

ALUMINUM ELECTROLYTIC CAPACITORS

UPS

Miniature Sized, Low Impedance,
For Switching Power Supplies

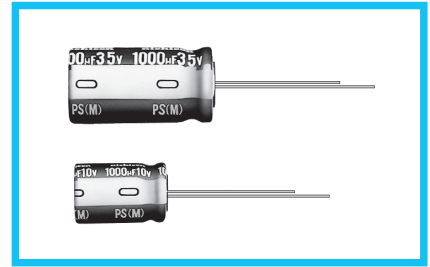


- Wide temperature range type, miniature sized.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

Valued marked with an ※ in the dimension table are scheduled to be discontinued and are not recommended for new designs.



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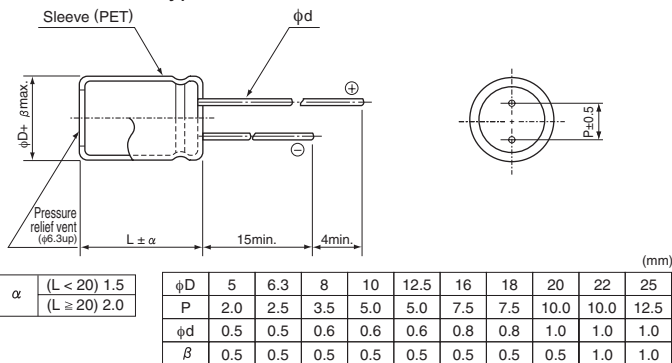


Specifications

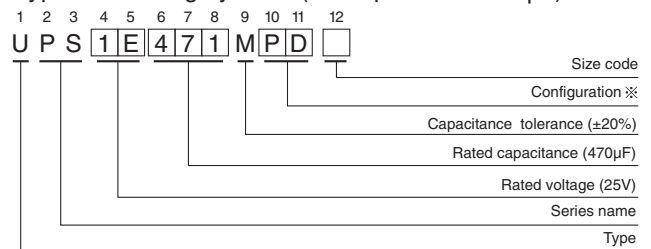
Item	Performance Characteristics		
Category Temperature Range	-55 to +105°C (6.3 to 100V), -40 to +105°C (160 to 400V), -25 to +105°C (450V)		
Rated Voltage Range	6.3 to 450V		
Rated Capacitance Range	0.47 to 15000µF		
Capacitance Tolerance	±20% at 120Hz, 20°C		
Leakage Current ※	Rated voltage (V)	6.3 to 100	
	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)	For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF		
	Rated voltage (V)	6.3 10 16 25 35 50 63 100 160 to 250 315 - 350 400 - 450	
Stability at Low Temperature	Measurement frequency : 120Hz at 20°C		
	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	
	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 8 10 —
Z(-40°C) / Z(+20°C)		— — — 3 4 6 8 10 —	
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	tan δ	
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		
Marking		Printed with white color letter on dark brown sleeve.	

※ I : Leakage Current (µA), C : Rated Capacitance (µF), V : Rated Voltage (V)

Radial Lead Type



Type numbering system (Example : 25V 470µF)



※ 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

- Please refer to the Guidelines for Aluminum Electrolytic Capacitors for end seal configuration information.

Frequency coefficient of rated ripple current

V	Frequency					
	Cap.(µF)	50Hz	120Hz	300Hz	1kHz	10kHz or more
6.3 to 100	2.2 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

• Dimension table in next page.

UPS

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 1 minute)	Impedance (Ω) max. (20°C/100kHz)	Rated Ripple (mA _{rms})		Part Number
						105°C/ 100kHz	105°C/ 120Hz	
6.3 (0J)	22	5 \times 11	0.24	4.158	1.50	160	—	※UPS0J220MDD
	33	5 \times 11	0.24	6.237	1.50	160	—	※UPS0J330MDD
	47	5 \times 11	0.24	8.883	1.50	160	—	※UPS0J470MDD
	100	5 \times 11	0.24	18.9	1.50	160	—	※UPS0J101MDD
	150	6.3 \times 11	0.24	28.35	0.50	250	—	※UPS0J151MED
	220	6.3 \times 11	0.24	41.58	0.50	250	—	※UPS0J221MED
	330	6.3 \times 11	0.24	62.37	0.50	250	—	※UPS0J331MED
	470	8 \times 11.5	0.24	88.83	0.28	410	—	UPS0J471MPD
	680	10 \times 12.5	0.24	128.52	0.19	600	—	UPS0J681MPD
	1000	10 \times 12.5	0.24	189	0.19	600	—	UPS0J102MPD
	1500	10 \times 20	0.24	283.5	0.11	1000	—	UPS0J152MPD
	2200	12.5 \times 20	0.26	415.8	0.075	1250	—	UPS0J222MHD
	3300	12.5 \times 20	0.28	623.7	0.075	1250	—	UPS0J332MHD
	4700	16 \times 25	0.30	888.3	0.038	1900	—	UPS0J472MHD
	6800	16 \times 25	0.34	1285.2	0.038	1900	—	UPS0J682MHD
10000	16 \times 30.5	0.42	1890	0.033	2350	—	UPS0J103MHD	
15000	18 \times 35.5	0.52	2835	0.030	2700	—	UPS0J153MHD	
10 (1A)	22	5 \times 11	0.20	6.6	1.50	160	—	※UPS1A220MDD
	33	5 \times 11	0.20	9.9	1.50	160	—	※UPS1A330MDD
	47	5 \times 11	0.20	14.1	1.50	160	—	※UPS1A470MDD
	100	5 \times 11	0.20	30	1.50	160	—	※UPS1A101MDD
	150	6.3 \times 11	0.20	45	0.50	250	—	※UPS1A151MED
	220	6.3 \times 11	0.20	66	0.50	250	—	※UPS1A221MED
	330	8 \times 11.5	0.20	99	0.28	410	—	UPS1A331MPD
	470	8 \times 11.5	0.20	141	0.28	410	—	UPS1A471MPD
	680	10 \times 12.5	0.20	204	0.19	600	—	UPS1A681MPD
	1000	10 \times 16	0.20	300	0.14	800	—	UPS1A102MPD
	1500	10 \times 20	0.20	450	0.11	1000	—	UPS1A152MPD
	2200	12.5 \times 20	0.22	660	0.075	1250	—	UPS1A222MHD
	3300	12.5 \times 25	0.24	990	0.057	1550	—	UPS1A332MHD
	4700	16 \times 25	0.26	1410	0.038	1900	—	UPS1A472MHD
	6800	16 \times 30.5	0.30	2040	0.033	2350	—	UPS1A682MHD
10000	18 \times 35.5	0.38	3000	0.030	2700	—	UPS1A103MHD	
15000	18 \times 40	0.48	4500	0.027	3300	—	UPS1A153MHD	
16 (1C)	10	5 \times 11	0.16	4.8	1.50	160	—	※UPS1C100MDD
	22	5 \times 11	0.16	10.56	1.50	160	—	※UPS1C220MDD
	33	5 \times 11	0.16	15.84	1.50	160	—	※UPS1C330MDD
	47	5 \times 11	0.16	22.56	1.50	160	—	※UPS1C470MDD
	100	6.3 \times 11	0.16	48	0.50	250	—	※UPS1C101MED
	150	6.3 \times 11	0.16	72	0.50	250	—	※UPS1C151MED
	220	8 \times 11.5	0.16	105.6	0.28	410	—	UPS1C221MPD
	330	8 \times 11.5	0.16	158.4	0.28	410	—	UPS1C331MPD
	470	10 \times 12.5	0.16	225.6	0.19	600	—	UPS1C471MPD
	680	10 \times 16	0.16	326.4	0.14	800	—	UPS1C681MPD
	1000	10 \times 20	0.16	480	0.11	1000	—	UPS1C102MPD
	1500	12.5 \times 20	0.16	720	0.075	1250	—	UPS1C152MHD

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).
If there is no size code in the part number, please add size code "1" and then add the appropriate code.

UPS

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 1 minute)	Impedance (Ω) max. (20°C/100kHz)	Rated Ripple (mA _{rms})		Part Number
						105°C/100kHz	105°C/120Hz	
16 (1C)	2200	12.5×25	0.18	1056	0.057	1550	—	UPS1C222MHD
	3300	16×25	0.20	1584	0.038	1900	—	UPS1C332MHD
	4700	16×30.5	0.22	2256	0.033	2350	—	UPS1C472MHD
	6800	18×35.5	0.26	3264	0.030	2700	—	UPS1C682MHD
	10000	18×40	0.34	4800	0.027	3300	—	UPS1C103MHD
25 (1E)	4.7	5×11	0.14	4	1.50	160	—	※UPS1E4R7MDD
	10	5×11	0.14	7.5	1.50	160	—	※UPS1E100MDD
	22	5×11	0.14	16.5	1.50	160	—	※UPS1E220MDD
	33	5×11	0.14	24.75	1.50	160	—	※UPS1E330MDD
	47	5×11	0.14	35.25	1.50	160	—	※UPS1E470MDD
	100	6.3×11	0.14	75	0.50	250	—	※UPS1E101MED
	150	8×11.5	0.14	112.5	0.28	410	—	UPS1E151MPD
	220	8×11.5	0.14	165	0.28	410	—	UPS1E221MPD
	330	10×12.5	0.14	247.5	0.19	600	—	UPS1E331MPD
	470	10×16	0.14	352.5	0.14	800	—	UPS1E471MPD
	680	10×20	0.14	510	0.11	1000	—	UPS1E681MPD
	1000	12.5×20	0.14	750	0.075	1250	—	UPS1E102MHD
	1500	16×25	0.14	1125	0.038	1900	—	UPS1E152MHD
	2200	16×25	0.16	1650	0.038	1900	—	UPS1E222MHD
	3300	16×30.5	0.18	2475	0.033	2350	—	UPS1E332MHD
4700	18×35.5	0.20	3525	0.030	2700	—	UPS1E472MHD	
6800	18×40	0.24	5100	0.027	3300	—	UPS1E682MHD	
35 (1V)	4.7	5×11	0.12	4.935	1.50	160	—	※UPS1V4R7MDD
	10	5×11	0.12	10.5	1.50	160	—	※UPS1V100MDD
	22	5×11	0.12	23.1	1.50	160	—	※UPS1V220MDD
	33	5×11	0.12	34.65	1.50	160	—	※UPS1V330MDD
	47	6.3×11	0.12	49.35	0.50	250	—	※UPS1V470MED
	100	8×11.5	0.12	105	0.28	410	—	UPS1V101MPD
	150	8×11.5	0.12	157.5	0.28	410	—	UPS1V151MPD
	220	10×12.5	0.12	231	0.19	600	—	UPS1V221MPD
	330	10×16	0.12	346.5	0.14	800	—	UPS1V331MPD
	470	10×20	0.12	493.5	0.11	1000	—	UPS1V471MPD
	680	12.5×20	0.12	714	0.075	1250	—	UPS1V681MHD
	1000	12.5×25	0.12	1050	0.057	1550	—	UPS1V102MHD
	1500	16×25	0.12	1575	0.038	1900	—	UPS1V152MHD
	2200	16×30.5	0.14	2310	0.033	2350	—	UPS1V222MHD
	3300	18×35.5	0.16	3465	0.030	2700	—	UPS1V332MHD
4700	18×40	0.18	4935	0.027	3300	—	UPS1V472MHD	
50 (1H)	2.2	5×11	0.10	4	4.50	55	—	※UPS1H2R2MDD
	3.3	5×11	0.10	4.95	3.90	65	—	※UPS1H3R3MDD
	4.7	5×11	0.10	7.05	3.50	90	—	※UPS1H4R7MDD
	10	5×11	0.10	15	2.10	120	—	※UPS1H100MDD
	22	5×11	0.10	33	1.80	150	—	※UPS1H220MDD
	33	6.3×11	0.10	49.5	0.65	250	—	※UPS1H330MED
	47	6.3×11	0.10	70.5	0.65	250	—	※UPS1H470MED
	100	8×11.5	0.10	150	0.36	340	—	UPS1H101MPD

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UPS

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 1 minute)	Impedance (Ω) max. (20°C/100kHz)	Rated Ripple (mArms)		Part Number
						105°C/ 100kHz	105°C/ 120Hz	
50 (1H)	150	10 \times 12.5	0.10	225	0.26	490	—	UPS1H151MPD
	220	10 \times 16	0.10	330	0.18	650	—	UPS1H221MPD
	330	10 \times 20	0.10	495	0.15	810	—	UPS1H331MPD
	470	12.5 \times 20	0.10	705	0.13	1100	—	UPS1H471MHD
	680	12.5 \times 25	0.10	1020	0.10	1200	—	UPS1H681MHD
	1000	16 \times 25	0.10	1500	0.058	1600	—	UPS1H102MHD
	1500	16 \times 30.5	0.10	2250	0.040	2000	—	UPS1H152MHD
	2200	18 \times 35.5	0.12	3300	0.035	2300	—	UPS1H222MHD
63 (1J)	4.7	5 \times 11	0.09	8.883	4.70	68	—	※UPS1J47MDD
	10	5 \times 11	0.09	18.9	2.10	110	—	※UPS1J100MDD
	22	6.3 \times 11	0.09	41.58	0.98	180	—	※UPS1J220MED
	33	6.3 \times 11	0.09	62.37	0.71	220	—	※UPS1J330MED
	47	8 \times 11.5	0.09	88.83	0.65	310	—	UPS1J470MPD
	100	10 \times 12.5	0.09	189	0.31	390	—	UPS1J101MPD
	150	10 \times 16	0.09	283.5	0.25	440	—	UPS1J151MPD
	220	10 \times 20	0.09	415.8	0.20	700	—	UPS1J221MPD
	330	12.5 \times 20	0.09	623.7	0.12	980	—	UPS1J331MHD
	470	12.5 \times 25	0.09	888.3	0.081	1200	—	UPS1J471MHD
	680	16 \times 25	0.09	1285.2	0.058	1300	—	UPS1J681MHD
	1000	16 \times 30.5	0.09	1890	0.049	1380	—	UPS1J102MHD
	1500	18 \times 35.5	0.09	2835	0.038	1750	—	UPS1J152MHD
2200	18 \times 40	0.11	4158	0.032	2120	—	UPS1J222MHD	
100 (2A)	2.2	5 \times 11	0.08	6.6	9.80	44	—	※UPS2A2R2MDD
	3.3	5 \times 11	0.08	9.9	6.60	58	—	※UPS2A3R3MDD
	4.7	5 \times 11	0.08	14.1	4.60	74	—	※UPS2A4R7MDD
	10	6.3 \times 11	0.08	30	1.80	130	—	※UPS2A100MED
	22	8 \times 11.5	0.08	66	0.68	230	—	UPS2A220MPD
	33	10 \times 12.5	0.08	99	0.46	320	—	UPS2A330MPD
	47	10 \times 16	0.08	141	0.37	420	—	UPS2A470MPD
	100	12.5 \times 20	0.08	300	0.18	580	—	UPS2A101MHD
	150	12.5 \times 25	0.08	450	0.13	710	—	UPS2A151MHD
	220	16 \times 25	0.08	660	0.10	890	—	UPS2A221MHD
	330	16 \times 25	0.08	990	0.090	1080	—	UPS2A331MHD
	470	16 \times 30.5	0.08	1410	0.076	1310	—	UPS2A471MHD
	680	16 \times 35.5	0.08	2040	0.064	1410	—	UPS2A681MHD
1000	18 \times 40	0.08	3000	0.047	1520	—	UPS2A102MHD	

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If there is no size code in the part number, please add size code "1" and then add the appropriate code.

UPS

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 1 minute)	Rated Ripple (mArms)		Part Number
					105°C/ 100kHz	105°C/ 120Hz	
160 (2C)	0.47	6.3 \times 11	0.15	47.52	—	12	※UPS2CR47MED
	1	6.3 \times 11	0.15	56	—	17	※UPS2C010MED
	2.2	6.3 \times 11	0.15	75.2	—	25	※UPS2C2R2MED
	3.3	8 \times 11.5	0.15	92.8	—	36	※UPS2C3R3MPD
	4.7	8 \times 11.5	0.15	115.2	—	43	※UPS2C4R7MPD
	10	10 \times 12.5	0.15	164	—	70	※UPS2C100MPD
	22	10 \times 20	0.15	240.8	—	130	※UPS2C220MPD
	33	12.5 \times 20	0.15	311.2	—	180	※UPS2C330MHD
	47	12.5 \times 25	0.15	400.8	—	220	※UPS2C470MHD
	100	16 \times 25	0.15	740	—	330	※UPS2C101MHD
	220	18 \times 35.5	0.15	1508	—	500	※UPS2C221MHD
	220	20 \times 31	0.15	1508	—	500	※UPS2C221MRD6
	330	20 \times 40	0.15	2212	—	900	※UPS2C331MRD
	470	22 \times 50	0.15	3108	—	1200	※UPS2C471MRD
200 (2D)	0.47	6.3 \times 11	0.15	49.4	—	12	※UPS2DR47MED
	1	6.3 \times 11	0.15	60	—	17	※UPS2D010MED
	2.2	6.3 \times 11	0.15	84	—	25	※UPS2D2R2MED
	3.3	8 \times 11.5	0.15	106	—	36	※UPS2D3R3MPD
	4.7	10 \times 12.5	0.15	134	—	50	※UPS2D4R7MPD
	10	10 \times 16	0.15	180	—	80	※UPS2D100MPD
	22	10 \times 20	0.15	276	—	140	※UPS2D220MPD
	33	12.5 \times 25	0.15	364	—	190	※UPS2D330MHD
	47	12.5 \times 25	0.15	476	—	220	※UPS2D470MHD
	100	16 \times 30.5	0.15	900	—	335	※UPS2D101MHD
	220	18 \times 40	0.15	1860	—	515	※UPS2D221MHD
	220	20 \times 35	0.15	1860	—	515	※UPS2D221MRD6
	330	22 \times 40	0.15	2740	—	1100	※UPS2D331MRD
	470	22 \times 50	0.15	3860	—	1310	※UPS2D471MRD
250 (2E)	0.47	6.3 \times 11	0.15	51.75	—	12	※UPS2ER47MED
	1	6.3 \times 11	0.15	65	—	17	※UPS2E010MED
	2.2	8 \times 11.5	0.15	95	—	29	※UPS2E2R2MPD
	3.3	10 \times 12.5	0.15	122.5	—	42	※UPS2E3R3MPD
	4.7	10 \times 12.5	0.15	147	—	50	※UPS2E4R7MPD
	10	10 \times 20	0.15	200	—	88	※UPS2E100MPD
	22	12.5 \times 25	0.15	320	—	155	※UPS2E220MHD
	33	12.5 \times 25	0.15	430	—	190	※UPS2E330MHD
	47	16 \times 25	0.15	570	—	230	※UPS2E470MHD
	100	18 \times 35.5	0.15	1100	—	340	※UPS2E101MHD
	100	20 \times 31	0.15	1100	—	340	※UPS2E101MRD6
	220	20 \times 40	0.15	2300	—	525	※UPS2E221MRD
	330	22 \times 50	0.15	3400	—	1150	※UPS2E331MRD
	470	25 \times 50	0.15	4800	—	1350	※UPS2E471MRD

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UPS

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 1 minute)	Rated Ripple (mArms)		Part Number
					105°C/ 100kHz	105°C/ 120Hz	
315 (2F)	0.47	8 \times 11.5	0.20	54.805	—	11	※UPS2FR47MPD
	1	8 \times 11.5	0.20	71.5	—	16	※UPS2F010MPD
	2.2	10 \times 12.5	0.20	109.3	—	28	※UPS2F2R2MPD
	3.3	10 \times 12.5	0.20	141.58	—	34	※UPS2F3R3MPD
	4.7	10 \times 16	0.20	159.22	—	45	※UPS2F4R7MPD
	10	10 \times 20	0.20	226	—	72	※UPS2F100MPD
	22	12.5 \times 25	0.20	377.2	—	120	※UPS2F220MHD
	33	16 \times 25	0.20	515.8	—	155	※UPS2F330MHD
	47	16 \times 35.5	0.20	692.2	—	190	※UPS2F470MHD
	100	18 \times 40	0.20	1360	—	285	※UPS2F101MHD
	100	20 \times 35	0.20	1360	—	285	※UPS2F101MRD6
220	22 \times 50	0.20	2872	—	540	※UPS2F221MRD	
350 (2V)	0.47	8 \times 11.5	0.20	56.45	—	11	※UPS2VR47MPD
	1	10 \times 12.5	0.20	75	—	17	※UPS2V010MPD
	2.2	10 \times 16	0.20	117	—	31	※UPS2V2R2MPD
	3.3	10 \times 16	0.20	146.2	—	38	※UPS2V3R3MPD
	4.7	10 \times 20	0.20	165.8	—	49	※UPS2V4R7MPD
	10	12.5 \times 20	0.20	240	—	82	※UPS2V100MHD
	22	16 \times 25	0.20	408	—	130	※UPS2V220MHD
	33	16 \times 30.5	0.20	562	—	160	※UPS2V330MHD
	47	18 \times 35.5	0.20	758	—	200	※UPS2V470MHD
	47	20 \times 31	0.20	758	—	200	※UPS2V470MRD6
	100	20 \times 40	0.20	1500	—	290	※UPS2V101MRD
220	25 \times 50	0.20	3180	—	550	※UPS2V221MRD	
400 (2G)	1	10 \times 12.5	0.25	80	—	16	※UPS2G010MPD
	2.2	10 \times 16	0.25	128	—	27	※UPS2G2R2MPD
	3.3	10 \times 20	0.25	152.8	—	36	※UPS2G3R3MPD
	4.7	10 \times 20	0.25	175.2	—	43	※UPS2G4R7MPD
	10	12.5 \times 25	0.25	260	—	72	※UPS2G100MHD
	22	16 \times 25	0.25	452	—	110	※UPS2G220MHD
	33	16 \times 30.5	0.25	628	—	140	※UPS2G330MHD
	47	18 \times 35.5	0.25	852	—	170	※UPS2G470MHD
	47	20 \times 31	0.25	852	—	170	※UPS2G470MRD6
100	22 \times 50	0.25	1700	—	350	※UPS2G101MRD	
450 (2W)	1	10 \times 12.5	0.25	85	—	18	※UPS2W010MPD
	2.2	10 \times 20	0.25	139	—	29	※UPS2W2R2MPD
	3.3	12.5 \times 20	0.25	159.4	—	41	※UPS2W3R3MHD
	4.7	12.5 \times 20	0.25	184.6	—	49	※UPS2W4R7MHD
	10	16 \times 25	0.25	280	—	75	※UPS2W100MHD
	22	16 \times 30.5	0.25	496	—	115	※UPS2W220MHD
	33	18 \times 35.5	0.25	694	—	145	※UPS2W330MHD
	33	20 \times 31	0.25	694	—	145	※UPS2W330MRD6
	47	20 \times 40	0.25	946	—	175	※UPS2W470MRD
100	25 \times 50	0.25	1900	—	350	※UPS2W101MRD	

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).

If there is no size code in the part number, please add size code "1" and then add the appropriate code.

- For formed lead or taped product specifications and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.