

Surface Mount Type

Series : **ZC** Type : **V**

High temperature Lead-Free reflow



Features

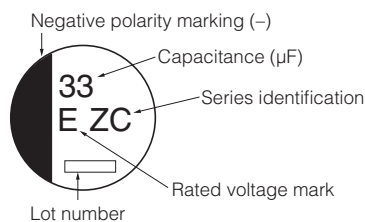
- Endurance: 4000 h at 125 °C (High temperature / Long life)
- Low ESR and high ripple current (85 % over, Lower ESR than current V-TP)
- High-withstand voltage (25 V.DC to 80 V.DC), Low LC (0.01 CV or 3 μA)
- Equivalent to conductive polymer type aluminum electrolytic capacitor (There are little characteristics change by temperature and frequency)
- Vibration-proof product is available upon request. New lineup of φ6.3 product. (φ6.3 mm and larger)
- AEC-Q200 compliant
- RoHS directive compliant

Specifications

| Size code | C | D | D8 | F | G |
|------------------------------|---|----------------------------------|-----------------|--------------------|-----------------|
| Category temp. range | -55 °C to +125 °C | | | | |
| Rated voltage range | 25 V.DC to 50 V.DC | 25 V.DC to 63 V.DC | | 25 V.DC to 80 V.DC | |
| Nominal cap.range | 10 μF to 33 μF | 10 μF to 56 μF | 22 μF to 100 μF | 22 μF to 220 μF | 33 μF to 330 μF |
| Capacitance tolerance | ±20 % (120 Hz/+20 °C) | | | | |
| DC leakage current | I ≤ 0.01 CV or 3 (μA) After 2 minutes (whichever is greater) | | | | |
| Dissipation factor (tan δ) | Please see the attached standard products list | | | | |
| Endurance 1 | 125 °C, 4000 h, apply the rated ripple current without exceeding the rated voltage | | | | |
| | Capacitance change | Within ±30% of the initial value | | | |
| | tan δ | ≤ 200 % of the initial limit | | | |
| | E. S. R. | ≤ 200 % of the initial limit | | | |
| Endurance 2 | 125 °C, 3000 h, apply the rated ripple current without exceeding the rated voltage | | | | |
| | Capacitance change | Within ±30% of the initial value | | | |
| | tan δ | ≤ 200 % of the initial limit | | | |
| | E. S. R. | ≤ 300 % of the initial limit | | | |
| Shelf life | After storage for 1000 hours at +125 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance. (With voltage treatment) | | | | |
| | 85 °C, 85 % to 90 %, 2000 h, rated voltage applied | | | | |
| Damp heat (Load) | 85 °C, 85 % to 90 %, 2000 h, rated voltage applied | | | | |
| | Capacitance change | Within ±30% of the initial value | | | |
| | tan δ | ≤ 200 % of the initial limit | | | |
| | E. S. R. | ≤ 200 % of the initial limit | | | |
| 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 | | | |
| | tan δ | Within the initial limit | | | |
| | DC leakage current | Within the initial limit | | | |

Marking

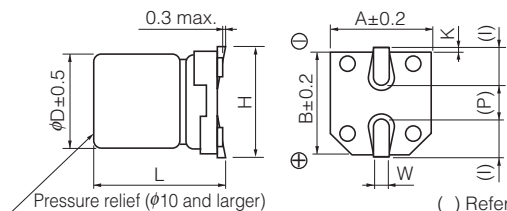
Example : 25 V.DC 33 μF Marking color : BLACK



Rated voltage mark

| | | | |
|---|---------|---|---------|
| E | 25 V.DC | J | 63 V.DC |
| V | 35 V.DC | K | 80 V.DC |
| H | 50 V.DC | | |

Dimensions (not to scale)



() Reference size
(Unit : mm)

| Size code | D | L | A, B | H | I | W | P | K |
|-----------|------|----------|------|-----------|-----|----------|-----|--|
| C | 5.0 | 5.8±0.3 | 5.3 | 6.5 max. | 2.2 | 0.65±0.1 | 1.5 | 0.35 ^{+0.15} _{-0.20} |
| D | 6.3 | 5.8±0.3 | 6.6 | 7.8 max. | 2.6 | 0.65±0.1 | 1.8 | 0.35 ^{+0.15} _{-0.20} |
| D8 | 6.3 | 7.7±0.3 | 6.6 | 7.8 max. | 2.6 | 0.65±0.1 | 1.8 | 0.35 ^{+0.15} _{-0.20} |
| F | 8.0 | 10.2±0.3 | 8.3 | 10.0 max. | 3.4 | 0.90±0.2 | 3.1 | 0.70±0.2 |
| G | 10.0 | 10.2±0.3 | 10.3 | 12.0 max. | 3.5 | 0.90±0.2 | 4.6 | 0.70±0.2 |

· The dimensions of the vibration-proof products, please refer to the page of the mounting specification.

Standard products

Endurance 1 : 125 °C 4000 h
Endurance 2 : 125 °C 3000 h

| Rated voltage (V.DC) | Capacitance (±20 %) (μF) | Case size (mm) | | Size code | Specification | | | | Part number | | Min. packaging qty |
|----------------------|--------------------------|----------------|------|-----------|--|-----------------------------|-------------------------|------------------|-------------------------|------------------|--------------------|
| | | φD | L | | Ripple current (100 kHz) (+125 °C) (mA r.m.s.) | ESR (100 kHz) (+20 °C) (mΩ) | tan δ (120 Hz) (+20 °C) | Standard Product | Vibration-proof product | Taping (pcs) | |
| | | | | | | | | | | | Endurance 1 |
| 25 | 33 | 5 | 5.8 | C | 550 | – | 80 | 0.14 | EEHZC1E330R | – | 1000 |
| | 56 | 6.3 | 5.8 | D | 900 | – | 50 | 0.14 | EEHZC1E560P | NEW EEHZC1E560V | 1000 |
| | 100 | 6.3 | 7.7 | D8 | 1400 | – | 30 | 0.14 | EEHZC1E101XP | NEW EEHZC1E101XV | 900 |
| | 220 | 8 | 10.2 | F | 1600 | 1900 | 27 | 0.14 | EEHZC1E221P | EEHZC1E221V | 500 |
| | 330 | 10 | 10.2 | G | 2000 | 2900 | 20 | 0.14 | EEHZC1E331P | EEHZC1E331V | 500 |
| 35 | 22 | 5 | 5.8 | C | 550 | – | 100 | 0.12 | EEHZC1V220R | – | 1000 |
| | 47 | 6.3 | 5.8 | D | 900 | – | 60 | 0.12 | EEHZC1V470P | NEW EEHZC1V470V | 1000 |
| | 68 | 6.3 | 7.7 | D8 | 1400 | – | 35 | 0.12 | EEHZC1V680XP | NEW EEHZC1V680XV | 900 |
| | 150 | 8 | 10.2 | F | 1600 | 1900 | 27 | 0.12 | EEHZC1V151P | EEHZC1V151V | 500 |
| | 270 | 10 | 10.2 | G | 2000 | 2800 | 20 | 0.12 | EEHZC1V271P | EEHZC1V271V | 500 |
| 50 | 10 | 5 | 5.8 | C | 500 | – | 120 | 0.10 | EEHZC1H100R | – | 1000 |
| | 22 | 6.3 | 5.8 | D | 750 | – | 80 | 0.10 | EEHZC1H220P | NEW EEHZC1H220V | 1000 |
| | 33 | 6.3 | 7.7 | D8 | 1100 | – | 40 | 0.10 | EEHZC1H330XP | NEW EEHZC1H330XV | 900 |
| | 68 | 8 | 10.2 | F | 1250 | – | 30 | 0.10 | EEHZC1H680P | EEHZC1H680V | 500 |
| | 100 | 10 | 10.2 | G | 1600 | – | 28 | 0.10 | EEHZC1H101P | EEHZC1H101V | 500 |
| | 120 | 10 | 10.2 | G | 1600 | – | 28 | 0.10 | EEHZC1H121P | EEHZC1H121V | 500 |
| 63 | 10 | 6.3 | 5.8 | D | 700 | – | 120 | 0.08 | EEHZC1J100P | NEW EEHZC1J100V | 1000 |
| | 22 | 6.3 | 7.7 | D8 | 900 | – | 80 | 0.08 | EEHZC1J220XP | NEW EEHZC1J220XV | 900 |
| | 33 | 8 | 10.2 | F | 1100 | – | 40 | 0.08 | EEHZC1J330P | EEHZC1J330V | 500 |
| | 56 | 10 | 10.2 | G | 1400 | – | 30 | 0.08 | EEHZC1J560P | EEHZC1J560V | 500 |
| | 68 | 10 | 10.2 | G | 1400 | – | 30 | 0.08 | EEHZC1J680P | EEHZC1J680V | 500 |
| NEW | 82 | 10 | 10.2 | G | 1400 | – | 30 | 0.08 | EEHZC1J820P | EEHZC1J820V | 500 |
| 80 | 22 | 8 | 10.2 | F | 1050 | – | 45 | 0.08 | EEHZC1K220P | EEHZC1K220V | 500 |
| | 33 | 10 | 10.2 | G | 1360 | – | 36 | 0.08 | EEHZC1K330P | EEHZC1K330V | 500 |
| | 47 | 10 | 10.2 | G | 1360 | – | 36 | 0.08 | EEHZC1K470P | EEHZC1K470V | 500 |

· Please refer to the page of "Reflow profile" and "The taping dimensions".

Frequency correction factor for ripple current

| Rated capacitance | Frequency | 100 Hz ≤ f < 200 Hz | 200 Hz ≤ f < 300 Hz | 300 Hz ≤ f < 500 Hz | 500 Hz ≤ f < 1 kHz |
|--------------------|-------------------|---------------------|----------------------|-----------------------|---------------------|
| C < 47 μF | Correction factor | 0.10 | 0.10 | 0.15 | 0.20 |
| 47 μF ≤ C < 150 μF | | 0.15 | 0.20 | 0.25 | 0.30 |
| 150 μF ≤ C | | 0.15 | 0.25 | 0.25 | 0.30 |
| Rated capacitance | Frequency | 1 kHz ≤ f < 2 kHz | 2 kHz ≤ f < 3 kHz | 3 kHz ≤ f < 5 kHz | 5 kHz ≤ f < 10 kHz |
| C < 47 μF | Correction factor | 0.30 | 0.40 | 0.45 | 0.50 |
| 47 μF ≤ C < 150 μF | | 0.40 | 0.45 | 0.55 | 0.60 |
| 150 μF ≤ C | | 0.45 | 0.50 | 0.60 | 0.65 |
| Rated capacitance | Frequency | 10 kHz ≤ f < 15 kHz | 15 kHz ≤ f < 20 kHz | 20 kHz ≤ f < 30 kHz | 30 kHz ≤ f < 40 kHz |
| C < 47 μF | Correction factor | 0.60 | 0.65 | 0.70 | 0.75 |
| 47 μF ≤ C < 150 μF | | 0.70 | 0.75 | 0.80 | 0.80 |
| 150 μF ≤ C | | 0.75 | 0.80 | 0.85 | 0.85 |
| Rated capacitance | Frequency | 40 kHz ≤ f < 50 kHz | 50 kHz ≤ f < 100 kHz | 100 kHz ≤ f < 500 kHz | 500 kHz ≤ f |
| C < 47 μF | Correction factor | 0.80 | 0.85 | 1.00 | 1.05 |
| 47 μF ≤ C < 150 μF | | 0.85 | 0.90 | 1.00 | 1.00 |
| 150 μF ≤ C | | 0.85 | 0.90 | 1.00 | 1.00 |

After endurance ESR (100 kHz, –40 °C)

| Size | φ5×5.8 | φ6.3×5.8 | φ6.3×7.7 | φ8×10.2 | φ10×10.2 |
|---------|--------|----------|----------|---------|----------|
| ESR (Ω) | 2.0 | 1.4 | 0.8 | 0.4 | 0.3 |

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.