

## 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℃                                                                                                                                                                                                                                                                                                                                                                                           |     | -25~+85℃    |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Rated Voltage Range               | 160~250V.DC                                                                                                                                                                                                                                                                                                                                                                                        |     | 400~450V.DC |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Capacitance Tolerance             | ±20% (20℃, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                  |     |             |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Leakage Current(MAX)              | I=3√CV (After 5 minutes application of rated voltage)<br>I=Leakage Current(μA)                      V=Rated Voltage(V)                      C=Rated Capacitance(μF)                                                                                                                                                                                                                                |     |             |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Dissipation Factor(MAX)<br>(tanδ) | 0.2 (20℃, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                   |     |             |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Impedance Ratio(MAX)              | <table><tr><td>Rated Voltage<br/>(V)</td><td>160~250</td><td>400</td><td>420~450</td></tr><tr><td>Z(-25℃)/Z(20℃)</td><td>4</td><td>8</td><td>12</td></tr><tr><td>Z(-40℃)/Z(20℃)</td><td>12</td><td></td><td></td></tr></table> (120Hz)                                                                                                                                                             |     |             |  | Rated Voltage<br>(V) | 160~250                           | 400                | 420~450                                    | Z(-25℃)/Z(20℃)  | 4                                  | 8 | 12 | Z(-40℃)/Z(20℃) | 12 |  |  |
| Rated Voltage<br>(V)              | 160~250                                                                                                                                                                                                                                                                                                                                                                                            | 400 | 420~450     |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Z(-25℃)/Z(20℃)                    | 4                                                                                                                                                                                                                                                                                                                                                                                                  | 8   | 12          |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Z(-40℃)/Z(20℃)                    | 12                                                                                                                                                                                                                                                                                                                                                                                                 |     |             |  |                      |                                   |                    |                                            |                 |                                    |   |    |                |    |  |  |
| Endurance                         | After applying rated voltage with rated ripple current for 2000 hrs at 85℃, the capacitors shall meet the following requirements. <table><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></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≤ |
|----------------|--------|------|------|------|------|
| 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

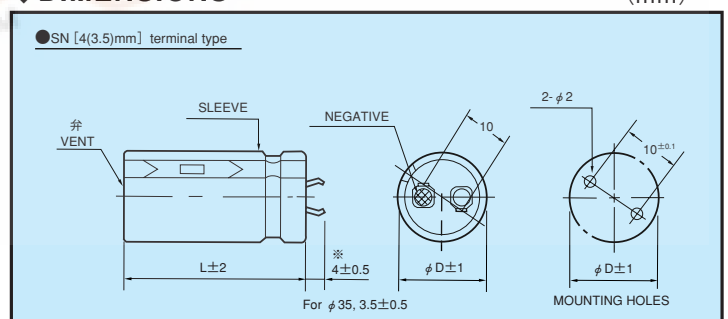
USG       OOE SN D X L  
 Rated Voltage Series Rated Capacitance Capacitance Tolerance Option Terminal Code Case Size

#### ◆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)