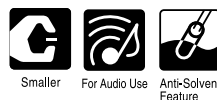
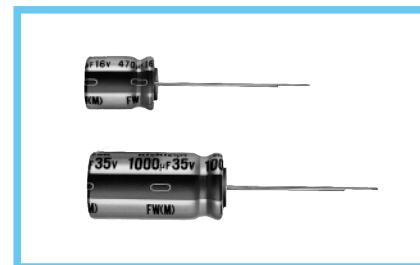
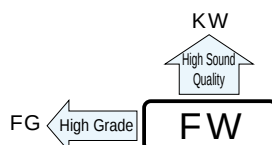


FW series Standard, For Audio Equipment



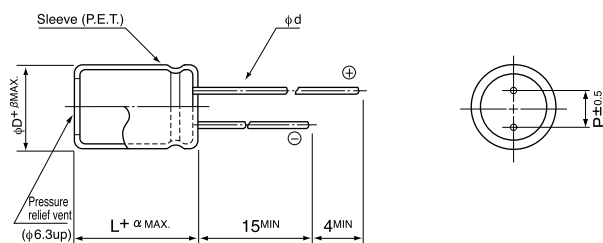
- Adapted to the RoHS directive (2002/95/EC).



Specifications

Item	Performance Characteristics																											
Category Temperature Range	−40 ~ +85°C																											
Rated Voltage Range	6.3 ~ 100V																											
Rated Capacitance Range	0.1 ~ 33000μF																											
Capacitance Tolerance	±20% at 120Hz, 20°C																											
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03 CV or 4 (μA) , whichever is greater. After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μA) , whichever is greater.																											
tan δ	<table><tr><td>Rated voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>tan δ (MAX.)</td><td>0.28</td><td>0.24</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td></tr></table>									Rated voltage (V)	6.3	10	16	25	35	50	63	100	tan δ (MAX.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	Measurement frequency : 120Hz, Temperature : 20°C
	Rated voltage (V)	6.3	10	16	25	35	50	63	100																			
	tan δ (MAX.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08																			
For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.																												
Stability at Low Temperature	Measurement frequency : 120Hz																											
	Rated voltage (V)		6.3	10	16	25	35	50	63	100																		
	Impedance ratio ZT / Z20 (MAX.)	Z−25°C / Z+20°C	5	4	3	2	2	2	2	2																		
		Z−40°C / Z+20°C	12	10	8	5	4	3	3	3																		
Endurance	After 2000 hours' application of voltage at 85°C, capacitors meet the characteristic requirements listed at right.				<table><tr><td>Capacitance change</td><td colspan="5">Within ±20% of initial value</td></tr><tr><td>tan δ</td><td colspan="5">200% or less of initial specified value</td></tr><tr><td>Leakage current</td><td colspan="5">Initial specified value or less</td></tr></table>						Capacitance change	Within ±20% of initial value					tan δ	200% or less of initial specified value					Leakage current	Initial specified value or less				
					Capacitance change	Within ±20% of initial value																						
					tan δ	200% or less of initial specified value																						
Leakage current	Initial specified value or less																											
Shelf Life	After storing the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.																											
Marking	Printed with black color letter on Gold sleeve.																											

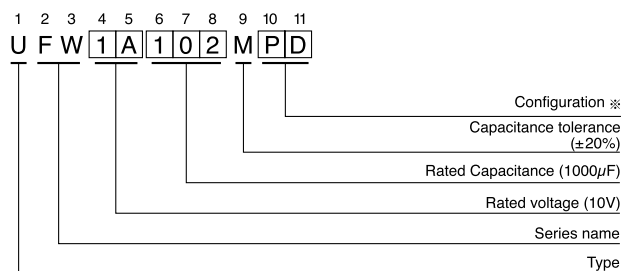
Radial Lead Type



	(mm)									
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	10	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

α	(φD < 20) 1.5
	(φD ≥ 20) 2.0

Type numbering system (Example : 10V 1000µF)



※ Configuration

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

- Please refer to page 21 about the end seal configuration.

Please refer to page 21, 22, 23 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

• Dimension table in next page.

■ Dimensions

Cap.(μF)	Code	V		6.3		10		16		25		35		50		63		100	
		0J		1A		1C		1E		1V		1H		1J		2A			
0.1	0R1													5×11	1.1			5×11	2.1
0.22	R22													5×11	2.4			5×11	4.7
0.33	R33													5×11	3.5			5×11	7.0
0.47	R47													5×11	5.0			5×11	10
1	010													5×11	10			5×11	21
2.2	2R2													5×11	23			5×11	30
3.3	3R3													5×11	35			5×11	40
4.7	4R7													5×11	40			5×11	45
10	100													5×11	65	5×11	70	6.3×11	75
22	220													5×11	95	5×11	100	6.3×11	120
33	330											5×11	105	5×11	120	6.3×11	140	8×11.5	160
47	470							5×11	115	5×11	120	6.3×11	150	6.3×11	165	10×12.5	210		
100	101			5×11	145	5×11	155	6.3×11	185	6.3×11	200	8×11.5	250	10×12.5	300	10×20	350		
220	221			6.3×11	230	6.3×11	250	8×11.5	320	10×12.5	370	10×12.5	410	10×16	470	12.5×25	600		
330	331	6.3×11	265	6.3×11	270	8×11.5	360	10×12.5	420	10×12.5	470	10×16	570	10×20	650	12.5×25	750		
470	471	6.3×11	310	6.3×11	330	8×11.5	420	10×12.5	530	10×16	630	12.5×20	760	12.5×20	880	16×25	1000		
1000	102	8×11.5	530	10×12.5	630	10×16	770	10×20	950	12.5×20	1100	12.5×25	1300	16×25	1300	18×40	1370		
2200	222	10×20	980	10×20	1050	12.5×20	1250	12.5×25	1550	16×25	1800	16×35.5	2090	18×35.5	2200	22×50	2400		
3300	332	10×20	1170	12.5×20	1420	12.5×25	1700	16×25	1950	16×35.5	2220	18×35.5	2360	20×40	2700	25×50	2900		
4700	472	12.5×20	1350	12.5×25	1800	16×25	2100	16×31.5	2360	18×35.5	2490	20×40	2900	22×50	3400				
6800	682	12.5×25	1600	16×25	2150	16×35.5	2500	18×35.5	2590	20×40	3000	22×50	3500	25×50	3500				
10000	103	16×25	2000	16×35.5	2500	18×35.5	2640	20×40	3000	22×50	3700	25×50	4000						
15000	153	16×35.5	2550	18×35.5	2720	20×40	3400	22×50	3800	25×50	4300								
22000	223	18×40	3200	20×40	3700	22×50	4200	25×50	4500										
33000	333	22×50	3900	22×50	4500	25×50	4800											Case size φD×L (mm)	Rated ripple

Rated Ripple (mA rms) at 85°C 120Hz

● Frequency coefficient of rated ripple current

Cap.(μF)	50Hz	120Hz	300Hz	1kHz	10kHz ~
~ 47	0.75	1.00	1.35	1.57	2.00
100 ~ 470	0.80	1.00	1.23	1.34	1.50
1000 ~ 33000	0.85	1.00	1.10	1.13	1.15