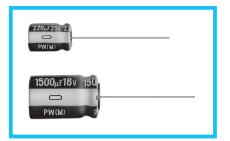


Miniature Sized, Low Impedance, High Reliability For **Switching Power Supplies** 



- Smaller case size and lower impedance than UPM.
- Low impedance and high reliability withstanding 3000 hours to 8000 hours.
- Capacitance ranges available based on the numerical values in E12 series
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- AEC-Q200 Qualified. Please contact us for details.



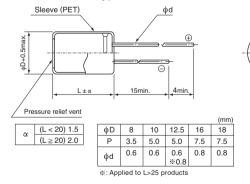


#### Specifications

Item		Performance Characteristics											
Category Temperature Range	−55 to +105°C (6.3	55 to +105°C (6.3 to 100V)											
Rated Voltage Range	6.3 to 100V												
Rated Capacitance Range	15 to 15000μF	to 15000µF											
Capacitance Tolerance	±20% at 120Hz, 2	D°C											
Leakage Current *	After 1 minute's appli	cation of	ated voltag	e at 20°C, I	eakage cur	rent is not	more than	0.03CV(µ	A).				
	For capacitance of m	ore than	1000μF, add	d 0.02 for e	very increa	se of 1000µ	ıF. N	Measurem	ent freque	ency : 12	0Hz at 20	),C	
Tangent of loss angle (tan $\delta$ )	Rated voltage (V)	6.3	10	16	25	35	50	63	100				
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08				
	Rated voltage (V)				6.3 · 10	16 · 25	35 · 50	120 63 · 10					
Stability at Low Temperature	Impedance ratio			55°C) / Z(+2	20°C)	3	3	3	3	0			
Endurance	capacitors are restoripple current is appright. The peak voltage	The specifications listed below shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied at 105°C for the condition listed at right. The peak voltage shall not exceed the rated voltage.    Rated Voltage											
Shelf Life	tan δ 200% or less than the initial specified value  Leakage current Less than or equal to the initial specified value  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 of			•		tne endui	ance cnar	acteristic	s listed a	bove.			

 $\ \, \ \, \hbox{$\%$ I : Leakage Current ($\mu$A), $C:$ Rated Capacitance ($\mu$F), $V:$ Rated Voltage ($V$)}$ 

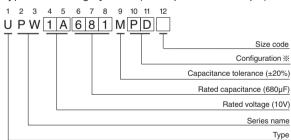
### ■Radial Lead Type



- Please refer to the Guidelines for Aluminum Electrolytic Capacitors for end seal configuration information.
- Frequency coefficient of rated ripple current

Cap. (μF) Frequency	50Hz	120Hz	300Hz	1kHz	10kHz or more
15 to 47	0.20	0.30	0.50	0.80	1.00
68 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 15000	0.80	0.85	0.90	0.95	1.00

#### Type numbering system (Example: 10V 680µF)



Configuration							
φD	Pb-free leadwire Pb-free PET sleeve						
8 · 10	PD						
12.5 to 18	HD						

### ■ Dimensions

Rated Voltage (V)	Rated Capacitance	Case Size	tan δ	Leakage Current (µA)	Impedance(Ω) max.		Rated Ripple (mArms)	Part Number	
(code)	(μF)	φD×L(mm)	tano	(at 20°C after ) 1 minute	20℃/ 100kHz	-10°C/ 100kHz	(105°C/100kHz)		
	470	8×11.5	0.22	88.83	0.117	0.234	555	UPW0J471MPD	
	560	8×11.5	0.22	105.84	0.117	0.234	555	UPW0J561MPD	
	680	10×12.5	0.22	128.52	0.090	0.18	755	UPW0J681MPD	
	820	8×15	0.22	154.98	0.085	0.17	730	UPW0J821MPD	
	820	10×12.5	0.22	154.98	0.090	0.18	755	UPW0J821MPD6	
	1000	10×12.5	0.22	189	0.090	0.18	755	UPW0J102MPD	
	1200	8×20	0.22	226.8	0.065	0.13	995	UPW0J122MPD	
	1200	10×16	0.22	226.8	0.068	0.136	1050	UPW0J122MPD	
	1500	10×20	0.22	283.5	0.052	0.104	1220	UPW0J152MPD	
	2200	12.5×20	0.24	415.8	0.038	0.076	1655	UPW0J222MHD	
ŀ	2200	10×25	0.24	415.8	0.045	0.090	1440	UPW0J222MPD6	
F	2700	10×30.5	0.24	510.3	0.035	0.070	1815	UPW0J272MPD	
6.3	3300	12.5×20	0.26	623.7	0.038	0.076	1655	UPW0J332MHD	
(0J)	3900	12.5×25	0.26	737.1	0.030	0.060	1945	UPW0J392MHD	
-			+						
-	4700	16×25	0.28	888.3	0.022	0.044	2555	UPW0J472MHD	
-	4700	12.5×30.5	0.28	888.3	0.025	0.050	2310	UPW0J472MHD	
-	5600	12.5×35.5	0.30	1058.4	0.022	0.044	2510	UPW0J562MHD	
-	5600	16×20	0.30	1058.4	0.029	0.058	2210	UPW0J562MHD	
	6800	16×25	0.32	1285.2	0.022	0.044	2560	UPW0J682MHD	
	6800	18×20	0.32	1285.2	0.028	0.056	2490	UPW0J682MHD	
-	8200	16×30.5	0.36	1549.8	0.018	0.036	3010	UPW0J822MHD	
	10000	16×30.5	0.40	1890	0.016	0.032	3150	UPW0J103MHD	
	10000	18×25	0.40	1890	0.020	0.040	2740	UPW0J103MHD	
	12000	18×30.5	0.44	2268	0.016	0.032	3635	UPW0J123MHD	
	15000	18×35.5	0.50	2835	0.015	0.030	3680	UPW0J153MHD	
	330	8×11.5	0.19	99	0.117	0.234	555	UPW1A331MPD	
	470	8×11.5	0.19	141	0.117	0.234	555	UPW1A471MPD	
	680	10×12.5	0.19	204	0.090	0.18	760	UPW1A681MPD	
	680	8×15	0.19	204	0.085	0.17	730	UPW1A681MPD	
Ī	1000	10×16	0.19	300	0.068	0.136	1050	UPW1A102MPD	
İ	1000	8×20	0.19	300	0.065	0.13	995	UPW1A102MPD	
	1200	10×20	0.19	360	0.052	0.104	1220	UPW1A122MPD	
The state of the s	1500	10×20	0.19	450	0.052	0.104	1220	UPW1A152MPD	
ŀ	1500	10×25	0.19	450	0.045	0.090	1440	UPW1A152MPD	
}	2200	12.5×20	0.21	660	0.038	0.076	1655	UPW1A222MHD	
}	2200	10×30.5	0.21	660	0.035	0.070	1815	UPW1A222MPD	
}	2700	12.5×25	0.21	810	0.030	0.060	1945	UPW1A272MHD	
10	3300	12.5×25	0.23	990	0.030	0.060	1950	UPW1A332MHD	
(1A)	3300	12.5×25	0.23	990	0.030	0.050	2310	UPW1A332MHD	
-			+						
}	3900	12.5×35.5	0.23	1170	0.022	0.044	2510	UPW1A392MHD	
-	3900	16×20	0.23	1170	0.029	0.058	2210	UPW1A392MHD	
}	4700	16×25	0.25	1410	0.022	0.044	2555	UPW1A472MHD	
-	5600	16×25	0.27	1680	0.022	0.044	2560	UPW1A562MHD	
-	5600	18×20	0.27	1680	0.028	0.056	2490	UPW1A562MHD	
	6800	16×30.5	0.29	2040	0.018	0.036	3010	UPW1A682MHD	
	6800	18×25	0.29	2040	0.020	0.040	2740	UPW1A682MHD	
	8200	16×35.5	0.33	2460	0.016	0.032	3150	UPW1A822MHD	
	8200	18×30.5	0.33	2460	0.016	0.032	3635	UPW1A822MHD	
	10000	18×35.5	0.37	3000	0.015	0.030	3680	UPW1A103MHD	
	15000	18×40	0.47	4500	0.014	0.028	3800	UPW1A153MHD	

### ■ Dimensions

Rated Voltage (V)	Rated Capacitance	Case Size	tan δ	Leakage Current (µA)	Impedance(Ω) max.		Rated Ripple (mArms)	Part Number	
(code)	Capacitance (μF)	φD×L(mm)	tano	(at 20°C after 1 minute)	20℃/ 100kHz	-10°C/ 100kHz	(105°C/100kHz)	r art Number	
	220	8×11.5	0.16	105.6	0.117	0.234	555	UPW1C221MPD	
	330	8×11.5	0.16	158.4	0.117	0.234	555	UPW1C331MPD	
	470	10×12.5	0.16	225.6	0.090	0.18	760	UPW1C471MPD	
	470	8×15	0.16	225.6	0.085	0.17	730	UPW1C471MPD	
	680	10×16	0.16	326.4	0.068	0.136	1050	UPW1C681MPD	
	680	8×20	0.16	326.4	0.065	0.13	995	UPW1C681MPD	
	820	10×20	0.16	393.6	0.052	0.104	1220	UPW1C821MPD	
	1000	10×20	0.16	480	0.052	0.104	1220	UPW1C102MPD	
	1200	10×25	0.16	576	0.045	0.090	1440	UPW1C122MPD	
	1500	12.5×20	0.16	720	0.038	0.076	1655	UPW1C152MHD	
	1500	10×30.5	0.16	720	0.035	0.070	1815	UPW1C152MPD	
	2200	12.5×25	0.18	1056	0.030	0.060	1945	UPW1C222MHD	
16	2700	12.5×30.5	0.18	1296	0.025	0.050	2310	UPW1C272MHD	
(1C)	2700	16×20	0.18	1296	0.029	0.058	2210	UPW1C272MHD	
-	3300	16×25	0.20	1584	0.023	0.030	2555	UPW1C332MHD	
-	3300	12.5×35.5	0.20	1584	0.022	0.044	2510	UPW1C332MHD	
-	3900	16×25	0.20	1872	0.022	0.044	2560	UPW1C392MHD	
	3900	18×20	0.20	1872	0.022	0.056	2490	UPW1C392MHD	
-	4700	16×30.5	0.20	2256	0.028	0.036	3010	UPW1C472MHD	
-	4700	18×25	0.22	2256	0.018		2740	UPW1C472MHD	
-						0.040			
-	5600	16×35.5	0.24	2688	0.016	0.032	3150	UPW1C562MHD	
	5600	18×30.5	0.24	2688	0.016	0.032	3635	UPW1C562MHD	
	6800	18×35.5	0.26	3264	0.015	0.030	3680	UPW1C682MHD	
	8200	18×35.5	0.30	3936	0.015	0.030	3680	UPW1C822MHD	
	10000	18×40	0.34	4800	0.014	0.028	3800	UPW1C103MHD	
_	150	8×11.5	0.14	112.5	0.117	0.234	555	UPW1E151MPD	
	220	8×11.5	0.14	165	0.117	0.234	555	UPW1E221MPD	
	330	10×12.5	0.14	247.5	0.090	0.18	760	UPW1E331MPD	
	330	8×15	0.14	247.5	0.085	0.17	730	UPW1E331MPD	
	470	10×16	0.14	352.5	0.068	0.136	1050	UPW1E471MPD	
	470	8×20	0.14	352.5	0.065	0.13	995	UPW1E471MPD	
	560	10×20	0.14	420	0.052	0.104	1220	UPW1E561MPD	
	680	10×20	0.14	510	0.052	0.104	1220	UPW1E681MPD	
	820	10×25	0.14	615	0.045	0.090	1440	UPW1E821MPD	
	1000	12.5×20	0.14	750	0.038	0.076	1660	UPW1E102MHD	
	1000	10×30.5	0.14	750	0.035	0.070	1815	UPW1E102MPD	
	1500	16×25	0.14	1125	0.022	0.044	2555	UPW1E152MHD	
25 (1E)	1500	12.5×25	0.14	1125	0.030	0.060	1950	UPW1E152MHD	
(12)	1800	12.5×30.5	0.14	1350	0.025	0.050	2310	UPW1E182MHD	
	1800	16×20	0.14	1350	0.029	0.058	2210	UPW1E182MHD	
	2200	16×25	0.16	1650	0.022	0.044	2555	UPW1E222MHD	
	2200	18×20	0.16	1650	0.028	0.056	2490	UPW1E222MHD	
	2200	12.5×35.5	0.16	1650	0.022	0.044	2510	UPW1E222MHD	
	2700	16×25	0.16	2025	0.022	0.044	2555	UPW1E272MHD	
	3300	16×30.5	0.18	2475	0.018	0.036	3010	UPW1E332MHD	
	3300	18×25	0.18	2475	0.020	0.040	2740	UPW1E332MHD	
	3900	16×35.5	0.18	2925	0.016	0.032	3150	UPW1E392MHD	
	3900	18×30.5	0.18	2925	0.016	0.032	3635	UPW1E392MHD	
-	4700	18×35.5	0.20	3525	0.015	0.032	3680	UPW1E472MHD	
-	6800	18×40	0.24	5100	0.013	0.030	3800	UPW1E682MHD	

### ■ Dimensions

Rated Voltage (V)	Rated Capacitance	Case Size	tan δ	Leakage Current (µA)	ma	nce(Ω) ax.	Rated Ripple (mArms)	Part Number	
(code)	(µF)	φD×L(mm)	tano	(at 20°C after 1 minute	20℃/ 100kHz	−10°C/ 100kHz	(105°C/100kHz)	T dit Number	
	100	8×11.5	0.12	105	0.117	0.234	555	UPW1V101MPD	
	150	8×11.5	0.12	157.5	0.117	0.234	555	UPW1V151MPD	
	220	10×12.5	0.12	231	0.090	0.18	760	UPW1V221MPD	
	220	8×15	0.12	231	0.085	0.17	730	UPW1V221MPD6	
	330	10×16	0.12	346.5	0.068	0.136	1050	UPW1V331MPD	
	330	8×20	0.12	346.5	0.065	0.13	995	UPW1V331MPD6	
	390	10×20	0.12	409.5	0.052	0.104	1220	UPW1V391MPD	
	470	10×20	0.12	493.5	0.052	0.104	1220	UPW1V471MPD	
	560	10×25	0.12	588	0.045	0.090	1440	UPW1V561MPD	
	680	12.5×20	0.12	714	0.038	0.076	1660	UPW1V681MHD	
	680	10×30.5	0.12	714	0.035	0.070	1815	UPW1V681MPD	
35	1000	12.5×25	0.12	1050	0.030	0.060	1950	UPW1V102MHD	
(1V)	1200	12.5×30.5	0.12	1260	0.025	0.050	2310	UPW1V122MHD	
	1200	16×20	0.12	1260	0.029	0.058	2210	UPW1V122MHD	
	1500	16×25	0.12	1575	0.022	0.044	2555	UPW1V152MHD	
	1500	12.5×35.5	0.12	1575	0.022	0.044	2510	UPW1V152MHD	
	1800	16×25	0.12	1890	0.022	0.044	2555	UPW1V182MHD	
	1800	18×20	0.12	1890	0.028	0.056	2490	UPW1V182MHD	
-	2200	16×30.5	0.12	2310	0.018	0.036	3010	UPW1V222MHD	
-	2200	18×25	0.14	2310	0.020	0.040	2740	UPW1V222MHD	
-	2700	16×35.5	0.14	2835	0.020	0.040	3150	UPW1V272MHD	
- - -	2700	18×30.5	0.14	2835	0.016	0.032	3635	UPW1V272MHD	
			+						
	3300	18×35.5	0.16	3465	0.015	0.030	3680	UPW1V332MHD	
	4700	18×40	0.18	4935	0.014	0.028	3800	UPW1V472MHD	
	82	8×11.5	0.10	123	0.234	0.468	485	UPW1H820MPD	
-	100	8×11.5	0.10	150	0.234	0.468	485	UPW1H101MPD	
-	120	8×15	0.10	180	0.155	0.31	635	UPW1H121MPD	
-	120	10×12.5	0.10	180	0.162	0.324	620	UPW1H121MPD	
-	150	10×12.5	0.10	225	0.162	0.324	615	UPW1H151MPD	
	180	8×20	0.10	270	0.12	0.24	860	UPW1H181MPD	
	180	10×16	0.10	270	0.119	0.238	850	UPW1H181MPD	
	220	10×16	0.10	330	0.119	0.238	850	UPW1H221MPD	
	220	10×20	0.10	330	0.090	0.18	1030	UPW1H221MPD	
_	270	10×25	0.10	405	0.082	0.164	1200	UPW1H271MPD	
	330	10×20	0.10	495	0.090	0.18	1030	UPW1H331MPD	
	330	10×30.5	0.10	495	0.060	0.12	1610	UPW1H331MPD	
50	390	12.5×20	0.10	585	0.063	0.126	1480	UPW1H391MHD	
(1H)	470	12.5×20	0.10	705	0.060	0.12	1500	UPW1H471MHD	
	560	12.5×25	0.10	840	0.050	0.10	1832	UPW1H561MHD	
	680	12.5×25	0.10	1020	0.050	0.10	1840	UPW1H681MHD	
	680	16×20	0.10	1020	0.048	0.096	1840	UPW1H681MHD	
	820	12.5×35.5	0.10	1230	0.034	0.068	2290	UPW1H821MHD	
	820	18×20	0.10	1230	0.042	0.084	2420	UPW1H821MHD	
	1000	16×25	0.10	1500	0.034	0.068	2235	UPW1H102MHD	
	1200	16×30.5	0.10	1800	0.028	0.056	2700	UPW1H122MHD	
	1200	18×25	0.10	1800	0.029	0.058	2610	UPW1H122MHD	
	1500	16×30.5	0.10	2250	0.028	0.056	2700	UPW1H152MHD	
	1500	16×35.5	0.10	2250	0.025	0.050	2790	UPW1H152MHD	
	1800	18×30.5	0.10	2700	0.025	0.050	3000	UPW1H182MHD	
	2200	18×35.5	0.12	3300	0.023	0.046	3100	UPW1H222MHD	

#### **■** Dimensions

Rated Voltage (V) (code)	Rated Capacitance (µF)	Case Size φD×L(mm)	tan δ	Leakage Current (µA) (at 20°C after 1 minute	•	nce(Ω) ax. —10°C/	Rated Ripple (mArms) (105°C/100kHz)	Part Number
(0000)				\ 1 minute /	100kHz	100kHz	(100 = 7100	
	47	8×11.5	0.09	88.83	0.342	0.684	405	UPW1J470MPD
	68	8×11.5	0.09	128.52	0.342	0.684	405	UPW1J680MPD
	100	10×12.5	0.09	189	0.256	0.512	540	UPW1J101MPD
	100	8×15	0.09	189	0.23	0.46	535	UPW1J101MPD6
	120	10×16	0.09	226.8	0.194	0.388	600	UPW1J121MPD
	150	10×16	0.09	283.5	0.194	0.388	660	UPW1J151MPD
	180	10×20	0.09	340.2	0.147	0.294	890	UPW1J181MPD
	180	12.5×15	0.09	340.2	0.15	0.30	1020	UPW1J181MHD6
	220	10×20	0.09	415.8	0.147	0.294	885	UPW1J221MPD
	220	10×25	0.09	415.8	0.13	0.26	1050	UPW1J221MPD6
	270	16×15	0.09	510.3	0.090	0.18	1410	UPW1J271MHD
	330	12.5×20	0.09	623.7	0.085	0.17	1290	UPW1J331MHD
	390	12.5×25	0.09	737.1	0.070	0.14	1720	UPW1J391MHD
63 (1J)	390	18×15	0.09	737.1	0.086	0.172	1690	UPW1J391MHD6
(10)	470	12.5×25	0.09	888.3	0.070	0.14	1720	UPW1J471MHD
	470	12.5×30.5	0.09	888.3	0.055	0.11	2090	UPW1J471MHD6
	470	16×20	0.09	888.3	0.059	0.118	1770	UPW1J471MHD3
	680	16×25	0.09	1285.2	0.050	0.10	2160	UPW1J681MHD
	680	12.5×35.5	0.09	1285.2	0.047	0.094	2270	UPW1J681MHD6
	680	18×20	0.09	1285.2	0.055	0.11	2290	UPW1J681MHD3
	820	16×30.5	0.09	1549.8	0.043	0.086	2670	UPW1J821MHD
	820	18×25	0.09	1549.8	0.043	0.086	2590	UPW1J821MHD6
	1000	16×30.5	0.09	1890	0.043	0.086	2770	UPW1J102MHD
	1000	16×35.5	0.09	1890	0.036	0.072	2770	UPW1J102MHD6
	1200	18×30.5	0.09	2268	0.032	0.064	2950	UPW1J122MHD
	1500	18×35.5	0.09	2835	0.030	0.060	3100	UPW1J152MHD
	2200	18×40	0.11	4158	0.028	0.056	3200	UPW1J222MHD
	15	8×11.5	0.08	45	0.83	1.66	180	UPW2A150MPD
	22	8×11.5	0.08	66	0.68	1.36	230	UPW2A220MPD
	33	10×12.5	0.08	99	0.46	0.92	320	UPW2A330MPD
	33	8×15	0.08	99	0.45	0.90	360	UPW2A330MPD6
	47	10×16	0.08	141	0.37	0.74	420	UPW2A470MPD
	47	8×20	0.08	141	0.37	0.74	420	UPW2A470MPD6
	68	10×20	0.08	204	0.30	0.60	490	UPW2A680MPD
	82	10×25	0.08	246	0.25	0.50	540	UPW2A820MPD
	100	12.5×20	0.08	300	0.18	0.36	580	UPW2A101MHD
100	150	12.5×25	0.08	450	0.13	0.26	710	UPW2A151MHD
(2A)	180	12.5×30.5	0.08	540	0.12	0.24	790	UPW2A181MHD
	180	16×20	0.08	540	0.13	0.26	750	UPW2A181MHD6
	220	16×25	0.08	660	0.10	0.20	890	UPW2A221MHD
	220	18×20	0.08	660	0.11	0.22	850	UPW2A221MHD6
	330	16×25	0.08	990	0.090	0.18	1080	UPW2A331MHD
	390	18×25	0.08	1170	0.083	0.166	1260	UPW2A391MHD
	470	16×30.5	0.08	1410	0.076	0.152	1310	UPW2A471MHD
	560	18×30.5	0.08	1680	0.068	0.136	1370	UPW2A561MHD
	680	16×35.5	0.08	2040	0.064	0.128	1410	UPW2A681MHD
	1000	18×40	0.08	3000	0.047	0.094	1520	UPW2A102MHD

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