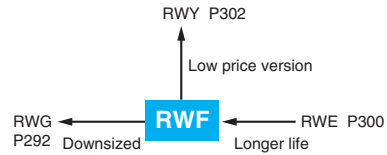


# RWF Series

- High ripple capability
- Endurance with ripple current : 5,000 hours at 85°C
- Wide range of case sizes from  $\phi 50$  to  $\phi 100$
- RoHS Compliant

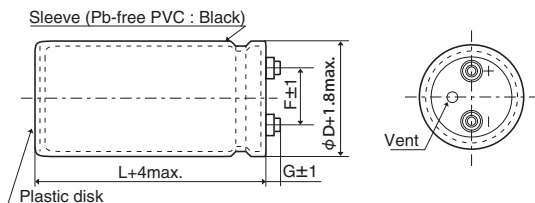


## SPECIFICATIONS

| Items                           | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                             |              |                                       |                 |                               |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------|--------------|---------------------------------------|-----------------|-------------------------------|
| Category                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                             |              |                                       |                 |                               |
| Temperature Range               | -25 to +85°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                             |              |                                       |                 |                               |
| Rated Voltage Range             | 350 to 450V <sub>dc</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                             |              |                                       |                 |                               |
| Capacitance Tolerance           | ±20% (M) (at 20°C, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                             |              |                                       |                 |                               |
| Leakage Current                 | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)                                                                                                                                                                                                                                                                                                                                                                                        |                    |                             |              |                                       |                 |                               |
| Dissipation Factor (tan δ)      | 0.25 max. (at 20°C, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |                             |              |                                       |                 |                               |
| Low Temperature Characteristics | Capacitance change $C(-25^{\circ}\text{C})/C(+20^{\circ}\text{C}) \geq 0.7$ (at 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                             |              |                                       |                 |                               |
| Insulation Resistance           | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500V <sub>dc</sub> , the insulation resistance shall not be less than 100MΩ.                                                                                                                                                                                                                                                                                    |                    |                             |              |                                       |                 |                               |
| Insulation Withstanding Voltage | When a voltage of 2,000V <sub>ac</sub> is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.                                                                                                                                                                                                                                                                                                                    |                    |                             |              |                                       |                 |                               |
| Endurance                       | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85°C.<br><table border="1"> <tr> <td>Capacitance change</td><td>≤ ±20% of the initial value</td></tr> <tr> <td>D.F. (tan δ)</td><td>≤ 200% of the initial specified value</td></tr> <tr> <td>Leakage current</td><td>≤ The initial specified value</td></tr> </table>                                       | Capacitance change | ≤ ±20% of the initial value | D.F. (tan δ) | ≤ 200% of the initial specified value | Leakage current | ≤ The initial specified value |
| Capacitance change              | ≤ ±20% of the initial value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                             |              |                                       |                 |                               |
| D.F. (tan δ)                    | ≤ 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 500 hours at 85°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br><table border="1"> <tr> <td>Capacitance change</td><td>≤ ±20% of the initial value</td></tr> <tr> <td>D.F. (tan δ)</td><td>≤ 200% of the initial specified value</td></tr> <tr> <td>Leakage current</td><td>≤ The initial specified value</td></tr> </table> | Capacitance change | ≤ ±20% of the initial value | D.F. (tan δ) | ≤ 200% of the initial specified value | Leakage current | ≤ The initial specified value |
| Capacitance change              | ≤ ±20% of the initial value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                             |              |                                       |                 |                               |
| D.F. (tan δ)                    | ≤ 200% of the initial specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                             |              |                                       |                 |                               |
| Leakage current                 | ≤ The initial specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                             |              |                                       |                 |                               |

## DIMENSIONS (Screw-Mount) [mm]

- Terminal Code : LG



$\phi 50$  &  $\phi 63.5$  : G=6  
 $\phi 76.2$  &  $\phi 89$  : G=5  
 $\phi 100$  : G=10

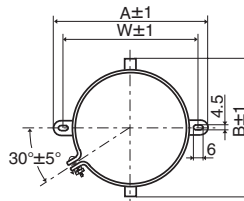
<Screw specifications>

to  $\phi 89$  Plus hexagon-headed screw : M5×0.8×10  
Maximum screw tightening torque : 3.23Nm

$\phi 100$  Cross-recessed head (phillips) screw : M8×1.25×16  
Spring washer, Washer  
Maximum screw tightening torque : 6.31Nm

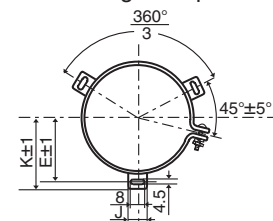
\* The screw and the mounting clamp are separately supplied and not attached to the product.

- Mounting Clamp Code : B



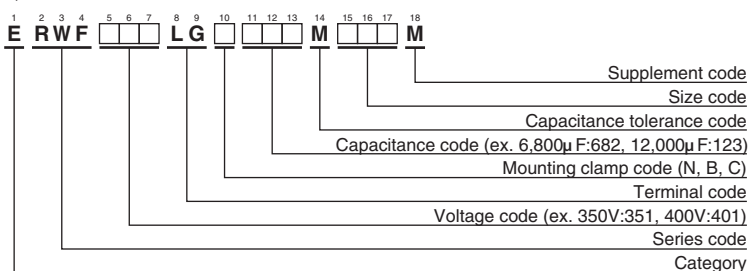
| $\phi D$ | A     | B    | W    | F    |
|----------|-------|------|------|------|
| 50       | 78.0  | 64.0 | 68.0 | 22.4 |
| 63.5     | 90.0  | 76.0 | 80.0 | 28.0 |
| 76.2     | 104.5 | 90.0 | 93.5 | 31.5 |

- Mounting Clamp Code : C



| $\phi D$ | E    | K    | F    | J    |
|----------|------|------|------|------|
| 50       | 32.5 | 37.0 | 22.4 | 14.0 |
| 63.5     | 38.1 | 43.5 | 28.0 | 14.0 |
| 76.2     | 44.5 | 50.0 | 31.5 | 14.0 |
| 89       | 50.8 | 56.5 | 31.5 | 16.0 |
| 100      | 56.5 | 63.4 | 41.5 | 18.0 |

## PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

◆STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Case size<br>φD×L(mm) | tan δ | Rated ripple<br>current<br>(Arms/<br>85°C, 120Hz) | Part No.           | WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Case size<br>φD×L(mm) | tan δ | Rated ripple<br>current<br>(Arms/<br>85°C, 120Hz) | Part No.           |
|--------------------------|-------------|-----------------------|-------|---------------------------------------------------|--------------------|--------------------------|-------------|-----------------------|-------|---------------------------------------------------|--------------------|
| 350                      | 1,200       | 50 × 60               | 0.25  | 4.90                                              | ERWF351LGC122MC60M | 400                      | 5,600       | 63.5 × 190            | 0.25  | 18.2                                              | ERWF401LGC562MDK0M |
|                          | 1,800       | 50 × 75               | 0.25  | 6.50                                              | ERWF351LGC182MC75M |                          | 5,600       | 76.2 × 130            | 0.25  | 16.9                                              | ERWF401LGC562MED0M |
|                          | 2,200       | 50 × 85               | 0.25  | 7.50                                              | ERWF351LGC222MC85M |                          | 6,800       | 76.2 × 155            | 0.25  | 20.2                                              | ERWF401LGC682MEF5M |
|                          | 2,200       | 50 × 96               | 0.25  | 7.70                                              | ERWF351LGC222MC96M |                          | 8,200       | 76.2 × 170            | 0.25  | 22.8                                              | ERWF401LGC822MEH0M |
|                          | 2,700       | 50 × 115              | 0.25  | 9.30                                              | ERWF351LGC272MCB5M |                          | 10,000      | 89 × 155              | 0.25  | 26.6                                              | ERWF401LGC103MFF5M |
|                          | 3,300       | 50 × 130              | 0.25  | 10.8                                              | ERWF351LGC332MCD0M |                          | 12,000      | 89 × 170              | 0.25  | 30.0                                              | ERWF401LGC123MFH0M |
|                          | 3,900       | 63.5 × 115            | 0.25  | 12.1                                              | ERWF351LGC392MDB5M |                          | 15,000      | 100 × 190             | 0.25  | 33.7                                              | ERWF401LGC153MGK0M |
|                          | 4,700       | 63.5 × 130            | 0.25  | 14.0                                              | ERWF351LGC472MDD0M |                          | 18,000      | 100 × 220             | 0.25  | 37.4                                              | ERWF401LGC183MGN0M |
|                          | 5,600       | 63.5 × 155            | 0.25  | 16.6                                              | ERWF351LGC562MDF5M | 450                      | 820         | 50 × 60               | 0.25  | 4.00                                              | ERWF451LGC821MC60M |
|                          | 5,600       | 76.2 × 115            | 0.25  | 16.1                                              | ERWF351LGC562MEB5M |                          | 1,000       | 50 × 75               | 0.25  | 4.80                                              | ERWF451LGC102MC75M |
|                          | 6,800       | 63.5 × 190            | 0.25  | 20.0                                              | ERWF351LGC682MDK0M |                          | 1,200       | 50 × 85               | 0.25  | 5.60                                              | ERWF451LGC122MC85M |
|                          | 6,800       | 76.2 × 130            | 0.25  | 18.6                                              | ERWF351LGC682MED0M |                          | 1,200       | 50 × 96               | 0.25  | 5.70                                              | ERWF451LGC122MC96M |
|                          | 8,200       | 76.2 × 155            | 0.25  | 22.2                                              | ERWF351LGC822MEF5M |                          | 1,500       | 50 × 96               | 0.25  | 6.30                                              | ERWF451LGC152MC96M |
|                          | 10,000      | 76.2 × 170            | 0.25  | 25.2                                              | ERWF351LGC103MEH0M |                          | 1,800       | 50 × 115              | 0.25  | 7.60                                              | ERWF451LGC182MCB5M |
|                          | 12,000      | 89 × 155              | 0.25  | 29.1                                              | ERWF351LGC123MFF5M |                          | 2,200       | 50 × 130              | 0.25  | 8.80                                              | ERWF451LGC222MCB5M |
|                          | 15,000      | 89 × 190              | 0.25  | 35.7                                              | ERWF351LGC153MFK0M |                          | 2,700       | 63.5 × 115            | 0.25  | 10.1                                              | ERWF451LGC272MDB5M |
|                          | 18,000      | 100 × 190             | 0.25  | 36.9                                              | ERWF351LGC183MGK0M |                          | 3,300       | 63.5 × 130            | 0.25  | 11.7                                              | ERWF451LGC332MDD0M |
|                          | 22,000      | 100 × 250             | 0.25  | 46.1                                              | ERWF351LGC223MGR0M |                          | 3,900       | 63.5 × 155            | 0.25  | 13.8                                              | ERWF451LGC392MDF5M |
| 400                      | 1,000       | 50 × 60               | 0.25  | 4.40                                              | ERWF401LGC102MC60M |                          | 3,900       | 76.2 × 115            | 0.25  | 13.4                                              | ERWF451LGC392MEB5M |
|                          | 1,500       | 50 × 75               | 0.25  | 5.90                                              | ERWF401LGC152MC75M |                          | 4,700       | 63.5 × 190            | 0.25  | 16.7                                              | ERWF451LGC472MDK0M |
|                          | 1,800       | 50 × 85               | 0.25  | 6.80                                              | ERWF401LGC182MC85M |                          | 4,700       | 76.2 × 130            | 0.25  | 15.5                                              | ERWF451LGC472MED0M |
|                          | 1,800       | 50 × 96               | 0.25  | 7.00                                              | ERWF401LGC182MC96M |                          | 5,600       | 76.2 × 155            | 0.25  | 18.3                                              | ERWF451LGC562MEF5M |
|                          | 2,200       | 50 × 105              | 0.25  | 8.00                                              | ERWF401LGC222MCA5M |                          | 6,800       | 76.2 × 170            | 0.25  | 20.7                                              | ERWF451LGC682MEH0M |
|                          | 2,700       | 50 × 130              | 0.25  | 9.80                                              | ERWF401LGC272MCD0M |                          | 8,200       | 89 × 155              | 0.25  | 24.1                                              | ERWF451LGC822MFF5M |
|                          | 3,300       | 63.5 × 115            | 0.25  | 11.1                                              | ERWF401LGC332MDB5M |                          | 10,000      | 89 × 170              | 0.25  | 27.8                                              | ERWF451LGC103MFH0M |
|                          | 3,900       | 63.5 × 130            | 0.25  | 12.7                                              | ERWF401LGC392MDD0M |                          | 12,000      | 100 × 190             | 0.25  | 29.3                                              | ERWF451LGC123MGK0M |
|                          | 4,700       | 63.5 × 155            | 0.25  | 15.2                                              | ERWF401LGC472MDF5M |                          | 15,000      | 100 × 250             | 0.25  | 37.0                                              | ERWF451LGC153MGR0M |
|                          | 4,700       | 76.2 × 115            | 0.25  | 14.7                                              | ERWF401LGC472MEB5M |                          |             |                       |       |                                                   |                    |

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

| Frequency (Hz) | 50  | 120 | 300 | 1k  | 3k  |
|----------------|-----|-----|-----|-----|-----|
| Coefficient    | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 |

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWF series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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