

TS13E CDHEB



FEATURES

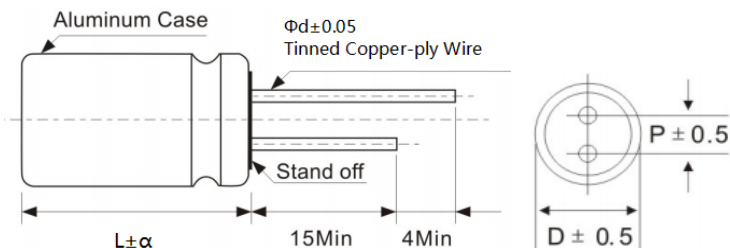
- Low ESR, high ripple current
- Load life of 2000 hours at 105°C

◆ Specifications

| I T E M S | | C H A R A C T E R I S T I C S | | | | | | | | | | |
|--|--|-------------------------------|---|-----|-----|-----|----------|----|----|----|----|--|
| Category Temperature Range (°C) | -55 ~ +105 | | | | | | | | | | | |
| Rated Voltage Range | 2.5 ~ 25V | | | | | | | | | | | |
| Capacitance Tolerance (20°C, 120Hz) | ±20% | | | | | | | | | | | |
| Leakage Current | ≤0.2CV or 500µA whichever is greater Less than or equal to the specified value. After 2 minutes application of rated Voltage at 20°C | | | | | | | | | | | |
| Dissipation Factor (20°C, 120Hz) | Rated Voltage (V) | 2.5 | 4 | 6.3 | 6.8 | 7.5 | 10 | 12 | 16 | 20 | 25 | |
| | tanδ (Max.) | 0.08 | | | | | 0.12 | | | | | |
| Low Temperature Characteristics (Max. Impedance Ratio) | Z(-25°C)/Z(+20°C) | ≤1.25 | | | | | (100KHz) | | | | | |
| | Z(-55°C)/Z(+20°C) | ≤1.25 | | | | | | | | | | |
| Endurance | The specifications listed below shall be satisfied when the capacitors are restored to 20°C after application of rated voltage for 2000 hours at 105°C. | | | | | | | | | | | |
| | Appearance | No significant damage | | | | | | | | | | |
| | Capacitance change | ≤±20% of the initial value | | | | | | | | | | |
| | D.F.(tanδ) | ≤150% of the specified value | | | | | | | | | | |
| | ESR | ≤150% of the specified value | | | | | | | | | | |
| | Leakage current | ≤The specified value | | | | | | | | | | |
| Damp Heat (Steady State) | The specifications listed below shall be satisfied when the capacitors are restored to 20°C after application of rated voltage for 1000 hours at 60°C, 90% ~ 95% RH. | | | | | | | | | | | |
| | Appearance | No significant damage | | | | | | | | | | |
| | Capacitance change | ≤±20% of the initial value | | | | | | | | | | |
| | D.F.(tanδ) | ≤150% of the specified value | | | | | | | | | | |
| | ESR | ≤150% of the specified value | | | | | | | | | | |
| | Leakage current | ≤The specified value | | | | | | | | | | |
| Surge Voltage | Surge Voltage=Rated voltage × 1.15(V) The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltages specified at 105°C for 30 seconds through a protective resistor (Rc=1kΩ) and discharge for 5 minutes 30 seconds. | | | | | | | | | | | |
| | Appearance | No significant damage | | | | | | | | | | |
| | Capacitance change | ≤±20% of the initial value | | | | | | | | | | |
| | D.F.(tanδ) | ≤150% of the specified value | | | | | | | | | | |
| | ESR | ≤150% of the specified value | | | | | | | | | | |
| | Leakage current | ≤The specified value | | | | | | | | | | |

Dimensions

mm



| | | | | |
|----|-----|-----|-----|-----|
| ΦD | 5 | 6.3 | 8 | 10 |
| P | 2.0 | 2.5 | 3.5 | 5.0 |
| Φd | 0.5 | 0.6 | 0.6 | 0.6 |

| | | |
|---|---------------|-----|
| α | (L < 16) | 1.0 |
| | (16 ≤ L < 22) | 1.5 |
| | (L ≥ 22) | 2.0 |

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◆ RATED RIPPLE CURRENT COEFFICIENT

| Frequency(Hz) | 120Hz \leq f < 1kHz | 1kHz \leq f < 10kHz | 10kHz \leq f < 100kHz | 100kHz \leq f < 500kHz |
|---------------|-----------------------|-----------------------|-------------------------|--------------------------|
| Coefficient | 0.05 | 0.30 | 0.70 | 1.00 |

◆ STANDARD RATINGS

| Rated Voltage | Rated Capacitance (μ F) | Case Size Φ DxL (mm) | ESR (m Ω) at 20°C, 100 KHz | Leakage Current (μ A) | Rated Ripple Current (mA _{rms} /105°C/100kHz) |
|---------------|------------------------------|---------------------------|------------------------------------|----------------------------|--|
| 2.5 | 560 | 5x8 | 18 | 500 | 2900 |
| | | 6.3x8 | 15 | 500 | 3500 |
| | 680 | 6.3x8 | 15 | 500 | 3500 |
| | | 8x9 | 12 | 500 | 5200 |
| | 820 | 6.3x8 | 15 | 500 | 3500 |
| | | 8x9 | 12 | 500 | 5200 |
| | 1000 | 8x9 | 12 | 500 | 5500 |
| | | 8x12 | 12 | 500 | 5500 |
| 1200 | 8x9 | 12 | 600 | 5500 | |
| | 8x12 | 12 | 600 | 5500 | |
| 1500 | 8x12 | 12 | 750 | 5500 | |
| | 4 | 560 | 6.3x8 | 15 | 500 |
| 8x9 | | | 12 | 500 | 5100 |
| 680 | | 6.3x8 | 15 | 544 | 3500 |
| | | 8x9 | 12 | 544 | 5100 |
| 820 | | 6.3x9 | 15 | 656 | 4100 |
| | | 8x9 | 12 | 656 | 5100 |
| 1000 | 6.3x12 | 15 | 800 | 4100 | |
| | 8x9 | 12 | 800 | 5100 | |
| 1200 | 6.3x12 | 15 | 960 | 4500 | |
| | 8x9 | 12 | 960 | 5100 | |
| 6.3 | 220 | 5x7 | 18 | 500 | 2690 |
| | | 5x8 | 18 | 500 | 2690 |
| | 270 | 5x8 | 18 | 500 | 2690 |
| | 330 | 5x9.5 | 18 | 500 | 2690 |
| | | 6.3x8.5 | 15 | 500 | 3100 |
| | 390 | 5x9.5 | 16 | 500 | 3100 |
| | | 6.3x8 | 15 | 500 | 3100 |
| | 470 | 5x9.5 | 15 | 592 | 3300 |
| | | 6.3x8.5 | 15 | 592 | 4100 |
| | 560 | 5x11 | 15 | 706 | 3500 |
| | | 6.3x8.5 | 15 | 706 | 4100 |
| | | 8x9.5 | 12 | 706 | 5100 |
| | 680 | 5x12 | 15 | 857 | 4100 |
| | | 6.3x8.5 | 15 | 857 | 4100 |
| | | 8x9 | 12 | 857 | 5100 |
| 820 | 6.3x9.5 | 15 | 1033 | 4500 | |
| | 6.3x11.5 | 15 | 1033 | 4800 | |
| | 8x9.5 | 12 | 1033 | 5100 | |

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◆ STANDARD RATINGS

| Rated Voltage | Rated Capacitance (μF) | Case Size ΦDxL (mm) | ESR (mΩ) at 20°C, 100 KHz | Leakage Current (μA) | Rated Ripple Current (mA _{rms} /105°C/100kHz) |
|---------------|------------------------|---------------------|---------------------------|----------------------|--|
| 6.3 | 1000 | 6.3x11.5 | 14 | 1260 | 4800 |
| | | 8x9.5 | 12 | 1260 | 5100 |
| | | 8x12 | 12 | 1260 | 5500 |
| | 1200 | 6.3x12 | 12 | 1512 | 4900 |
| | | 8x9 | 12 | 1512 | 5100 |
| | | 8x12 | 12 | 1512 | 5500 |
| | 1500 | 8x12 | 12 | 1890 | 5500 |
| | | 10x12.5 | 12 | 1890 | 5900 |
| | 2200 | 10x12.5 | 12 | 2772 | 5900 |
| | 7.5 | 270 | 5x8 | 18 | 500 |
| 330 | | 6.3x8 | 16 | 500 | 3100 |
| 390 | | 6.3x8 | 16 | 585 | 3500 |
| 470 | | 6.3x8 | 16 | 705 | 3500 |
| 560 | | 6.3x8 | 16 | 840 | 3500 |
| 680 | | 6.3x12 | 16 | 1020 | 3800 |
| | | 8x9 | 12 | 1020 | 4800 |
| 820 | | 6.3x12 | 16 | 1230 | 3800 |
| | | 8x9 | 12 | 1230 | 4800 |
| 1000 | | 8x9 | 12 | 1500 | 4800 |
| | | 8x12 | 12 | 1500 | 5100 |
| 1200 | | 8x12 | 12 | 1800 | 5100 |
| | | 10x12.5 | 12 | 1800 | 5500 |
| 1500 | | 10x12.5 | 12 | 2250 | 5500 |
| 10 | 100 | 5x8 | 20 | 500 | 1800 |
| | 150 | 5x8 | 20 | 500 | 1800 |
| | 220 | 5x8 | 20 | 500 | 2200 |
| | | 6.3x8 | 16 | 500 | 2900 |
| | 270 | 6.3x8 | 16 | 540 | 2900 |
| | 330 | 5x8 | 20 | 660 | 2900 |
| | | 6.3x8 | 16 | 660 | 3100 |
| | 390 | 6.3x8 | 16 | 780 | 3100 |
| | | 6.3x12 | 16 | 780 | 3500 |
| | 470 | 6.3x8 | 16 | 940 | 3100 |
| | | 8x9 | 14 | 940 | 4800 |
| | 560 | 6.3x9 | 16 | 1120 | 3500 |
| | | 8x9 | 16 | 1120 | 4800 |
| | 680 | 6.3x11 | 16 | 1360 | 3500 |
| | | 8x9 | 14 | 1360 | 4800 |
| | 820 | 8x9 | 14 | 1640 | 4800 |
| | | 8x12 | 14 | 1640 | 5100 |
| | 1000 | 8x12 | 14 | 2000 | 5100 |
| | | 10x12.5 | 14 | 2000 | 5500 |
| | 1500 | 8x12 | 14 | 3000 | 5300 |
| 10x12.5 | | 14 | 3000 | 5500 | |

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◆ STANDARD RATINGS

| Rated Voltage | Rated Capacitance (μF) | Case Size ΦDxL (mm) | ESR (mΩ) at 20°C, 100 KHz | Leakage Current (μA) | Rated Ripple Current (mA _{rms} /105°C/100kHz) |
|---------------|------------------------|---------------------|---------------------------|----------------------|--|
| 12 | 220 | 5x9 | 20 | 528 | 2690 |
| | | 6.3x8 | 18 | 528 | 3160 |
| | 330 | 5x9.5 | 20 | 792 | 2800 |
| | | 6.3x8 | 18 | 792 | 3200 |
| | 390 | 6.3x8 | 18 | 936 | 3200 |
| | 470 | 6.3x12 | 18 | 1128 | 3500 |
| | | 8x9 | 15 | 1128 | 4100 |
| | 560 | 6.3x12 | 18 | 1344 | 3500 |
| | | 8x9 | 15 | 1344 | 4100 |
| | 680 | 6.3x8.5 | 7 | 816 | 5100 |
| | | 8x9 | 15 | 1632 | 4100 |
| | 820 | 8x12 | 15 | 1968 | 4500 |
| 1000 | 8x12 | 15 | 2400 | 4500 | |
| | 10x12.5 | 12 | 2400 | 5200 | |
| 1200 | 10x12.5 | 12 | 2880 | 5200 | |
| 1500 | 10x12.5 | 12 | 3600 | 5200 | |
| 16 | 68 | 5x7 | 25 | 500 | 2100 |
| | 100 | 5x7.5 | 25 | 500 | 2100 |
| | | 6.3x8 | 20 | 500 | 2100 |
| | 150 | 5x8 | 25 | 500 | 2100 |
| | 220 | 5x9 | 22 | 704 | 2690 |
| | | 6.3x8.5 | 18 | 704 | 3100 |
| | | 5x11 | 18 | 704 | 3100 |
| | | 8x9 | 15 | 704 | 4100 |
| | 270 | 5x11 | 18 | 864 | 3100 |
| | | 6.3x8.5 | 15 | 864 | 4100 |
| | | 8x9 | 15 | 864 | 4500 |
| | 330 | 6.3x8.5 | 18 | 1056 | 3100 |
| | | 6.3x11.5 | 18 | 1056 | 4100 |
| | | 8x9 | 15 | 1056 | 4100 |
| | 470 | 6.3x11.5 | 18 | 1504 | 3500 |
| | | 8x9.5 | 15 | 1504 | 4100 |
| | | 8x12 | 15 | 1504 | 4200 |
| | | 10x12 | 14 | 1504 | 4200 |
| | 560 | 8x9 | 18 | 1792 | 3500 |
| | | 8x12 | 15 | 1792 | 4100 |
| | 680 | 8x12 | 15 | 2176 | 4500 |
| | | 10x12 | 14 | 2176 | 4500 |
| | 820 | 8x12 | 15 | 2624 | 4500 |
| | | 10x12 | 14 | 2624 | 4800 |
| | 1000 | 8x12 | 15 | 3200 | 4800 |
| | | 10x12 | 14 | 3200 | 5200 |
| | 1200 | 10x12.5 | 14 | 4800 | 5200 |

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

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◆ STANDARD RATINGS

| Rated Voltage | Rated Capacitance (μF) | Case Size ΦDxL (mm) | ESR (mΩ) at 20°C, 100 KHz | Leakage Current (μA) | Rated Ripple Current (mA _{rms} /105°C/100kHz) |
|---------------|------------------------|------------------------|------------------------------|----------------------|--|
| 25 | 68 | 6.3x8 | 40 | 500 | 2100 |
| | | 8x9 | 30 | 500 | 3500 |
| | 82 | 6.3x8 | 40 | 500 | 2150 |
| | | 8x9 | 30 | 500 | 3800 |
| | 100 | 6.3x8.5 | 40 | 500 | 2200 |
| | | 5x9 | 40 | 500 | 2150 |
| | 150 | 6.3x8 | 40 | 750 | 4200 |
| | | 6.3x12 | 35 | 750 | 4300 |
| | 220 | 6.3x8 | 40 | 1100 | 3800 |
| | | | 35 | 1100 | 3800 |
| | | 8x12 | 25 | 1100 | 4200 |
| | | | 25 | 1100 | 4800 |
| | 330 | 6.3x12 | 35 | 1650 | 3800 |
| | | | 25 | 1650 | 4200 |
| | | 8x12 | 25 | 1650 | 4200 |
| | | | 20 | 1650 | 4800 |
| | 390 | 6.3x12 | 35 | 1950 | 4200 |
| | 470 | 8x12 | 25 | 2350 | 4200 |
| 20 | | | 2350 | 4800 | |
| 680 | 8x12 | 25 | 3400 | 4200 | |
| | | 20 | 3400 | 4800 | |
| 820 | 10x12.5 | 20 | 4100 | 4800 | |
| 1000 | 10x12.5 | 20 | 5000 | 4800 | |
| 35 | 100 | 6.3x8.5 | 15 | 350 | 2900 |
| | 470 | 10x12 | 12 | 1645 | 4900 |

Note: Reflow soldering can only be used for SMD Conductive Polymer Aluminum Solid Electrolytic Capacitor.

Radial Conductive Polymer Aluminum Solid Electrolytic Capacitor are not suitable for reflow soldering, but only for wave soldering.

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