

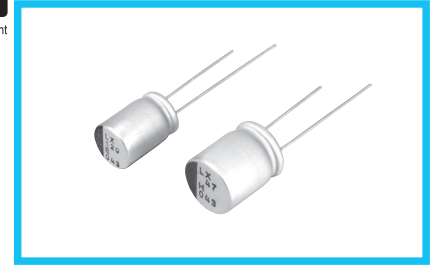
## PLX

Radial Lead Type, Long Life Assurance



- High reliability, High voltage (to 50V).
- Low ESR, High ripple current.
- Long life of 3000 hours at 125°C.
- Radial lead type:  
Lead free flow soldering condition correspondence.
- Adapted to the RoHS directive (2011/65/EU).

**PLX**



### Specifications

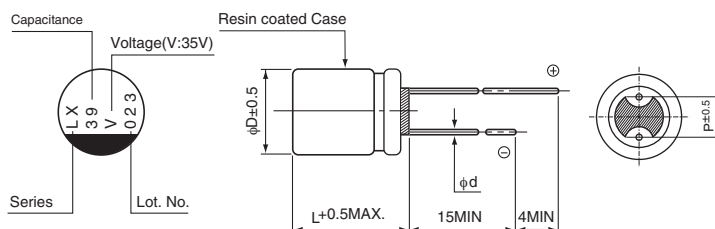
| Item                                              | Performance Characteristics                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------|-------|-----------------------------------------------|-----------|-----------------------------------------------|-----------------------|---------------------------------------------------|
| Category Temperature Range                        | −55 to +125°C                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Rated Voltage Range                               | 16 to 50V                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Rated Capacitance Range                           | 22 to 390μF                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Capacitance Tolerance                             | ±20% at 120Hz, 20°C                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Tangent of loss angle (tan δ)                     | Less than or equal to the specified value at 120Hz, 20°C                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| ESR (※ 1)                                         | Less than or equal to the specified value at 100kHz, 20°C                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Leakage Current (※ 2)                             | Less than or equal to the specified value. After 2 minutes' application of rated voltage at 20°C                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Temperature Characteristics (Max.Impedance Ratio) | Z+125°C / Z+20°C ≤ 1.25 (100kHz)<br>Z−55°C / Z+20°C ≤ 1.25                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Endurance                                         | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 3000 hours at 125°C.                                                                                                                                                                                                   | <table><tr><td>Capacitance change</td><td>Within ± 20% of initial value (※3)</td></tr><tr><td>tan δ</td><td>150% or less of the initial specified value</td></tr><tr><td>ESR (※ 1)</td><td>150% or less of the initial specified value</td></tr><tr><td>Leakage current (※ 2)</td><td>Less than or equal to the initial specified value</td></tr></table>                     | Capacitance change | Within ± 20% of initial value (※3)                 | tan δ | 150% or less of the initial specified value   | ESR (※ 1) | 150% or less of the initial specified value   | Leakage current (※ 2) | Less than or equal to the initial specified value |
| Capacitance change                                | Within ± 20% of initial value (※3)                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| tan δ                                             | 150% or less of the initial specified value                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| ESR (※ 1)                                         | 150% or less of the initial specified value                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Leakage current (※ 2)                             | Less than or equal to the initial specified value                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Damp Heat (Steady State)                          | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 60°C, 90% RH.                                                                                                                                                                                            | <table><tr><td>Capacitance change</td><td>Within ± 20% of initial value (※3)</td></tr><tr><td>tan δ</td><td>150% or less of the initial specified value</td></tr><tr><td>ESR (※ 1)</td><td>150% or less of the initial specified value</td></tr><tr><td>Leakage current (※ 2)</td><td>Less than or equal to the initial specified value</td></tr></table>                     | Capacitance change | Within ± 20% of initial value (※3)                 | tan δ | 150% or less of the initial specified value   | ESR (※ 1) | 150% or less of the initial specified value   | Leakage current (※ 2) | Less than or equal to the initial specified value |
| Capacitance change                                | Within ± 20% of initial value (※3)                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| tan δ                                             | 150% or less of the initial specified value                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| ESR (※ 1)                                         | 150% or less of the initial specified value                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Leakage current (※ 2)                             | Less than or equal to the initial specified value                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Resistance to Soldering Heat                      | After soldering the capacitor under the soldering conditions prescribed here as preheat at 150 to 200°C for 60 to 180 seconds and peak temperature at 265°C for 10 seconds or less, the capacitor shall meet the specifications listed at right, provided that its temperature profile is measured at both of terminal ends facing the soldering side. | <table><tr><td>Capacitance change</td><td>Within ± 10% of the initial capacitance value (※3)</td></tr><tr><td>tan δ</td><td>130% or less than the initial specified value</td></tr><tr><td>ESR (※ 1)</td><td>130% or less than the initial specified value</td></tr><tr><td>Leakage current (※ 2)</td><td>Less than or equal to the initial specified value</td></tr></table> | Capacitance change | Within ± 10% of the initial capacitance value (※3) | tan δ | 130% or less than the initial specified value | ESR (※ 1) | 130% or less than the initial specified value | Leakage current (※ 2) | Less than or equal to the initial specified value |
| Capacitance change                                | Within ± 10% of the initial capacitance value (※3)                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| tan δ                                             | 130% or less than the initial specified value                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| ESR (※ 1)                                         | 130% or less than the initial specified value                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Leakage current (※ 2)                             | Less than or equal to the initial specified value                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |
| Marking                                           | Navy blue print on the case top                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                    |       |                                               |           |                                               |                       |                                                   |

※ 1 ESR should be measured at both of the terminal ends closest to the capacitor body.

※ 2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.

※ 3 Initial value : The value before test of examination of resistance to soldering.

### Dimensions

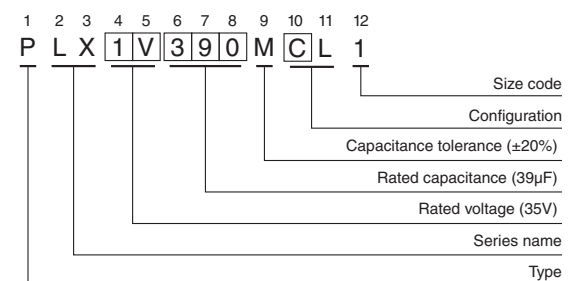


| (mm) |         |          |           |
|------|---------|----------|-----------|
| Size | φ8 × 9L | φ8 × 12L | φ10 × 13L |
| φD   | 8.0     | 8.0      | 10.0      |
| L    | 8.5     | 11.5     | 12.5      |
| P    | 3.5     | 3.5      | 5.0       |
| φd   | 0.6     | 0.6      | 0.6       |

| Voltage |    |    |    |    |    |
|---------|----|----|----|----|----|
| V       | 16 | 20 | 25 | 35 | 50 |
| Code    | C  | D  | E  | V  | H  |

Please refer to page 20 about the end seal configuration.

### Type numbering system (Example : 35V 39μF)



● Dimension table in next page.

PLX

## ■ Standard Ratings

| Rated Voltage<br>(V)(code) | Surge Voltage<br>(V) | Rated Capacitance<br>(μF) | Case Size<br>φD × L (mm) | tan δ | Leakage Current<br>(μA) | ESR (mΩ)<br>(at 100kHz 20°C) | Rated Ripple<br>(mArms) |                        | Part Number  |
|----------------------------|----------------------|---------------------------|--------------------------|-------|-------------------------|------------------------------|-------------------------|------------------------|--------------|
|                            |                      |                           |                          |       |                         |                              | ≤105°C (*3)             | 105°C <<br>≤125°C (*3) |              |
| 16<br>(1C)                 | 18.4                 | 150                       | 8 × 9                    | 0.12  | 480                     | 26                           | 2100                    | 810                    | PLX1C151MCL1 |
|                            |                      | 220                       | 8 × 12                   | 0.12  | 704                     | 25                           | 2400                    | 930                    | PLX1C221MDL1 |
|                            |                      | 390                       | 10 × 13                  | 0.12  | 1248                    | 23                           | 2900                    | 1130                   | PLX1C391MDL1 |
| 20<br>(1D)                 | 23.0                 | 120                       | 8 × 9                    | 0.12  | 480                     | 27                           | 2000                    | 800                    | PLX1D121MCL1 |
|                            |                      | 150                       | 8 × 12                   | 0.12  | 600                     | 26                           | 2300                    | 910                    | PLX1D151MDL1 |
|                            |                      | 270                       | 10 × 13                  | 0.12  | 1080                    | 24                           | 2800                    | 1110                   | PLX1D271MDL1 |
| 25<br>(1E)                 | 28.7                 | 82                        | 8 × 9                    | 0.12  | 410                     | 28                           | 2000                    | 780                    | PLX1E820MCL1 |
|                            |                      | 120                       | 8 × 12                   | 0.12  | 600                     | 27                           | 2300                    | 890                    | PLX1E121MDL1 |
|                            |                      | 180                       | 10 × 13                  | 0.12  | 900                     | 25                           | 2800                    | 1080                   | PLX1E181MDL1 |
| 35<br>(1V)                 | 40.2                 | 39                        | 8 × 9                    | 0.12  | 273                     | 33                           | 1800                    | 720                    | PLX1V390MCL1 |
|                            |                      | 56                        | 8 × 12                   | 0.12  | 392                     | 31                           | 2100                    | 830                    | PLX1V560MDL1 |
|                            |                      | 100                       | 10 × 13                  | 0.12  | 700                     | 28                           | 2700                    | 1040                   | PLX1V101MDL1 |
| 50<br>(1H)                 | 57.5                 | 22                        | 8 × 9                    | 0.12  | 220                     | 35                           | 1800                    | 700                    | PLX1H220MCL1 |
|                            |                      | 27                        | 8 × 12                   | 0.12  | 270                     | 33                           | 2000                    | 810                    | PLX1H270MDL1 |
|                            |                      | 47                        | 10 × 13                  | 0.12  | 470                     | 29                           | 2600                    | 1020                   | PLX1H470MDL1 |

(\*3) Ambient temperature of a capacitor

Rated ripple current (mArms) at 105°C 100kHz

- Please refer to page 20, 21, 22 about the formed or taped product spec.
- Please refer to page 3 for the minimum order quantity.

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