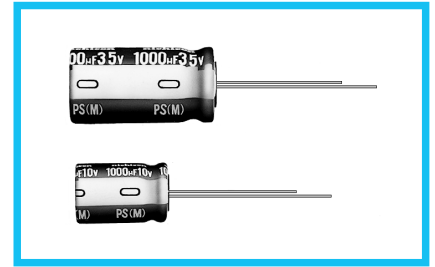
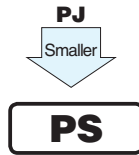


# ALUMINUM ELECTROLYTIC CAPACITORS

**PS** Miniature Sized, Low Impedance, For Switching Power Supplies series



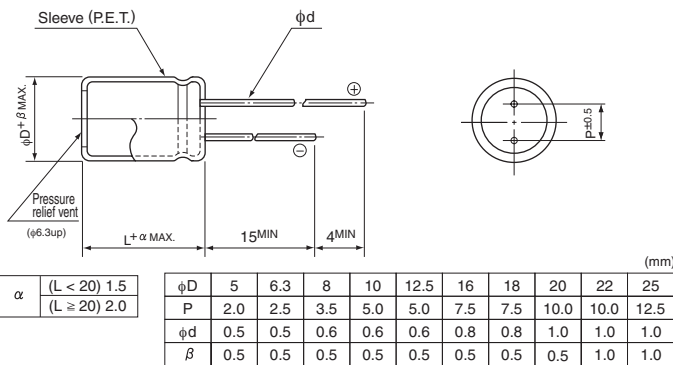
- Wide temperature range type, miniature sized.
- Compliant to the RoHS directive (2011/65/EU).



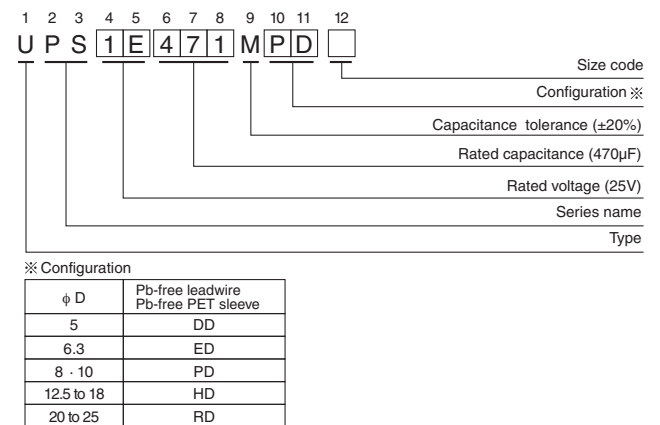
## Specifications

Item	Performance Characteristics											
Category Temperature Range	-55 to +105°C (6.3 to 100V), -40 to +105°C (160 to 400V), -25 to +105°C (450V)											
Rated Voltage Range	6.3 to 450V											
Rated Capacitance Range	0.47 to 15000μF											
Capacitance Tolerance	±20% at 120Hz, 20°C											
Leakage Current	Rated voltage (V)	6.3 to 100	160 to 450									
	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.	CV ≤ 1000: I = 0.1CV+40 (μA)max. CV > 1000: I = 0.04CV+100 (μA)max.									
Tangent of loss angle (tan δ)	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF		Measurement frequency : 120Hz at 20°C									
	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160 to 250	315 · 350	400 · 450
Stability at Low Temperature	Impedance ratio (MAX.)	Rated voltage (V)		6.3 · 10	16 · 25	35 · 50	63 · 100	160 · 200	250	315 · 350	400	450
		Z-25°C / Z+20°C		—	—	—	2	3	3	4	6	15
		Z-40°C / Z+20°C		—	—	—	3	4	6	8	10	—
		Z-55°C / Z+20°C		5	4	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 3000 hours (2000 hours for φD= 5 to 10) at 105°C, the peak voltage shall not exceed the rated voltage.		Capacitance change	Within ±20% of the initial capacitance value								
			tan δ	200% or less than the initial specified value								
			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



## Type numbering system (Example : 25V 470μF)



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

## Frequency coefficient of rated ripple current

V	Cap.(μF)	Frequency				
		50Hz	120Hz	300Hz	1kHz	10kHz or more
6.3 to 100	0.47 to 47	—	0.17	0.40	0.65	1.00
	100 to 220	0.30	0.50	0.65	0.80	1.00
	330 to 680	0.57	0.71	0.82	0.90	1.00
	1000 to 15000	0.75	0.87	0.96	0.98	1.00
160 to 450	0.47 to 220	0.80	1.00	1.25	1.40	1.60
	330 to 470	0.90	1.00	1.10	1.13	1.15

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 pages.

## Standard Ratings

Cap. (µF)	V (Code)	Item Code	6.3 (0J)			10 (1A)			16 (1C)			25 (1E)		
			Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz
4.7	4R7											5 × 11	1.50	160
10	100											5 × 11	1.50	160
22	220	5 × 11	1.50	160	5 × 11	1.50	160	5 × 11	1.50	160	5 × 11	1.50	160	160
33	330	5 × 11	1.50	160	5 × 11	1.50	160	5 × 11	1.50	160	5 × 11	1.50	160	160
47	470	5 × 11	1.50	160	5 × 11	1.50	160	5 × 11	1.50	160	5 × 11	1.50	160	160
100	101	5 × 11	1.50	160	5 × 11	1.50	160	6.3 × 11	0.50	250	6.3 × 11	0.50	250	250
150	151	6.3 × 11	0.50	250	6.3 × 11	0.50	250	6.3 × 11	0.50	250	8 × 11.5	0.28	410	410
220	221	6.3 × 11	0.50	250	6.3 × 11	0.50	250	8 × 11.5	0.28	410	8 × 11.5	0.28	410	410
330	331	6.3 × 11	0.50	250	8 × 11.5	0.28	410	8 × 11.5	0.28	410	10 × 12.5	0.19	600	600
470	471	8 × 11.5	0.28	410	8 × 11.5	0.28	410	10 × 12.5	0.19	600	10 × 16	0.14	800	800
680	681	10 × 12.5	0.19	600	10 × 12.5	0.19	600	10 × 16	0.14	800	10 × 20	0.11	1000	1000
1000	102	10 × 12.5	0.19	600	10 × 16	0.14	800	10 × 20	0.11	1000	12.5 × 20	0.075	1250	1250
1500	152	10 × 20	0.11	1000	10 × 20	0.11	1000	12.5 × 20	0.075	1250	16 × 25	0.038	1900	1900
2200	222	12.5 × 20	0.075	1250	12.5 × 20	0.075	1250	12.5 × 25	0.057	1550	16 × 25	0.038	1900	1900
3300	332	12.5 × 20	0.075	1250	12.5 × 25	0.057	1550	16 × 25	0.038	1900	16 × 31.5	0.033	2350	2350
4700	472	16 × 25	0.038	1900	16 × 25	0.038	1900	16 × 31.5	0.033	2350	18 × 35.5	0.030	2700	2700
6800	682	16 × 25	0.038	1900	16 × 31.5	0.033	2350	18 × 35.5	0.030	2700	18 × 40	0.027	3300	3300
10000	103	16 × 31.5	0.033	2350	18 × 35.5	0.030	2700	18 × 40	0.027	3300				
15000	153	18 × 35.5	0.030	2700	18 × 40	0.027	3300							

Cap. (µF)	V (Code)	Item Code	35 (1V)			50 (1H)			63 (1J)			100 (2A)		
			Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20°C/100kHz	Rated ripple (mA <sub>rms</sub> ) 105°C/100kHz
0.47	R47					5 × 11	7.50	25				5 × 11	43.0	20
1	010					5 × 11	5.30	40				5 × 11	20.0	30
2.2	2R2					5 × 11	4.50	55				5 × 11	9.80	44
3.3	3R3					5 × 11	3.90	65				5 × 11	6.60	58
4.7	4R7	5 × 11	1.50	160	5 × 11	3.50	90	5 × 11	4.70	68	5 × 11	4.60	74	74
10	100	5 × 11	1.50	160	5 × 11	2.10	120	5 × 11	2.10	110	6.3 × 11	1.80	130	130
22	220	5 × 11	1.50	160	5 × 11	1.80	150	6.3 × 11	0.98	180	8 × 11.5	0.68	230	230
33	330	5 × 11	1.50	160	6.3 × 11	0.65	250	6.3 × 11	0.71	220	10 × 12.5	0.46	320	320
47	470	6.3 × 11	0.50	250	6.3 × 11	0.65	250	8 × 11.5	0.65	310	10 × 16	0.37	420	420
100	101	8 × 11.5	0.28	410	8 × 11.5	0.36	340	10 × 12.5	0.31	390	12.5 × 20	0.18	580	580
150	151	8 × 11.5	0.28	410	10 × 12.5	0.26	490	10 × 16	0.25	440	12.5 × 25	0.13	710	710
220	221	10 × 12.5	0.19	600	10 × 16	0.18	650	10 × 20	0.20	700	16 × 25	0.10	890	890
330	331	10 × 16	0.14	800	10 × 20	0.15	810	12.5 × 20	0.12	980	16 × 25	0.090	1080	1080
470	471	10 × 20	0.11	1000	12.5 × 20	0.13	1100	12.5 × 25	0.081	1200	16 × 31.5	0.076	1310	1310
680	681	12.5 × 20	0.075	1250	12.5 × 25	0.10	1200	16 × 25	0.058	1300	16 × 35.5	0.064	1410	1410
1000	102	12.5 × 25	0.057	1550	16 × 25	0.058	1600	16 × 31.5	0.049	1380	18 × 40	0.047	1520	1520
1500	152	16 × 25	0.038	1900	16 × 31.5	0.040	2000	18 × 35.5	0.038	1750				
2200	222	16 × 31.5	0.033	2350	18 × 35.5	0.035	2300	18 × 40	0.032	2120				
3300	332	18 × 35.5	0.030	2700										
4700	472	18 × 40	0.027	3300										

Cap. (µF)	V	Code	160		200		250		315		350		400		450	
			2C	2D	2E	2F	2V	2G	2W							
0.47	R47		6.3 × 11	12	6.3 × 11	12	6.3 × 11	12	8 × 11.5	11	8 × 11.5	11				
1	010		6.3 × 11	17	6.3 × 11	17	6.3 × 11	17	8 × 11.5	16	10 × 12.5	17	10 × 12.5	16	10 × 12.5	18
2.2	2R2		6.3 × 11	25	6.3 × 11	25	8 × 11.5	29	10 × 12.5	28	10 × 16	31	10 × 16	27	10 × 20	29
3.3	3R3		8 × 11.5	36	8 × 11.5	36	10 × 12.5	42	10 × 12.5	34	10 × 16	38	10 × 20	36	12.5 × 20	41
4.7	4R7		8 × 11.5	43	10 × 12.5	50	10 × 12.5	50	10 × 16	45	10 × 20	49	10 × 20	43	12.5 × 20	49
10	100		10 × 12.5	70	10 × 16	80	10 × 20	88	10 × 20	72	12.5 × 20	82	12.5 × 25	72	16 × 25	75
22	220		10 × 20	130	10 × 20	140	12.5 × 25	155	12.5 × 25	120	16 × 25	130	16 × 25	110	16 × 31.5	115
33	330		12.5 × 20	180	12.5 × 25	190	12.5 × 25	190	16 × 25	155	16 × 31.5	160	16 × 31.5	140	•18 × 35.5	145
47	470		12.5 × 25	220	12.5 × 25	220	16 × 25	230	16 × 35.5	190	•18 × 35.5	200	•18 × 35.5	170	20 × 40	175
100	101		16 × 25	330	16 × 31.5	335	•18 × 35.5	340	Δ18 × 40	285	20 × 40	290	22 × 50	350	25 × 50	350
220	221		•18 × 35.5	500	Δ18 × 40	515	20 × 40	525	22 × 50	540	25 × 50	550				
330	331		20 × 40	900	22 × 40	1100	22 × 50	1150								
470	471		22 × 50	1200	22 × 50	1310	25 × 50	1350								

Rated ripple current (mA<sub>rms</sub>) at 105°C 120Hz

Size φ20×31 is available for capacitors marked "•"  
 Size φ20×35 is available for capacitors marked "Δ"  
 In this case, "6" will be put at 12th digit of type numbering system.