

**USG SERIES**
**85°C Miniaturized, Snap-in Terminal Type**
**◆FEATURES**

- Load Life : 85°C 2000 hours.
- Smaller size than USC series.
- RoHS compliance.


**◆SPECIFICATIONS**

| Items                                   | Characteristics  |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
|---|--|-------------|--------------------|-----------------------------------|--------------------|--|-----------------|------------------------------------|---|---|----|--|------------------|----|--|--|--|
| Category Temperature Range              | -40~+85°C  | -25~+85°C   |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Rated Voltage Range                     | 160~250V.DC  | 400~450V.DC |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Capacitance Tolerance                   | ±20% (20°C, 120Hz)   |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Leakage Current(MAX)                    | $I=3\sqrt{CV}$ (After 5 minutes application of rated voltage)<br>$I$ =Leakage Current( $\mu$ A) $V$ =Rated Voltage(V) $C$ =Rated Capacitance( $\mu$ F)   |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Dissipation Factor(MAX) (tan $\delta$ ) | 0.2 (20°C, 120Hz)  |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Impedance Ratio(MAX)                    | <table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>160~250</th> <th>400</th> <th>420~450</th> <th>(120Hz)</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>4</td> <td>8</td> <td>12</td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>12</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>  |             | Rated Voltage (V)  | 160~250                           | 400                | 420~450                                    | (120Hz)         | Z(-25°C)/Z(20°C)                   | 4 | 8 | 12 |  | Z(-40°C)/Z(20°C) | 12 |  |  |  |
| Rated Voltage (V)                       | 160~250  | 400         | 420~450            | (120Hz)                           |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Z(-25°C)/Z(20°C)                        | 4  | 8           | 12                 |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Z(-40°C)/Z(20°C)                        | 12   |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Endurance                               | After applying rated voltage with rated ripple current for 2000 hrs at 85°C, the capacitors shall meet the following requirements. <table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±20% of the initial value.</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value.</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> </tr> </tbody> </table> |             | Capacitance Change | Within ±20% of the initial value. | Dissipation Factor | Not more than 200% of the specified value. | Leakage Current | Not more than the specified value. |   |   |    |  |                  |    |  |  |  |
| Capacitance Change                      | Within ±20% of the initial value.  |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Dissipation Factor                      | Not more than 200% of the specified value.   |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |
| Leakage Current                         | Not more than the specified value.   |             |                    |                                   |                    |  |                 |                                    |   |   |    |  |                  |    |  |  |  |

**◆MULTIPLIER FOR RIPPLE CURRENT**

Frequency coefficient

| Frequency (Hz) |           | 60(50) | 120  | 500  | 1k   | 10k $\leq$ |
|----------------|-----------|--------|------|------|------|------------|
| Coefficient    | 160~250WV | 0.80   | 1.00 | 1.20 | 1.30 | 1.50       |
|                | 400~450WV | 0.80   | 1.00 | 1.20 | 1.25 | 1.40       |

**◆PART NUMBER**

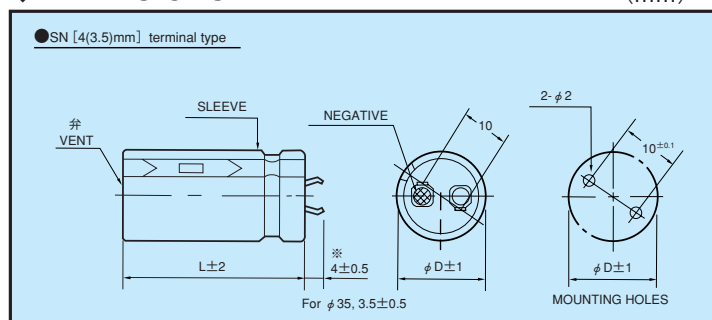
|               |        |                   |                       |        |               |           |
|---------------|--------|-------------------|-----------------------|--------|---------------|-----------|
| □□□           | USG    | □□□□□             | □                     | OOE    | SN            | D×L       |
| Rated Voltage | Series | Rated Capacitance | Capacitance Tolerance | Option | Terminal Code | Case Size |

**◆Option**

|               | Code  |
|---------------|-------|
| without plate | OOE   |
| with plate    | Blank |

**◆DIMENSIONS**

(mm)





◆ STANDARD SIZE, RATED RIPPLE CURRENT

| Cap<br>( $\mu$ F) | WV<br>$\phi$ D | 160         |             |             |             |             | 180         |             |             |             |             |
|-------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 390               |                | 20×25; 1.19 |             |             |             |             | 20×25; 1.84 |             |             |             |             |
| 470               |                | 20×30; 1.76 | 22×25; 1.76 |             |             |             | 20×30; 2.08 | 22×25; 2.08 |             |             |             |
| 560               |                | 20×30; 2.25 | 22×25; 2.25 |             |             |             | 20×35; 2.25 | 22×30; 2.25 |             |             |             |
| 680               |                | 20×35; 2.50 | 22×30; 2.50 | 25×25; 2.50 |             |             | 20×40; 2.50 | 22×35; 2.50 | 25×25; 2.50 |             |             |
| 820               |                | 20×40; 2.75 | 22×35; 2.75 | 25×30; 2.75 |             |             | 20×45; 2.75 | 22×40; 2.75 | 25×30; 2.75 |             |             |
| 1000              |                |             | 22×40; 3.00 | 25×30; 3.00 | 30×25; 3.00 |             |             | 22×45; 3.00 | 25×35; 3.00 | 30×25; 3.00 |             |
| 1200              |                |             | 22×45; 3.25 | 25×35; 3.25 | 30×30; 3.25 |             |             | 22×50; 3.31 | 25×40; 3.31 | 30×30; 3.31 | 35×25; 3.31 |
| 1500              |                |             |             | 25×45; 3.73 | 30×35; 3.73 |             |             |             | 25×50; 3.83 | 30×35; 3.83 | 35×30; 3.83 |
| 1800              |                |             |             | 25×50; 4.20 | 30×35; 4.20 | 35×30; 4.20 |             |             |             | 30×40; 4.32 | 35×35; 4.32 |
| 2200              |                |             |             |             | 30×45; 4.78 | 35×35; 4.78 |             |             |             | 30×50; 4.92 | 35×40; 4.92 |
| 2700              |                |             |             |             | 30×50; 5.45 | 35×40; 5.45 |             |             |             |             | 35×45; 5.52 |
| 3300              |                |             |             |             |             | 35×45; 5.75 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | WV<br>$\phi$ D | 200         |             |             |             |             | 220         |             |             |             |             |
|-------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 270               |                |             |             |             |             |             | 20×25; 1.42 |             |             |             |             |
| 330               |                | 20×25; 1.44 |             |             |             |             | 20×30; 1.58 | 22×25; 1.58 |             |             |             |
| 390               |                | 20×30; 1.68 | 22×25; 1.68 |             |             |             | 20×35; 1.75 | 22×30; 1.75 |             |             |             |
| 470               |                | 20×35; 1.93 | 22×30; 1.93 | 25×25; 1.93 |             |             | 20×35; 1.99 | 22×30; 1.99 | 25×25; 1.99 |             |             |
| 560               |                | 20×35; 2.43 | 22×30; 2.43 | 25×25; 2.43 |             |             | 20×40; 2.28 | 22×35; 2.28 | 25×30; 2.28 |             |             |
| 680               |                | 20×40; 2.68 | 22×35; 2.68 | 25×30; 2.68 | 30×25; 2.68 |             |             | 22×40; 2.46 | 25×30; 2.46 | 30×25; 2.46 |             |
| 820               |                |             | 22×40; 2.93 | 25×30; 2.93 | 30×25; 2.93 |             |             | 22×45; 2.81 | 25×35; 2.81 | 30×30; 2.81 |             |
| 1000              |                |             | 22×45; 3.25 | 25×35; 3.25 | 30×30; 3.25 | 35×25; 3.25 |             |             | 25×45; 3.29 | 30×30; 3.29 |             |
| 1200              |                |             |             | 25×45; 3.50 | 30×35; 3.50 | 35×30; 3.50 |             |             | 25×50; 3.60 | 30×35; 3.60 | 35×30; 3.60 |
| 1500              |                |             |             | 25×50; 3.87 | 30×40; 3.87 | 35×30; 3.87 |             |             |             | 30×45; 3.92 | 35×35; 3.92 |
| 1800              |                |             |             |             | 30×45; 4.32 | 35×35; 4.32 |             |             |             | 30×50; 4.30 | 35×40; 4.30 |
| 2200              |                |             |             |             | 30×50; 4.92 | 35×40; 4.92 |             |             |             |             | 35×50; 4.95 |
| 2700              |                |             |             |             |             | 35×50; 5.45 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | WV<br>$\phi$ D | 250         |             |             |             |             | 400         |             |             |             |             |
|-------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 82                |                |             |             |             |             |             | 20×25; 0.80 |             |             |             |             |
| 100               |                |             |             |             |             |             | 20×30; 0.94 | 22×25; 0.94 |             |             |             |
| 120               |                |             |             |             |             |             | 20×30; 1.08 | 22×25; 1.08 |             |             |             |
| 150               |                |             |             |             |             |             | 20×35; 1.21 | 22×30; 1.21 | 25×25; 1.21 |             |             |
| 180               |                |             |             |             |             |             | 20×40; 1.45 | 22×35; 1.45 | 25×25; 1.45 |             |             |
| 220               |                | 20×25; 1.23 |             |             |             |             |             | 22×40; 1.58 | 25×30; 1.58 | 30×25; 1.58 |             |
| 270               |                | 20×30; 1.31 | 22×25; 1.31 |             |             |             |             | 22×45; 1.67 | 25×35; 1.67 | 30×25; 1.67 |             |
| 330               |                | 20×30; 1.75 | 22×25; 1.75 |             |             |             |             | 22×50; 1.90 | 25×40; 1.90 | 30×30; 1.90 | 35×25; 1.90 |
| 390               |                | 20×35; 1.91 | 22×30; 1.91 | 25×25; 1.91 |             |             |             |             | 25×45; 2.13 | 30×35; 2.13 | 35×30; 2.13 |
| 470               |                | 20×40; 2.11 | 22×35; 2.11 | 25×25; 2.11 |             |             |             |             | 25×50; 2.39 | 30×40; 2.39 | 35×30; 2.39 |
| 560               |                |             | 22×40; 2.25 | 25×30; 2.25 | 30×25; 2.25 |             |             |             |             | 30×45; 2.69 | 35×35; 2.69 |
| 680               |                |             | 22×45; 2.50 | 25×35; 2.50 | 30×30; 2.50 |             |             |             |             |             | 35×40; 2.96 |
| 820               |                |             |             | 25×40; 2.77 | 30×30; 2.77 | 35×25; 2.77 |             |             |             |             | 35×50; 3.25 |
| 1000              |                |             |             | 25×45; 3.32 | 30×35; 3.32 | 35×30; 3.32 |             |             |             |             |             |
| 1200              |                |             |             |             | 30×40; 3.84 | 35×35; 3.84 |             |             |             |             |             |
| 1500              |                |             |             |             | 30×50; 4.25 | 35×40; 4.25 |             |             |             |             |             |
| 1800              |                |             |             |             |             | 35×45; 4.55 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | WV<br>$\phi$ D | 420         |             |             |             |             | 450         |             |             |             |             |
|-------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 68                |                |             |             |             |             |             | 20×25; 0.66 |             |             |             |             |
| 82                |                | 20×25; 0.83 |             |             |             |             | 20×25; 0.83 |             |             |             |             |
| 100               |                | 20×30; 0.97 | 22×25; 0.97 |             |             |             | 20×30; 0.93 | 22×25; 0.93 |             |             |             |
| 120               |                | 20×30; 1.08 | 22×25; 1.08 |             |             |             | 20×35; 1.04 | 22×30; 1.04 | 25×25; 1.04 |             |             |
| 150               |                | 20×35; 1.30 | 22×30; 1.30 | 25×25; 1.30 |             |             | 20×40; 1.29 | 22×35; 1.29 | 25×25; 1.29 |             |             |
| 180               |                | 20×40; 1.48 | 22×35; 1.48 | 25×30; 1.48 |             |             |             | 22×40; 1.40 | 25×30; 1.40 | 30×25; 1.40 |             |
| 220               |                |             | 22×40; 1.65 | 25×35; 1.65 | 30×25; 1.65 |             |             | 22×45; 1.66 | 25×35; 1.66 | 30×25; 1.66 |             |
| 270               |                |             | 22×50; 1.94 | 25×35; 1.94 | 30×30; 1.94 |             |             | 22×50; 1.81 | 25×40; 1.81 | 30×30; 1.81 | 35×25; 1.81 |
| 330               |                |             |             | 25×45; 2.17 | 30×35; 2.17 | 35×30; 2.17 |             |             | 25×45; 2.10 | 30×35; 2.10 | 35×30; 2.10 |
| 390               |                |             |             | 25×50; 2.27 | 30×35; 2.27 | 35×30; 2.27 |             |             |             | 30×40; 2.32 | 35×35; 2.32 |
| 470               |                |             |             |             | 30×40; 2.61 | 35×35; 2.61 |             |             |             | 30×45; 2.66 | 35×40; 2.66 |
| 560               |                |             |             |             | 30×50; 2.82 | 35×40; 2.82 |             |             |             |             | 35×40; 2.82 |
| 680               |                |             |             |             |             | 35×45; 3.11 |             |             |             |             | 35×50; 3.00 |

↑ Ripple Current (A r.m.s./120Hz, 85°C)  
 ↑ Case Size  $\phi$  D×L(mm)