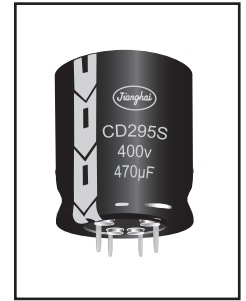
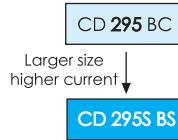


5000h at 85°C

- Larger Size Components
- Long Useful Life
- High Ripple Current
- Industrial Power Supplies
- Voltage derating (0.93\*V<sub>R</sub>) enables 105°C operation



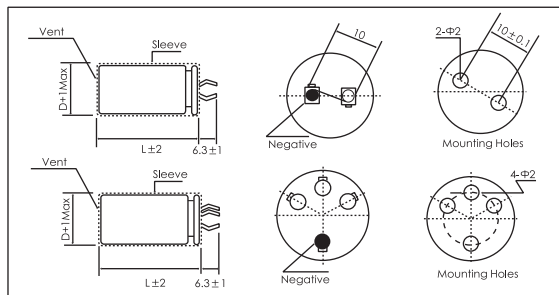
SNAP-IN/LUG

| Items   | Characteristics   |         |           |         |
|---|---|---------|-----------|---------|
| Operating Temperature Range (°C)                        | -40 ~ +85   |         | -25 ~ +85 |         |
| Voltage Range (V)                                       | 160 ~ 400   |         | 450 ~ 500 |         |
| Capacitance Range (µF)                                  | 390 ~ 4700  |         |           |         |
| Capacitance Tolerance (20°C, 120Hz)                     | ± 20%   |         |           |         |
| Leakage Current (µA)                                    | After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 1.5mA, whichever is smaller.<br>C: Nominal Capacitance (µF) V: Rated Voltage (V) |         |           |         |
| Dissipation Factor (20°C, 120Hz)                        | WV (V)  | 160~500 |           |         |
|   | Tan δ   | 0.15    |           |         |
| Stability at Low Temperature (Impedance Ratio at 120Hz) | Rated Voltage (V)   | 160~200 | 250~400   | 450~500 |
|   | Z <sub>-25°C</sub> / Z <sub>+20°C</sub>   | 3       | 4         |         |
|   | Z <sub>-40°C</sub> / Z <sub>+20°C</sub>   | 6       | 8         | -       |

|   | Useful Life                              |  | Load Life                                | Endurance Test                               | Shelf Life   |
|---|--|--|--|--|--|
| Lifetime  | 12000h                                   | >100000h                                       | 5000h                                    | 7000h  | 1000h  |
| Leakage Current   | Not more than specified value            |  | Not more than specified value            | Not more than specified value                | Not more than specified value  |
| Capacitance Change  | Within ± 30% of initial value            |  | Within ± 20% of initial value            | Within ± 20% of initial value                | Within ± 20% of initial value  |
| Dissipation Factor  | Not more than 300% of specified value    |  | Not more than 200% of specified value    | Not more than 200% of specified value        | Not more than 200% of specified value  |
| Condition:<br>Applied Voltage<br>Applied Current<br>Applied Temperature | U <sub>R</sub><br>I <sub>R</sub><br>85°C | U <sub>R</sub><br>1.2 x I <sub>R</sub><br>40°C | U <sub>R</sub><br>I <sub>R</sub><br>85°C | U <sub>R</sub><br>I <sub>R</sub> = 0<br>85°C | U <sub>R</sub> = 0<br>I <sub>R</sub> = 0<br>85°C<br>After test:<br>U <sub>R</sub> to be applied<br>for 30min<br>>24h before<br>measurement |

## Dimensions

mm



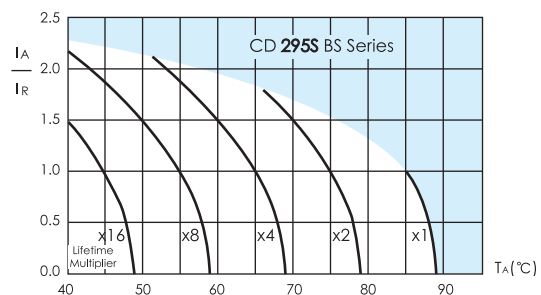
## Frequency Coefficient

| Frequency | 50/60Hz | 120Hz | 300Hz | 1kHz | 10kHz | ≥50kHz |
|-----------|---------|-------|-------|------|-------|--------|
| Factor    | 0.8     | 1.0   | 1.16  | 1.3  | 1.41  | 1.45   |

## Temperature Coefficient

| Temperature (°C) | +40 | +55 | +70  | +85 |
|------------------|-----|-----|------|-----|
| Factor           | 2.3 | 2.1 | 1.75 | 1.0 |

## Lifetime Diagram



I<sub>A</sub> = actual ripple current at 120Hz, I<sub>R</sub> = rated ripple current at 120Hz, 85°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load

# CD 295S BS SERIES



## Ratings for CD 295S BS Series

| $U_r$<br>(Surge Voltage)<br>Code | Rated Capacitance  | Max ESR<br>20°C,<br>120Hz | Typ ESR<br>20°C,<br>120Hz | Rated Ripple Current<br>85°C,<br>120Hz | Size<br>$\Phi D \times L$ | P/N                 |                     |
|----------------------------------|--------------------|---------------------------|---------------------------|--|---------------------------|---------------------|---------------------|
| (V)                              | ( $\mu F$ )        | (m $\Omega$ )             | (m $\Omega$ )             | (Arms)                                 | (mm)                      | -                   |                     |
| 160<br>(200)<br>2C               | 2200               | 91                        | 63                        | 4.9                                    | 35 × 45                   | ECS2CBS222M□□350045 |                     |
|                                  | 2700               | 74                        | 52                        | 5.3                                    | 35 × 50                   | ECS2CBS272M□□350050 |                     |
|                                  | 3300               | 60                        | 42                        | 5.5                                    | 35 × 70                   | ECS2CBS332M□□350070 |                     |
|                                  |                    | 60                        | 42                        | 5.5                                    | 40 × 60                   | ECS2CBS332M□□400060 |                     |
|                                  | 3900               | 51                        | 36                        | 5.9                                    | 35 × 80                   | ECS2CBS392M□□350080 |                     |
|                                  | 4700               | 42                        | 30                        | 7.3                                    | 40 × 80                   | ECS2CBS472M□□400080 |                     |
| 200<br>(250)<br>2D               | 1500               | 133                       | 93                        | 4.3                                    | 35 × 40                   | ECS2DBS152M□□350040 |                     |
|                                  | 1800               | 111                       | 77                        | 4.7                                    | 35 × 45                   | ECS2DBS182M□□350045 |                     |
|                                  | 2200               | 91                        | 63                        | 5.4                                    | 35 × 50                   | ECS2DBS222M□□350050 |                     |
|                                  |                    | 91                        | 63                        | 5.4                                    | 40 × 40                   | ECS2DBS222M□□400040 |                     |
|                                  | 2700               | 74                        | 52                        | 5.9                                    | 35 × 60                   | ECS2DBS272M□□350060 |                     |
|                                  |                    | 74                        | 52                        | 5.9                                    | 40 × 50                   | ECS2DBS272M□□400050 |                     |
|                                  | 3300               | 60                        | 42                        | 6.5                                    | 35 × 80                   | ECS2DBS332M□□350080 |                     |
|                                  |                    | 60                        | 42                        | 6.5                                    | 40 × 60                   | ECS2DBS332M□□400060 |                     |
|                                  | 3900               | 51                        | 36                        | 7.0                                    | 40 × 80                   | ECS2DBS392M□□400080 |                     |
|                                  | 4700               | 42                        | 30                        | 9.2                                    | 40 × 90                   | ECS2DBS472M□□400090 |                     |
| 250<br>(300)<br>2E               | 1000               | 199                       | 139                       | 3.7                                    | 35 × 40                   | ECS2EBS102M□□350040 |                     |
|                                  | 1200               | 166                       | 116                       | 3.8                                    | 35 × 45                   | ECS2EBS122M□□350045 |                     |
|                                  | 1500               | 133                       | 93                        | 4.4                                    | 35 × 50                   | ECS2EBS152M□□350050 |                     |
|                                  |                    | 133                       | 93                        | 4.5                                    | 40 × 40                   | ECS2EBS152M□□400040 |                     |
|                                  | 1800               | 111                       | 77                        | 5.0                                    | 35 × 70                   | ECS2EBS182M□□350070 |                     |
|                                  |                    | 111                       | 77                        | 5.0                                    | 40 × 50                   | ECS2EBS182M□□400050 |                     |
|                                  | 2200               | 91                        | 63                        | 5.4                                    | 35 × 70                   | ECS2EBS222M□□350070 |                     |
|                                  | 2700               | 74                        | 52                        | 6.9                                    | 40 × 80                   | ECS2EBS272M□□400080 |                     |
| 350<br>(400)<br>2V               | 680                | 293                       | 205                       | 3.6                                    | 35 × 45                   | ECS2VBS681M□□350045 |                     |
|                                  |                    | 293                       | 205                       | 3.6                                    | 40 × 40                   | ECS2VBS681M□□400040 |                     |
|                                  | 820                | 243                       | 170                       | 4.5                                    | 35 × 60                   | ECS2VBS821M□□350060 |                     |
|                                  |                    | 243                       | 170                       | 4.5                                    | 40 × 50                   | ECS2VBS821M□□400050 |                     |
|                                  | 1000               | 199                       | 139                       | 5.2                                    | 35 × 70                   | ECS2VBS102M□□350070 |                     |
|                                  |                    | 199                       | 139                       | 4.9                                    | 40 × 60                   | ECS2VBS102M□□400060 |                     |
|                                  | 1200               | 166                       | 116                       | 5.5                                    | 35 × 80                   | ECS2VBS122M□□350080 |                     |
|                                  |                    | 166                       | 116                       | 5.6                                    | 40 × 70                   | ECS2VBS122M□□400070 |                     |
|                                  | 1500               | 133                       | 93                        | 6.5                                    | 40 × 80                   | ECS2VBS152M□□400080 |                     |
|                                  |                    | 133                       | 93                        | 6.2                                    | 45 × 70                   | ECS2VBS152M□□450070 |                     |
|                                  | 1800               | 111                       | 77                        | 7.9                                    | 40 × 100                  | ECS2VBS182M□□400100 |                     |
|                                  |                    | 111                       | 77                        | 7.1                                    | 45 × 70                   | ECS2VBS182M□□450070 |                     |
|                                  | 2200               | 91                        | 63                        | 8.7                                    | 40 × 100                  | ECS2VBS222M□□400100 |                     |
|                                  | 400<br>(450)<br>2G | 560                       | 355                       | 249                                    | 3.2                       | 35 × 50             | ECS2GBS561M□□350050 |
|                                  |                    | 355                       | 249                       | 2.8                                    | 40 × 40                   | ECS2GBS561M□□400040 |                     |
| 680                              |                    | 293                       | 205                       | 3.7                                    | 35 × 60                   | ECS2GBS681M□□350060 |                     |
|                                  |                    | 293                       | 205                       | 3.8                                    | 40 × 50                   | ECS2GBS681M□□400050 |                     |
| 820                              |                    | 243                       | 170                       | 4.2                                    | 35 × 60                   | ECS2GBS821M□□350060 |                     |
|                                  |                    | 243                       | 170                       | 4.1                                    | 40 × 50                   | ECS2GBS821M□□400050 |                     |
| 1000                             |                    | 199                       | 139                       | 4.9                                    | 35 × 70                   | ECS2GBS102M□□350070 |                     |
|                                  |                    | 199                       | 139                       | 4.8                                    | 40 × 60                   | ECS2GBS102M□□400060 |                     |
|                                  |                    | 199                       | 139                       | 4.6                                    | 45 × 50                   | ECS2GBS102M□□450050 |                     |
| 1200                             |                    | 166                       | 116                       | 5.8                                    | 35 × 80                   | ECS2GBS122M□□350080 |                     |
|                                  |                    | 166                       | 116                       | 5.5                                    | 40 × 70                   | ECS2GBS122M□□400070 |                     |
|                                  |                    | 133                       | 93                        | 6.9                                    | 40 × 80                   | ECS2GBS152M□□400080 |                     |
|                                  |                    | 133                       | 93                        | 6.6                                    | 45 × 70                   | ECS2GBS152M□□450070 |                     |
|                                  |                    | 133                       | 93                        | 6.8                                    | 45 × 80                   | ECS2GBS152M□□450080 |                     |
| 1800                             |                    | 111                       | 77                        | 7.9                                    | 40 × 90                   | ECS2GBS182M□□400090 |                     |
|                                  |                    | 111                       | 77                        | 7.3                                    | 45 × 80                   | ECS2GBS182M□□450080 |                     |
| 450<br>(500)<br>2W               |                    | 470                       | 424                       | 296                                    | 3.0                       | 35 × 50             | ECS2WBS471M□□350050 |
|                                  |                    |                           | 424                       | 296                                    | 3.0                       | 40 × 40             | ECS2WBS471M□□400040 |
|                                  | 560                | 355                       | 249                       | 3.1                                    | 35 × 50                   | ECS2WBS561M□□350050 |                     |
|                                  |                    | 355                       | 249                       | 3.3                                    | 35 × 60                   | ECS2WBS561M□□350060 |                     |
|                                  |                    | 355                       | 249                       | 3.4                                    | 40 × 50                   | ECS2WBS561M□□450050 |                     |
|                                  | 680                | 293                       | 205                       | 3.5                                    | 35 × 60                   | ECS2WBS681M□□350060 |                     |
|                                  |                    | 293                       | 205                       | 3.8                                    | 35 × 70                   | ECS2WBS681M□□350070 |                     |
|                                  |                    | 293                       | 205                       | 3.8                                    | 40 × 60                   | ECS2WBS681M□□400060 |                     |
|                                  | 820                | 243                       | 170                       | 4.6                                    | 35 × 80                   | ECS2WBS821M□□350080 |                     |
|                                  |                    | 243                       | 170                       | 4.4                                    | 40 × 60                   | ECS2WBS821M□□400060 |                     |
|                                  | 1000               | 199                       | 139                       | 5.7                                    | 35 × 80                   | ECS2WBS102M□□350080 |                     |
|                                  |                    | 199                       | 139                       | 5.2                                    | 40 × 60                   | ECS2WBS102M□□400060 |                     |
|                                  | 1200               | 166                       | 116                       | 5.9                                    | 40 × 70                   | ECS2WBS122M□□400070 |                     |
|                                  |                    | 166                       | 116                       | 6.2                                    | 45 × 70                   | ECS2WBS122M□□450070 |                     |
|                                  | 1500               | 133                       | 93                        | 7.3                                    | 40 × 100                  | ECS2WBS152M□□400100 |                     |
|                                  |                    | 133                       | 93                        | 7.0                                    | 45 × 80                   | ECS2WBS152M□□450080 |                     |
|                                  | 1800               | 111                       | 77                        | 7.9                                    | 45 × 100                  | ECS2WBS182M□□450100 |                     |
|                                  | 500<br>(550)<br>2H | 390                       | 510                       | 357                                    | 1.9                       | 35 × 50             | ECS2HBS391M□□350050 |
| 470                              |                    | 424                       | 296                       | 2.3                                    | 35 × 60                   | ECS2HBS471M□□350060 |                     |
| 560                              |                    | 355                       | 249                       | 2.5                                    | 35 × 60                   | ECS2HBS561M□□350060 |                     |
|                                  |                    | 355                       | 249                       | 2.7                                    | 40 × 60                   | ECS2HBS561M□□400060 |                     |
| 680                              |                    | 293                       | 205                       | 3.1                                    | 35 × 80                   | ECS2HBS681M□□350080 |                     |
|                                  |                    | 293                       | 205                       | 2.8                                    | 40 × 70                   | ECS2HBS681M□□400070 |                     |
| 820                              |                    | 243                       | 170                       | 3.4                                    | 35 × 90                   | ECS2HBS821M□□350090 |                     |
|                                  |                    | 243                       | 170                       | 3.3                                    | 40 × 70                   | ECS2HBS821M□□400070 |                     |
| 1000                             |                    | 199                       | 139                       | 3.9                                    | 40 × 80                   | ECS2HBS102M□□400080 |                     |
|                                  |                    | 199                       | 139                       | 3.9                                    | 45 × 70                   | ECS2HBS102M□□450070 |                     |
| 1200                             |                    | 166                       | 116                       | 4.3                                    | 40 × 90                   | ECS2HBS122M□□400090 |                     |
|                                  |                    | 166                       | 116                       | 4.3                                    | 40 × 90                   | ECS2HBS122M□□400090 |                     |
| 1500                             |                    | 133                       | 93                        | 4.8                                    | 45 × 100                  | ECS2HBS152M□□450100 |                     |

Customer products are available on request.