

# TS13E CDHCP

**FEATURES**

- Functional Polymer are used
- Low ESR at high frequency range
- High ripple current capability
- Long life and high reliability

**FEATURES**

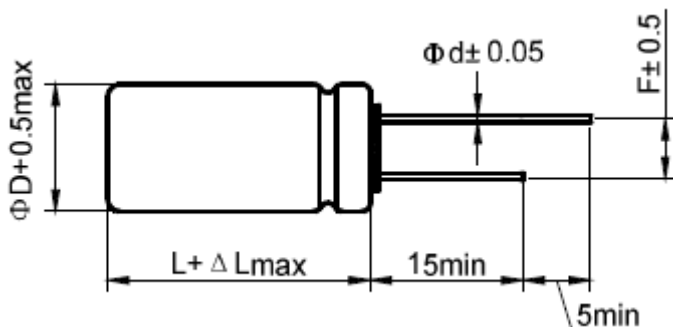
- Switching Power Supply, DC/DC Converter
- Back-up Power supply (VRM, ect)

◆ Specifications

| I T E M S                                                             |                                                            | C H A R A C T E R I S T I C S         |  |
|-----------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------|--|
| Operating Temperature Range(°C)                                       | -55~+105                                                   |                                       |  |
| Capacitance Range ( μF)                                               | 68~1200                                                    |                                       |  |
| Capacitance Tolerance (20°C, 120Hz)                                   | ±20%                                                       |                                       |  |
| Rated Voltage Range (V)                                               | 4~16                                                       |                                       |  |
| Dissipation Factor (20°C, 120Hz)                                      | Less than the specification (20°C, 120Hz)                  |                                       |  |
| Leakage Current ( μA)                                                 | Less than the specification (20°C, 2min)                   |                                       |  |
| Surge Voltage (V)                                                     | Rated Voltage X1.15                                        |                                       |  |
| Equivalent Series Resistance                                          | Less than the specification (20°C, 120Hz)                  |                                       |  |
| Temperature Characteristics (100Hz)                                   | Z (105°C) / Z (20°C) ≥ 0.75<br>Z (-55°C) / Z (20°C) ≤ 1.25 |                                       |  |
| Loading Life 105°C, 2000h<br>Rated Voltage Applied                    | Capacitance change rate                                    | Less than ±20% of the initial value   |  |
|                                                                       | Dissipation Factor                                         | Less than 150% of the specified value |  |
|                                                                       | ESR                                                        | Less than 150% of the specified value |  |
|                                                                       | Leakage Current                                            | Less than the specified value         |  |
| Moisture Resistance<br>50°C, 90%-95%RH, 100h<br>Rated Voltage Applied | Capacitance change rate                                    | Less than ±20% of the initial valre   |  |
|                                                                       | Dissipation Factor                                         | Less than 150% of the specified value |  |
|                                                                       | ESR                                                        | Less than 150% of the specified value |  |
|                                                                       | Leakage Current                                            | Less than the specified value         |  |
| Surge Voltage Characteristic 105°C,<br>1000cycles                     | Capacitance change rate                                    | Less than ±20% of the initial value   |  |
|                                                                       | Dissipation Factor                                         | Less than 150% of the specified value |  |
|                                                                       | ESR                                                        | Less than 150% of the specified value |  |
|                                                                       | Leakage Current                                            | Less than the specified value         |  |

◆ Dimensions

mm



| Size Code | ØD x L  | ΔL  | Ød  | F   |
|-----------|---------|-----|-----|-----|
| B12       | 8x11.5  | 1.5 | 0.6 | 3.5 |
| C13       | 10x12.5 | 1.5 | 0.6 | 5.0 |

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## ◆ STANDARD RATINGS

| Rated Voltage (V) | Capacitance ( $\mu$ F) | Leakage Current ( $\mu$ A) | Tan $\delta$ (120Hz) | ESR (100KHz) (m $\Omega$ ) | Max Ripple Current 100KHz 105°C (mA, rms) | ØDxL (mm) |
|-------------------|------------------------|----------------------------|----------------------|----------------------------|-------------------------------------------|-----------|
| 4.0               | 510                    | 408.0                      | 0.080                | 16                         | 4080                                      | Ø8x11.5   |
|                   | 560                    | 448.0                      | 0.080                | 14                         | 4080                                      | Ø8x11.5   |
|                   | 620                    | 496.0                      | 0.080                | 13                         | 4260                                      | Ø8x11.5   |
|                   | 680                    | 544.0                      | 0.080                | 13                         | 4840                                      | Ø10x12.5  |
|                   | 750                    | 600.0                      | 0.080                | 12                         | 5040                                      | Ø10x12.5  |
|                   | 820                    | 656.0                      | 0.080                | 12                         | 5040                                      | Ø10x12.5  |
|                   | 1000                   | 800.0                      | 0.080                | 12                         | 5040                                      | Ø10x12.5  |
|                   | 1200                   | 960.0                      | 0.150                | 12                         | 5040                                      | Ø10x12.5  |
| 6.3               | 150                    | 189.0                      | 0.070                | 30                         | 2780                                      | Ø8x11.5   |
|                   | 220                    | 277.2                      | 0.070                | 30                         | 3000                                      | Ø8x11.5   |
|                   | 330                    | 415.8                      | 0.080                | 25                         | 3500                                      | Ø8x11.5   |
|                   | 390                    | 491.4                      | 0.080                | 16                         | 3810                                      | Ø8x11.5   |
|                   | 470                    | 592.2                      | 0.080                | 16                         | 3810                                      | Ø8x11.5   |
|                   | 560                    | 705.6                      | 0.080                | 14                         | 4330                                      | Ø10x12.5  |
|                   | 680                    | 856.8                      | 0.080                | 13                         | 4840                                      | Ø10x12.5  |
|                   | 820                    | 1033.2                     | 0.150                | 12                         | 5040                                      | Ø10x12.5  |
| 10                | 100                    | 200.0                      | 0.070                | 30                         | 2670                                      | Ø8x11.5   |
|                   | 150                    | 300.0                      | 0.070                | 29                         | 3020                                      | Ø10x12.5  |
|                   | 220                    | 440.0                      | 0.070                | 27                         | 3370                                      | Ø10x12.5  |
|                   | 330                    | 660.0                      | 0.080                | 21                         | 4140                                      | Ø10x12.5  |
|                   | 390                    | 780.0                      | 0.080                | 18                         | 4510                                      | Ø10x12.5  |
|                   | 470                    | 940.0                      | 0.080                | 15                         | 4510                                      | Ø10x12.5  |
| 16                | 68                     | 217.6                      | 0.060                | 36                         | 2700                                      | Ø8x11.5   |
|                   | 100                    | 320.0                      | 0.060                | 30                         | 2740                                      | Ø8x11.5   |
|                   | 150                    | 480.0                      | 0.060                | 28                         | 3260                                      | Ø10x12.5  |
|                   | 330                    | 1056.0                     | 0.060                | 14                         | 5050                                      | Ø10x12.5  |

Note: Specification are subject to change without notice. For more detail and update, please visit our website.