

# LLG

Snap-in Terminal Type, 85°C Smaller-Sized



- One rank smaller case sized than LLN.
- Suited for equipment down sizing.
- Compliant to the RoHS directive (2011/65/EU).

LLS  
Smaller

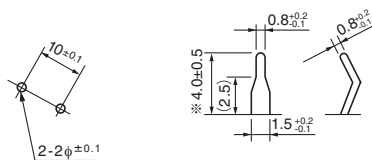
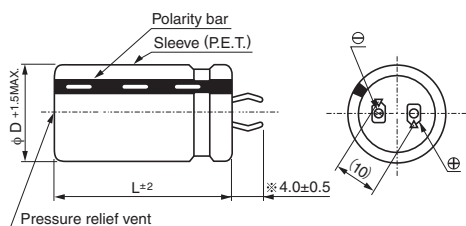
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## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                |                 |            |                                       |                                                   |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|---------------------------------------|---------------------------------------------------|
| Category Temperature Range    | − 40 to + 85°C (160 to 250V), − 25 to + 85°C (400 to 450V)                                                                                                                                                                 |                 |            |                                       |                                                   |
| Rated Voltage Range           | 160 to 450V                                                                                                                                                                                                                |                 |            |                                       |                                                   |
| Rated Capacitance Range       | 120 to 3900μF                                                                                                                                                                                                              |                 |            |                                       |                                                   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C                                                                                                                                                                                                        |                 |            |                                       |                                                   |
| Leakage Current               | I ≤ 3.√CV (μA) (After 5 minutes' application of rated voltage) [C : Rated Capacitance (μF) V : Voltage (V)]                                                                                                                |                 |            |                                       |                                                   |
| Tangent of loss angle (tan δ) | Rated voltage (V)                                                                                                                                                                                                          | 160 to 400      | 450        | Measurement frequency : 120Hz at 20°C |                                                   |
|                               | tan δ (MAX.)                                                                                                                                                                                                               | 0.15            | 0.20       |                                       |                                                   |
| Stability at Low Temperature  | Rated voltage(V)                                                                                                                                                                                                           |                 | 160 to 250 | 400・450                               | Measurement frequency : 120Hz                     |
|                               | Impedance ratio ZT/Z20 (MAX.)                                                                                                                                                                                              | Z − 25°C/Z+20°C | 4          | 8                                     |                                                   |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 2000 hours at 85°C, the peak voltage shall not exceed the rated voltage. |                 |            | Capacitance change                    | Within ±20% of the initial capacitance value      |
|                               |                                                                                                                                                                                                                            |                 |            | tan δ                                 | 200% or less than the initial specified value     |
|                               |                                                                                                                                                                                                                            |                 |            | Leakage current                       | Less than or equal to the initial specified value |
| Shelf Life                    | After storing the capacitors under no load at 85°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the characteristic requirements listed at right.         |                 |            | Capacitance change                    | Within ±20% of the initial capacitance value      |
|                               |                                                                                                                                                                                                                            |                 |            | tan δ                                 | 200% or less than the initial specified value     |
|                               |                                                                                                                                                                                                                            |                 |            | Leakage current                       | Less than or equal to the initial specified value |
| Marking                       | Printed with white color letter on black sleeve.                                                                                                                                                                           |                 |            |                                       |                                                   |

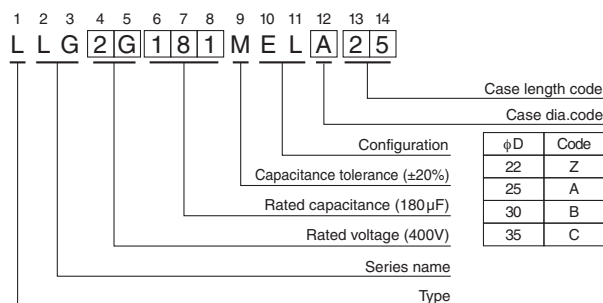
## Drawing



(PC board hole dimensions) (Terminal dimensions)

\* The other terminal is also available upon request.  
Please refer to page 322 for schematic of dimensions.

## Type numbering system ( Example : 400V 180μF )



Minimum order quantity : 50pcs.

● Dimension table in next page.

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## ■ Dimensions

| 160V (2C)          |                                  |                         |                         |                |
|--------------------|----------------------------------|-------------------------|-------------------------|----------------|
| Cap.<br>( $\mu$ F) | Size<br>$\phi$ D $\times$ L (mm) | Rated ripple<br>(mAmps) | Leakage Current<br>(mA) | Code           |
| 560                | 22 $\times$ 25                   | 2250                    | 0.89                    | LLG2C561MELZ25 |
| 680                | 22 $\times$ 30                   | 2500                    | 0.98                    | LLG2C681MELZ30 |
| 820                | 22 $\times$ 35                   | 2750                    | 1.08                    | LLG2C821MELZ35 |
|                    | 25 $\times$ 25                   | 2520                    | 1.08                    | LLG2C821MELA25 |
| 1000               | 22 $\times$ 40                   | 3000                    | 1.20                    | LLG2C102MELZ40 |
|                    | 25 $\times$ 30                   | 3000                    | 1.20                    | LLG2C102MELA30 |
| 1200               | 22 $\times$ 40                   | 3050                    | 1.31                    | LLG2C122MELZ40 |
|                    | 25 $\times$ 35                   | 3250                    | 1.31                    | LLG2C122MELA35 |
|                    | 30 $\times$ 25                   | 3050                    | 1.31                    | LLG2C122MELB25 |
| 1500               | 22 $\times$ 50                   | 3400                    | 1.46                    | LLG2C152MELZ50 |
|                    | 25 $\times$ 40                   | 3400                    | 1.46                    | LLG2C152MELA40 |
|                    | 30 $\times$ 30                   | 3400                    | 1.46                    | LLG2C152MELB30 |
|                    | 35 $\times$ 25                   | 3400                    | 1.46                    | LLG2C152MELC25 |
| 1800               | 25 $\times$ 45                   | 3800                    | 1.60                    | LLG2C182MELA45 |
|                    | 30 $\times$ 35                   | 4200                    | 1.60                    | LLG2C182MELB35 |
|                    | 35 $\times$ 30                   | 4100                    | 1.60                    | LLG2C182MELC30 |
| 2200               | 30 $\times$ 40                   | 4450                    | 1.77                    | LLG2C222MELB40 |
|                    | 35 $\times$ 35                   | 4780                    | 1.77                    | LLG2C222MELC35 |
| 2700               | 30 $\times$ 45                   | 4900                    | 1.97                    | LLG2C272MELB45 |
|                    | 35 $\times$ 40                   | 5450                    | 1.97                    | LLG2C272MELC40 |
| 3300               | 35 $\times$ 45                   | 5750                    | 2.17                    | LLG2C332MELC45 |
| 3900               | 35 $\times$ 50                   | 6000                    | 2.36                    | LLG2C392MELC50 |

| 180V (2Z)          |                                  |                         |                         |                |
|--------------------|----------------------------------|-------------------------|-------------------------|----------------|
| Cap.<br>( $\mu$ F) | Size<br>$\phi$ D $\times$ L (mm) | Rated ripple<br>(mAmps) | Leakage Current<br>(mA) | Code           |
| 560                | 22 $\times$ 25                   | 1800                    | 0.95                    | LLG2Z561MELZ25 |
| 680                | 22 $\times$ 30                   | 1900                    | 1.04                    | LLG2Z681MELZ30 |
|                    | 25 $\times$ 25                   | 2100                    | 1.04                    | LLG2Z681MELA25 |
| 820                | 22 $\times$ 35                   | 2450                    | 1.15                    | LLG2Z821MELZ35 |
|                    | 25 $\times$ 30                   | 2400                    | 1.15                    | LLG2Z821MELA30 |
| 1000               | 22 $\times$ 40                   | 2800                    | 1.27                    | LLG2Z102MELZ40 |
|                    | 25 $\times$ 35                   | 2700                    | 1.27                    | LLG2Z102MELA35 |
|                    | 30 $\times$ 25                   | 2650                    | 1.27                    | LLG2Z102MELB25 |
| 1200               | 22 $\times$ 45                   | 2900                    | 1.39                    | LLG2Z122MELZ45 |
|                    | 25 $\times$ 40                   | 3000                    | 1.39                    | LLG2Z122MELA40 |
|                    | 30 $\times$ 30                   | 3000                    | 1.39                    | LLG2Z122MELB30 |
|                    | 35 $\times$ 25                   | 3000                    | 1.39                    | LLG2Z122MELC25 |
| 1500               | 25 $\times$ 45                   | 3300                    | 1.55                    | LLG2Z152MELA45 |
|                    | 30 $\times$ 35                   | 3300                    | 1.55                    | LLG2Z152MELB35 |
|                    | 35 $\times$ 30                   | 3300                    | 1.55                    | LLG2Z152MELC30 |
| 1800               | 25 $\times$ 50                   | 3600                    | 1.70                    | LLG2Z182MELA50 |
|                    | 30 $\times$ 40                   | 3600                    | 1.70                    | LLG2Z182MELB40 |
|                    | 35 $\times$ 30                   | 3400                    | 1.70                    | LLG2Z182MELC30 |
| 2200               | 30 $\times$ 45                   | 4300                    | 1.88                    | LLG2Z222MELB45 |
|                    | 35 $\times$ 35                   | 4300                    | 1.88                    | LLG2Z222MELC35 |
| 2700               | 30 $\times$ 50                   | 4700                    | 2.09                    | LLG2Z272MELB50 |
|                    | 35 $\times$ 40                   | 4700                    | 2.09                    | LLG2Z272MELC40 |
| 3300               | 35 $\times$ 45                   | 5000                    | 2.31                    | LLG2Z332MELC45 |

| 200V (2D)          |                                  |                         |                         |                |
|--------------------|----------------------------------|-------------------------|-------------------------|----------------|
| Cap.<br>( $\mu$ F) | Size<br>$\phi$ D $\times$ L (mm) | Rated ripple<br>(mAmps) | Leakage Current<br>(mA) | Code           |
| 470                | 22 $\times$ 25                   | 1430                    | 0.91                    | LLG2D471MELZ25 |
| 560                | 22 $\times$ 30                   | 2070                    | 1.00                    | LLG2D561MELZ30 |
|                    | 25 $\times$ 25                   | 2070                    | 1.00                    | LLG2D561MELA25 |
| 680                | 22 $\times$ 35                   | 2280                    | 1.10                    | LLG2D681MELZ35 |
|                    | 25 $\times$ 30                   | 2280                    | 1.10                    | LLG2D681MELA30 |
| 820                | 22 $\times$ 40                   | 2490                    | 1.21                    | LLG2D821MELZ40 |
|                    | 25 $\times$ 30                   | 2340                    | 1.21                    | LLG2D821MELA30 |
| 1000               | 22 $\times$ 45                   | 2550                    | 1.34                    | LLG2D102MELZ45 |
|                    | 25 $\times$ 35                   | 2550                    | 1.34                    | LLG2D102MELA35 |
|                    | 30 $\times$ 30                   | 2760                    | 1.34                    | LLG2D102MELB30 |
| 1200               | 22 $\times$ 50                   | 2810                    | 1.46                    | LLG2D122MELZ50 |
|                    | 25 $\times$ 40                   | 2810                    | 1.46                    | LLG2D122MELA40 |
|                    | 30 $\times$ 30                   | 2810                    | 1.46                    | LLG2D122MELB30 |
|                    | 35 $\times$ 25                   | 2810                    | 1.46                    | LLG2D122MELC25 |
| 1500               | 25 $\times$ 50                   | 3290                    | 1.64                    | LLG2D152MELA50 |
|                    | 30 $\times$ 35                   | 2980                    | 1.64                    | LLG2D152MELB35 |
|                    | 35 $\times$ 30                   | 3290                    | 1.64                    | LLG2D152MELC30 |
| 1800               | 30 $\times$ 40                   | 3320                    | 1.80                    | LLG2D182MELB40 |
|                    | 35 $\times$ 35                   | 3670                    | 1.80                    | LLG2D182MELC35 |
| 2200               | 30 $\times$ 50                   | 4180                    | 1.98                    | LLG2D222MELB50 |
|                    | 35 $\times$ 40                   | 4180                    | 1.98                    | LLG2D222MELC40 |
| 2700               | 35 $\times$ 45                   | 4340                    | 2.20                    | LLG2D272MELC45 |
| 3300               | 35 $\times$ 50                   | 4420                    | 2.55                    | LLG2D332MELC50 |

| 250V (2E)          |                                  |                         |                         |                |
|--------------------|----------------------------------|-------------------------|-------------------------|----------------|
| Cap.<br>( $\mu$ F) | Size<br>$\phi$ D $\times$ L (mm) | Rated ripple<br>(mAmps) | Leakage Current<br>(mA) | Code           |
| 330                | 22 $\times$ 25                   | 1300                    | 0.86                    | LLG2E331MELZ25 |
| 390                | 22 $\times$ 30                   | 1910                    | 0.93                    | LLG2E391MELZ30 |
| 470                | 25 $\times$ 25                   | 2000                    | 1.02                    | LLG2E471MELA25 |
| 560                | 22 $\times$ 40                   | 2250                    | 1.12                    | LLG2E561MELZ40 |
|                    | 25 $\times$ 30                   | 2250                    | 1.12                    | LLG2E561MELA30 |
| 680                | 22 $\times$ 45                   | 2500                    | 1.23                    | LLG2E681MELZ45 |
|                    | 25 $\times$ 35                   | 2500                    | 1.23                    | LLG2E681MELA35 |
|                    | 30 $\times$ 25                   | 2500                    | 1.23                    | LLG2E681MELB25 |
| 820                | 25 $\times$ 40                   | 2770                    | 1.35                    | LLG2E821MELA40 |
|                    | 30 $\times$ 30                   | 2770                    | 1.35                    | LLG2E821MELB30 |
|                    | 35 $\times$ 25                   | 2770                    | 1.35                    | LLG2E821MELC25 |
| 1000               | 25 $\times$ 50                   | 3320                    | 1.50                    | LLG2E102MELA50 |
|                    | 30 $\times$ 35                   | 3320                    | 1.50                    | LLG2E102MELB35 |
|                    | 35 $\times$ 30                   | 3320                    | 1.50                    | LLG2E102MELC30 |
| 1200               | 30 $\times$ 40                   | 3840                    | 1.64                    | LLG2E122MELB40 |
|                    | 35 $\times$ 35                   | 3840                    | 1.64                    | LLG2E122MELC35 |
| 1500               | 30 $\times$ 50                   | 4250                    | 1.83                    | LLG2E152MELB50 |
|                    | 35 $\times$ 40                   | 4250                    | 1.83                    | LLG2E152MELC40 |
| 1800               | 35 $\times$ 45                   | 4550                    | 2.01                    | LLG2E182MELC45 |
| 2200               | 35 $\times$ 50                   | 4750                    | 2.22                    | LLG2E222MELC50 |

Rated ripple current (mAmps) at 85°C 120Hz

LLG

## ■ Dimensions

| 400V (2G)          |                                 |                                      |                         |                |
|--------------------|---------------------------------|--------------------------------------|-------------------------|----------------|
| Cap.<br>( $\mu$ F) | Size<br>$\phi$ D $\times$ L(mm) | Rated ripple<br>(mA <sub>rms</sub> ) | Leakage Current<br>(mA) | Code           |
| 150                | 22 $\times$ 25                  | 1030                                 | 0.73                    | LLG2G151MELZ25 |
| 180                | 22 $\times$ 30                  | 1160                                 | 0.80                    | LLG2G181MELZ30 |
|                    | 25 $\times$ 25                  | 1160                                 | 0.80                    | LLG2G181MELA25 |
| 220                | 22 $\times$ 35                  | 1400                                 | 0.88                    | LLG2G221MELZ35 |
|                    | 25 $\times$ 30                  | 1400                                 | 0.88                    | LLG2G221MELA30 |
| 270                | 22 $\times$ 40                  | 1500                                 | 0.98                    | LLG2G271MELZ40 |
|                    | 25 $\times$ 35                  | 1500                                 | 0.98                    | LLG2G271MELA35 |
| 330                | 22 $\times$ 45                  | 1700                                 | 1.08                    | LLG2G331MELZ45 |
|                    | 25 $\times$ 35                  | 1700                                 | 1.08                    | LLG2G331MELA35 |
|                    | 30 $\times$ 30                  | 1700                                 | 1.08                    | LLG2G331MELB30 |
| 390                | 22 $\times$ 50                  | 1900                                 | 1.18                    | LLG2G391MELZ50 |
|                    | 25 $\times$ 40                  | 1900                                 | 1.18                    | LLG2G391MELA40 |
|                    | 30 $\times$ 30                  | 1900                                 | 1.18                    | LLG2G391MELB30 |
|                    | 35 $\times$ 25                  | 1900                                 | 1.18                    | LLG2G391MELC25 |
| 470                | 25 $\times$ 50                  | 2130                                 | 1.30                    | LLG2G471MELA50 |
|                    | 30 $\times$ 35                  | 2130                                 | 1.30                    | LLG2G471MELB35 |
|                    | 35 $\times$ 30                  | 2130                                 | 1.30                    | LLG2G471MELC30 |
| 560                | 30 $\times$ 40                  | 2390                                 | 1.41                    | LLG2G561MELB40 |
|                    | 35 $\times$ 35                  | 2390                                 | 1.41                    | LLG2G561MELC35 |
| 680                | 30 $\times$ 45                  | 2690                                 | 1.56                    | LLG2G681MELB45 |
|                    | 35 $\times$ 35                  | 2690                                 | 1.56                    | LLG2G681MELC35 |
| 820                | 35 $\times$ 40                  | 2960                                 | 1.71                    | LLG2G821MELC40 |
| 1000               | 35 $\times$ 50                  | 3300                                 | 1.89                    | LLG2G102MELC50 |

| 450V (2W)          |                                 |                                      |                         |                |
|--------------------|---------------------------------|--------------------------------------|-------------------------|----------------|
| Cap.<br>( $\mu$ F) | Size<br>$\phi$ D $\times$ L(mm) | Rated ripple<br>(mA <sub>rms</sub> ) | Leakage Current<br>(mA) | Code           |
| 120                | 22 $\times$ 25                  | 930                                  | 0.69                    | LLG2W121MELZ25 |
| 150                | 22 $\times$ 30                  | 1040                                 | 0.77                    | LLG2W151MELZ30 |
|                    | 25 $\times$ 25                  | 1040                                 | 0.77                    | LLG2W151MELA25 |
| 180                | 22 $\times$ 35                  | 1300                                 | 0.85                    | LLG2W181MELZ35 |
|                    | 25 $\times$ 30                  | 1300                                 | 0.85                    | LLG2W181MELA30 |
| 220                | 22 $\times$ 40                  | 1400                                 | 0.94                    | LLG2W221MELZ40 |
|                    | 25 $\times$ 35                  | 1500                                 | 0.94                    | LLG2W221MELA35 |
|                    | 30 $\times$ 25                  | 1400                                 | 0.94                    | LLG2W221MELB25 |
| 270                | 22 $\times$ 45                  | 1660                                 | 1.04                    | LLG2W271MELZ45 |
|                    | 25 $\times$ 40                  | 1800                                 | 1.04                    | LLG2W271MELA40 |
|                    | 30 $\times$ 30                  | 1800                                 | 1.04                    | LLG2W271MELB30 |
| 330                | 25 $\times$ 45                  | 1950                                 | 1.15                    | LLG2W331MELA45 |
|                    | 30 $\times$ 35                  | 1950                                 | 1.15                    | LLG2W331MELB35 |
|                    | 35 $\times$ 30                  | 1950                                 | 1.15                    | LLG2W331MELC30 |
| 390                | 25 $\times$ 50                  | 2100                                 | 1.25                    | LLG2W391MELA50 |
|                    | 30 $\times$ 35                  | 2100                                 | 1.25                    | LLG2W391MELB35 |
|                    | 35 $\times$ 30                  | 2100                                 | 1.25                    | LLG2W391MELC30 |
| 470                | 30 $\times$ 40                  | 2320                                 | 1.37                    | LLG2W471MELB40 |
|                    | 35 $\times$ 35                  | 2320                                 | 1.37                    | LLG2W471MELC35 |
| 560                | 30 $\times$ 50                  | 2660                                 | 1.50                    | LLG2W561MELB50 |
|                    | 35 $\times$ 40                  | 2660                                 | 1.50                    | LLG2W561MELC40 |
| 680                | 35 $\times$ 45                  | 2820                                 | 1.65                    | LLG2W681MELC45 |
| 820                | 35 $\times$ 50                  | 3000                                 | 1.82                    | LLG2W821MELC50 |

Rated ripple current (mA<sub>rms</sub>) at 85°C 120Hz

## ● Frequency coefficient of rated ripple current

| Frequency (Hz) |             | 50   | 60   | 120  | 300  | 1k   | 10k  | 50k or more |
|----------------|-------------|------|------|------|------|------|------|-------------|
| coeff          | 160 to 250V | 0.81 | 0.85 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50        |
|                | 400 • 450V  | 0.77 | 0.82 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43        |