



# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

## EMA Series

• 105°C 2,000Hrs assured.

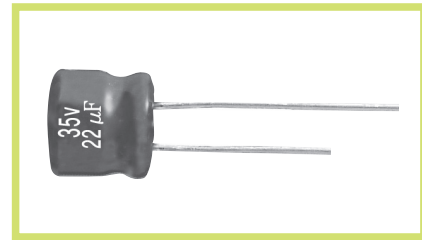
- Height 5mm.
- Wide Temperature range.
- Long Life.
- For CAR-Audio, Tuner.
- RoHS compliant.
- Halogen-free capacitors are also available.

Solvent-proof

ESA (KRE)

→ Long Life

EMA



### SPECIFICATIONS

Item	Characteristics																		
Rated Voltage Range	4 ~ 50 V <sub>DC</sub>																		
Operating Temperature Range	-55 ~ +105°C																		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																		
Leakage Current	I = 0.01CV(µA) or 3µA, whichever is greater. Where, I:Max. Leakage current(µA), C:Nominal capacitance(µF), V:Rated voltage(V <sub>DC</sub> ) (at 20°C, 2 minutes)																		
Dissipation Factor(Tanδ)	<table border="1"> <tr> <td>Rated Voltage(V<sub>DC</sub>)</td> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Tanδ(Max.)</td> <td>0.30</td> <td>0.27</td> <td>0.23</td> <td>0.19</td> <td>0.15</td> <td>0.13</td> <td>0.11</td> </tr> </table> (at 20°C, 120Hz)	Rated Voltage(V <sub>DC</sub> )	4	6.3	10	16	25	35	50	Tanδ(Max.)	0.30	0.27	0.23	0.19	0.15	0.13	0.11		
Rated Voltage(V <sub>DC</sub> )	4	6.3	10	16	25	35	50												
Tanδ(Max.)	0.30	0.27	0.23	0.19	0.15	0.13	0.11												
Temperature Characteristics (Max.Impedance ratio)	<table border="1"> <tr> <td>Rated Voltage(V<sub>DC</sub>)</td> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25~50</td> </tr> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>6</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>12</td> <td>9</td> <td>7</td> <td>5</td> <td>3</td> </tr> </table> (at 120Hz)	Rated Voltage(V <sub>DC</sub> )	4	6.3	10	16	25~50	Z(-25°C)/Z(20°C)	6	3	3	2	2	Z(-40°C)/Z(20°C)	12	9	7	5	3
Rated Voltage(V <sub>DC</sub> )	4	6.3	10	16	25~50														
Z(-25°C)/Z(20°C)	6	3	3	2	2														
Z(-40°C)/Z(20°C)	12	9	7	5	3														
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C. Capacitance change ≤ ±25% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ The initial specified value																		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30minutes, at least 24hours and not more than 48 hours before the measurements. Capacitance change ≤ ±25% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ The initial specified value																		
Others	Satisfied characteristics KS C IEC 60384-4																		

### RATINGS OF EMA Series

V <sub>DC</sub> / µF	4	6.3	10	16	25	35	50
1							4X5 8
2.2							4X5 11
3.3							4X5 14
4.7						4X5 15	5X5 19
6.8					4X5 16	5X5 20	6.3X5 24
10				4X5 17	5X5 23	5X5 25	6.3X5 29
15			4X5 20	5X5 25	6.3X5 30	6.3X5 33	6.3X5 36
22	4X5 21	4X5 21	5X5 27	5X5 30	6.3X5 37	6.3X5 40	8X5 49
33	4X5 29	5X5 30	5X5 34	6.3X5 40	6.3X5 45	8X5 55	8X5 60
47	4X5 36	5X5 36	6.3X5 43	6.3X5 48	8X5 60	8X5 66	
68	5X5 45	6.3X5 46	6.3X5 52	8X5 66	8X5 73		
100	5X5 55	6.3X5 56	8X5 71	8X5 80			
150	6.3X5 73	8X5 77	8X5 87				
220	8X5 105	8X5 94					

↑ Rated Ripple Current (mA rms/105°C, 120Hz)  
↑ Case Size ØD × L (mm)

### DIMENSIONS OF EMA Series

Unit(mm)

