

Surface Mount Type

Series: **ZA** Type: **V**

High temperature lead-free reflow

UPGRADE



Features

- Endurance : 10000 h at 105 °C
- Low ESR and high ripple current (70 % over, Lower ESR than current V-FP)
- High voltage (to 80 V.DC)
- 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, φ8, φ10)
- AEC-Q200 compliant
- RoHS compliant

Specifications

| Size code | C | D | D8 | F | G |
|--|--|----------------------------------|-----------------|--------------------|-----------------|
| Category temp. range | -55 °C to +105 °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 characteristics list | | | | |
| Endurance | +105 °C ± 2 °C, 10000 h, apply the rated ripple current without exceeding the rated voltage | | | | |
| | Capacitance change | Within ±30% of the initial value | | | |
| | Dissipation factor (tan δ) | ≤ 200 % of the initial limit | | | |
| | ESR | ≤ 200 % of the initial limit | | | |
| | DC leakage current | Within the initial limit | | | |
| ESR after Endurance (Ω / 100 kHz)(-40 °C) | Size code | | | | |
| | C | D | D8 | F | G |
| | 2.0 | 1.4 | 0.8 | 0.4 | 0.3 |
| Shelf life | After storage for 1000 hours at +105 °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) | | | | |
| Damp heat (Load) | +85 °C ± 2 °C, 85 % to 90 %, 2000 h, rated voltage applied | | | | |
| | Capacitance change | Within ±30% of the initial value | | | |
| | Dissipation factor (tan δ) | ≤ 200 % of the initial limit | | | |
| | ESR | ≤ 200 % of the initial limit | | | |
| | DC leakage current | Within 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 | | | |
| | Dissipation factor (tan δ) | Within the initial limit | | | |
| | DC leakage current | Within the initial limit | | | |

Marking

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

Negative polarity marking (-)
Capacitance (μF)
Series identification
Rated voltage mark
Lot number

| Rated voltage mark | | Unit : V.DC | |
|--------------------|----|-------------|----|
| E | 25 | J | 63 |
| V | 35 | K | 80 |
| H | 50 | | |

Dimensions (not to scale)

() Reference size
Unit : mm

| Size code | φD | 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.

Characteristics list

Endurance : 105 °C 10000 h

| Rated volt. (V.DC) | Capacitance (±20 %) (μF) | Case size (mm) | | | Size code | Specification | | | Part number | | Min. packaging q'ty |
|--------------------|--------------------------|----------------|----------|-----------------|-----------|--|------------------------|---------------------|------------------|-------------------------|---------------------|
| | | φD | L | | | Ripple current* ¹ (mA r.m.s.) | ESR* ² (mΩ) | tan δ* ³ | Standard Product | Vibration-proof product | Taping (pcs) |
| | | | Standard | Vibration-proof | | | | | | | |
| 25 | NEW 22 | 5.0 | 5.8 | - | C | 900 | 80 | 0.14 | EEHZA1E220R | - | 1000 |
| | 33 | 5.0 | 5.8 | - | C | 900 | 80 | 0.14 | EEHZA1E330R | - | 1000 |
| | NEW 47 | 6.3 | 5.8 | 6.1 | D | 1300 | 50 | 0.14 | EEHZA1E470P | EEHZA1E470V | 1000 |
| | 56 | 6.3 | 5.8 | 6.1 | D | 1300 | 50 | 0.14 | EEHZA1E560P | EEHZA1E560V | 1000 |
| | NEW 68 | 6.3 | 7.7 | 8.0 | D8 | 2000 | 30 | 0.14 | EEHZA1E680XP | EEHZA1E680XV | 900 |
| | 100 | 6.3 | 7.7 | 8.0 | D8 | 2000 | 30 | 0.14 | EEHZA1E101XP | EEHZA1E101XV | 900 |
| | NEW 150 | 8.0 | 10.2 | 10.5 | F | 2300 | 27 | 0.14 | EEHZA1E151P | EEHZA1E151V | 500 |
| | 220 | 8.0 | 10.2 | 10.5 | F | 2300 | 27 | 0.14 | EEHZA1E221P | EEHZA1E221V | 500 |
| 35 | NEW 10 | 5.0 | 5.8 | - | C | 900 | 100 | 0.12 | EEHZA1V100R | - | 1000 |
| | 22 | 5.0 | 5.8 | - | C | 900 | 100 | 0.12 | EEHZA1V220R | - | 1000 |
| | 27 | 6.3 | 5.8 | 6.1 | D | 1300 | 60 | 0.12 | EEHZA1V270P | EEHZA1V270V | 1000 |
| | NEW 33 | 6.3 | 5.8 | 6.1 | D | 1300 | 60 | 0.12 | EEHZA1V330P | EEHZA1V330V | 1000 |
| | 47 | 6.3 | 5.8 | 6.1 | D | 1300 | 60 | 0.12 | EEHZA1V470P | EEHZA1V470V | 1000 |
| | 68 | 6.3 | 7.7 | 8.0 | D8 | 2000 | 35 | 0.12 | EEHZA1V680XP | EEHZA1V680XV | 900 |
| | NEW 100 | 8.0 | 10.2 | 10.5 | F | 2300 | 27 | 0.12 | EEHZA1V101P | EEHZA1V101V | 500 |
| | 150 | 8.0 | 10.2 | 10.5 | F | 2300 | 27 | 0.12 | EEHZA1V151P | EEHZA1V151V | 500 |
| 50 | NEW 220 | 10.0 | 10.2 | 10.5 | G | 2500 | 20 | 0.12 | EEHZA1V221P | EEHZA1V221V | 500 |
| | 270 | 10.0 | 10.2 | 10.5 | G | 2500 | 20 | 0.12 | EEHZA1V271P | EEHZA1V271V | 500 |
| | 10 | 5.0 | 5.8 | - | C | 750 | 120 | 0.10 | EEHZA1H100R | - | 1000 |
| | 22 | 6.3 | 5.8 | 6.1 | D | 1100 | 80 | 0.10 | EEHZA1H220P | EEHZA1H220V | 1000 |
| | 33 | 6.3 | 7.7 | 8.0 | D8 | 1600 | 40 | 0.10 | EEHZA1H330XP | EEHZA1H330XV | 900 |
| | NEW 47 | 8.0 | 10.2 | 10.5 | F | 1800 | 30 | 0.10 | EEHZA1H470P | EEHZA1H470V | 500 |
| | 68 | 8.0 | 10.2 | 10.5 | F | 1800 | 30 | 0.10 | EEHZA1H680P | EEHZA1H680V | 500 |
| | 100 | 10.0 | 10.2 | 10.5 | G | 2000 | 28 | 0.10 | EEHZA1H101P | EEHZA1H101V | 500 |
| 63 | 10 | 6.3 | 5.8 | 6.1 | D | 1000 | 120 | 0.08 | EEHZA1J100P | EEHZA1J100V | 1000 |
| | 22 | 6.3 | 7.7 | 8.0 | D8 | 1500 | 80 | 0.08 | EEHZA1J220XP | EEHZA1J220XV | 900 |
| | 33 | 8.0 | 10.2 | 10.5 | F | 1700 | 40 | 0.08 | EEHZA1J330P | EEHZA1J330V | 500 |
| | NEW 47 | 8.0 | 10.2 | 10.5 | F | 1700 | 40 | 0.08 | EEHZA1J470P | EEHZA1J470V | 500 |
| | 56 | 10.0 | 10.2 | 10.5 | G | 1800 | 30 | 0.08 | EEHZA1J560P | EEHZA1J560V | 500 |
| | NEW 68 | 10.0 | 10.2 | 10.5 | G | 1800 | 30 | 0.08 | EEHZA1J680P | EEHZA1J680V | 500 |
| | NEW 82 | 10.0 | 10.2 | 10.5 | G | 1800 | 30 | 0.08 | EEHZA1J820P | EEHZA1J820V | 500 |
| | 22 | 8.0 | 10.2 | 10.5 | F | 1550 | 45 | 0.08 | EEHZA1K220P | EEHZA1K220V | 500 |
| 33 | 10.0 | 10.2 | 10.5 | G | 1700 | 36 | 0.08 | EEHZA1K330P | EEHZA1K330V | 500 | |

*1: Ripple current (100 kHz / +105 °C) *2: ESR (100 kHz / +20 °C) *3: tan δ (120 Hz / +20 °C)

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

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

Frequency correction factor for ripple current

| Rated capacitance (C) | Frequency (f) | 100 Hz ≤ f < 200 Hz | 200 Hz ≤ f < 300 Hz | 300 Hz ≤ f < 500 Hz | 500 Hz ≤ f < 1 kHz |
|---|-------------------|---------------------|---------------------|---------------------|--------------------|
| C < 47 μF 47 μF ≤ C < 150 μF 150 μF ≤ C | Correction factor | 0.10 | 0.10 | 0.15 | 0.20 |
| | | 0.15 | 0.20 | 0.25 | 0.30 |
| | | 0.15 | 0.25 | 0.25 | 0.30 |
| C < 47 μF 47 μF ≤ C < 150 μF 150 μF ≤ C | Correction factor | 0.30 | 0.40 | 0.45 | 0.50 |
| | | 0.40 | 0.45 | 0.55 | 0.60 |
| | | 0.45 | 0.50 | 0.60 | 0.65 |
| C < 47 μF 47 μF ≤ C < 150 μF 150 μF ≤ C | Correction factor | 0.60 | 0.65 | 0.70 | 0.75 |
| | | 0.70 | 0.75 | 0.80 | 0.80 |
| | | 0.75 | 0.80 | 0.85 | 0.85 |
| C < 47 μF 47 μF ≤ C < 150 μF 150 μF ≤ C | Correction factor | 0.80 | 0.85 | 1.00 | 1.05 |
| | | 0.85 | 0.90 | 1.00 | 1.00 |
| | | 0.85 | 0.90 | 1.00 | 1.00 |

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