

USG SERIES

85°C Standard

•Load Life : 85°C 3000 hours.

RoHS  
compliance



◆SPECIFICATIONS

| Items                                             | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                          |         |      |         |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|---------|------|------------|------|-------------|--|------------------------|--------------------|-----------------------------------|-----|---------|----------------|----|----|-------------|------|----------------|--------------------|--------------------------------------------|------|------|---------|------|------|--------------|--|--|-----------------|------------------------------------|--|--|--|--|--|--|--|--|
| Category Temperature Range                        | -40~+85℃                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |      |         |      | -25~+85℃   |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Rated Voltage Range                               | 10~250Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                |         |      |         |      | 400~450Vdc |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Capacitance Tolerance                             | ±20% (20℃, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                        |         |      |         |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Leakage Current(MAX)                              | I=3 √CV (After 5 minutes application of rated voltage)<br>I=Leakage Current(μA)                  C=Capacitance(μF)                  V=Rated Voltage(Vdc)                                                                                                                                                                                                                                                                                 |         |      |         |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Dissipation Factor(MAX)<br>(tanδ)                 | <table><tr><td>Rated Voltage<br/>(Vdc)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100~<br/>450</td></tr><tr><td>tanδ</td><td>0.55</td><td>0.50</td><td>0.45</td><td>0.40</td><td>0.35</td><td>0.30</td><td>0.25</td><td>0.20</td></tr></table>                                                                                                                                                 |         |      |         |      |            |      |             |  | Rated Voltage<br>(Vdc) | 10                 | 16                                | 25  | 35      | 50             | 63 | 80 | 100~<br>450 | tanδ | 0.55           | 0.50               | 0.45                                       | 0.40 | 0.35 | 0.30    | 0.25 | 0.20 | (20℃, 120Hz) |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Rated Voltage<br>(Vdc)                            | 10                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16      | 25   | 35      | 50   | 63         | 80   | 100~<br>450 |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| tanδ                                              | 0.55                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.50    | 0.45 | 0.40    | 0.35 | 0.30       | 0.25 | 0.20        |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Endurance                                         | After applying rated voltage with rated ripple current for 3000 hours at 85℃, the capacitors shall meet the following requirements. <table><tr><td>Capacitance Change</td><td colspan="9">Within ±20% of the initial value.</td></tr><tr><td>Dissipation Factor</td><td colspan="9">Not more than 200% of the specified value.</td></tr><tr><td>Leakage Current</td><td colspan="9">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.                                                                                                                                                                                                                                                                                                                                                                                                       |         |      |         |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Low Temperature Stability<br>Impedance Ratio(MAX) | <table><tr><td>Rated Voltage<br/>(Vdc)</td><td>10~100</td><td>160~250</td><td>400</td><td>420~450</td></tr><tr><td>Z(-25℃)/Z(20℃)</td><td>3</td><td>4</td><td>8</td><td>12</td></tr><tr><td>Z(-40℃)/Z(20℃)</td><td>12</td><td>12</td><td>—</td><td>—</td></tr></table>                                                                                                                                                                   |         |      |         |      |            |      |             |  | Rated Voltage<br>(Vdc) | 10~100             | 160~250                           | 400 | 420~450 | Z(-25℃)/Z(20℃) | 3  | 4  | 8           | 12   | Z(-40℃)/Z(20℃) | 12                 | 12                                         | —    | —    | (120Hz) |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Rated Voltage<br>(Vdc)                            | 10~100                                                                                                                                                                                                                                                                                                                                                                                                                                   | 160~250 | 400  | 420~450 |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Z(-25℃)/Z(20℃)                                    | 3                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4       | 8    | 12      |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |
| Z(-40℃)/Z(20℃)                                    | 12                                                                                                                                                                                                                                                                                                                                                                                                                                       | 12      | —    | —       |      |            |      |             |  |                        |                    |                                   |     |         |                |    |    |             |      |                |                    |                                            |      |      |         |      |      |              |  |  |                 |                                    |  |  |  |  |  |  |  |  |

◆MULTIPLIER FOR RIPPLE CURRENT

| Frequency (Hz) | 60 (50) | 120 (100) | 300  | 500  | 1k   | 10k≤ |
|----------------|---------|-----------|------|------|------|------|
| Coefficient    |         |           |      |      |      |      |
| 10~100Vdc      | 0.90    | 1.00      | 1.03 | 1.05 | 1.10 | 1.15 |
| 160~250Vdc     | 0.80    | 1.00      | 1.15 | 1.20 | 1.30 | 1.50 |
| 400~450Vdc     | 0.80    | 1.00      | 1.15 | 1.20 | 1.25 | 1.40 |

◆OPTION

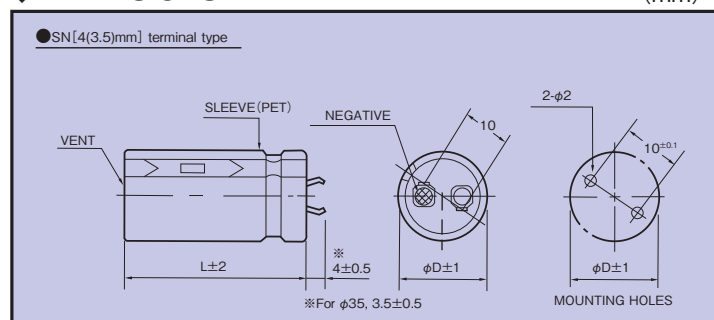
|                          | Code |
|--------------------------|------|
| PET Sleeve without plate | EFC  |

◆PART NUMBER

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

◆DIMENSIONS

(mm)



**◆ STANDARD SIZE**

| Cap<br>( $\mu$ F) | Vdc<br>$\phi$ D | 10          |             |             |             |             | 16          |             |             |             |             |
|-------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                 | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 8200              |                 |             |             |             |             |             | 20x25: 2.56 |             |             |             |             |
| 10000             |                 | 20x25: 2.22 |             |             |             |             | 20x30: 2.85 | 22x25: 2.85 |             |             |             |
| 12000             |                 | 20x30: 2.44 | 22x25: 2.41 |             |             |             | 20x35: 3.20 | 22x30: 3.20 |             |             |             |
| 15000             |                 | 20x35: 2.90 | 22x30: 2.88 | 25x25: 2.88 |             |             | 20x40: 3.70 | 22x35: 3.70 | 25x25: 3.70 |             |             |
| 18000             |                 | 20x40: 3.31 | 22x35: 3.22 | 25x30: 3.08 |             |             |             | 22x40: 3.98 | 25x30: 3.98 |             |             |
| 22000             |                 |             | 22x40: 3.79 | 25x30: 3.66 | 30x25: 3.58 |             |             | 22x45: 4.52 | 25x35: 4.52 | 30x25: 4.52 |             |
| 27000             |                 |             | 22x45: 4.04 | 25x35: 4.04 | 30x30: 3.99 |             |             | 22x50: 4.98 | 25x40: 4.98 | 30x30: 4.98 |             |
| 33000             |                 |             | 22x50: 4.58 | 25x40: 4.56 | 30x30: 4.58 |             |             |             | 25x45: 5.49 | 30x35: 5.49 | 35x30: 5.49 |
| 39000             |                 |             |             | 25x45: 5.29 | 30x35: 5.21 | 35x30: 5.05 |             |             | 25x50: 6.11 | 30x40: 6.11 | 35x35: 6.11 |
| 47000             |                 |             |             | 25x50: 5.78 | 30x40: 5.78 | 35x35: 5.55 |             |             |             | 30x45: 6.80 | 35x35: 6.80 |
| 56000             |                 |             |             |             | 30x45: 6.59 | 35x35: 6.40 |             |             |             | 30x50: 7.62 | 35x40: 7.62 |
| 68000             |                 |             |             |             | 30x50: 7.50 | 35x40: 7.48 |             |             |             |             | 35x45: 8.45 |
| 82000             |                 |             |             |             |             | 35x50: 8.50 |             |             |             |             | 35x50: 9.14 |

| Cap<br>( $\mu$ F) | Vdc<br>$\phi$ D | 25          |             |             |             |             | 35          |             |             |             |             |
|-------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                 | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 3300              |                 |             |             |             |             |             | 20x25: 2.14 |             |             |             |             |
| 3900              |                 |             |             |             |             |             | 20x30: 2.28 |             |             |             |             |
| 4700              |                 |             |             |             |             |             | 20x35: 2.46 | 22x25: 2.46 |             |             |             |
| 5600              |                 | 20x25: 2.33 |             |             |             |             | 20x40: 2.79 | 22x30: 2.79 | 25x25: 2.79 |             |             |
| 6800              |                 | 20x30: 2.56 | 22x25: 2.56 |             |             |             |             | 22x35: 2.89 | 25x30: 2.89 |             |             |
| 8200              |                 | 20x35: 2.91 | 22x30: 2.91 |             |             |             |             | 22x40: 3.47 | 25x30: 3.47 | 30x25: 3.47 |             |
| 10000             |                 | 20x40: 3.18 | 22x35: 3.18 | 25x25: 3.18 |             |             |             | 22x45: 3.59 | 25x35: 3.59 | 30x30: 3.59 |             |
| 12000             |                 |             | 22x40: 3.53 | 25x30: 3.53 |             |             |             | 22x50: 4.51 | 25x40: 4.51 | 30x30: 4.51 |             |
| 15000             |                 |             | 22x45: 4.08 | 25x35: 4.08 | 30x25: 4.08 |             |             |             | 25x45: 4.80 | 30x35: 4.80 | 35x30: 4.80 |
| 18000             |                 |             | 22x50: 4.68 | 25x40: 4.68 | 30x30: 4.68 |             |             |             |             | 30x40: 5.70 | 35x35: 5.70 |
| 22000             |                 |             |             | 25x45: 5.19 | 30x35: 5.19 | 35x30: 5.19 |             |             |             | 30x45: 6.38 | 35x40: 6.38 |
| 27000             |                 |             |             | 25x50: 6.02 | 30x40: 6.02 | 35x35: 6.02 |             |             |             |             | 35x45: 6.90 |
| 33000             |                 |             |             |             | 30x45: 6.75 | 35x40: 6.75 |             |             |             |             | 35x50: 7.49 |
| 39000             |                 |             |             |             | 30x50: 7.56 | 35x45: 7.56 |             |             |             |             |             |
| 47000             |                 |             |             |             |             | 35x50: 8.30 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | Vdc<br>$\phi$ D | 50          |             |             |             |             | 63          |             |             |             |             |
|-------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                 | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 1500              |                 |             |             |             |             |             | 20x25: 1.69 |             |             |             |             |
| 1800              |                 |             |             |             |             |             | 20x30: 2.04 | 22x25: 2.04 |             |             |             |
| 2200              |                 | 20x25: 2.07 |             |             |             |             | 20x35: 2.40 | 22x30: 2.40 |             |             |             |
| 2700              |                 | 20x30: 2.21 | 22x25: 2.21 |             |             |             | 20x40: 2.52 | 22x35: 2.52 | 25x25: 2.52 |             |             |
| 3300              |                 | 20x35: 2.41 | 22x30: 2.41 |             |             |             |             | 22x40: 2.69 | 25x30: 2.69 |             |             |
| 3900              |                 | 20x40: 2.72 | 22x30: 2.72 | 25x25: 2.72 |             |             |             | 22x45: 3.10 | 25x35: 3.10 | 30x25: 3.10 |             |
| 4700              |                 |             | 22x35: 3.01 | 25x30: 3.01 |             |             |             | 22x50: 3.49 | 25x40: 3.49 | 30x30: 3.49 |             |
| 5600              |                 |             | 22x40: 3.43 | 25x35: 3.43 | 30x25: 3.43 |             |             |             | 25x45: 3.81 | 30x35: 3.81 |             |
| 6800              |                 |             | 22x45: 3.94 | 25x35: 3.94 | 30x30: 3.94 |             |             |             | 25x50: 4.41 | 30x40: 4.41 | 35x30: 4.41 |
| 8200              |                 |             |             | 25x40: 4.37 | 30x35: 4.37 |             |             |             |             | 30x45: 4.90 | 35x35: 4.90 |
| 10000             |                 |             |             | 25x50: 5.02 | 30x40: 5.02 | 35x30: 5.02 |             |             |             | 30x50: 5.49 | 35x40: 5.49 |
| 12000             |                 |             |             |             | 30x45: 5.60 | 35x35: 5.60 |             |             |             |             | 35x45: 6.30 |
| 15000             |                 |             |             |             | 30x50: 6.44 | 35x40: 6.44 |             |             |             |             |             |
| 18000             |                 |             |             |             |             | 35x45: 6.71 |             |             |             |             |             |

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

**◆ STANDARD SIZE**

| Cap<br>( $\mu$ F) | Vdc<br>$\phi$ D | 80          |             |             |             |             | 100         |             |             |             |             |
|-------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                   |                 | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   | $\phi$ 20   | $\phi$ 22   | $\phi$ 25   | $\phi$ 30   | $\phi$ 35   |
| 680               |                 |             |             |             |             |             | 20x25: 1.66 |             |             |             |             |
| 820               |                 |             |             |             |             |             | 20x30: 1.86 | 22x25: 1.86 |             |             |             |
| 1000              |                 | 20x25: 1.56 |             |             |             |             | 20x30: 2.02 | 22x30: 2.02 |             |             |             |
| 1200              |                 | 20x30: 1.80 | 22x25: 1.80 |             |             |             | 20x35: 2.12 | 22x30: 2.12 | 25x25: 2.12 |             |             |
| 1500              |                 | 20x30: 2.10 | 22x30: 2.10 |             |             |             | 20x40: 2.45 | 22x35: 2.45 | 25x30: 2.45 |             |             |
| 1800              |                 | 20x35: 2.30 | 22x30: 2.30 | 25x25: 2.30 |             |             |             | 22x40: 2.77 | 25x30: 2.77 | 30x25: 2.77 |             |
| 2200              |                 | 20x40: 2.53 | 22x35: 2.53 | 25x30: 2.53 |             |             |             | 22x45: 3.12 | 25x35: 3.12 | 30x30: 3.12 |             |
| 2700              |                 |             | 22x40: 2.93 | 25x35: 2.93 | 30x25: 2.93 |             |             |             | 25x40: 3.61 | 30x30: 3.61 |             |
| 3300              |                 |             | 22x45: 3.25 | 25x35: 3.25 | 30x30: 3.25 |             |             |             | 25x50: 4.06 | 30x35: 4.06 | 35x30: 4.06 |
| 3900              |                 |             |             | 25x40: 3.62 | 30x35: 3.62 |             |             |             |             | 30x40: 4.60 | 35x35: 4.60 |
| 4700              |                 |             |             | 25x45: 4.28 | 30x40: 4.28 | 35x30: 4.28 |             |             |             | 30x45: 5.13 | 35x40: 5.13 |
| 5600              |                 |             |             |             | 30x45: 4.55 | 35x35: 4.55 |             |             |             |             | 35x45: 5.75 |
| 6800              |                 |             |             |             | 30x45: 5.83 | 35x40: 5.83 |             |             |             |             | 35x50: 6.01 |
| 8200              |                 |             |             |             |             | 35x45: 6.40 |             |             |             |             |             |
| 10000             |                 |             |             |             |             | 35x50: 7.03 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | Vdc<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               |                 | 20x25: 1.19 |             |             |             |             | 20x25: 1.84 |             |             |             |             |
| 470               |                 | 20x30: 1.76 | 22x25: 1.76 |             |             |             | 20x30: 2.08 | 22x25: 2.08 |             |             |             |
| 560               |                 | 20x30: 2.25 | 22x25: 2.25 |             |             |             | 20x35: 2.25 | 22x30: 2.25 |             |             |             |
| 680               |                 | 20x35: 2.50 | 22x30: 2.50 | 25x25: 2.50 |             |             | 20x40: 2.50 | 22x35: 2.50 | 25x25: 2.50 |             |             |
| 820               |                 | 20x40: 2.75 | 22x35: 2.75 | 25x30: 2.75 |             |             | 20x45: 2.75 | 22x40: 2.75 | 25x30: 2.75 |             |             |
| 1000              |                 |             | 22x40: 3.00 | 25x30: 3.00 | 30x25: 3.00 |             |             | 22x45: 3.00 | 25x35: 3.00 | 30x25: 3.00 |             |
| 1200              |                 |             | 22x45: 3.25 | 25x35: 3.25 | 30x30: 3.25 |             |             | 22x50: 3.31 | 25x40: 3.31 | 30x30: 3.31 | 35x25: 3.31 |
| 1500              |                 |             |             | 25x45: 3.73 | 30x35: 3.73 |             |             |             | 25x50: 3.83 | 30x35: 3.83 | 35x30: 3.83 |
| 1800              |                 |             |             | 25x50: 4.20 | 30x35: 4.20 | 35x30: 4.20 |             |             |             | 30x40: 4.32 | 35x35: 4.32 |
| 2200              |                 |             |             |             | 30x45: 4.78 | 35x35: 4.78 |             |             |             | 30x50: 4.92 | 35x40: 4.92 |
| 2700              |                 |             |             |             | 30x50: 5.45 | 35x40: 5.45 |             |             |             |             | 35x45: 5.52 |
| 3300              |                 |             |             |             |             | 35x45: 5.75 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | Vdc<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               |                 |             |             |             |             |             | 20x25: 1.42 |             |             |             |             |
| 330               |                 | 20x25: 1.44 |             |             |             |             | 20x30: 1.58 | 22x25: 1.58 |             |             |             |
| 390               |                 | 20x30: 1.68 | 22x25: 1.68 |             |             |             | 20x35: 1.75 | 22x30: 1.75 |             |             |             |
| 470               |                 | 20x35: 1.93 | 22x30: 1.93 | 25x25: 1.93 |             |             | 20x35: 1.99 | 22x30: 1.99 | 25x25: 1.99 |             |             |
| 560               |                 | 20x35: 2.43 | 22x30: 2.43 | 25x25: 2.43 |             |             | 20x40: 2.28 | 22x35: 2.28 | 25x30: 2.28 |             |             |
| 680               |                 | 20x40: 2.68 | 22x35: 2.68 | 25x30: 2.68 | 30x25: 2.68 |             |             | 22x40: 2.46 | 25x30: 2.46 | 30x25: 2.46 |             |
| 820               |                 |             | 22x40: 2.93 | 25x30: 2.93 | 30x25: 2.93 |             |             | 22x45: 2.81 | 25x35: 2.81 | 30x30: 2.81 |             |
| 1000              |                 |             | 22x45: 3.25 | 25x35: 3.25 | 30x30: 3.25 | 35x25: 3.25 |             |             | 25x45: 3.29 | 30x30: 3.29 |             |
| 1200              |                 |             |             | 25x45: 3.50 | 30x35: 3.50 | 35x30: 3.50 |             |             | 25x50: 3.60 | 30x35: 3.60 | 35x30: 3.60 |
| 1500              |                 |             |             | 25x50: 3.87 | 30x40: 3.87 | 35x30: 3.87 |             |             |             | 30x45: 3.92 | 35x35: 3.92 |
| 1800              |                 |             |             |             | 30x45: 4.32 | 35x35: 4.32 |             |             |             | 30x50: 4.30 | 35x40: 4.30 |
| 2200              |                 |             |             |             | 30x50: 4.92 | 35x40: 4.92 |             |             |             |             | 35x50: 4.95 |
| 2700              |                 |             |             |             |             | 35x50: 5.45 |             |             |             |             |             |

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

**◆ STANDARD SIZE**

| Cap<br>( $\mu$ F) | Vdc<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                |                 |             |             |             |             |             | 20x25: 0.80 |             |             |             |             |
| 100               |                 |             |             |             |             |             | 20x30: 0.94 | 22x25: 0.94 |             |             |             |
| 120               |                 |             |             |             |             |             | 20x30: 1.08 | 22x25: 1.08 |             |             |             |
| 150               |                 |             |             |             |             |             | 20x35: 1.21 | 22x30: 1.21 | 25x25: 1.21 |             |             |
| 180               |                 |             |             |             |             |             | 20x40: 1.45 | 22x35: 1.45 | 25x25: 1.45 |             |             |
| 220               |                 | 20x25: 1.23 |             |             |             |             |             | 22x40: 1.58 | 25x30: 1.58 | 30x25: 1.58 |             |
| 270               |                 | 20x30: 1.31 | 22x25: 1.31 |             |             |             |             | 22x45: 1.67 | 25x35: 1.67 | 30x25: 1.67 |             |
| 330               |                 | 20x30: 1.75 | 22x25: 1.75 |             |             |             |             | 22x50: 1.90 | 25x40: 1.90 | 30x30: 1.90 | 35x25: 1.90 |
| 390               |                 | 20x35: 1.91 | 22x30: 1.91 | 25x25: 1.91 |             |             |             |             | 25x45: 2.13 | 30x35: 2.13 | 35x30: 2.13 |
| 470               |                 | 20x40: 2.11 | 22x35: 2.11 | 25x25: 2.11 |             |             |             |             | 25x50: 2.39 | 30x40: 2.39 | 35x30: 2.39 |
| 560               |                 |             | 22x40: 2.25 | 25x30: 2.25 | 30x25: 2.25 |             |             |             |             | 30x45: 2.69 | 35x35: 2.69 |
| 680               |                 |             | 22x45: 2.50 | 25x35: 2.50 | 30x30: 2.50 |             |             |             |             |             | 35x40: 2.96 |
| 820               |                 |             |             | 25x40: 2.77 | 30x30: 2.77 | 35x25: 2.77 |             |             |             |             | 35x50: 3.25 |
| 1000              |                 |             |             | 25x45: 3.32 | 30x35: 3.32 | 35x30: 3.32 |             |             |             |             |             |
| 1200              |                 |             |             |             | 30x40: 3.84 | 35x35: 3.84 |             |             |             |             |             |
| 1500              |                 |             |             |             | 30x50: 4.25 | 35x40: 4.25 |             |             |             |             |             |
| 1800              |                 |             |             |             |             | 35x45: 4.55 |             |             |             |             |             |

| Cap<br>( $\mu$ F) | Vdc<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                |                 |             |             |             |             |             | 20x25: 0.66 |             |             |             |             |
| 82                |                 | 20x25: 0.83 |             |             |             |             | 20x25: 0.83 |             |             |             |             |
| 100               |                 | 20x30: 0.97 | 22x25: 0.97 |             |             |             | 20x30: 0.93 | 22x25: 0.93 |             |             |             |
| 120               |                 | 20x30: 1.08 | 22x25: 1.08 |             |             |             | 20x35: 1.04 | 22x30: 1.04 | 25x25: 1.04 |             |             |
| 150               |                 | 20x35: 1.30 | 22x30: 1.30 | 25x25: 1.30 |             |             | 20x40: 1.29 | 22x35: 1.29 | 25x25: 1.29 |             |             |
| 180               |                 | 20x40: 1.48 | 22x35: 1.48 | 25x30: 1.48 |             |             |             | 22x40: 1.40 | 25x30: 1.40 | 30x25: 1.40 |             |
| 220               |                 |             | 22x40: 1.65 | 25x35: 1.65 | 30x25: 1.65 |             |             | 22x45: 1.66 | 25x35: 1.66 | 30x25: 1.66 |             |
| 270               |                 |             | 22x50: 1.94 | 25x35: 1.94 | 30x30: 1.94 |             |             | 22x50: 1.81 | 25x40: 1.81 | 30x30: 1.81 | 35x25: 1.81 |
| 330               |                 |             |             | 25x45: 2.17 | 30x35: 2.17 | 35x30: 2.17 |             |             | 25x45: 2.10 | 30x35: 2.10 | 35x30: 2.10 |
| 390               |                 |             |             | 25x50: 2.27 | 30x35: 2.27 | 35x30: 2.27 |             |             |             | 30x40: 2.32 | 35x35: 2.32 |
| 470               |                 |             |             |             | 30x40: 2.61 | 35x35: 2.61 |             |             |             | 30x45: 2.66 | 35x40: 2.66 |
| 560               |                 |             |             |             | 30x50: 2.82 | 35x40: 2.82 |             |             |             |             | 35x40: 2.82 |
| 680               |                 |             |             |             |             | 35x45: 3.11 |             |             |             |             | 35x50: 3.00 |

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