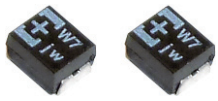
# Surface Mount Type

POSCAP

Series : **TPE**
Size : **B**



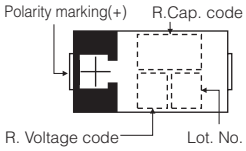
## Features

- Small size (L 3.5×W 2.8×H 1.9 mm)
- Low ESR (15 mΩ)
- RoHS compliance, Halogen free

## Specifications

| | | |
|---|---|---|
| Size code | B2 | |
| Category temperature range | –55 °C to +105 °C | |
| Rated voltage range | 2.0 V.DC to 10 V.DC | |
| Category voltage range | 1.8 V.DC to 8.0 V.DC | |
| Rated capacitance range | 47 µF to 470 µF | |
| Capacitance tolerance | ±20 % (120 Hz / + 20 °C) | |
| Leakage current | Please see the attached characteristics list | |
| Dissipation factor (tan $\delta$) | Please see the attached characteristics list | |
| Surge voltage (V.DC) | Rated voltage × 1.15 | |
| Endurance | +105 °C, 1000 h rated voltage applied<br>✻ Rated temp, +85 °C Products : +85 °C, 1000 h, rated voltage applied | |
| | Capacitance change | Within ±20 % of the initial value |
| | tan $\delta$ | ≦ 1.5 times of the initial limit |
| | DC leakage current | Within the initial limit |
| Damp heat (Steady State) | +60 °C, 90 % to 95 %, 500 h, No-applied voltage | |
| | Capacitance change | Within +50 %, –20 % of the initial value (2R5TPE220MAZB (MAPB, MAFB), 2R5TPE330MAZB, 2TPE330MAFB (MADGB), 2TPE470MAJGB (MAFB), 2TPE330MFB, ETPE330MAFB (MA9GB)) |
| | | Within +40 %, –20 % of the initial value (Except for above model) |
| | tan $\delta$ | ≦ 1.5 times of the initial limit |
| | DC leakage current | ≦ 3 times of the initial limit |

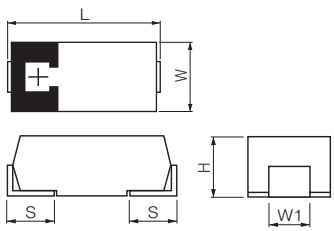
## Marking




| R. Voltage (V.DC) | 2.0 | 2.5 | 4.0 | 6.3 | 8.0 | 10.0 |
|---|---|---|---|---|---|---|
| Code | d | e | g | j | k | A |

| R. Cap. (µF) | 47 | 100 | 120 | 150 | 220 | 330 | 470 |
|---|---|---|---|---|---|---|---|
| Code | S7 | A8 | C8 | E8 | J8 | N8 | S8 |

## Dimensions (not to scale)




Unit : mm

| Size code | L±0.2 | W±0.2 | H±0.1 | S±0.2 | W1±0.1 |
|---|---|---|---|---|---|
| B2 | 3.5 | 2.8 | 1.9 | 0.8 | 2.2 |

✻ Externals of figure are the reference.

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.

## Characteristics list

| Series | Rated voltage (V.DC) | Rated temp. (°C) | Category voltage (V.DC) | Category temp. (°C) | Rated capacitance (µF) | Case size (mm) L | W | H | Size code | Specifications Ripple *1 current (mArm.s.) | ESR *2 (mΩ max.) | tan δ *3 | LC *4 (µA) | Standard Part number | Min. Packaging Q'ty (pcs) | Floor life Reflow Temp ≦ 260°C | Reflow Temp ≦ 250°C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPE | 2 | 105 | 2.0 | 105 | 330 | 3.5 | 2.8 | 1.9 | B2 | 2000 | 15 | 0.08 | 132.0 | 2TPE330MFB | 2000 | 3 | 3 |
| | | 85 | 1.8 | 105 | | 3.5 | 2.8 | 1.9 | | 2000 | 15 | 0.08 | 132.0 | 2TPE330MAFB | 2000 | | |
| | | 85 | 1.8 | 105 | | 3.5 | 2.8 | 1.9 | | 2000 | 13/300 kHz | 0.10 | 132.0 | 2TPE330MADGB | 2000 | | |
| | | 85 | 1.8 | 105 | 470 | 3.5 | 2.8 | 1.9 | | 2300 | 15 | 0.10 | 188.0 | 2TPE470MAFB | 2000 | | |
| | | 85 | 1.8 | 105 | | 3.5 | 2.8 | 1.9 | | 2300 | 11/300 kHz | 0.08 | 188.0 | 2TPE470MAJGB | 2000 | | |
| | 2.5 | 85 | 2.0 | 105 | 220 | 3.5 | 2.8 | 1.9 | | 2000 | 15 | 0.08 | 110.0 | 2R5TPE220MAFB | 2000 | | |
| | | 105 | 2.5 | 105 | | 3.5 | 2.8 | 1.9 | | 1800 | 15/300 kHz | 0.08 | 110.0 | 2R5TPE220MFGB | 2000 | | |
| | | 105 | 2.5 | 105 | | 3.5 | 2.8 | 1.9 | | 1700 | 21 | 0.08 | 55.0 | 2R5TPE220MLB | 2000 | | |
| | | 85 | 2.0 | 105 | | 3.5 | 2.8 | 1.9 | | 1600 | 25 | 0.08 | 55.0 | 2R5TPE220MAPB | 2000 | | |
| | | 105 | 2.5 | 105 | | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 55.0 | 2R5TPE220MZB | 2000 | | |
| | | 85 | 2.0 | 105 | | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 55.0 | 2R5TPE220MAZB | 2000 | | |
| | | 85 | 2.0 | 105 | 330 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 82.5 | 2R5TPE330MAZB | 2000 | | |
| | | 85 | 2.0 | 105 | | 3.5 | 2.8 | 1.9 | | 3200 | 9/300 kHz | 0.08 | 165.0 | ETPE330MA9GB | 2000 | | |
| | | NEW 105 | 2.0 | 105 | | 3.5 | 2.8 | 1.9 | | 3200 | 9/300 kHz | 0.08 | 165.0 | ETPE330M9GB | 2000 | | |
| | | NEW 85 | 2.0 | 105 | | 3.5 | 2.8 | 1.9 | | 2700 | 15 | 0.08 | 165.0 | ETPE330MAFB | 2000 | | |
| | | NEW 105 | 2.0 | 105 | | 3.5 | 2.8 | 1.9 | | 2700 | 15 | 0.08 | 165.0 | ETPE330MFB | 2000 | | |
| | 4 | 105 | 4.0 | 105 | 100 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 40.0 | 4TPE100MZB | 2000 | | |
| | | 85 | 3.2 | 105 | 150 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 60.0 | 4TPE150MAZB | 2000 | | |
| | | 85 | 3.2 | 105 | 220 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 88.0 | 4TPE220MAZB | 2000 | | |
| | 6.3 | 105 | 6.3 | 105 | 100 | 3.5 | 2.8 | 1.9 | | 1600 | 25 | 0.08 | 63.0 | 6TPE100MPB | 2000 | | |
| | | 85 | 5.0 | 105 | | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 63.0 | 6TPE100MAZB | 2000 | | |
| | | 105 | 6.3 | 105 | | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 63.0 | 6TPE100MZB | 2000 | | |
| | | 85 | 5.0 | 105 | 120 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 75.6 | 6TPE120MAZB | 2000 | | |
| | | 85 | 5.0 | 105 | 150 | 3.5 | 2.8 | 1.9 | | 1600 | 25 | 0.08 | 94.5 | 6TPE150MAPB | 2000 | | |
| | | 85 | 5.0 | 105 | | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 94.5 | 6TPE150MAZB | 2000 | | |
| | | 85 | 5.0 | 105 | 220 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.10 | 138.6 | 6TPE220MAZB | 2000 | | |
| | | NEW 85 | 5.0 | 105 | | 3.5 | 2.8 | 1.9 | | 1600 | 25 | 0.10 | 138.6 | 6TPE220MAPB | 2000 | | |
| | 8 | 85 | 6.3 | 105 | 100 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 80.0 | 8TPE100MAZB | 2000 | | |
| | 10 | 85 | 8.0 | 105 | 47 | 3.5 | 2.8 | 1.9 | | 1400 | 35 | 0.08 | 47.0 | 10TPE47MAZB | 2000 | | |

✻1 Ripple current (100 kHz/ +45 °C ), ✻2 ESR (100 kHz/+20 °C) ✻3 tan δ (120 Hz/+20 °C) ✻4 After 5 minutes

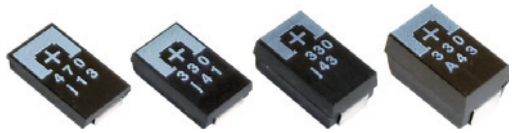
◆ Please refer to each page in this catarog for “Reflow conditions” and “Taping specifications”.

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# Surface Mount Type

POSCAP

Series : **TPE**
Size : **D**



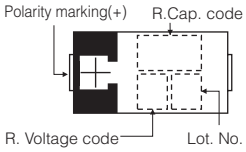
## Features

- Low profile (Height 1.5 mm max.)
- Low ESR (7 mΩ)
- Large capacitance (1500 µF max.)
- RoHS compliance, Halogen free

## Specifications

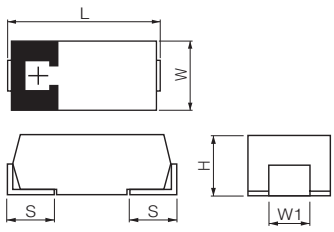
| Size code | D15E | D2E | D3L | D4 |
|---|---|---|---|---|
| Category temperature range | –55 °C to +105 °C | | | |
| Rated voltage range | 6.3 V.DC | 2.5 V.DC to 10 V.DC | | |
| Category voltage range | 5.0 V.DC | 2.5 V.DC to 10 V.DC | | |
| Rated capacitance range | 470 µF | 68 µF to 470 µF | 220 µF to 680 µF | 330 µF to 1500 µF |
| Capacitance tolerance | ±20 % (120 Hz / + 20 °C) | | | |
| Leakage current | Please see the attached characteristics list | | | |
| Dissipation factor (tan $\delta$) | Please see the attached characteristics list | | | |
| Surge voltage (V.DC) | Rated voltage × 1.15 | | | |
| Endurance | +105 °C, 2000 h rated voltage applied<br>✻ Rated temp, +85 °C Products : +85 °C, 1000 h, rated voltage applied<br>6TPE330MAP, 6TPE470MAZU : +85 °C, 2000 h, | | | |
| | Capacitance change | Within ±20 % of the initial value | | |
| | tan $\delta$ | ≦ 1.5 times of the initial limit | | |
| | DC leakage current | Within the initial limit | | |
| Damp heat (Steady State) | +60 °C, 90 % to 95 %, 500 h, No-applied voltage | | | |
| | Capacitance change | Within +50 %, –20 % of the initial value<br>(2R5TPE220M (I, F, 9), 2R5TPE330M (I, F, C, 9, 7),<br>2R5TPE470M (I, F, C, 9, 7), 2R5TPE1000MF, 2R5TPE1500M (F, C)) | | |
| | | Within +40 %, –20 % of the initial value (Except for above model) | | |
| | tan $\delta$ | ≦ 1.5 times of the initial limit | | |
| | DC leakage current | ≦ 3 times of the initial limit | | |

## Marking




| R. Voltage (V.DC) | 2.5 | 4.0 | 6.3 | 10.0 |
|---|---|---|---|---|
| Code | e | g | j | A |

## Dimensions (not to scale)




Unit : mm

| Size code | L±0.3 | W±0.2 | H±0.2*1 | S±0.2 | W1±0.1 |
|---|---|---|---|---|---|
| D15E | 7.3 | 4.3 | 1.4 | 1.1 | 2.4 |
| D2E | 7.3 | 4.3 | 1.8 | 1.3 | 2.4 |
| D3L | 7.3 | 4.3 | 2.8 | 1.3 | 2.4 |
| D4 | 7.3 | 4.3 | 3.8 | 1.3 | 2.4 |

✻ Externals of figure are the reference.
✻ 1 ±0.1 :D15E, D2E

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.

## Characteristics list

| Series | Rated voltage (V.DC) | Rated temp. (°C) | Category voltage (V.DC) | Category temp. (°C) | Rated capacitance (µF) | Case size (mm) L | W | H | Size code | Specifications Ripple *1 current (mArr.m.s.) | ESR *2 (mΩ max.) | tan δ *3 | LC *4 (µA) | Standard Part number | Min. Packaging Q'ty (pcs) | Floor life Reflow Temp ≦ 260°C | Reflow Temp ≦ 250°C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPE | 2.5 | 105 | 2.5 | 105 | 220 | 7.3 | 4.3 | 1.8 | D2E | 3900 | 9 | 0.10 | 55.0 | 2R5TPE220M9 | 3000 | 3 | 2a |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3100 | 15 | 0.10 | 55.0 | 2R5TPE220MF | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 55.0 | 2R5TPE220MI | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 55.0 | 2R5TPE220M | 3000 | | |
| | | 105 | 2.5 | 105 | 330 | 7.3 | 4.3 | 1.8 | | 4400 | 7 | 0.10 | 82.5 | 2R5TPE330M7 | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3900 | 9 | 0.10 | 82.5 | 2R5TPE330M9 | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3500 | 12 | 0.10 | 82.5 | 2R5TPE330MC | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3100 | 15 | 0.10 | 82.5 | 2R5TPE330MF | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 82.5 | 2R5TPE330MI | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 82.5 | 2R5TPE330M | 3000 | | |
| | | 105 | 2.5 | 105 | 470 | 7.3 | 4.3 | 1.8 | | 4400 | 7 | 0.10 | 117.5 | 2R5TPE470M7 | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3900 | 9 | 0.10 | 117.5 | 2R5TPE470M9 | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3500 | 12 | 0.10 | 117.5 | 2R5TPE470MC | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 3100 | 15 | 0.10 | 117.5 | 2R5TPE470MF | 3000 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 117.5 | 2R5TPE470MI | 3000 | | |
| | | 105 | 2.5 | 105 | 680 | 7.3 | 4.3 | 2.8 | D3L | 3500 | 12 | 0.10 | 170.0 | 2R5TPE680MCL | 2500 | | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 2.8 | | 3100 | 15 | 0.10 | 170.0 | 2R5TPE680MFL | 2500 | | |
| | | 105 | 2.5 | 105 | 1000 | 7.3 | 4.3 | 3.8 | D4 | 3900 | 15 | 0.15 | 250.0 | 2R5TPE1000MF | 2000 | | |
| | | 105 | 2.5 | 105 | 1500 | 7.3 | 4.3 | 3.8 | | 4400 | 12 | 0.15 | 375.0 | 2R5TPE1500MC | 2000 | – | |
| | | 105 | 2.5 | 105 | | 7.3 | 4.3 | 3.8 | | 3900 | 15 | 0.15 | 375.0 | 2R5TPE1500MF | 2000 | | |
| | 4 | 105 | 4.0 | 105 | 150 | 7.3 | 4.3 | 1.8 | D2E | 2800 | 18 | 0.10 | 60.0 | 4TPE150MI | 3000 | 3 | |
| | | 105 | 4.0 | 105 | 220 | 7.3 | 4.3 | 1.8 | | 3100 | 15 | 0.10 | 88.0 | 4TPE220MF | 3000 | | |
| | | 105 | 4.0 | 105 | | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 88.0 | 4TPE220MI | 3000 | | |
| | | 105 | 4.0 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 88.0 | 4TPE220M | 3000 | | |
| | | 105 | 4.0 | 105 | 330 | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 132.0 | 4TPE330MI | 3000 | | |
| | | 105 | 4.0 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 132.0 | 4TPE330M | 3000 | | |
| | | 105 | 4.0 | 105 | 470 | 7.3 | 4.3 | 2.8 | D3L | 3500 | 12 | 0.10 | 188.0 | 4TPE470MCL | 2500 | | |
| | | 105 | 4.0 | 105 | | 7.3 | 4.3 | 2.8 | | 3100 | 15 | 0.10 | 188.0 | 4TPE470MFL | 2500 | | |
| | | 105 | 4.0 | 105 | | 7.3 | 4.3 | 2.8 | | 2800 | 18 | 0.10 | 188.0 | 4TPE470MIL | 2500 | | |
| | | 105 | 4.0 | 105 | | 7.3 | 4.3 | 2.8 | | 2400 | 25 | 0.10 | 188.0 | 4TPE470ML | 2500 | | |
| | 6.3 | 105 | 6.3 | 105 | 100 | 7.3 | 4.3 | 1.8 | D2E | 2800 | 18 | 0.10 | 63.0 | 6TPE100MI | 3000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 63.0 | 6TPE100M | 3000 | | |
| | | 105 | 6.3 | 105 | 150 | 7.3 | 4.3 | 1.8 | | 3100 | 15 | 0.10 | 94.5 | 6TPE150MF | 3000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 94.5 | 6TPE150MI | 3000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 94.5 | 6TPE150M | 3000 | | |
| | | 105 | 6.3 | 105 | 220 | 7.3 | 4.3 | 1.8 | | 2800 | 18 | 0.10 | 138.6 | 6TPE220MI | 3000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 138.6 | 6TPE220M | 3000 | | |
| | | 85 | 5.0 | 105 | | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 138.6 | 6TPE220MAP | 3000 | | |
| | | 85 | 5.0 | 105 | 330 | 7.3 | 4.3 | 1.8 | | 2400 | 25 | 0.10 | 207.9 | 6TPE330MAP | 3000 | | |
| | | 85 | 5.0 | 105 | | 7.3 | 4.3 | 2.8 | D3L | 2400 | 25 | 0.10 | 207.9 | 6TPE330MAL | 2500 | | |
| | | 85 | 5.0 | 105 | | 7.3 | 4.3 | 2.8 | | 3900 | 9/500 kHz | 0.10 | 207.9 | 6TPE330MA9EL | 2500 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 2.8 | | 3100 | 15 | 0.10 | 207.9 | 6TPE330MFL | 2500 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 2.8 | | 2800 | 18 | 0.10 | 207.9 | 6TPE330MIL | 2500 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 2.8 | | 2400 | 25 | 0.10 | 207.9 | 6TPE330ML | 2500 | | |
| | | 85 | 5.0 | 105 | | 7.3 | 4.3 | 3.8 | D4 | 4400 | 10 | 0.10 | 207.9 | 6TPE330MAA | 2000 | | |
| | | 85 | 5.0 | 105 | 470 | 7.3 | 4.3 | 1.4 | D15E | 1700 | 35 | 0.10 | 296.1 | 6TPE470MAZU | 4000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 3.8 | D4 | 3500 | 18 | 0.15 | 296.1 | 6TPE470MI | 2000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 3.8 | | 3000 | 25 | 0.15 | 296.1 | 6TPE470M | 2000 | | |
| | | 105 | 6.3 | 105 | 680 | 7.3 | 4.3 | 3.8 | | 3500 | 18 | 0.15 | 428.4 | 6TPE680MI | 2000 | | |
| | | 105 | 6.3 | 105 | | 7.3 | 4.3 | 3.8 | | 3000 | 25 | 0.15 | 428.4 | 6TPE680M | 2000 | | |
| | 10 | 105 | 10.0 | 105 | 68 | 7.3 | 4.3 | 1.8 | D2E | 2400 | 25 | 0.10 | 68.0 | 10TPE68M | 3000 | | |
| | | 105 | 10.0 | 105 | 220 | 7.3 | 4.3 | 2.8 | D3L | 2800 | 18 | 0.10 | 220.0 | 10TPE220MIL | 2500 | – | |
| | | 105 | 10.0 | 105 | | 7.3 | 4.3 | 2.8 | | 2400 | 25 | 0.10 | 220.0 | 10TPE220ML | 2500 | | |
| | | 105 | 10.0 | 105 | 330 | 7.3 | 4.3 | 3.8 | D4 | 3000 | 25 | 0.10 | 330.0 | 10TPE330M | 2000 | | |

*1 Ripple current (100 kHz/ +45 °C ), *2 ESR (100 kHz/+20 °C) *3 tan δ (120 Hz/+20 °C) *4 After 5 minutes

◆ Please refer to each page in this catarog for “Reflow conditions” and “Taping specifications”.

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## Panasonic:

ERJ-B1AF511U ERJ-3GEYJ3R0V ERJ-P6WF1500V ERJ1TYJ1R0U ERJ8ENF2701V ERJ-P08F2000V ERJB1CFR01U ERJD1CFR030U ERJD1CJR022U ERA-3AEB912V ERJ-UP3J750V ERJ2RKF12R0X ERJB1AF100U ETQP3M1R5KVN 16SVPC100M AXT340124 ERA6AEB124V EEE-FK1E221GP EEEFK1A102AP ERJ-8ENF39R0V ERJPB3B1001V ERJB1CFR018U ECQE2273KB EEUEB1E221SB ERJ-6ENF7501V ERJ1TYJ330U AXK5F16547YG ERJ-P08J1R0V ERJ-XGNJ3R0Y ERJU0XJ105Y