

LSQ SERIES

Load Life : 85°C 3000 hours

RoHS  
compliance



◆SPECIFICATIONS

| Items                             | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|--|------------|----|----|----|----|----|--------------------|-----------------------------------|--------------------|--------------------------------------------|-----------------|------------------------------------|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|------|-----|-----|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--------|----|----|----|----|----|----|-----|------|-----|-----|-----|----|-----|-----|------|-----|-----|-----|------|-----|------|------|------|---------|------|------|-----|-----|-----|---------|-----|-----|------|------|------|-----------------|--|
| Category Temperature Range        | -40~+85℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |      |      |      |  | -25~+85℃   |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Rated Voltage Range               | 10~100Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |      |      |  | 160~450Vdc |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Capacitance Tolerance             | ±20% (20℃, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Leakage Current(MAX)              | I=0.02CV or 5mA whichever is smaller. (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>Vdc\φD</td><td>36</td><td>51</td><td>64</td><td>77</td><td>90</td></tr><tr><td>10</td><td>0.75</td><td>1.0</td><td>1.3</td><td>1.5</td><td>1.5</td></tr><tr><td>16</td><td>0.6</td><td>0.7</td><td>0.8</td><td>1.0</td><td>1.0</td></tr><tr><td>25</td><td>0.4</td><td>0.5</td><td>0.7</td><td>0.8</td><td>0.8</td></tr><tr><td>35</td><td>0.3</td><td>0.5</td><td>0.6</td><td>0.7</td><td>0.7</td></tr><tr><td>50</td><td>0.25</td><td>0.3</td><td>0.5</td><td>0.6</td><td>0.6</td></tr></table> |      |      |      |      |  | Vdc\φD     | 36 | 51 | 64 | 77 | 90 | 10                 | 0.75                              | 1.0                | 1.3                                        | 1.5             | 1.5                                | 16 | 0.6 | 0.7 | 0.8 | 1.0 | 1.0 | 25 | 0.4 | 0.5 | 0.7 | 0.8 | 0.8 | 35 | 0.3 | 0.5 | 0.6 | 0.7 | 0.7 | 50 | 0.25 | 0.3 | 0.5 | 0.6 | 0.6 | <table><tr><td>Vdc\φD</td><td>36</td><td>51</td><td>64</td><td>77</td><td>90</td></tr><tr><td>63</td><td>0.2</td><td>0.25</td><td>0.3</td><td>0.4</td><td>0.4</td></tr><tr><td>80</td><td>0.2</td><td>0.2</td><td>0.25</td><td>0.3</td><td>0.3</td></tr><tr><td>100</td><td>0.15</td><td>0.2</td><td>0.25</td><td>0.25</td><td>0.25</td></tr><tr><td>160~250</td><td>0.15</td><td>0.15</td><td>0.2</td><td>0.2</td><td>0.2</td></tr><tr><td>350~450</td><td>0.2</td><td>0.2</td><td>0.25</td><td>0.25</td><td>0.25</td></tr></table> |  |  |  |  |  | Vdc\φD | 36 | 51 | 64 | 77 | 90 | 63 | 0.2 | 0.25 | 0.3 | 0.4 | 0.4 | 80 | 0.2 | 0.2 | 0.25 | 0.3 | 0.3 | 100 | 0.15 | 0.2 | 0.25 | 0.25 | 0.25 | 160~250 | 0.15 | 0.15 | 0.2 | 0.2 | 0.2 | 350~450 | 0.2 | 0.2 | 0.25 | 0.25 | 0.25 | (20℃,<br>120Hz) |  |
| Vdc\φD                            | 36                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 51   | 64   | 77   | 90   |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 10                                | 0.75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.0  | 1.3  | 1.5  | 1.5  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 16                                | 0.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.7  | 0.8  | 1.0  | 1.0  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 25                                | 0.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.5  | 0.7  | 0.8  | 0.8  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 35                                | 0.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.5  | 0.6  | 0.7  | 0.7  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 50                                | 0.25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.3  | 0.5  | 0.6  | 0.6  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Vdc\φD                            | 36                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 51   | 64   | 77   | 90   |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 63                                | 0.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.25 | 0.3  | 0.4  | 0.4  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 80                                | 0.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.2  | 0.25 | 0.3  | 0.3  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 100                               | 0.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.2  | 0.25 | 0.25 | 0.25 |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 160~250                           | 0.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.15 | 0.2  | 0.2  | 0.2  |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 350~450                           | 0.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.2  | 0.25 | 0.25 | 0.25 |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| 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>Within ±15% of the initial value.</td></tr><tr><td>Dissipation Factor</td><td>Not more than 175% of the specified value.</td></tr><tr><td>Leakage Current</td><td>Not more than the specified value.</td></tr></table>                                                                                                             |      |      |      |      |  |            |    |    |    |    |    | Capacitance Change | Within ±15% of the initial value. | Dissipation Factor | Not more than 175% of the specified value. | Leakage Current | Not more than the specified value. |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Capacitance Change                | Within ±15% of the initial value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Dissipation Factor                | Not more than 175% of the specified value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Leakage Current                   | Not more than the specified value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Shelf Life                        | After storage for 500 hours with no voltage applied at 85℃, the capacitors shall be subjected to the voltage treatment in JIS C 5101-4 item 4.1 and shall be meet the following requirements. <table><tr><td>Capacitance Change</td><td>Within ±15% of the initial value.</td></tr><tr><td>Dissipation Factor</td><td>Not more than 150% of the specified value.</td></tr><tr><td>Leakage Current</td><td>Not more than the specified value.</td></tr></table>                                                   |      |      |      |      |  |            |    |    |    |    |    | Capacitance Change | Within ±15% of the initial value. | Dissipation Factor | Not more than 150% of the specified value. | Leakage Current | Not more than the specified value. |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Capacitance Change                | Within ±15% of the initial value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Dissipation Factor                | Not more than 150% of the specified value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |
| Leakage Current                   | Not more than the specified value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |      |      |      |  |            |    |    |    |    |    |                    |                                   |                    |                                            |                 |                                    |    |     |     |     |     |     |    |     |     |     |     |     |    |     |     |     |     |     |    |      |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |        |    |    |    |    |    |    |     |      |     |     |     |    |     |     |      |     |     |     |      |     |      |      |      |         |      |      |     |     |     |         |     |     |      |      |      |                 |  |

◆MULTIPLIER FOR RIPPLE CURRENT

| Frequency (Hz) | 60(50) | 120(100) | 300  | 500  | 1k   | 10k≤ |
|----------------|--------|----------|------|------|------|------|
| 10~50Vdc       | 0.80   | 1.00     | 1.03 | 1.04 | 1.05 | 1.08 |
| 63~100Vdc      | 0.80   | 1.00     | 1.04 | 1.05 | 1.07 | 1.10 |
| 160~450Vdc     | 0.80   | 1.00     | 1.06 | 1.10 | 1.13 | 1.18 |

◆PART NUMBER

LSQ     M    D×L  
 Rated Voltage Series Capacitance Capacitance Tolerance Option Clamp Code Case Size

◆DIMENSIONS

|        |    | (mm) |      |     |     |    |      |  |
|--------|----|------|------|-----|-----|----|------|--|
|        | φD | W1   | W2   | W3  | W4  | W5 | F    |  |
|        |    |      |      |     |     |    |      |  |
| I type | 36 | 24.0 | 30.0 | 3.5 | 7.0 | 10 | 12.7 |  |
|        | 51 | 34.0 | 40.0 | 3.5 | 6.0 | 12 | 21.8 |  |
|        | 64 | 40.0 | 45.0 | 4.5 | 7.0 | 12 | 28.2 |  |
|        | 77 | 47.0 | 53.0 | 4.5 | 6.0 | 12 | 31.4 |  |
|        | 90 | 54.0 | 60.0 | 4.5 | 6.0 | 14 | 31.4 |  |
| Y type | 51 | 32.5 | 37.5 | 4.5 | 6.0 | 12 | 21.8 |  |
|        | 64 | 38.0 | 43.0 | 4.5 | 8.0 | 14 | 28.2 |  |
|        | 77 | 44.5 | 49.0 | 4.5 | 7.0 | 14 | 31.4 |  |
|        | 90 | 50.8 | 56.0 | 4.5 | 8.0 | 16 | 31.4 |  |

**◆STANDARD SIZE**

| Cap(μF) \ Vdc | 10          | 16          | 25          | 35          | 50          | 63          | 80          |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 3300          |             |             |             |             |             |             | 36×50 2.5   |
| 3900          |             |             |             |             |             |             | 36×50 2.6   |
| 4700          |             |             |             |             |             |             | 36×50 2.8   |
| 5600          |             |             |             |             |             | 36×50 3.0   | 36×63 2.9   |
| 6800          |             |             |             |             | 36×50 3.3   | 36×50 3.2   | 36×83 3.7   |
| 8200          |             |             |             |             | 36×50 3.7   | 36×63 3.8   | 36×83 4.2   |
| 10000         |             |             |             | 36×50 3.6   | 36×50 4.3   | 36×83 4.1   | 36×98 5.0   |
| 12000         |             |             |             | 36×50 3.7   | 36×63 5.3   | 36×83 4.4   | 36×118 5.4  |
| 15000         |             |             |             | 36×50 4.0   | 36×83 5.5   | 36×98 5.5   | 51×83 7.7   |
| 18000         |             |             | 36×50 5.0   | 36×63 4.7   | 36×83 5.7   | 36×118 6.2  | 51×83 7.8   |
| 22000         |             |             | 36×63 5.4   | 36×83 5.6   | 36×98 6.1   | 51×83 7.1   | 51×83 8.0   |
| 27000         |             | 36×50 5.1   | 36×83 5.8   | 36×83 6.2   | 36×118 6.7  | 51×83 7.4   | 51×98 8.7   |
| 33000         |             | 36×63 5.5   | 36×83 6.0   | 36×83 6.3   | 51×83 7.1   | 51×98 8.8   | 51×118 10.5 |
| 39000         | 36×50 5.3   | 36×83 7.0   | 36×83 6.7   | 36×98 7.6   | 51×83 7.4   | 51×118 10.0 | 64×99 12.1  |
| 47000         | 36×63 6.0   | 36×83 7.3   | 36×98 8.0   | 36×118 8.7  | 51×98 8.7   | 64×99 11.9  | 64×99 14.4  |
| 56000         | 36×83 6.3   | 36×98 7.6   | 36×118 8.4  | 51×83 10.0  | 51×98 9.8   | 64×99 12.6  | 64×119 15.0 |
| 68000         | 36×83 7.9   | 36×98 10.3  | 51×83 9.3   | 51×83 10.8  | 51×118 12.0 | 64×119 15.0 | 64×139 16.8 |
| 82000         | 36×83 8.4   | 36×118 10.5 | 51×83 10.0  | 51×98 12.0  | 64×99 12.3  | 77×101 16.4 | 77×121 19.4 |
| 100000        | 36×118 9.3  | 51×83 10.9  | 51×98 12.0  | 51×118 13.6 | 64×119 14.2 | 77×121 18.9 | 77×141 21.5 |
| 120000        | 51×83 10.0  | 51×98 11.1  | 51×118 12.9 | 64×99 13.8  | 64×119 16.0 | 77×141 21.6 | 90×141 22.3 |
| 150000        | 51×83 11.0  | 51×98 12.6  | 64×99 15.3  | 64×99 14.6  | 77×121 18.6 | 90×141 26.0 |             |
| 180000        | 51×98 12.1  | 51×118 13.2 | 64×99 15.5  | 64×119 16.7 | 77×141 19.5 |             |             |
| 220000        | 51×98 14.0  | 64×99 14.7  | 64×119 18.0 | 77×101 17.4 | 90×141 23.3 |             |             |
| 270000        | 51×118 14.2 | 64×119 15.4 | 77×101 18.8 | 77×141 23.1 | 90×141 24.8 |             |             |
| 330000        | 64×99 17.3  | 64×139 18.3 | 77×121 23.2 | 77×151 25.9 |             |             |             |
| 390000        | 64×119 18.0 | 77×121 19.0 | 77×141 23.5 | 90×141 26.5 |             |             |             |
| 470000        | 64×139 19.3 | 77×141 22.0 | 90×141 24.7 | 90×151 28.3 |             |             |             |
| 560000        | 77×121 20.1 | 77×151 23.0 | 90×141 26.2 |             |             |             |             |
| 680000        | 77×141 24.0 |             |             |             |             |             |             |

| Cap(μF) \ Vdc | 100         | 160         | 200         | 250         | 350         | 400         | 450         |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 270           |             |             |             |             |             | 36×50 1.3   | 36×50 1.6   |
| 330           |             |             |             |             |             | 36×50 1.7   | 36×63 1.8   |
| 390           |             |             |             |             | 36×50 1.9   | 36×63 1.8   | 36×83 2.2   |
| 470           |             |             |             | 36×50 1.6   | 36×63 2.1   | 36×83 2.3   | 36×83 2.4   |
| 560           |             |             |             | 36×50 1.6   | 36×83 2.4   | 36×83 2.7   | 36×98 2.8   |
| 680           |             |             | 36×50 1.6   | 36×50 1.7   | 36×83 2.9   | 36×98 2.9   | 36×118 3.1  |
| 820           |             |             | 36×50 1.7   | 36×63 1.8   | 36×98 3.4   | 36×98 3.4   | 51×83 3.6   |
| 1000          |             |             | 36×63 2.2   | 36×83 2.4   | 36×98 3.8   | 36×118 3.9  | 51×83 4.0   |
| 1200          |             | 36×50 2.3   | 36×63 2.3   | 36×83 2.4   | 36×118 4.2  | 51×83 4.2   | 51×98 4.8   |
| 1500          |             | 36×63 3.2   | 36×83 2.9   | 36×98 3.1   | 51×83 4.7   | 51×98 4.8   | 51×118 5.7  |
| 1800          |             | 36×83 3.4   | 36×83 2.9   | 36×118 3.4  | 51×98 6.3   | 51×98 5.7   | 64×99 6.5   |
| 2200          | 36×50 2.5   | 36×83 3.6   | 36×98 3.6   | 51×83 3.9   | 51×98 6.4   | 51×118 7.0  | 64×99 7.2   |
| 2700          | 36×50 2.7   | 36×98 3.8   | 36×118 4.0  | 51×83 4.0   | 64×99 8.8   | 64×99 7.9   | 64×119 8.7  |
| 3300          | 36×50 3.2   | 36×118 4.7  | 51×83 4.6   | 51×98 5.4   | 64×99 8.8   | 64×119 9.5  | 77×121 10.5 |
| 3900          | 36×63 3.3   | 51×83 5.3   | 51×83 4.7   | 51×118 6.0  | 64×119 10.3 | 77×101 10.7 | 77×121 12.0 |
| 4700          | 36×83 3.5   | 51×83 5.6   | 51×98 7.1   | 64×99 7.3   | 77×101 12.0 | 77×121 12.8 | 77×141 13.3 |
| 5600          | 36×83 3.8   | 51×98 6.4   | 51×118 8.3  | 64×99 7.3   | 77×121 12.7 | 77×141 14.5 | 90×141 15.8 |
| 6800          | 36×98 4.5   | 51×98 7.5   | 64×99 9.5   | 64×119 8.9  | 77×141 16.0 | 77×151 17.5 | 90×151 18.7 |
| 8200          | 36×118 6.0  | 51×118 8.1  | 64×99 10.0  | 77×101 8.9  | 90×141 19.0 | 90×141 18.0 |             |
| 10000         | 36×118 6.3  | 64×99 9.9   | 64×119 11.1 | 77×121 11.8 | 90×141 20.0 | 90×151 20.5 |             |
| 12000         | 51×83 6.6   | 64×119 10.8 | 77×101 11.6 | 77×141 13.1 |             |             |             |
| 15000         | 51×83 8.5   | 77×101 12.7 | 77×121 12.9 | 90×141 16.5 |             |             |             |
| 18000         | 51×98 8.9   | 77×121 14.1 | 77×141 15.2 |             |             |             |             |
| 22000         | 51×118 10.2 | 77×141 16.6 | 90×141 15.6 |             |             |             |             |
| 27000         | 64×99 11.0  | 90×141 17.7 |             |             |             |             |             |
| 33000         | 64×119 11.7 | 90×141 18.9 |             |             |             |             |             |
| 39000         | 77×101 12.5 |             |             |             |             |             |             |
| 47000         | 77×121 14.5 |             |             |             |             |             |             |
| 56000         | 77×141 16.2 |             |             |             |             |             |             |
| 68000         | 77×151 18.3 |             |             |             |             |             |             |
| 82000         | 90×141 20.1 |             |             |             |             |             |             |
| 100000        | 90×141 21.0 |             |             |             |             |             |             |

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

**◆Tightening torque of bolt and Permissible current of terminal**

| Clamp Bolt | Recommended Tightening torque |
|------------|-------------------------------|
| M3         | 0.6 [N·m]                     |
| M4         | 1.3 [N·m]                     |

| Terminal | Recommended Tightening torque (Permissible Range) | Permissible Current of Terminal |
|----------|---------------------------------------------------|---------------------------------|
| M5       | 2.2(1.5~3.2) [N·m]                                | 60 [A r.m.s.]                   |