



Snap-in Terminal Type, Wide Temperature Range

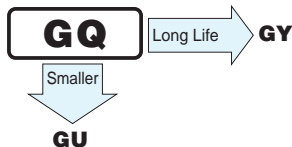
Series



RCJ Approved Anti-Solvent Feature (Through 100V only)

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

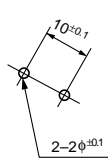
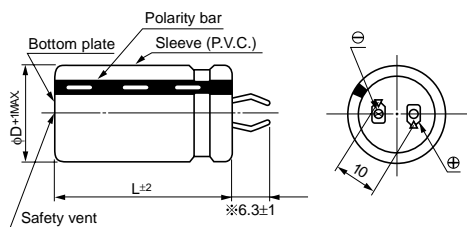
- Standard snap-in terminal series.
- Extended capacitance ranges based on the numerical values in E12 series under JIS.



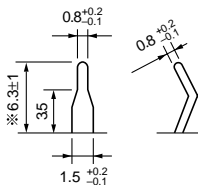
Specifications

| 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</td> <td>Z-25°C/Z + 20°C</td> <td>4</td> <td>3</td> <td>8</td> </tr> <tr> <td>ZT/Z20(MAX.)</td> <td>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 | — | | | | | | | | | | | | | | | |
| | 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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| Capacitance change | Within ±20% of initial value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tan δ | 200% or less of initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage current | Initial specified value or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | |
| | 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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| Capacitance change | Within ±20% of initial value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tan δ | 200% or less of initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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



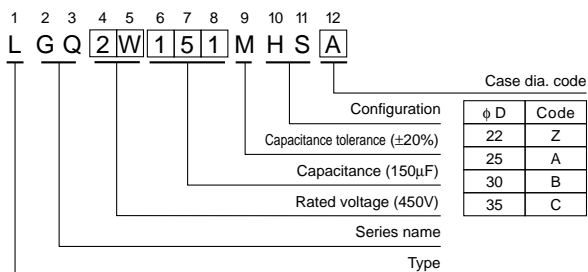
(PC board hole dimensions)



(Terminal dimensions)

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

Type numbering system (Example : 450V 150μF)



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) 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) 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

CAT.8100N



■ 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 0.90 | | | | 22×25 0.90 | | | | 22×25 0.90 | | | | | | | | 22×35 25×30 30×25 1.00 1.00 1.00 |
| 330 | 331 | 22×25 1.00 | | | | 22×30 1.05 | | | | 22×30 25×25 1.05 1.05 | | | | | | | | 22×40 25×30 30×25 1.10 1.10 1.10 |
| 390 | 391 | 22×30 1.15 | | | | 22×30 25×25 1.20 1.20 | | | | 22×35 25×30 1.25 1.25 | | | | | | | | 22×45 25×40 30×30 1.25 1.25 1.25 |
| 470 | 471 | 22×35 25×25 1.30 1.30 | | | | 22×35 25×30 1.30 1.30 | | | | 22×40 25×30 30×25 1.35 1.35 1.35 | | | | | | | | 22×50 25×40 30×35 35×25 1.30 1.30 1.30 1.30 |
| 560 | 561 | 22×40 25×30 1.45 1.45 | | | | 22×40 25×35 30×25 1.40 1.40 1.40 | | | | 22×45 25×35 30×30 1.50 1.50 1.50 | | | | | | | | 25×50 30×35 35×30 1.55 1.55 1.55 |
| 680 | 681 | 22×45 25×35 30×25 1.65 1.65 1.65 | | | | 22×45 25×40 30×30 1.65 1.65 1.65 | | | | 22×50 25×45 30×30 35×25 1.70 1.70 1.70 1.70 | | | | | | | | 30×45 35×35 1.80 1.80 |
| 820 | 821 | 22×50 25×40 30×30 35×25 1.80 1.80 1.80 1.80 | | | | 22×50 25×45 30×35 35×25 1.85 1.85 1.85 1.85 | | | | 25×50 30×35 35×30 1.90 1.90 1.90 | | | | | | | | 35×40 1.95 |
| 1000 | 102 | | 25×45 30×35 35×30 2.00 2.00 2.00 | | | | 25×50 30×40 35×30 2.05 2.05 2.05 | | | | | | | 30×45 35×35 2.15 2.15 | | | | 35×45 2.30 |
| 1200 | 122 | | 25×50 30×40 35×30 2.30 2.30 2.30 | | | | | 30×45 35×35 2.30 2.30 | | | | | | 30×50 35×35 2.30 2.30 | | | | 35×50 2.65 |
| 1500 | 152 | | | 30×45 35×35 2.65 2.65 | | | | 30×50 35×40 2.70 2.70 | | | | | | 35×45 2.75 | | | | |
| 1800 | 182 | | | 30×50 35×45 3.05 3.05 | | | | 35×45 3.15 | | | | | | 35×50 3.25 | | | | |
| 2200 | 222 | | | | 35×50 3.50 | | | 35×50 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 0.40 | | | | | | | | 22×30 25×25 0.48 0.48 | | | | |
| 82 | 820 | 22×25 0.46 | | | | 22×30 25×25 0.50 0.50 | | | | | | | | 22×35 0.56 | | | | |
| 100 | 101 | 22×30 0.55 | | | | 22×35 25×30 0.55 0.55 | | | | | | | | 22×40 25×30 30×25 0.64 0.61 0.63 | | | | |
| 120 | 121 | 22×30 25×25 0.60 0.60 | | | | 22×40 25×30 30×25 0.60 0.60 0.60 | | | | | | | | 22×45 25×35 0.72 0.71 | | | | |
| 150 | 151 | 22×35 25×30 30×25 0.70 0.70 0.70 | | | | 22×45 25×35 30×30 0.70 0.70 0.70 | | | | | | | | 22×50 25×40 30×30 35×25 0.83 0.81 0.80 0.82 | | | | |
| 180 | 181 | 22×40 25×30 30×25 0.83 0.78 0.82 | | | | 22×50 25×40 30×30 35×25 0.85 0.85 0.85 0.85 | | | | | | | | 25×45 30×35 0.92 0.91 | | | | |
| 220 | 221 | 22×45 25×35 30×30 0.90 0.90 0.90 | | | | | 25×45 30×35 35×30 0.90 0.90 0.90 | | | | | | | 25×50 30×40 35×30 1.05 1.05 1.03 | | | | |
| 270 | 271 | 22×50 25×40 30×35 35×25 1.00 1.00 1.00 1.00 | | | | 25×50 30×40 35×30 1.00 1.00 1.00 | | | | | | | | 30×45 35×35 1.21 1.19 | | | | |
| 330 | 331 | | 25×50 30×35 35×30 1.25 1.25 1.25 | | | | 30×45 35×35 1.25 1.25 | | | | | | | 30×50 35×40 1.38 1.38 | | | | |
| 390 | 391 | | | 30×40 35×35 1.35 1.35 | | | 30×50 35×40 1.35 1.35 | | | | | | | 35×45 1.55 | | | | |
| 470 | 471 | | | 30×50 35×40 1.45 1.45 | | | | 35×45 1.45 | | | | | | 35×50 1.74 | | | | |
| 560 | 561 | | | | 35×45 1.65 | | | 35×50 1.65 | | | | | | | | | | |
| 680 | 681 | | | | 35×50 1.90 | | | | | | | | | | | | | |

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