

KFZ Series



Features

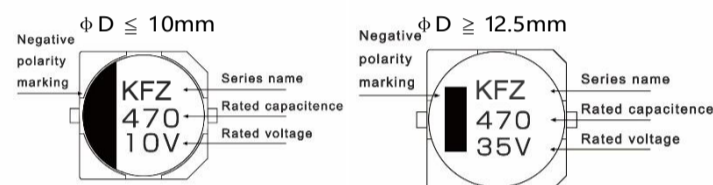
- Endurance : 105°C 2000~5000 H
- Extra Low Impedance (40% ~ 60% lower than LZ Series)
- Designed for reflow soldering
- Designed for surface mounting on high-density PCB
- RoHS 2.0 compliant
- 219 SVHC & REACH compliant



Marking color : Black

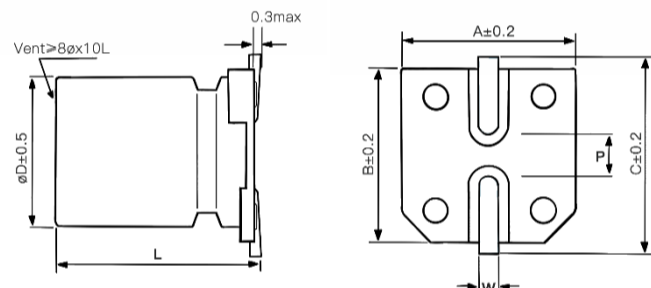
| Specifications | | | | | | | | | | |
|---|--|---|-------|------|--------------|----|----|----|----|-----|
| Category temp. range | -55°C to +105°C | | | | | | | | | |
| Capacitance tolerance | ±20% (120 Hz / +20 °C) | | | | | | | | | |
| Leakage current | $I \leq 0.01 CV$ or 3 μA whichever is greater (after 2 minutes) | | | | | | | | | |
| Tan δ | Please see the attached characteristics list | | | | | | | | | |
| Characteristics at low temperature(Impedance ratio at 120 Hz) | Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 |
| | Z (-25 °C) / Z (+20 °C) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z (-55 °C) / Z (+20 °C) | 8 | 5 | 4 | 3 | 3 | 3 | 3 | 3 | 3 |
| Endurance | After applying rated working voltage for 2000/3000/5000 hours at +105 °C \pm 2 °C, and then being stabilized at +20 °C , capacitors shall meet the following limits. | | | | | | | | | |
| | Test Time | $\Phi D \times L \leq 6.3 \times 5.7Lmm$: 2000H, 6.3 Φ x 7.7L , 8 Φ x 6.5L , 10 Φ x 7.7L : 3000H , $\Phi D \geq 8mm$: 5000H | | | | | | | | |
| | Capacitance change | Within $\pm 30\%$ of the initial value | | | | | | | | |
| | Dissipation factor (tan δ) | Less than 300% of the initial value | | | | | | | | |
| | Leakage current | Within the initial limit | | | | | | | | |
| Shelf life | After storage for 1000 h at +105 °C \pm 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 $\pm 10\%$ of the initial value | | | | | | | | |
| | Dissipation factor (tan δ) | Within the initial limit | | | | | | | | |
| Frequency correction factor for ripple current | Frequency | 50Hz | 120Hz | 1kHz | 10kHz \leq | | | | | |
| | Correction Factor | 0.6 | 0.7 | 0.85 | 1.0 | | | | | |

Marking :



| Dimensions | | | | | | Unit : mm |
|------------|----------------|------|------|------|---------|-------------|
| ΦD | L | A | B | C | W | P ± 0.2 |
| 4 | 5.7 ± 0.3 | 4.3 | 4.3 | 5.1 | 0.5~0.8 | 1.0 |
| 5 | 5.7 ± 0.3 | 5.3 | 5.3 | 6.1 | 0.5~0.8 | 1.3 |
| 6.3 | 5.7 ± 0.3 | 6.6 | 6.6 | 7.3 | 0.5~0.8 | 2.2 |
| 6.3 | 7.7 ± 0.3 | 6.6 | 6.6 | 7.3 | 0.5~0.8 | 2.2 |
| 8 | 6.5 ± 0.5 | 8.3 | 8.3 | 9.2 | 0.7~1.2 | 3.1 |
| 8 | 10.5 ± 0.5 | 8.3 | 8.3 | 9.2 | 0.7~1.2 | 3.1 |
| 10 | 7.7 ± 0.3 | 10.3 | 10.3 | 11.2 | 0.7~1.2 | 4.4 |
| 10 | 10.5 ± 0.5 | 10.3 | 10.3 | 11.2 | 0.7~1.2 | 4.4 |
| 10 | 13 ± 0.5 | 10.3 | 10.3 | 11.2 | 0.7~1.2 | 4.4 |
| 12.5 | 13.5 ± 0.5 | 13.0 | 13.0 | 14.0 | 1.0~1.4 | 4.4 |
| 12.5 | 16 ± 0.5 | 13.0 | 13.0 | 14.0 | 1.0~1.4 | 4.4 |

Dimensions :



Part Number System :

KFZ series 16V 220 μF $\pm 20\%$ 6.3 Φ X 7.7L

KFZ **1C** **221** **M** **0607**

Series name | Rated voltage | Capacitance | Capacitance tolerance | Case Size

Characteristics list

| Rated voltage (V) | Capacitance ($\pm 20\%$) (μF) | Case size | | Specification | | | Part Number ^④ | Taping&Reel |
|---------------------|--|-----------------|----------|--|--------------------------------|---------------------------|--------------------------|------------------|
| | | ΦD (mm) | L (mm) | Rated ripple current ^① (mA rms) | Imp. ^② (Ω) | tan δ ^③ | | MPQ (pcs/reel) |
| 6.3 | 22 | 4 | 5.7 | 80 | 1.45 | 0.26 | KFZ0J220M0406 | 2000 |
| | 33 | 4 | 5.7 | 80 | 1.45 | 0.26 | KFZ0J330M0406 | 2000 |
| | | 5 | 5.7 | 150 | 0.80 | 0.26 | KFZ0J330M0506 | 1000 |
| | 47 | 5 | 5.7 | 150 | 0.80 | 0.26 | KFZ0J470M0506 | 1000 |
| | 100 | 5 | 5.7 | 150 | 0.80 | 0.26 | KFZ0J101M0506 | 1000 |
| | | 6.3 | 5.7 | 230 | 0.44 | 0.26 | KFZ0J101M0606 | 1000 |
| | 150 | 6.3 | 5.7 | 230 | 0.44 | 0.26 | KFZ0J151M0606 | 1000 |
| | | 6.3 | 5.7 | 230 | 0.44 | 0.26 | KFZ0J221M0606 | 1000 |
| | 220 | 6.3 | 7.7 | 280 | 0.36 | 0.26 | KFZ0J221M0607 | 1000 |
| | | 6.3 | 7.7 | 280 | 0.36 | 0.26 | KFZ0J331M0607 | 1000 |
| | | 8 | 6.5 | 280 | 0.36 | 0.26 | KFZ0J331M0806 | 1000 |
| | 330 | 8 | 10.5 | 450 | 0.17 | 0.26 | KFZ0J331M0810 | 500 |
| | | 6.3 | 7.7 | 280 | 0.36 | 0.26 | KFZ0J471M0607 | 1000 |
| | | 8 | 10.5 | 450 | 0.17 | 0.26 | KFZ0J471M0810 | 500 |
| | 470 | 10 | 7.7 | 450 | 0.17 | 0.26 | KFZ0J471M1007 | 500 |
| 8 | | 10.5 | 450 | 0.17 | 0.26 | KFZ0J681M0810 | 500 | |
| 10 | | 7.7 | 450 | 0.17 | 0.26 | KFZ0J681M1007 | 500 | |
| 1000 | 8 | 10.5 | 450 | 0.17 | 0.28 | KFZ0J102M0810 | 500 | |
| 1500 | 10 | 10.5 | 670 | 0.09 | 0.28 | KFZ0J152M1010 | 500 | |
| | 10 | 13 | 720 | 0.08 | 0.28 | KFZ0J152M1013 | 400 | |
| | 12.5 | 13.5 | 820 | 0.07 | 0.34 | KFZ0J222M1313 | 200 | |
| 10 | 22 | 4 | 5.7 | 80 | 1.45 | 0.22 | KFZ1A220M0406 | 2000 |
| | 33 | 5 | 5.7 | 150 | 0.80 | 0.22 | KFZ1A330M0506 | 1000 |
| | 47 | 6.3 | 5.7 | 230 | 0.44 | 0.22 | KFZ1A470M0606 | 1000 |
| | 100 | 6.3 | 5.7 | 230 | 0.44 | 0.22 | KFZ1A101M0606 | 1000 |
| | 150 | 6.3 | 5.7 | 230 | 0.44 | 0.22 | KFZ1A151M0606 | 1000 |
| | | 6.3 | 7.7 | 280 | 0.36 | 0.22 | KFZ1A221M0607 | 1000 |
| | 220 | 8 | 6.5 | 280 | 0.36 | 0.22 | KFZ1A221M0806 | 1000 |
| | | 8 | 10.5 | 450 | 0.17 | 0.22 | KFZ1A331M0810 | 500 |
| | 330 | 10 | 7.7 | 450 | 0.17 | 0.22 | KFZ1A331M1007 | 500 |
| | | 8 | 10.5 | 450 | 0.17 | 0.22 | KFZ1A471M0810 | 500 |
| | 470 | 10 | 7.7 | 450 | 0.17 | 0.22 | KFZ1A471M1007 | 500 |
| | | 10 | 10.5 | 670 | 0.09 | 0.22 | KFZ1A681M1010 | 500 |
| | 1000 | 10 | 10.5 | 670 | 0.09 | 0.24 | KFZ1A102M1010 | 500 |
| | 1500 | 10 | 13 | 720 | 0.08 | 0.24 | KFZ1A152M1013 | 400 |
| | | 12.5 | 13.5 | 820 | 0.07 | 0.27 | KFZ1A152M1313 | 200 |
| 2200 | 12.5 | 13.5 | 820 | 0.07 | 0.29 | KFZ1A222M1313 | 200 | |

① Rated ripple current (100kHz / +105°C) ② Impedance (100kHz / +20°C) ③ tan δ (120Hz / +20°C)

④ For plastic reel packaging , the Part Number is appended with "PR" at the end.

※Please refer to the page of reflow conditions for reflow profile.

Characteristics list

| Rated voltage (V) | Capacitance (±20%) (μF) | Case size | | Specification | | | Part Number④ | Taping&Reel |
|-------------------|-------------------------|-----------|--------|--------------------------------|-----------|---------------|---------------|----------------|
| | | øD (mm) | L (mm) | Rated ripple current① (mA rms) | Imp.② (Ω) | tan δ③ | | MPQ (pcs/reel) |
| 16 | 10 | 4 | 5.7 | 80 | 1.45 | 0.18 | KFZ1C150M0406 | 2000 |
| | 22 | 5 | 5.7 | 150 | 0.80 | 0.18 | KFZ1C220M0506 | 1000 |
| | 33 | 5 | 5.7 | 150 | 0.80 | 0.18 | KFZ1C330M0506 | 1000 |
| | | 6.3 | 5.7 | 230 | 0.44 | 0.18 | KFZ1C330M0606 | 1000 |
| | 47 | 6.3 | 5.7 | 230 | 0.44 | 0.18 | KFZ1C470M0606 | 1000 |
| | 68 | 6.3 | 5.7 | 230 | 0.44 | 0.18 | KFZ1C680M0606 | 1000 |
| | 100 | 6.3 | 5.7 | 230 | 0.44 | 0.18 | KFZ1C101M0606 | 1000 |
| | | 8 | 6.5 | 280 | 0.36 | 0.18 | KFZ1C101M0806 | 1000 |
| | 150 | 6.3 | 7.7 | 280 | 0.36 | 0.18 | KFZ1C151M0607 | 1000 |
| | | 8 | 6.5 | 280 | 0.36 | 0.18 | KFZ1C151M0806 | 1000 |
| | 220 | 6.3 | 7.7 | 280 | 0.36 | 0.18 | KFZ1C221M0607 | 1000 |
| | 330 | 8 | 10.5 | 450 | 0.17 | 0.18 | KFZ1C331M0810 | 500 |
| | | 10 | 7.7 | 450 | 0.17 | 0.18 | KFZ1C331M1007 | 500 |
| | 470 | 8 | 10.5 | 450 | 0.17 | 0.18 | KFZ1C471M0810 | 500 |
| 10 | | 10.5 | 670 | 0.09 | 0.18 | KFZ1C471M1010 | 500 | |
| 680 | 10 | 10.5 | 670 | 0.09 | 0.18 | KFZ1C681M1010 | 500 | |
| 1000 | 10 | 13 | 720 | 0.08 | 0.20 | KFZ1C102M1013 | 500 | |
| | 12.5 | 13.5 | 820 | 0.07 | 0.22 | KFZ1C102M1313 | 200 | |
| 25 | 10 | 4 | 5.7 | 80 | 1.45 | 0.16 | KFZ1E100M0406 | 2000 |
| | 22 | 5 | 5.7 | 150 | 0.80 | 0.16 | KFZ1E220M0506 | 1000 |
| | 33 | 5 | 5.7 | 150 | 0.80 | 0.16 | KFZ1E330M0506 | 1000 |
| | | 6.3 | 5.7 | 230 | 0.44 | 0.16 | KFZ1E330M0606 | 1000 |
| | 47 | 6.3 | 5.7 | 230 | 0.44 | 0.16 | KFZ1E470M0606 | 1000 |
| | 68 | 6.3 | 5.7 | 230 | 0.44 | 0.16 | KFZ1E680M0606 | 1000 |
| | 100 | 6.3 | 7.7 | 280 | 0.36 | 0.16 | KFZ1E101M0607 | 1000 |
| | | 8 | 6.5 | 280 | 0.36 | 0.16 | KFZ1E101M0806 | 1000 |
| | 150 | 8 | 10.5 | 450 | 0.17 | 0.16 | KFZ1E151M0810 | 500 |
| | 220 | 8 | 10.5 | 450 | 0.17 | 0.16 | KFZ1E221M0810 | 500 |
| | | 10 | 7.7 | 450 | 0.17 | 0.16 | KFZ1E221M1007 | 500 |
| | 330 | 8 | 10.5 | 450 | 0.17 | 0.16 | KFZ1E331M0810 | 500 |
| | 470 | 10 | 10.5 | 670 | 0.09 | 0.16 | KFZ1E471M1010 | 500 |
| | 680 | 10 | 13 | 720 | 0.08 | 0.16 | KFZ1E681M1013 | 400 |
| 12.5 | | 13.5 | 820 | 0.07 | 0.18 | KFZ1E681M1313 | 200 | |
| 1000 | 12.5 | 13.5 | 820 | 0.07 | 0.20 | KFZ1E102M1313 | 200 | |
| 35 | 4.7 | 4 | 5.7 | 80 | 1.45 | 0.14 | KFZ1V4R7M0406 | 2000 |
| | 10 | 4 | 5.7 | 80 | 1.45 | 0.14 | KFZ1V100M0406 | 2000 |
| | | 5 | 5.7 | 150 | 0.80 | 0.14 | KFZ1V100M0506 | 1000 |
| | 22 | 5 | 5.7 | 150 | 0.80 | 0.14 | KFZ1V220M0506 | 1000 |
| | | 6.3 | 5.7 | 230 | 0.44 | 0.14 | KFZ1V220M0606 | 1000 |
| | 33 | 6.3 | 5.7 | 230 | 0.44 | 0.14 | KFZ1V330M0606 | 1000 |
| | 47 | 6.3 | 5.7 | 230 | 0.44 | 0.14 | KFZ1V470M0606 | 1000 |
| | 68 | 6.3 | 7.7 | 280 | 0.36 | 0.14 | KFZ1V680M0607 | 1000 |
| | | 8 | 6.5 | 280 | 0.36 | 0.14 | KFZ1V680M0806 | 1000 |
| | 100 | 6.3 | 7.7 | 280 | 0.36 | 0.14 | KFZ1V101M0607 | 1000 |
| | | 8 | 10.5 | 450 | 0.17 | 0.14 | KFZ1V101M0810 | 500 |
| | 150 | 8 | 10.5 | 450 | 0.17 | 0.14 | KFZ1V151M0810 | 500 |
| | | 10 | 7.7 | 450 | 0.17 | 0.14 | KFZ1V151M1007 | 500 |
| | 220 | 8 | 10.5 | 450 | 0.17 | 0.14 | KFZ1V221M0810 | 500 |
| 10 | | 10.5 | 670 | 0.09 | 0.14 | KFZ1V221M1010 | 500 | |
| 330 | 10 | 10.5 | 850 | 0.09 | 0.14 | KFZ1V331M1010 | 500 | |
| | 12.5 | 13.5 | 820 | 0.07 | 0.16 | KFZ1V331M1313 | 200 | |
| 470 | 10 | 13 | 720 | 0.08 | 0.14 | KFZ1V471M1013 | 400 | |
| | 12.5 | 13.5 | 820 | 0.07 | 0.16 | KFZ1V471M1313 | 200 | |
| 50 | 1 | 4 | 5.7 | 60 | 2.9 | 0.12 | KFZ1H010M0406 | 2000 |
| | 2.2 | 4 | 5.7 | 60 | 2.9 | 0.12 | KFZ1H2R2M0406 | 2000 |
| | 3.3 | 4 | 5.7 | 60 | 2.9 | 0.12 | KFZ1H3R3M0406 | 2000 |
| | 4.7 | 4 | 5.7 | 60 | 2.9 | 0.12 | KFZ1H4R7M0406 | 2000 |
| | | 5 | 5.7 | 85 | 1.52 | 0.12 | KFZ1H4R7M0506 | 1000 |
| | 10 | 6.3 | 5.7 | 165 | 0.88 | 0.12 | KFZ1H100M0606 | 1000 |
| | 22 | 6.3 | 5.7 | 165 | 0.88 | 0.12 | KFZ1H220M0606 | 1000 |
| | 33 | 6.3 | 7.7 | 185 | 0.68 | 0.12 | KFZ1H330M0607 | 1000 |
| | 47 | 6.3 | 7.7 | 185 | 0.68 | 0.12 | KFZ1H470M0607 | 1000 |
| | | 8 | 6.5 | 185 | 0.68 | 0.12 | KFZ1H470M0806 | 1000 |
| | | 8 | 10.5 | 360 | 0.34 | 0.12 | KFZ1H470M0810 | 500 |
| | 68 | 8 | 10.5 | 360 | 0.34 | 0.12 | KFZ1H680M0810 | 500 |
| | 100 | 8 | 10.5 | 360 | 0.34 | 0.12 | KFZ1H101M0810 | 500 |
| | | 10 | 10.5 | 560 | 0.18 | 0.12 | KFZ1H101M1010 | 500 |
| 150 | 10 | 10.5 | 560 | 0.18 | 0.12 | KFZ1H151M1010 | 500 | |
| 220 | 10 | 10.5 | 560 | 0.18 | 0.12 | KFZ1H221M1010 | 500 | |
| | 12.5 | 13.5 | 650 | 0.12 | 0.12 | KFZ1H221M1313 | 200 | |
| 330 | 12.5 | 13.5 | 650 | 0.12 | 0.12 | KFZ1H331M1313 | 200 | |
| 63 | 4.7 | 5 | 5.7 | 60 | 2.9 | 0.12 | KFZ1J4R7M0506 | 1000 |
| | 10 | 6.3 | 5.7 | 80 | 1.5 | 0.12 | KFZ1J100M0606 | 1000 |
| | | 6.3 | 7.7 | 120 | 1.2 | 0.12 | KFZ1J220M0607 | 1000 |
| | 22 | 8 | 6.5 | 120 | 1.2 | 0.12 | KFZ1J220M0806 | 1000 |
| | | 8 | 10.5 | 250 | 0.65 | 0.12 | KFZ1J330M0810 | 500 |
| | 47 | 8 | 10.5 | 250 | 0.65 | 0.12 | KFZ1J470M0810 | 500 |
| | 68 | 8 | 10.5 | 250 | 0.65 | 0.12 | KFZ1J680M0810 | 500 |
| | 100 | 10 | 10.5 | 400 | 0.35 | 0.12 | KFZ1J101M1010 | 500 |
| | | 12.5 | 13.5 | 800 | 0.16 | 0.14 | KFZ1J101M1313 | 200 |
| | 150 | 12.5 | 13.5 | 800 | 0.16 | 0.14 | KFZ1J151M1313 | 200 |
| 220 | 12.5 | 13.5 | 800 | 0.16 | 0.14 | KFZ1J221M1313 | 200 | |
| 80 | 3.3 | 5 | 5.7 | 25 | 5.0 | 0.12 | KFZ1K3R3M0506 | 1000 |
| | 4.7 | 6.3 | 5.7 | 40 | 3.0 | 0.12 | KFZ1K4R7M0606 | 1000 |
| | | 6.3 | 7.7 | 60 | 2.4 | 0.12 | KFZ1K100M0607 | 1000 |
| | 10 | 8 | 6.5 | 60 | 2.4 | 0.12 | KFZ1K100M0806 | 1000 |
| | | 8 | 10.5 | 130 | 1.3 | 0.12 | KFZ1K220M0810 | 500 |
| | 33 | 8 | 10.5 | 130 | 1.3 | 0.12 | KFZ1K330M0810 | 500 |
| | 47 | 10 | 10.5 | 200 | 0.70 | 0.12 | KFZ1K470M1010 | 500 |
| | 68 | 10 | 13 | 400 | 0.40 | 0.12 | KFZ1K680M1013 | 400 |
| | | 12.5 | 13.5 | 500 | 0.32 | 0.14 | KFZ1K680M1313 | 200 |
| | 100 | 10 | 13 | 400 | 0.40 | 0.12 | KFZ1K101M1013 | 400 |
| 12.5 | | 13.5 | 500 | 0.32 | 0.14 | KFZ1K101M1313 | 200 | |
| 150 | 12.5 | 13.5 | 500 | 0.32 | 0.14 | KFZ1K151M1313 | 200 | |
| 100 | 22 | 8 | 10.5 | 130 | 1.3 | 0.12 | KFZ2A220M0810 | 500 |
| | 33 | 10 | 10.5 | 200 | 0.70 | 0.12 | KFZ2A330M1010 | 500 |
| | | 10 | 10.5 | 200 | 0.70 | 0.12 | KFZ2A470M1010 | 500 |
| | 47 | 10 | 13 | 400 | 0.40 | 0.12 | KFZ2A470M1013 | 400 |
| | | 12.5 | 13.5 | 500 | 0.32 | 0.14 | KFZ2A470M1313 | 200 |
| | 68 | 12.5 | 13.5 | 500 | 0.32 | 0.14 | KFZ2A680M1313 | 200 |
| 100 | 12.5 | 13.5 | 500 | 0.32 | 0.14 | KFZ2A101M1313 | 200 | |

① Rated ripple current (100kHz / +105°C) ② Impedance (100kHz / +20°C) ③ tan δ (120Hz / +20°C)

④ For plastic reel packaging, the Part Number is appended with "PR" at the end.

※Please refer to the page of reflow conditions for reflow profile.