After 1 minute's application of rated voltage at 20°C, 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°C						
	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°C / Z+20°C	3	3	3	3		3					
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C 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°C, 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°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, 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

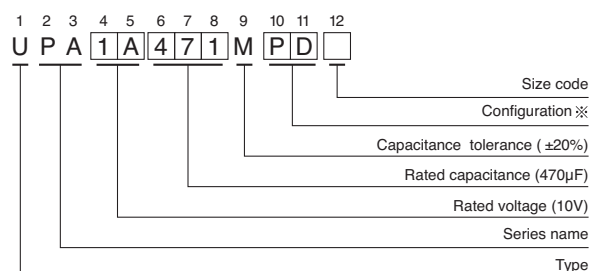


α	(L < 20) 1.5
	(L ≥ 20) 2.0

	8	10	12.5	16	18
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 Pb-free PET sleeve
8 · 10	PD
12.5 to 18	HD

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.

UPA

■ Standard Ratings

Cap.(μF) Code		V (Code)		6.3 (0J)			10 (1A)			16 (1C)				
		Item	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mAmps) 105°C / 100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mAmps) 105°C / 100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mAmps) 105°C / 100kHz
				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	630
390	391										8 × 11.5	0.090	0.180	630
470	471						8 × 11.5	0.090	0.180	630	10 × 12.5	0.063	0.126	900
560	561		8 × 11.5	0.090	0.180	630	8 × 11.5	0.090	0.180	630				
680	681		8 × 11.5	0.090	0.180	630					8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126	860 900
820	821						8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126	860 900	8 × 20 ▲10 × 16	0.044 0.049	0.088 0.098	1220 1240
1000	102		8 × 15 ▲10 × 12.5	0.062 0.063	0.124 0.126	860 900	8 × 20 ▲10 × 12.5 ●10 × 16	0.044 0.063 0.049	0.088 0.126 0.098	1220 900 1240	10 × 16 ●10 × 20	0.049 0.035	0.098 0.070	1240 1490
1200	122		10 × 12.5 ●10 × 16	0.063 0.049	0.126 0.098	900 1240	8 × 20 ▲10 × 16	0.044 0.049	0.088 0.098	1220 1240	10 × 20	0.035	0.070	1490
1500	152		8 × 20 ▲10 × 16 ●10 × 20	0.044 0.049 0.035	0.088 0.098 0.070	1220 1240 1490	10 × 20	0.035	0.070	1490	10 × 25	0.033	0.066	1680
1800	182						10 × 20 ▲10 × 25	0.035 0.033	0.070 0.066	1490 1680				
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	0.066 0.058	1680 1890	12.5 × 20 ●12.5 × 25	0.029 0.022	0.058 0.044	1890 2280
2700	272		10 × 25	0.033	0.066	1680	12.5 × 20	0.029	0.058	1890	12.5 × 25	0.022	0.044	2280
3300	332		12.5 × 20	0.029	0.058	1890	12.5 × 25	0.022	0.044	2280	12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	2720 2330
3900	392		12.5 × 25	0.022	0.044	2280	12.5 × 25	0.022	0.044	2280	12.5 × 35.5	0.016	0.032	2940
4700	472		12.5 × 25	0.022	0.044	2280	12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	2720 2330	16 × 25 ▲18 × 20	0.019 0.025	0.038 0.050	2760 2640
5600	562		12.5 × 31.5 ▲16 × 20	0.018 0.026	0.036 0.052	2720 2330	12.5 × 35.5	0.016	0.032	2940	16 × 31.5 ▲18 × 25	0.017 0.018	0.035 0.036	2810 2850
6800	682		12.5 × 35.5	0.016	0.032	2940	16 × 25	0.019	0.038	2760	18 × 25	0.018	0.036	2850
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	0.034 0.036	2810 2850				
10000	103		16 × 31.5 ▲18 × 25	0.017 0.018	0.034 0.036	2810 2850								

Cap.(μF) Code		V (Code)		25 (1E)			35 (1V)				
		Item		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz
					20°C / 100kHz	−10°C / 100kHz			20°C / 100kHz	−10°C / 100kHz	
180	181							8 × 11.5	0.090	0.180	630
270	271		8 × 11.5	0.090	0.180	630		8 × 15	0.062	0.124	860
								▲10 × 12.5	0.063	0.126	900
330	331		8 × 11.5	0.090	0.180	630					
390	391		8 × 15	0.062	0.124	860		8 × 20	0.044	0.088	1220
								▲10 × 16	0.049	0.098	1240
470	471		8 × 15	0.062	0.124	860					
			▲10 × 12.5	0.063	0.126	900					
560	561		8 × 20	0.044	0.088	1220		10 × 20	0.035	0.070	1490
			▲10 × 16	0.049	0.098	1240					
680	681		10 × 16	0.049	0.098	1240		10 × 25	0.033	0.066	1680
820	821		10 × 20	0.035	0.070	1490		12.5 × 20	0.029	0.058	1890
1000	102		10 × 25	0.033	0.066	1680		12.5 × 20	0.029	0.058	1890
			●12.5 × 20	0.029	0.058	1890					
1200	122		12.5 × 20	0.029	0.058	1890		12.5 × 25	0.022	0.044	2280
1500	152							12.5 × 31.5	0.018	0.036	2720
								▲16 × 20	0.026	0.052	2330
1800	182		12.5 × 25	0.022	0.044	2280		12.5 × 35.5	0.016	0.032	2940
								▲16 × 20	0.026	0.052	2330
2200	222		12.5 × 31.5	0.018	0.036	2720		16 × 25	0.019	0.038	2760
			▲16 × 20	0.026	0.052	2330		▲18 × 20	0.025	0.050	2640
2700	272		12.5 × 35.5	0.016	0.032	2940		16 × 31.5	0.017	0.035	2810
								▲18 × 25	0.018	0.036	2850
3300	332		16 × 25	0.019	0.038	2760		18 × 31.5	0.016	0.032	2910
			▲18 × 20	0.025	0.050	2640					
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.

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