

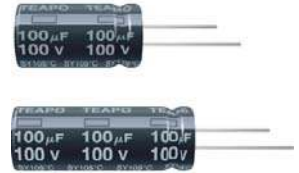
**SY**

Low impedance · Long life Series

- Features: Low Impedance , high permissible ripple current at high frequency and long life than SC
- Recommended Applications :Used switching regulator applications in computers.  
Especially for high frequency.
- Corresponding product to RoHS

**SY**

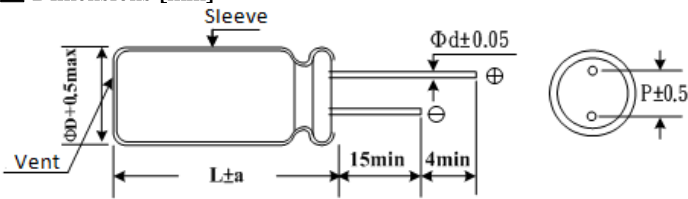
↑ Long Life  
SC



**SPECIFICATIONS**

| Item                                                                                                                      | Characteristics                                                                                                                                                             |                                         |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Category Temperature Range                                                                                                | -40 ~ +105°C                                                                                                                                                                |                                         |
| Rated Voltage Range                                                                                                       | 6.3 ~ 100VDC                                                                                                                                                                |                                         |
| Rated Capacitance Range                                                                                                   | 15 ~ 15000 μF                                                                                                                                                               |                                         |
| Capacitance Tolerance                                                                                                     | ± 20 % (120Hz , 20°C)                                                                                                                                                       |                                         |
| Leakage Current (20°C)                                                                                                    | I=0.01CV or 3 μ A whichever is greater. (After rated voltage applied for 2 minutes)<br>I : Max. leakage current (μ A), C : Nominal capacitance (μ F), V : Rated voltage (V) |                                         |
| Dissipation Factor(MAX)<br>(tan δ) (120Hz , 20°C)                                                                         | WV                                                                                                                                                                          | 6.3 10 16 25 35 50 63 100               |
|                                                                                                                           | tan δ                                                                                                                                                                       | 0.22 0.19 0.16 0.14 0.12 0.10 0.09 0.08 |
| When nominal capacitance is over 1000 μ F, tan δ shall be added 0.02 to the listed value with increase of every 1000 μ F. |                                                                                                                                                                             |                                         |
| Low Temperature Stability<br>Impedance Ratio (MAX)                                                                        | WV                                                                                                                                                                          | 6.3 10 16 25 35 50 63 100               |
|                                                                                                                           | Z(120Hz)<br>Z-25°C / Z+20°C                                                                                                                                                 | 4 3 2 2 2 2 2 2                         |
|                                                                                                                           | Z-40°C / Z+20°C                                                                                                                                                             | 8 6 4 3 3 3 3 3                         |
| Endurance                                                                                                                 | After applying rated voltage with rated ripple current for 6000 hours at 105°C , the capacitors shall meet the following requirements.                                      |                                         |
|                                                                                                                           | Capacitance change                                                                                                                                                          | Within ± 25% of initial value           |
|                                                                                                                           | D.F. (tan δ)                                                                                                                                                                | Not more than 200% of specified value   |
|                                                                                                                           | Leakage current                                                                                                                                                             | Not more than the specified value       |
|                                                                                                                           | DΦ                                                                                                                                                                          | 5~6.3 Φ 8~10 Φ x12.5 10x15~12 Φ 13~18 Φ |
| life(hours)                                                                                                               | 3000 hrs 4000 hrs 5000 hrs 6000 hrs                                                                                                                                         |                                         |
| *If dimension is down size, Endurance will be less 1000 hours than standard.                                              |                                                                                                                                                                             |                                         |
| Shelf Life                                                                                                                | After placed at 105°C without voltage applied for 1000 hours, the capacitors shall meet the same requirement as Endurance.                                                  |                                         |

**Dimensions [mm]**



|    |     |     |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|-----|-----|
| ΦD | 5   | 6.3 | 8   | 10  | 13  | 16  | 18  |
| P  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| Φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| a  | 1.5 | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 |

**Multiplier for Ripple Current**

|                 |      |      |      |       |
|-----------------|------|------|------|-------|
| Freq. (Hz)      | 120  | 1 K  | 10 K | 100 K |
| 15~ 180 μ F     | 0.40 | 0.75 | 0.90 | 1.00  |
| 220 ~ 560 μ F   | 0.50 | 0.85 | 0.94 | 1.00  |
| 680 ~1800 μ F   | 0.60 | 0.87 | 0.95 | 1.00  |
| 2200 ~ 3900 μ F | 0.75 | 0.90 | 0.95 | 1.00  |
| ≥ 4700 μ F      | 0.85 | 0.95 | 0.98 | 1.00  |

■ STANDARD RATINGS

| Rated Voltage (SurageVoltage) (V) | Cap (μF) | Case size Φ DxL(mm) | Ripple current (mA/rms105°C) (100KHz) | Impedance (Ω,20°C) (100KHz) | Rated Voltage (SurageVoltage) (V) | Cap (μF) | Case size Φ DxL(mm) | Ripple current (mA/rms105°C) (100KHz) | Impedance (Ω,20°C) (100KHz) |
|-----------------------------------|----------|---------------------|---------------------------------------|-----------------------------|-----------------------------------|----------|---------------------|---------------------------------------|-----------------------------|
| 6.3V (8)                          | 150      | 5x11                | 210                                   | 0.580                       | 16V(20)                           | 120      | 6.3x11              | 340.00                                | 0.220                       |
|                                   | 330      | 6.3x11              | 340                                   | 0.220                       |                                   | 220      | 6.3x11              | 469.00                                | 0.185                       |
|                                   | 470      | 6.3x11              | 510                                   | 0.160                       |                                   |          | 8x11                | 582.00                                | 0.150                       |
|                                   | 680      | 8x11                | 640                                   | 0.130                       |                                   | 330      | 8x11                | 640.00                                | 0.130                       |
|                                   | 820      | 10x12.5             | 865                                   | 0.080                       |                                   | 470      | *8x15               | 840.00                                | 0.087                       |
|                                   | 1000     | 8x15                | 840                                   | 0.087                       |                                   |          | 8x20                | 950.00                                | 0.078                       |
|                                   | 1200     | 8x20                | 1050                                  | 0.069                       |                                   |          | *10x12.5            | 865.00                                | 0.080                       |
|                                   |          | 10x16               | 1210                                  | 0.060                       |                                   | 10x16    | 1210.00             | 0.060                                 |                             |
|                                   | 1500     | 8x20                | 1050                                  | 0.069                       |                                   | 680      | 8x20                | 1050.00                               | 0.069                       |
|                                   |          | *10x16              | 1210                                  | 0.060                       |                                   | 10x16    | 1210.00             | 0.060                                 |                             |
|                                   |          | 10x20               | 1400                                  | 0.046                       |                                   | 1000     | 8x20                | 1050.00                               | 0.069                       |
|                                   | 1800     | 13x16               | 1450                                  | 0.049                       |                                   |          | *10x16              | 1210.00                               | 0.060                       |
|                                   | 2200     | *10x20              | 1400                                  | 0.046                       |                                   |          | 10x20               | 1400.00                               | 0.046                       |
|                                   |          | 10x25               | 1650                                  | 0.042                       |                                   | 13x16    | 1450.00             | 0.049                                 |                             |
|                                   | 2700     | 10x30               | 1910                                  | 0.031                       |                                   | 1200     | 10x25               | 1650.00                               | 0.042                       |
|                                   |          | 16x16               | 1940                                  | 0.042                       |                                   | 1500     | 10x30               | 1910.00                               | 0.031                       |
|                                   | 3300     | 10x25               | 1650                                  | 0.042                       |                                   |          | 13x20               | 1900.00                               | 0.035                       |
|                                   |          | 13x20               | 1900                                  | 0.035                       |                                   |          | 16x16               | 1940.00                               | 0.042                       |
|                                   | 3900     | 13x25               | 2230                                  | 0.027                       |                                   | 2200     | 13x25               | 2230.00                               | 0.027                       |
|                                   |          | 18x16               | 2210                                  | 0.043                       |                                   | 18x16    | 2210.00             | 0.043                                 |                             |
| 4700                              | 13x30    | 2650                | 0.024                                 | 2700                        | 13x30                             | 2650.00  | 0.024               |                                       |                             |
| 5600                              | 13x35    | 2880                | 0.020                                 |                             | 16x20                             | 2530.00  | 0.027               |                                       |                             |
|                                   | 16x20    | 2530                | 0.027                                 | 3300                        | 13x35                             | 2880.00  | 0.020               |                                       |                             |
| 6800                              | 13x40    | 3350                | 0.017                                 | 3900                        | 13x40                             | 3350.00  | 0.017               |                                       |                             |
|                                   | 16x25    | 2930                | 0.021                                 |                             | 16x25                             | 2930.00  | 0.021               |                                       |                             |
|                                   | 18x20    | 2860                | 0.026                                 |                             | 18x20                             | 2860.00  | 0.026               |                                       |                             |
| 8200                              | 16x32    | 3450                | 0.017                                 | 4700                        | 16x32                             | 3450.00  | 0.017               |                                       |                             |
| 10000                             | 16x36    | 3610                | 0.015                                 |                             | 18x25                             | 3140.00  | 0.019               |                                       |                             |
|                                   | 18x25    | 3140                | 0.017                                 | 5600                        | 16x36                             | 3610.00  | 0.015               |                                       |                             |
| 12000                             | 18x32    | 4170                | 0.015                                 |                             | 18x32                             | 4170.00  | 0.015               |                                       |                             |
| 15000                             | 18x36    | 4220                | 0.014                                 | 6800                        | 16x40                             | 4080.00  | 0.013               |                                       |                             |
| 10V (13)                          | 100      | 5x11                | 210                                   | 0.580                       | 8200                              | 18x36    | 4220.00             | 0.014                                 |                             |
|                                   | 220      | 6.3x11              | 340                                   | 0.220                       | 10000                             | 18x40    | 4280.00             | 0.012                                 |                             |
|                                   | 470      | 8x11                | 640                                   | 0.130                       | 25V (32)                          | 47       | 5x11                | 210.00                                | 0.580                       |
|                                   | 680      | 8x15                | 840                                   | 0.087                       |                                   | 100      | 6.3x11              | 340.00                                | 0.220                       |
|                                   | 820      | 10x12.5             | 865                                   | 0.080                       |                                   | 150      | 8x11                | 640.00                                | 0.160                       |
|                                   | 1000     | 8x20                | 1050                                  | 0.069                       |                                   | 220      | 8x11                | 640.00                                | 0.130                       |
|                                   |          | 10x16               | 1210                                  | 0.060                       |                                   | 330      | 8x15                | 840.00                                | 0.087                       |
|                                   | 1200     | 10x20               | 1400                                  | 0.046                       |                                   |          | 10x12.5             | 865.00                                | 0.080                       |
|                                   | 1500     | 10x25               | 1650                                  | 0.042                       |                                   | 470      | 8x20                | 1050.00                               | 0.069                       |
|                                   |          | 13x16               | 1450                                  | 0.049                       |                                   |          | *10x12.5            | 1050.00                               | 0.070                       |
|                                   | 2200     | 10x30               | 1910                                  | 0.031                       |                                   | 10x16    | 1210.00             | 0.060                                 |                             |
|                                   |          | 13x20               | 1900                                  | 0.042                       |                                   | 680      | 10x20               | 1400.00                               | 0.046                       |
|                                   |          | 16x16               | 1940                                  | 0.042                       |                                   | 13x16    | 1450.00             | 0.049                                 |                             |
|                                   | 2700     | 18x16               | 2210                                  | 0.043                       |                                   | 820      | 10x25               | 1650.00                               | 0.042                       |
|                                   | 3300     | 10x30               | 1910                                  | 0.031                       |                                   | 1000     | 10x30               | 1910.00                               | 0.031                       |
|                                   |          | 13x25               | 2230                                  | 0.027                       |                                   |          | 13x20               | 1900.00                               | 0.035                       |
|                                   | 3900     | 13x30               | 2650                                  | 0.024                       |                                   |          | 16x16               | 1940.00                               | 0.042                       |
|                                   |          | 16x20               | 2530                                  | 0.027                       |                                   | 1200     | 18x16               | 2210.00                               | 0.043                       |
|                                   | 4700     | 13x35               | 2880                                  | 0.020                       |                                   | 1500     | *13x20              | 1900.00                               | 0.035                       |
|                                   | 5600     | 13x40               | 3350                                  | 0.017                       |                                   |          | 13x25               | 2230.00                               | 0.027                       |
| 16x25                             |          | 2930                | 0.021                                 | 1800                        |                                   | 13x30    | 2650.00             | 0.024                                 |                             |
| 18x20                             |          | 2860                | 0.026                                 |                             |                                   | 16x20    | 2530.00             | 0.027                                 |                             |
| 6800                              | 16x32    | 3450                | 0.017                                 | 2200                        | 13x35                             | 2880.00  | 0.020               |                                       |                             |
|                                   | 18x25    | 3140                | 0.019                                 |                             | 18x20                             | 2860.00  | 0.026               |                                       |                             |
| 8200                              | 16x36    | 3610                | 0.015                                 | 2700                        | 13x40                             | 3350.00  | 0.017               |                                       |                             |
|                                   | 18x32    | 4170                | 0.015                                 |                             | 16x25                             | 2930.00  | 0.021               |                                       |                             |
| 10000                             | 16x40    | 4080                | 0.013                                 | 3300                        | 16x32                             | 3450.00  | 0.017               |                                       |                             |
|                                   | 18x36    | 4220                | 0.014                                 |                             | 18x25                             | 3140.00  | 0.019               |                                       |                             |
| 12000                             | 18x40    | 4280                | 0.012                                 | 3900                        | 18x32                             | 4170.00  | 0.015               |                                       |                             |
| 16V (20)                          | 56       | 5x11                | 210                                   | 0.580                       | 4700                              | 18x36    | 4220.00             | 0.014                                 |                             |
|                                   | 100      | 6.3x11              | 250                                   | 0.230                       | 5600                              | 18x40    | 4280.00             | 0.012                                 |                             |

\* \* " is down size , Ripple Life is less 1000 hrs than standard

■ STANDARD RATINGS

| Rated Voltage (SurageVoltage) (V) | Cap (μF) | Case size ΦDxL(mm) | Ripple current (mA/rms105°C) (100KHz) | Impedance (Ω,20°C) (100KHz) | Rated Voltage (SurageVoltage) (V) | Cap (μF) | Case size ΦDxL(mm) | Ripple current (mA/rms105°C) (100KHz) | Impedance (Ω,20°C) (100KHz) |
|-----------------------------------|----------|--------------------|---------------------------------------|-----------------------------|-----------------------------------|----------|--------------------|---------------------------------------|-----------------------------|
| 35V (44)                          | 33       | 5x11               | 210                                   | 0.580                       | 50V (63)                          | 1200     | 18x25              | 2740                                  | 0.026                       |
|                                   | 47       | 6.3x11             | 275                                   | 0.390                       |                                   | 1500     | 16x36              | 3150                                  | 0.019                       |
|                                   | 56       | 6.3x11             | 340                                   | 0.220                       |                                   | 1800     | 16x40              | 3710                                  | 0.016                       |
|                                   | 68       | 6.3x11             | 500                                   | 0.170                       |                                   |          | 18x32              | 3635                                  | 0.021                       |
|                                   | 82       | 6.3x11             | 540                                   | 0.160                       |                                   | 2200     | 18x36              | 3680                                  | 0.017                       |
|                                   | 100      | 8x11               | 580                                   | 0.150                       |                                   | 2700     | 18x40              | 3800                                  | 0.014                       |
|                                   | 150      | 8x11               | 640                                   | 0.130                       | 63V (79)                          | 15       | 5x11               | 55                                    | 2.3                         |
|                                   | 220      | *8x15              | 840                                   | 0.087                       |                                   | 33       | 6.3x11             | 115                                   | 1.2                         |
|                                   |          | 10x12.5            | 865                                   | 0.080                       |                                   | 56       | 8x12               | 232                                   | 0.63                        |
|                                   | 270      | 8x20               | 1050                                  | 0.069                       |                                   | 82       | 8x15               | 300                                   | 0.45                        |
|                                   |          | *10x16             | 1210                                  | 0.060                       |                                   |          | 10x12.5            | 288                                   | 0.43                        |
|                                   | 330      | 10x20              | 1400                                  | 0.046                       |                                   | 120      | 8x20               | 362                                   | 0.33                        |
|                                   |          | 10x20              | 1400                                  | 0.046                       |                                   |          | 10x16              | 357                                   | 0.31                        |
|                                   | 470      | 13x16              | 1450                                  | 0.049                       |                                   | 180      | 10x20              | 466                                   | 0.21                        |
|                                   |          | 10x25              | 1650                                  | 0.042                       |                                   |          | 13x16              | 466                                   | 0.23                        |
|                                   | 680      | 10x30              | 1910                                  | 0.031                       |                                   | 220      | 10x25              | 531                                   | 0.2                         |
|                                   |          | 13x20              | 1900                                  | 0.035                       |                                   |          | 10x30              | 663                                   | 0.15                        |
|                                   |          | 16x16              | 1940                                  | 0.042                       |                                   | 270      | 13x20              | 690                                   | 0.16                        |
|                                   | 820      | 13x20              | 1900                                  | 0.035                       |                                   |          | 16x16              | 795                                   | 0.14                        |
|                                   |          | 1000               | 13x25                                 | 2230                        |                                   | 0.027    | 330                | 13x25                                 | 784                         |
|                                   | 18x16    |                    | 2210                                  | 0.043                       |                                   | 390      |                    | 18x16                                 | 920                         |
|                                   | 1200     | 13x30              | 2650                                  | 0.024                       |                                   | 470      | 13x30              | 905                                   | 0.1                         |
|                                   |          | 16x20              | 2530                                  | 0.027                       |                                   |          | 16x20              | 1040                                  | 0.091                       |
|                                   | 1500     | 13x35              | 2880                                  | 0.020                       |                                   | 560      | 13x35              | 1050                                  | 0.083                       |
| 13x40                             |          | 3350               | 0.017                                 | 16x25                       |                                   |          | 1250               | 0.073                                 |                             |
| 1800                              | 16x25    | 2930               | 0.021                                 | 680                         |                                   | 13x40    | 1180               | 0.071                                 |                             |
|                                   | 18x20    | 2860               | 0.026                                 |                             |                                   | 18x20    | 1240               | 0.08                                  |                             |
| 2200                              | 16x32    | 3450               | 0.017                                 | 820                         |                                   | 16x32    | 1570               | 0.054                                 |                             |
|                                   | 18x25    | 3140               | 0.019                                 |                             |                                   | 18x25    | 1490               | 0.057                                 |                             |
| 2700                              | 16x36    | 3610               | 0.015                                 | 1000                        |                                   | 16x36    | 1790               | 0.045                                 |                             |
|                                   | 18x32    | 4170               | 0.015                                 |                             | 18x32                             | 1630     | 0.047              |                                       |                             |
| 3300                              | 16x40    | 4080               | 0.013                                 | 1200                        | 16x40                             | 2020     | 0.04               |                                       |                             |
|                                   | 18x36    | 4220               | 0.014                                 |                             | 100V (125)                        | 15       | 6.3x11             | 115                                   | 1.2                         |
| 3900                              | 18x40    | 4280               | 0.012                                 | 27                          |                                   | 8x12     | 232                | 0.63                                  |                             |
| 50V (63)                          | 22       | 5x11               | 180                                   | 0.700                       |                                   | 39       | 8x15               | 300                                   | 0.45                        |
|                                   | 33       | 6.3x11             | 245                                   | 0.490                       |                                   | 47       | 10x12.5            | 288                                   | 0.43                        |
|                                   | 47       | 6.3x11             | 300                                   | 0.520                       |                                   | 56       | 8x20               | 362                                   | 0.33                        |
|                                   | 56       | 6.3x11             | 295                                   | 0.300                       |                                   | 68       | 10x16              | 357                                   | 0.31                        |
|                                   | 100      | 8x11               | 555                                   | 0.170                       |                                   | 82       | 10x20              | 466                                   | 0.21                        |
|                                   | 120      | 8x15               | 730                                   | 0.120                       |                                   |          | 13x16              | 466                                   | 0.23                        |
|                                   | 150      | 10x12.5            | 760                                   | 0.120                       |                                   | 100      | 10x25              | 531                                   | 0.2                         |
|                                   | 180      | 8x20               | 910                                   | 0.091                       |                                   |          | 10x30              | 663                                   | 0.15                        |
|                                   | 220      | 10x16              | 1050                                  | 0.084                       |                                   | 120      | 13x20              | 690                                   | 0.16                        |
|                                   |          | 10x20              | 1220                                  | 0.060                       |                                   |          | 150                | 16x16                                 | 795                         |
|                                   | 270      | 13x16              | 1260                                  | 0.061                       |                                   | 180      | 13x25              | 784                                   | 0.12                        |
|                                   |          | *10x20             | 1400                                  | 0.058                       |                                   |          | 18x16              | 920                                   | 0.12                        |
|                                   | 330      | 10x25              | 1440                                  | 0.055                       |                                   | 220      | 13x30              | 905                                   | 0.1                         |
|                                   |          | 10x30              | 1690                                  | 0.043                       |                                   |          | 16x20              | 1040                                  | 0.091                       |
|                                   | 470      | 13x20              | 1660                                  | 0.045                       |                                   | 270      | 13x35              | 1050                                  | 0.083                       |
|                                   |          | 16x16              | 1690                                  | 0.055                       |                                   |          | 16x25              | 1250                                  | 0.073                       |
|                                   | 560      | 13x25              | 1950                                  | 0.034                       |                                   | 330      | 13x40              | 1180                                  | 0.071                       |
|                                   |          | 18x16              | 1930                                  | 0.054                       |                                   |          | 18x20              | 1240                                  | 0.08                        |
|                                   | 680      | 13x30              | 2310                                  | 0.030                       |                                   | 390      | 16x32              | 1570                                  | 0.054                       |
|                                   |          | 13x35              | 2510                                  | 0.025                       |                                   |          | 18x25              | 1490                                  | 0.057                       |
|                                   | 820      | 16x20              | 2210                                  | 0.034                       |                                   | 470      | 16x36              | 1790                                  | 0.045                       |
|                                   |          | 13x40              | 2920                                  | 0.021                       |                                   |          | 18x32              | 1630                                  | 0.047                       |
|                                   | 1000     | 16x25              | 2555                                  | 0.025                       | 560                               | 16x40    | 2020               | 0.04                                  |                             |
|                                   |          | 18x20              | 2490                                  | 0.036                       |                                   | 680      | 18x36              | 1790                                  | 0.04                        |
| 1200                              | 16x32    | 3010               | 0.022                                 | 820                         | 18x40                             | 2330     | 0.036              |                                       |                             |

" \* " is down size , Ripple Life is less 1000 hrs than standard