



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

GSA Series

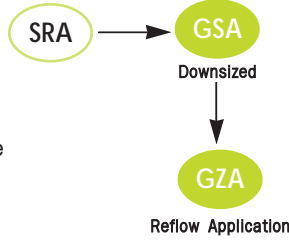
- Non-solvent proof.
- Height 7mm.
- For CAR-Audio, Tuner

- 85°C 2,000Hrs assured.
- RoHS compliant.
- Halogen-free capacitors are also available.

GZA Series

- Solvent proof.
- Height 7mm.
- For CAR-Audio, Tuner

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- RoHS compliant.
- Halogen-free capacitors are also available.



SPECIFICATIONS

Item	Characteristics																					
Rated Voltage Range	6.3 ~ 63 V _{DC}																					
Operating Temperature Range	-40 ~ +85°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 _{DC}) (at 20°C, 2 minutes)																					
Dissipation Factor(Tanδ)	<table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td>Tanδ(Max.)</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.11</td> <td>0.08</td> </tr> </tbody> </table> ※ 6.3 VB 220(0.27) , 16 VB 100(0.19) (at 20°C, 120Hz)	Rated Voltage(V _{DC})	6.3	10	16	25	35	50	63	Tanδ(Max.)	0.24	0.20	0.16	0.14	0.12	0.11	0.08					
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Temperature Characteristics (Max. Impedance ratio)	<table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50~63</th> </tr> </thead> <tbody> <tr> <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> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>4</td> </tr> </tbody> </table> (at 120Hz)	Rated Voltage(V _{DC})	6.3	10	16	25	35	50~63	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	Z(-40°C)/Z(+20°C)	8	6	4	3	3	4
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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 85°C. Capacitance change ≤ ±25% of the initial value (where, ±20% for GZA Series) 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 exposing them for 1,000 hours at 85°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Capacitance change ≤ ±20% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ 200% of initial specified value																					
Others	Satisfied characteristics KS C IEC 60384-4																					

DIMENSIONS OF GSA/GZA Series

Unit (mm)

Marking- GSA : BLACK SLEEVE, WHITE INK
GZA : GREEN SLEEVE, BLACK INK

ø D	4	5	6.3	8
ø d	0.45			
F	1.5	2.0	2.5	3.5
ø D'	ø D + 0.5 max.			
L'	L + 1.0 max.			

RATINGS OF GSA / GZA Series

μF \diagdown V _{DC}	6.3	10	16	25	35	50	63
0.1						4×7 1.3	4×7 1.3
0.15						4×7 2.0	4×7 2.0
0.22						4×7 2.9	4×7 3.0
0.33						4×7 3.5	4×7 3.7
0.47						4×7 5.0	4×7 5.4
0.68						4×7 7.1	4×7 7.6
1						4×7 10	4×7 11
1.5						4×7 12	4×7 13
2.2						4×7 15	4×7 17
3.3					4×7 17	4×7 18	4×7 20
4.7				4×7 19	4×7 20	4×7 22	4×7 25
6.8				4×7 20	4×7 23	5×7 25	5×7 28
10			4×7 25	4×7 26	4×7 27	5×7 31	6.3×7 38
15			4×7 28	4×7 30	5×7 36	6.3×7 48	6.3×7 51
22	4×7 31	4×7 32	4×7 34	5×7 41	5×7 44	6.3×7 58	6.3×7 62
33	4×7 35	4×7 38	5×7 45	5×7 50	6.3×7 64	6.3×7 68	8×7 72
47	4×7 42	5×7 50	5×7 55	6.3×7 65	6.3×7 70	8×7 84	
68	4×7 56	5×7 60	6.3×7 83	6.3×7 85	8×7 91		
100	5×7 68	6.3×7 80	6.3×7 95	6.3×7 101			
150	6.3×7 90	6.3×7 95	8×7 199	8×7 127			
220	6.3×7 120	6.3×7 122	8×7 140				
330	6.3×7 141	8×7 152	← Case Size $\phi D \times L$ (mm)				
			← Rated Ripple Current (mA rms/85°C, 120Hz)				
470	8×7 168						

RECOMMENDED REFLOW SOLDERING CONDITIONS(For GZA Series)

TEMPERATURE PROFILE

Time of Preheat temp. (from 150°C to 200°C)	Time to be Maintained Above 217°C	Time to be Maintained Above 230°C	Peak Temp.	Reflow Cycle
60 ~ 100 Sec	60 ~ 70 Sec	20 ~ 30 Sec	250 (10 Sec ↓)	1 TIME