ALUMINUM ELECTROLYTIC CAPACITORS

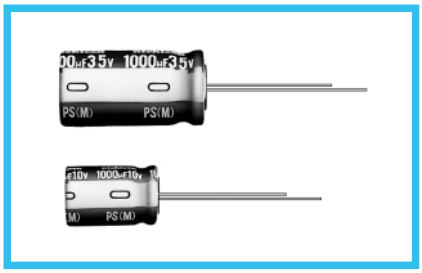
nichicon

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

Smaller | Low Impedance | Anti-Solvent Feature (Through 100V only)

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

PJ → Smaller → PS



■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, leakage current is not more than 0.03CV or 4 (µA) , whichever is greater.	CV ≦ 1000 : I= 0.1CV+40 (µA)max. (1 minute's) CV > 1000 : I= 0.04CV+100 (µA)max. (1 minute's)

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
tan δ (MAX.)	0.24	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.20	0.25

Stability at Low Temperature

Measurement frequency : 120Hz

Rated voltage (V)		6.3 · 10	16 · 25	35 · 50	63 · 100	160 · 200	250	315 · 350	400	450
Impedance ratio (MAX.)	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

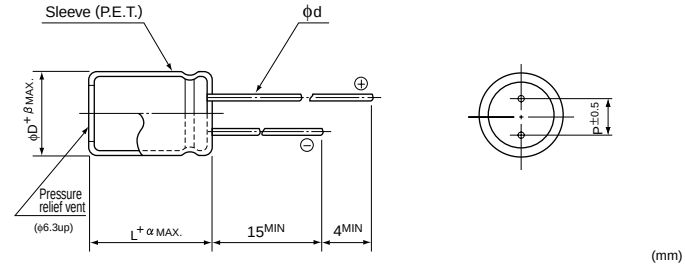
Shelf Life

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



(mm)

α	
(L < 20)	1.5
(L ≧ 20)	2.0

φD	5	6.3	8	10	12.5	16	18	20	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0	1.0
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0

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

Type numbering system (Example : 25V 470µF)

1	2	3	4	5	6	7	8	9	10	11	12
U	P	S	1	E	4	7	1	M	P	D	

Size code
Configuration ※
Capacitance tolerance (±20%)
Rated capacitance (470µF)
Rated voltage (25V)
Series name
Type

※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
5	DD
6.3	ED
8 · 10	PD
12.5 to 18	HD
20 to 25	RD

●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.

PS series

■Standard Ratings

Cap. (μF) / Code \ V (Code) / Item		6.3 (0J)			10 (1A)			16 (1C)			25 (1E)		
		Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz
4.7	4R7										5×11	1.50	160
10	100							5×11	1.50	160	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
33	330	5×11	1.50	160	5×11	1.50	160	5×11	1.50	160	5×11	1.50	160
47	470	5×11	1.50	160	5×11	1.50	160	5×11	1.50	160	5×11	1.50	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
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
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
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
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
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	102	10×12.5	0.19	600	10×16	0.14	800	10×20	0.11	1000	12.5×20	0.075	1250
1500	152	10×20	0.11	1000	10×20	0.11	1000	12.5×20	0.075	1250	16×25	0.038	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
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
4700	472	16×25	0.038	1900	16×25	0.038	1900	16×31.5	0.033	2350	18×35.5	0.030	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
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) / Code \ V (Code) / Item		35 (1V)			50 (1H)			63 (1J)			100 (2A)		
		Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 105˚C/100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C/100kHz	Rated ripple (mArms) 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
10	100	5×11	1.50	160	5×11	2.10	120	5×11	2.10	110	6.3×11	1.80	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
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
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
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
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
220	221	10×12.5	0.19	600	10×16	0.18	650	10×20	0.20	700	16×25	0.10	890
330	331	10×16	0.14	800	10×20	0.15	810	12.5×20	0.12	980	16×25	0.090	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
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
1000	102	12.5×25	0.057	1550	16×25	0.058	1600	16×31.5	0.049	1380	18×40	0.047	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) / Code \ V		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							Case size φD × L (mm)	Rated ripple
470	471	22 × 50	1200	22 × 50	1310	25 × 50	1350								

Rated ripple current (mArms) 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.