

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS



## JM Chip type, Long Life Series

- Long Life Compared with JC series
- Designed for surface mounting on high density PC board
- Applicable to automatic insertion machine using carrier tape
- Complied to the RoHS directive



Solvent Proof  
WV ≤ 100V



Item	Characteristics																												
Operating temperature range	-40 ~ +105°C																												
Leakage current max.	WV ≤ 100 I = 0.01CV or 3μA whichever is greater (after 2 minutes) WV ≥ 160 I = 0.04CV + 100μA(after 1 minutes)																												
Capacitance tolerance	±20% at 120Hz, 20°C																												
Dissipation factor max. (at 120Hz, 20°C)	<table border="1"> <tr> <td>WV</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> <td>160</td> <td>200</td> <td>250</td> <td>400</td> <td>450</td> </tr> <tr> <td>tanδ</td> <td>0.32</td> <td>0.28</td> <td>0.21</td> <td>0.21</td> <td>0.18</td> <td>0.18</td> <td>0.12</td> <td>0.12</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> </tr> </table>	WV	6.3	10	16	25	35	50	63	100	160	200	250	400	450	tanδ	0.32	0.28	0.21	0.21	0.18	0.18	0.12	0.12	0.15	0.15	0.15	0.20	0.20
WV	6.3	10	16	25	35	50	63	100	160	200	250	400	450																
tanδ	0.32	0.28	0.21	0.21	0.18	0.18	0.12	0.12	0.15	0.15	0.15	0.20	0.20																
Low temperature characteristics (Impedance ratio at 120Hz)	<table border="1"> <tr> <td>WV</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25 ~ 50</td> <td>63 ~ 100</td> <td>160 ~ 250</td> <td>400 ~ 450</td> </tr> <tr> <td>Z-25°C/Z+20°C</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>4</td> <td>6</td> <td>10</td> </tr> </table>	WV	6.3	10	16	25 ~ 50	63 ~ 100	160 ~ 250	400 ~ 450	Z-25°C/Z+20°C	3	3	3	3	3	3	6	Z-40°C/Z+20°C	8	5	4	3	4	6	10				
WV	6.3	10	16	25 ~ 50	63 ~ 100	160 ~ 250	400 ~ 450																						
Z-25°C/Z+20°C	3	3	3	3	3	3	6																						
Z-40°C/Z+20°C	8	5	4	3	4	6	10																						
Load life (after application of the rated voltage for 3000 hours at 105°C)	<table border="1"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>tanδ</td> <td>Less than 300% of specified value</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within ±30% of initial value	tanδ	Less than 300% of specified value																						
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Shelf life (at 105°C)	After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C IEC 60384 - 4																												
Resistance to soldering heat	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them at 250°C for 10 seconds. <table border="1"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within ±10% of initial value</td> </tr> <tr> <td>tanδ</td> <td>Less than specified value</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within ±10% of initial value	tanδ	Less than specified value																						
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### ● DRAWING -Series code of JM is "Q"

Unit : mm

CHIP TYPES

(Ø4, Ø5)

Capacitance Series Code  
Lot No. 47 6Q  
Voltage mark for 6.3V is '6'  
Voltage

Plastic platform  
0.3 max.  
ØD ± 0.5  
5.3 ± 0.2  
C ± 0.2  
0.4 max.  
B ± 0.2  
E ± 0.2  
W ± 0.2  
R  
Positive  
Negative

ØD × L	W	A	B	C	E	R
4 × 5.3	4.8		4.3	4.3	1.0	0.5~0.8
5 × 5.3	5.8		5.3	5.3	1.4	0.5~0.8
6.3 × 5.3		2.4	6.6	6.6	2.2	0.5~0.8
6.3 × 5.8		2.4	6.6	6.6	2.2	0.5~0.8
6.3 × 7.7		2.4	6.6	6.6	2.2	0.5~0.8
8 × 6.2		3.3	8.3	8.3	2.3	0.5~0.8
8 × 10		2.9	8.3	8.3	3.1	0.8~1.1
10 × 10		3.2	10.3	10.3	4.5	0.8~1.1
12.5 × 13.5		4.6	12.8	12.8	4.5	1.3~1.6

(Ø6.3, Ø8 × 6.2)

Capacitance Series Code  
Lot No. 22 50Q  
Voltage mark for 6.3V is '6'  
Voltage

Plastic platform  
0.3 max.  
ØD ± 0.5  
L ± 0.3  
Ø6.3 × 7.7 : L ± 0.4  
Ø8 × 6.2 : L ± 0.4  
C ± 0.2  
0.5 max.  
B ± 0.2  
E ± 0.2  
A ± 0.2  
R  
Positive  
Negative

(Ø12.5)

Voltage  
Capacitance  
Lot No. Series Code

Plastic platform  
0.3 max.  
ØD ± 0.5  
L ± 0.5  
C ± 0.2  
0.5 max.  
B ± 0.2  
E ± 0.2  
A ± 0.2  
R  
Positive  
Negative  
Safety vent

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

**JM** series

## ● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

$\mu\text{F}$ \diagdown WV	6.3		10		16		25		35	
10	4×5.3	10	4×5.3	15	4×5.3	19	5×5.3	24	6.3×5.3	26
22	4×5.3	25	5×5.3	30	5×5.3	33	6.3×5.3	38	6.3×5.8	42
33	5×5.3	35	5×5.3	38	6.3×5.3	42	6.3×5.8	48	8×6.2	76
47	5×5.3	42	6.3×5.3	52	6.3×5.8	60	8×6.2	79	8×10	124
100	6.3×5.8	60	6.3×5.8	60	8×10	148	8×10	181	10×10	310
220	8×10	161	8×10	173	10×10	330	10×10	351	10×10	480
330	8×10	288	10×10	318	10×10	441	10×10	372	12.5×13.5	500
470	10×10	340	10×10	351	10×10	489	10×10	450	12.5×13.5	600
680	10×10	408	10×10	392	12.5×13.5	500	12.5×13.5	500		
1000	10×10	495	10×10	550	12.5×13.5	600				
1500	10×10	560	12.5×13.5	650						
2200	12.5×13.5	730								

$\mu\text{F}$ \diagdown WV	50		63		100	
10	6.3×5.8	30	8×6.2	32		
22	8×6.2	67	8×10	60	8×10	90
33	8×10	133	8×10	110	10×10	120
47	10×10	180	10×10	130	12.5×13.5	250
68	10×10	200	10×10	160	12.5×13.5	300
100	10×10	310	12.5×13.5	270		
220	12.5×13.5	480				

$\mu\text{F}$ \diagdown WV	160		200		250		400		450	
2.2							8×10	27	10×10	29
3.3					10×10	30	12.5×13.5	30	12.5×13.5	40
4.7			10×10	45	12.5×13.5	65	12.5×13.5	40	12.5×13.5	57
6.8									12.5×13.5	57
10	10×10	45	12.5×13.5	75					12.5×13.5	57
22	12.5×13.5	85	12.5×13.5	85						
33	12.5×13.5	95								

Ripple current (mA rms) at 105°C, 120Hz  
 Case size  $\varnothing D \times L$  (mm)

## ● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz $\leq$
Coefficient	0.70	1.00	1.17	1.36	1.50