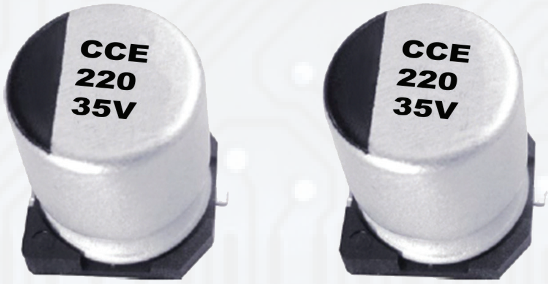
# CONDUCTIVE POLYMER HYBRID CAPACITOR
# - CHR SERIES -

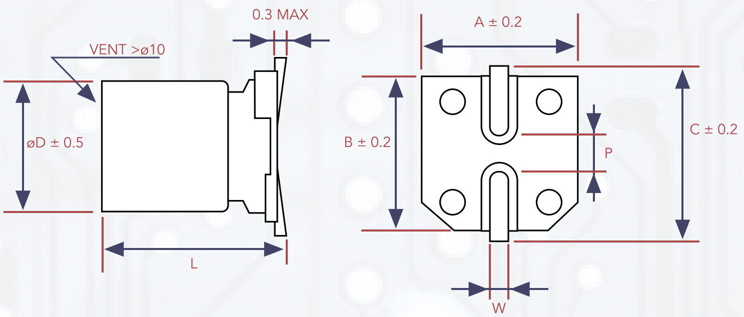


## FEATURES

- ø6.3 ~ ø10, 125°C, 4000 hours assured
- Low ESR and high ripple current
- Designed for relfow soldering
- Can meet IATF16949
- Can meet AEC-Q200 compliant

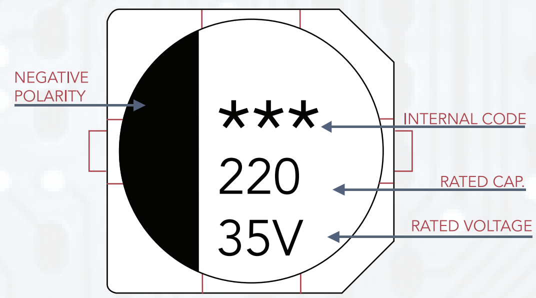



## CONSTRUCTION AND DIMENSIONS




| øD | L | A | B | C | W | P±0.2 |
|---|---|---|---|---|---|---|
| 6.3 | 6±0.5 | 6.6 | 6.6 | 7.2 | 0.5~0.8 | 2.0 |
| | 7.7±0.5 | 6.6 | 6.6 | 7.2 | 0.5~0.8 | 2.0 |
| 8 | 6.5±0.5 | 8.3 | 8.3 | 9.2 | 0.7~1.2 | 3.2 |
| | 10±0.5 | 8.3 | 8.3 | 9.2 | 0.7~1.2 | 3.2 |
| 10 | 10.5±0.5 | 10.3 | 10.3 | 11.2 | 0.7~1.2 | 4.4 |

## MARKING




## PART NUMBERING

CHR | 1E | 470 | M | 6.3 x 6 — R

| SERIES NAME | RATED VOLTAGE | CAPACITANCE | TOLERANCE | CASE SIZE | PACKAGE TYPE |
|---|---|---|---|---|---|
| CHR | 1E | 470 | M | 6.3 x 6 | R |
| Series is represented by a three/four digit code | 1E - 25V<br>1V - 35V<br>1H - 50V<br>1J - 63V<br>1K - 80V | 470 - 47µF<br>101 - 100µF<br>471 - 470µF<br>102 - 1000µF | | 6.3x6.0<br>6.3x7.7<br>8x6.5<br>8x10<br>10x105 | R - Tape and reel |

## SPECIFICATIONS

| ITEM | SPECIFICATION | | | | | | |
|---|---|---|---|---|---|---|---|
| Category Temperature Range (°C) | -55°C ~ +125°C | | | | | | |
| Capacitance Tolerance | ±20% (120Hz / +20°C) | | | | | | |
| Leakage Current | I≤0.01 CV or 3µA whichever is greater (after 2 minutes) | | | | | | |
| Tan δ | Please see attached characteristics list | | | | | | |
| Low Temperature Characteristics | RATED VOLTAGE (V) | 25 | 35 | 50 | 63 | 80 | Impedance Ration 120HZ |
| | Z(-25°C) / Z(+20°C) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| | Z(-55°C) / Z(+20°C) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | |
| | After applying rated working voltage and rated ripple current for 4000 hours at +125°C ±2°C, and being stabilized at +20°C, capacitors shall meet the following limits. | | | | | | |

Cal-Chip Electronics Inc.

RoHS Pb HF

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## SPECIFICATIONS

| ITEM | SPECIFICATION | | | | |
|---|---|---|---|---|---|
| Endurance | Capacitance Change | Within ±30% of the initial value | | | |
| | Dissipation Factor (Tan δ) | Less than 200% of the initial value | | | |
| | ESR | Less than 200% of the initial value | | | |
| | Leakage Current | Within the initial limit | | | |
| Shelf Life | After storage for 1000 h at +125°C ±2°C with no voltage applied and then being stabilized at +20°C, capacitors shall meet the limits specified in endurance. | | | | |
| Resistance to Soldering Heat | After reflow soldering and then being stabilized at +20°C, capacitors shall meet the following limits. | | | | |
| | Capacitance Change | Within ±10% of the initial value | | | |
| | D.F. (Tan δ) | Within the initial limit | | | |
| | ESR | Within the initial limit | | | |
| | Leakage Current | Within the initial limit | | | |
| Frequency Correction Factor for Ripple Current | Frequency | 120 ≤ f < 1k | 1k ≤ f < 10k | 10k ≤ f < 100k | 100k ≤ f < 500k |
| | Correction Factor | 0.1 | 0.3 | 0.6 | 1.0 |

## STANDARD RATINGS

| RATED VOLTAGE (V) | CAPACITANCE (20%) (μF) | CASE SIZE | | SPECIFICATION | | |
|---|---|---|---|---|---|---|
| | | ØD (mm) | L (mm) | RATED RIPPLE CURRENT (mA rms) | ESR (mΩ) | TAN δ |
| 25 | 47 | 6.3 | 6 | 900 | 50 | 0.14 |
| | 56 | 6.3 | 6 | 900 | 50 | 0.14 |
| | 68 | 6.3 | 6 | 900 | 50 | 0.14 |
| | | 6.3 | 7.7 | 1400 | 30 | 0.14 |
| | 82 | 6.3 | 6 | 900 | 50 | 0.14 |
| | 100 | 6.3 | 7.7 | 1400 | 30 | 0.14 |
| | 150 | 6.3 | 7.7 | 1400 | 30 | 0.14 |
| | | 8 | 10 | 1600 | 27 | 0.14 |
| | 220 | 8 | 10 | 1600 | 27 | 0.14 |
| | 270 | 8 | 10 | 1600 | 27 | 0.14 |
| | 330 | 8 | 10 | 1600 | 27 | 0.14 |
| | | 10 | 10.5 | 2000 | 20 | 0.14 |
| | 470 | 10 | 10.5 | 2000 | 20 | 0.14 |
| 35 | 33 | 6.3 | 6 | 900 | 60 | 0.12 |
| | 47 | 6.3 | 6 | 900 | 60 | 0.12 |
| | 56 | 6.3 | 6 | 900 | 60 | 0.12 |
| | 68 | 6.3 | 7.7 | 1400 | 35 | 0.12 |
| | 100 | 6.3 | 7.7 | 1400 | 35 | 0.12 |
| | | 8 | 10 | 1600 | 27 | 0.12 |
| | 150 | 8 | 10 | 1600 | 27 | 0.12 |
| | 180 | 8 | 10 | 1600 | 27 | 0.12 |
| | 220 | 10 | 10.5 | 2000 | 20 | 0.12 |
| | 270 | 10 | 10.5 | 2000 | 20 | 0.12 |
| | 330 | 10 | 10.5 | 2000 | 20 | 0.12 |
| 50 | 22 | 6.3 | 6 | 750 | 80 | 0.10 |
| | 33 | 6.3 | 7.7 | 1100 | 40 | 0.10 |
| | 47 | 8 | 10 | 1250 | 30 | 0.10 |
| | 68 | 8 | 10 | 1250 | 30 | 0.10 |
| | 100 | 8 | 10 | 1250 | 30 | 0.10 |
| | | 10 | 10.5 | 1600 | 28 | 0.10 |
| | 120 | 10 | 10.5 | 1600 | 28 | 0.10 |
| | 150 | 10 | 10.5 | 1600 | 28 | 0.10 |
| 63 | 10 | 6.3 | 6 | 700 | 120 | 0.08 |
| | 22 | 6.3 | 7.7 | 900 | 80 | 0.08 |
| | 33 | 8 | 10 | 1100 | 40 | 0.08 |
| | 47 | 8 | 10 | 1100 | 40 | 0.08 |
| | 56 | 10 | 10.5 | 1400 | 30 | 0.08 |
| | 68 | 10 | 10.5 | 1400 | 30 | 0.08 |
| | 82 | 10 | 10.5 | 1400 | 30 | 0.08 |
| | 100 | 10 | 10.5 | 1400 | 30 | 0.08 |
| 80 | 22 | 8 | 10 | 1050 | 45 | 0.08 |
| | 33 | 8 | 10 | 1050 | 45 | 0.08 |
| | | 10 | 10.5 | 1200 | 36 | 0.08 |
| | 47 | 10 | 10.5 | 1200 | 36 | 0.08 |
| | 56 | 10 | 10.5 | 1200 | 36 | 0.08 |

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