

ALUMINUM ELECTROLYTIC CAPACITORS



Snap-in Terminal Type, Wide Temperature Range

Series



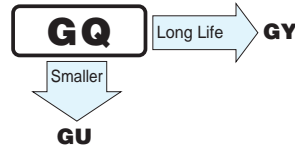
RCJ Approved



Anti-Solvent Feature
(Through 100V only)

Approved by Reliability Center for Electronic Component. Japan-Certification No.RCJ-03-24D

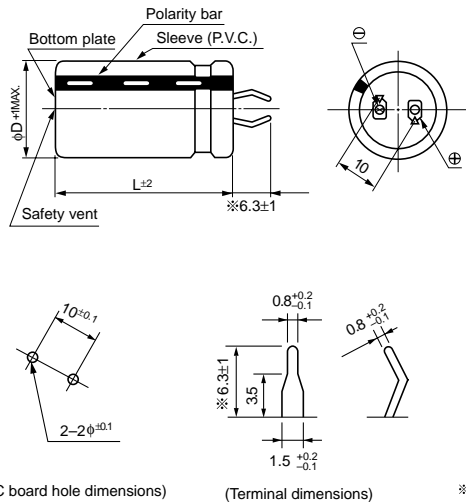
- Standard snap-in terminal series.
- Extended capacitance ranges based on the numerical values in E12 series under JIS.



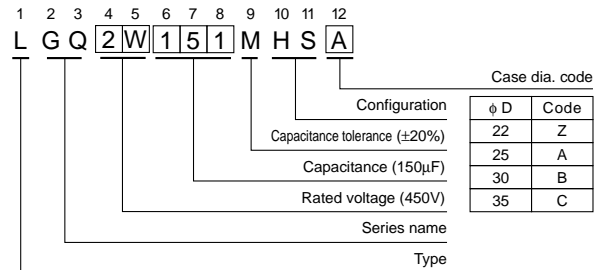
Specifications

Item	Performance Characteristics																													
Operating Temperature Range	—40 ~ + 105°C (16 ~ 250V), —25 ~ + 105°C (315 ~ 450V)																													
Voltage Range	16 ~ 450V																													
Capacitance Range	56 ~ 47000μF																													
Capacitance Tolerance	±20% at 120Hz, 20°C																													
Leakage Current	$I \leq 3\sqrt{CV}$ (μA)(After 5 minutes' application of rated voltage)[C : Capacitance(μF), V : Voltage(V)]																													
tan δ	Measurement frequency : 120Hz, Temperature : 20°C																													
	<table border="1"> <thead> <tr> <th>Rated voltage(V)</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160</th> <th>180</th> <th>200</th> <th>250</th> <th>315</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>tan δ (MAX.)</td> <td>0.50</td> <td>0.40</td> <td>0.35</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> <td>0.20</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.25</td> <td>0.25</td> <td>0.25</td> </tr> </tbody> </table>	Rated voltage(V)	16	25	35	50	63	80	100	160	180	200	250	315	400	450	tan δ (MAX.)	0.50	0.40	0.35	0.30	0.25	0.20	0.20	0.15	0.15	0.15	0.15	0.25	0.25
Rated voltage(V)	16	25	35	50	63	80	100	160	180	200	250	315	400	450																
tan δ (MAX.)	0.50	0.40	0.35	0.30	0.25	0.20	0.20	0.15	0.15	0.15	0.15	0.25	0.25	0.25																
Stability at Low Temperature	Measurement frequency : 120Hz																													
	<table border="1"> <thead> <tr> <th>Rated voltage(V)</th> <th>16 ~ 100</th> <th>160 ~ 250</th> <th>315 ~ 450</th> </tr> </thead> <tbody> <tr> <td>Impedance ratio Z—25°C/Z + 20°C</td> <td>4</td> <td>3</td> <td>8</td> </tr> <tr> <td>ZT/Z20(MAX.) Z—40°C/Z + 20°C</td> <td>15</td> <td>12</td> <td>—</td> </tr> </tbody> </table>	Rated voltage(V)	16 ~ 100	160 ~ 250	315 ~ 450	Impedance ratio Z—25°C/Z + 20°C	4	3	8	ZT/Z20(MAX.) Z—40°C/Z + 20°C	15	12	—																	
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ZT/Z20(MAX.) Z—40°C/Z + 20°C	15	12	—																											
Load Life	After an application of DC voltage (in the range of rated DC voltage even after over-lapping the specified ripple current) for 2000 hours at 105°C, capacitors shall meet the characteristics requirements indicated at right.																													
	<table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>tan δ</td> <td>200% or less of initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Initial specified value or less</td> </tr> </tbody> </table>	Capacitance change	Within ±20% of initial value	tan δ	200% or less of initial specified value	Leakage current	Initial specified value or less																							
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Leakage current	Initial specified value or less																													
Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours they meet the requirements listed at right.																													
	<table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±15% of initial value</td> </tr> <tr> <td>tan δ</td> <td>150% or less of initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Initial specified value or less</td> </tr> </tbody> </table>	Capacitance change	Within ±15% of initial value	tan δ	150% or less of initial specified value	Leakage current	Initial specified value or less																							
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Leakage current	Initial specified value or less																													
Marking	Printed with white color letter on dark brown sleeve.																													
Applicable Standards	JIS C 5141 and JIS C 5102.																													

Drawing



Type numbering system (Example : 450V 150μF)



* Shorter terminal(4.0±0.5) is also available upon request.
Please refer page 163(GU series) for schematic of dimensions.

Frequency coefficient of allowable ripple current

Frequency(Hz)	50	60	120	1 k	10k ~
16 ~ 100V	0.88	0.90	1.00	1.15	1.15
160 ~ 250V	0.85	0.88	1.00	1.15	1.20
315 ~ 450V	0.88	0.90	1.00	1.10	1.15

Minimum order quantity : 50pcs.

Dimension table in next page.



■ Dimensions

D×L(mm)

Cap.(μF)	V(Code) Code	φD	16V(1C)				25V(1E)				35V(1V)				50V(1H)					
			22	25	30	35	22	25	30	35	22	25	30	35	22	25	30	35		
1800	182																22×25			
																	1.31			
2700	272																22×30	25×25		
																	1.70	1.70		
3300	332										22×25						22×35	25×30		
											1.43						1.98	2.00		
3900	392										22×30						22×40	25×35	30×25	
											1.65						2.25	2.28	2.22	
4700	472						22×25				22×35	25×25					22×45	25×40	30×30	
							1.55				1.89	1.78					2.56	2.61	2.58	
5600	562						22×30				22×35	25×30	30×25				22×50	25×40	30×35	
							1.76				2.02	2.04	2.12				2.89	2.81	2.95	
6800	682	22×25					22×30	25×25			22×40	25×35						25×50	30×40	35×30
		1.60					1.91	1.91			2.28	2.31						3.37	3.39	3.31
8200	822	22×30					22×35	25×30	30×25		22×50	25×40	30×30						30×45	35×35
		1.85					2.14	2.16	2.25		2.67	2.60	2.56						3.71	3.66
10000	103	22×30	25×25				22×40	25×35				25×45	30×35						30×50	35×40
		1.99	1.99				2.40	2.44				2.92	2.92						4.09	4.07
12000	123	22×35	25×30	30×25			22×45	25×40	30×30			25×50	30×40	35×30						35×45
		2.28	2.30	2.38			2.69	2.74	2.70			3.26	3.28	3.20						4.50
15000	153	22×40	25×35					25×45	30×35	35×30			30×45	35×35						
		2.64	2.68					3.15	3.13	3.22			3.74	3.69						
18000	183	22×45	25×40	30×30				25×50	30×40					35×40						
		2.98	3.04	3.00				3.54	3.54					4.16						
22000	223		25×45	30×35					30×45	35×35				35×50						
			3.40	3.39					4.24	3.96				4.92						
27000	273		25×50	30×40	35×30					35×45										
			3.81	3.83	3.74					4.75										
33000	333			30×45	35×35					35×50										
				4.30	4.24					5.39										
39000	393			30×50	35×40															
				4.74	4.72															
47000	473				35×45															
					5.27															

Cap.(μF)	V(Code) Code	φD	63V(1J)				80V(1K)				100V(2A)									
			22	25	30	35	22	25	30	35	22	25	30	35						
560	561										22×25									
											1.07									
820	821						22×25				22×30	25×25								
							1.11				1.35	1.35								
1000	102						22×30	25×25			22×35	25×30								
							1.29	1.29			1.54	1.56								
1200	122	22×25					22×30	25×25			22×40	25×35	30×25							
		1.25					1.39	1.39			1.74	1.76	1.71							
1500	152	22×30	25×25				22×35	25×30			22×45	25×40	30×30							
		1.44	1.44				1.61	1.62			1.99	2.03	2.00							
1800	182	22×30	25×25				22×40	25×35	30×25			25×45	30×35							
		1.52	1.52				1.83	1.86	1.81			2.28	2.27							
2200	222	22×35	25×30				22×45	25×35	30×30			25×50	30×40	35×30						
		1.73	1.75				2.09	2.01	2.10			2.57	2.59	2.52						
2700	272	22×40	25×35	30×25				25×45	30×35					30×45	35×35					
		1.97	1.99	1.93				2.43	2.43					2.94	2.90					
3300	332	22×50	25×40	30×30				25×50	30×40	35×30				30×50	35×40					
		2.32	2.27	2.24				2.76	2.78	2.71				3.32	3.31					
3900	392		25×45	30×35					30×45	35×35					35×45					
			2.54	2.55					3.12	3.07					3.69					
4700	472		25×50	30×40	35×30				30×50	35×40					35×50					
			2.88	2.90	2.83				3.52	3.50					4.14					
5600	562			30×45	35×35					35×45										
				3.28	3.24					3.87										
6800	682			30×50	35×40					35×50										
				3.73	3.71					4.19										
8200	822				35×45															
					4.16															
10000	103				35×50															
					4.69															

Allowable Ripple (A rms) at 105°C 120Hz



■ Dimensions

D×L(mm)

Cap.(μF)	V(Code) Code	φD	160V(2C)				180V(2Z)				200V(2D)				250V(2E)			
			22	25	30	35	22	25	30	35	22	25	30	35	22	25	30	35
150	151													22×25				
														0.65				
180	181													22×25				
														0.75				
220	221													22×30	25×25			
														0.85	0.85			
270	271	22×25				22×25				22×25				22×35	25×30	30×25		
		0.90				0.90				0.90				1.00	1.00	1.00		
330	331	22×25				22×30				22×30	25×25			22×40	25×30	30×25		
		1.00				1.05				1.05	1.05			1.10	1.10	1.10		
390	391	22×30				22×30	25×25			22×35	25×30			22×45	25×40	30×30		
		1.15				1.20	1.20			1.25	1.25			1.25	1.25	1.25		
470	471	22×35	25×25			22×35	25×30			22×40	25×30	30×25		22×50	25×40	30×35	35×25	
		1.30	1.30			1.30	1.30			1.35	1.35	1.35		1.30	1.30	1.30	1.30	
560	561	22×40	25×30			22×40	25×35	30×25		22×45	25×35	30×30			25×50	30×35	35×30	
		1.45	1.45			1.40	1.40	1.40		1.50	1.50	1.50			1.55	1.55	1.55	
680	681	22×45	25×35	30×25		22×45	25×40	30×30		22×50	25×45	30×30	35×25			30×45	35×35	
		1.65	1.65	1.65		1.65	1.65	1.65		1.70	1.70	1.70	1.70			1.80	1.80	
820	821	22×50	25×40	30×30	35×25	22×50	25×45	30×35	35×25		25×50	30×35	35×30					35×40
		1.80	1.80	1.80	1.80	1.85	1.85	1.85	1.85		1.90	1.90	1.90					1.95
1000	102		25×45	30×35	35×30		25×50	30×40	35×30			30×45	35×35					35×45
			2.00	2.00	2.00		2.05	2.05	2.05			2.15	2.15					2.30
1200	122		25×50	30×40	35×30			30×45	35×35			30×50	35×35					35×50
			2.30	2.30	2.30			2.30	2.30			2.30	2.30					2.65
1500	152			30×45	35×35			30×50	35×40				35×45					
				2.65	2.65			2.70	2.70				2.75					
1800	182			30×50	35×45				35×45				35×50					
				3.05	3.05				3.15				3.25					
2200	222				35×50				35×50									
					3.50				3.60									

Cap.(μF)	V(Code) Code	φD	315V(2F)				400V(2G)				450V(2W)						
			22	25	30	35	22	25	30	35	22	25	30	35			
56	560									22×25							
										0.41							
68	680					22×25				22×30	25×25						
						0.40				0.48	0.48						
82	820	22×25				22×30	25×25			22×35							
		0.46				0.50	0.50			0.56							
100	101	22×30				22×35	25×30			22×40	25×30	30×25					
		0.55				0.55	0.55			0.64	0.61	0.63					
120	121	22×30	25×25			22×40	25×30	30×25		22×45	25×35						
		0.60	0.60			0.60	0.60	0.60		0.72	0.71						
150	151	22×35	25×30	30×25		22×45	25×35	30×30		22×50	25×40	30×30	35×25				
		0.70	0.70	0.70		0.70	0.70	0.70		0.83	0.81	0.80	0.82				
180	181	22×40	25×30	30×25		22×50	25×40	30×30	35×25		25×45	30×35					
		0.83	0.78	0.82		0.85	0.85	0.85	0.85		0.92	0.91					
220	221	22×45	25×35	30×30			25×45	30×35	35×30		25×50	30×40	35×30				
		0.90	0.90	0.90			0.90	0.90	0.90		1.05	1.05	1.03				
270	271	22×50	25×40	30×35	35×25		25×50	30×40	35×30			30×45	35×35				
		1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.21	1.19				
330	331		25×50	30×35	35×30			30×45	35×35			30×50	35×40				
			1.25	1.25	1.25			1.25	1.25			1.38	1.38				
390	391			30×40	35×35			30×50	35×40				35×45				
				1.35	1.35			1.35	1.35				1.55				
470	471			30×50	35×40				35×45				35×50				
				1.45	1.45				1.45				1.74				
560	561				35×45				35×50								
					1.65				1.65								
680	681				35×50												
					1.90												

Allowable Ripple (A rms) at 105°C 120Hz