

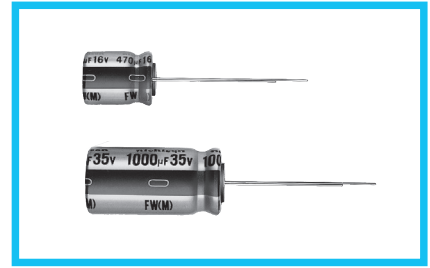
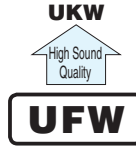
# ALUMINUM ELECTROLYTIC CAPACITORS

# UFW

Standard, For Audio Equipment



- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

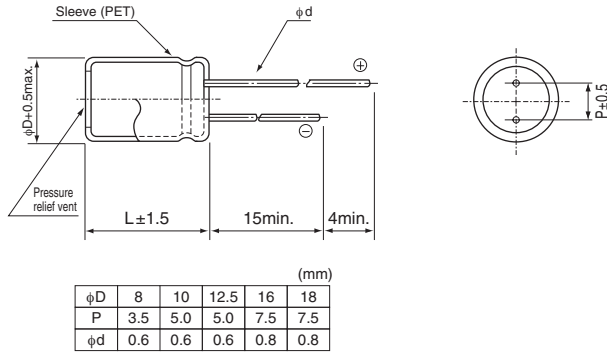


## Specifications

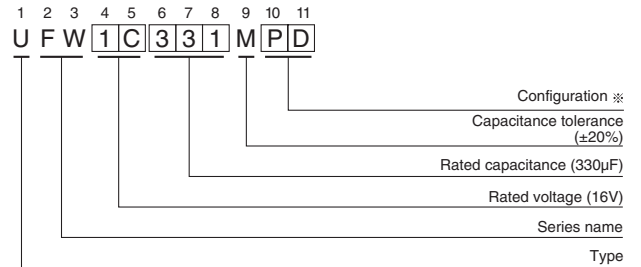
Item	Performance Characteristics																								
Category Temperature Range	-40 to +85°C																								
Rated Voltage Range	16 to 100V																								
Rated Capacitance Range	33 to 10000µF																								
Capacitance Tolerance	±20% at 120Hz, 20°C																								
Leakage Current ※	After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.03 CV (µA) . After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01 CV (µA).																								
Tangent of loss angle (tan δ)	<table border="1"> <tr> <td>Rated voltage (V)</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>0.20</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)	16	25	35	50	63	100	tan δ (max.)	0.20	0.16	0.14	0.12	0.10	0.08	Measurement frequency : 120Hz at 20°C For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF.									
Rated voltage (V)	16	25	35	50	63	100																			
tan δ (max.)	0.20	0.16	0.14	0.12	0.10	0.08																			
Stability at Low Temperature	<table border="1"> <tr> <td colspan="2">Rated voltage (V)</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td rowspan="2">Impedance ratio (max.)</td> <td>Z(-25°C) / Z(+20°C)</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C) / Z(+20°C)</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated voltage (V)		16	25	35	50	63	100	Impedance ratio (max.)	Z(-25°C) / Z(+20°C)	3	2	2	2	2	2	Z(-40°C) / Z(+20°C)	8	5	4	3	3	3	Measurement frequency : 120Hz
Rated voltage (V)		16	25	35	50	63	100																		
Impedance ratio (max.)	Z(-25°C) / Z(+20°C)	3	2	2	2	2	2																		
	Z(-40°C) / Z(+20°C)	8	5	4	3	3	3																		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C.	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table>	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																	
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Shelf Life	After storing the capacitors under no load at 85°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 black color letter on Gold sleeve.																								

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

## Radial Lead Type



## Type numbering system (Example : 16V 330µF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
8 -10	PD
12.5 to 18	HD

- 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
33 to 47	0.75	1.00	1.35	1.57	2.00
100 to 470	0.80	1.00	1.23	1.34	1.50
1000 to 10000	0.85	1.00	1.10	1.13	1.15

● Dimension table in next page.

UFW

## ■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance ( $\mu$ F)	Case Size $\phi$ D×L (mm)	tan $\delta$	Leakage Current ( $\mu$ A)		Rated Ripple (mArms) (85°C/120Hz)	Part Number
				at 20°C after 1 minute	at 20°C after 2 minutes		
16 (1C)	330	8×11.5	0.20	158.4	52.8	360	UFW1C331MPD
	470	8×11.5	0.20	225.6	75.2	420	UFW1C471MPD
	1000	10×16	0.20	480	160	770	UFW1C102MPD
	2200	12.5×20	0.22	1056	352	1250	UFW1C222MHD
	3300	12.5×25	0.24	1584	528	1700	UFW1C332MHD
	4700	16×25	0.26	2256	752	2100	UFW1C472MHD
	6800	16×35.5	0.30	3264	1088	2500	UFW1C682MHD
	10000	18×35.5	0.38	4800	1600	2640	UFW1C103MHD
25 (1E)	220	8×11.5	0.16	165	55	320	UFW1E221MPD
	330	10×12.5	0.16	247.5	82.5	420	UFW1E331MPD
	470	10×12.5	0.16	352.5	117.5	530	UFW1E471MPD
	1000	10×20	0.16	750	250	950	UFW1E102MPD
	2200	12.5×25	0.18	1650	550	1550	UFW1E222MHD
	3300	16×25	0.20	2475	825	1950	UFW1E332MHD
	4700	16×30.5	0.22	3525	1175	2360	UFW1E472MHD
	6800	18×35.5	0.26	5100	1700	2590	UFW1E682MHD
35 (1V)	220	10×12.5	0.14	231	77	370	UFW1V221MPD
	330	10×12.5	0.14	346.5	115.5	470	UFW1V331MPD
	470	10×16	0.14	493.5	164.5	630	UFW1V471MPD
	1000	12.5×20	0.14	1050	350	1100	UFW1V102MHD
	2200	16×25	0.16	2310	770	1800	UFW1V222MHD
	3300	16×35.5	0.18	3465	1155	2220	UFW1V332MHD
	4700	18×35.5	0.20	4935	1645	2490	UFW1V472MHD
50 (1H)	100	8×11.5	0.12	150	50	250	UFW1H101MPD
	220	10×12.5	0.12	330	110	410	UFW1H221MPD
	330	10×16	0.12	495	165	570	UFW1H331MPD
	470	12.5×20	0.12	705	235	760	UFW1H471MHD
	1000	12.5×25	0.12	1500	500	1300	UFW1H102MHD
	2200	16×35.5	0.14	3300	1100	2090	UFW1H222MHD
	3300	18×35.5	0.16	4950	1650	2360	UFW1H332MHD
63 (1J)	100	10×12.5	0.10	189	63	300	UFW1J101MPD
	220	10×16	0.10	415.8	138.6	470	UFW1J221MPD
	330	10×20	0.10	623.7	207.9	650	UFW1J331MPD
	470	12.5×20	0.10	888.3	296.1	880	UFW1J471MHD
	1000	16×25	0.10	1890	630	1300	UFW1J102MHD
	2200	18×35.5	0.12	4158	1386	2200	UFW1J222MHD
100 (2A)	33	8×11.5	0.08	99	33	160	UFW2A330MPD
	47	10×12.5	0.08	141	47	210	UFW2A470MPD
	100	10×20	0.08	300	100	350	UFW2A101MPD
	220	12.5×25	0.08	660	220	600	UFW2A221MHD
	330	12.5×25	0.08	990	330	750	UFW2A331MHD
	470	16×25	0.08	1410	470	1000	UFW2A471MHD
	1000	18×40	0.08	3000	1000	1370	UFW2A102MHD

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.