

# ALUMINUM ELECTROLYTIC CAPACITORS



**FG** series High Grade Standard Type, For Audio Equipment



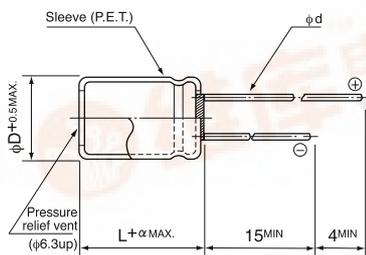
- "Fine Gold" MUSE acoustic series suited for high grade audio equipment, using state of the art etching techniques.
- Rich sound in the bass register and clearer high end, most suited for AV equipment like DVD, MD.
- Adapted to the RoHS directive (2002/95/EC).



## Specifications

Item	Performance Characteristics																															
Category Temperature Range	-40 ~ +85°C																															
Rated Voltage Range	6.3 ~ 100V																															
Rated Capacitance Range	0.1 ~ 10000µF																															
Capacitance Tolerance	±20% at 120Hz, 20°C																															
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.01CV or 3 (µA), whichever is greater.																															
tan δ	Measurement frequency : 120Hz, Temperature : 20°C																															
	<table border="1"> <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>80</td> <td>100</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.09</td> <td>0.08</td> </tr> </table> <p>For capacitance of more than 1000µF add 0.02 for every increase of 1000µF.</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	tan δ (MAX.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08											
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Stability at Low Temperature	Measurement frequency : 120Hz																															
	<table border="1"> <tr> <td colspan="2">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>80</td> <td>100</td> </tr> <tr> <td rowspan="2">Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</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>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated voltage (V)		6.3	10	16	25	35	50	63	80	100	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	2	Z-40°C / Z+20°C	8	6	4	4	3	3	3	3
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	Z-40°C / Z+20°C	8	6	4	4	3	3	3	3	3																						
Endurance	After 1000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right.																															
	Capacitance change	Within ±20% of the initial measurement for units of not more than 16V or φ6.3																														
	tan δ	150% or less of initial specified value																														
Shelf Life	Leakage current	Initial specified value or less																														
	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

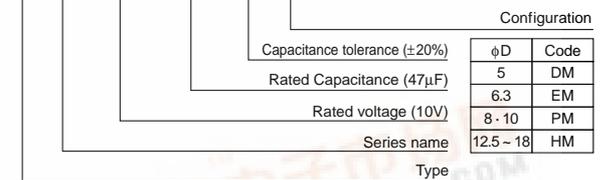


	(mm)						
φD	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.6	0.6	0.6	0.6	0.8	0.8	0.8

α	(L < 20)	1.5
	(L ≥ 20)	2.0

## Type numbering system (Example : 10V 47µF)

1 2 3 4 5 6 7 8 9 10 11  
**U F G 1 A 4 7 0 M D M**



Configuration	
φD	Code
5	DM
6.3	EM
8 - 10	PM
12.5 - 18	HM

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



# ALUMINUM ELECTROLYTIC CAPACITORS



FG series

## ■Dimensions

Cap.(μF)	V Code	6.3		10		16		25		35		50	
		0J		1A		1C		1E		1V		1H	
0.1	0R1											5×11	1.1
0.22	R22											5×11	2.4
0.33	R33											5×11	3.6
0.47	R47											5×11	5.0
1	010											5×11	9.0
2.2	2R2											5×11	18
3.3	3R3											5×11	22
4.7	4R7											5×11	27
10	100											5×11	39
22	220							5×11	50	6.3×11	60	6.3×11	65
33	330					5×11	57	6.3×11	70	6.3×11	75	8×11.5	93
47	470			5×11	60	6.3×11	74	6.3×11	85	8×11.5	101	8×11.5	111
100	101			6.3×11	99	8×11.5	128	8×11.5	140	10×12.5	176	10×16	215
220	221			8×11.5	170	10×12.5	226	10×16	260	10×20	320	12.5×20	390
330	331			10×12.5	247	10×16	309	10×20	351	12.5×20	446	12.5×20	488
470	471	10×12.5	270	10×16	330	10×20	406	12.5×20	476	12.5×25	590	16×25	650
1000	102	10×20	485	12.5×20	601	12.5×25	723	16×25	854	16×25	1060	16×31.5	1143
2200	222	12.5×25	867	16×25	1047	16×25	1290	16×35.5	1570	18×35.5	1840		
3300	332	16×25	1135	16×31.5	1520	16×35.5	1720	18×40	1794				
4700	472	16×31.5	1431	16×35.5	1840	18×35.5	2140						
6800	682	18×35.5	1810	18×40	2049								
10000	103	18×40	2100										

Cap.(μF)	V Code	6.3		80		100	
		1J		1K		2A	
0.1	0R1					5×11	2.3
0.22	R22					5×11	5.5
0.33	R33					5×11	8.0
0.47	R47					5×11	10
1	010					5×11	15
2.2	2R2					5×11	22
3.3	3R3					5×11	27
4.7	4R7					5×11	36
10	100	6.3×11	50	6.3×11	55	8×11.5	65
22	220	8×11.5	85	8×11.5	100	10×12.5	110
33	330	8×11.5	105	10×12.5	130	10×16	150
47	470	10×12.5	140	10×16	170	10×20	190
100	101	10×20	255	12.5×20	270	12.5×20	300
220	221	12.5×20	420	12.5×25	490	16×25	549
330	331	12.5×25	541	16×31.5	650	16×31.5	734
470	471	16×25	840	16×35.5	920	18×35.5	980
1000	102	18×35.5	1400				

Rated Ripple (mA<sub>rms</sub>) at 85°C 120Hz

## ●Frequency coefficient of rated ripple current

Cap.(μF)	Frequency	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 ~ 10000		0.85	1.00	1.10	1.13	1.15