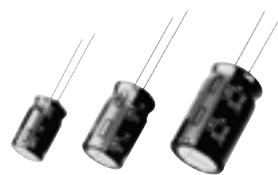


## Radial Lead Type

Series: **TA** Type: **A**



### ■ Features

- Endurance: 125 °C 2000 h
- Heat cycle: 1000 cycle -40 °C to +125 °C
- AEC-Q200 qualified\*
- RoHS directive compliant

### ■ Specifications

|                       |                                                                                                                                                                                                                                                                                               |                                    |      |      |      |      |      |                  |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------|------|------|------|------|------------------|
| Category Temp. Range  | -40 °C to + 125 °C                                                                                                                                                                                                                                                                            |                                    |      |      |      |      |      |                  |
| Rated W.V. Range      | 10 V .DC to 63 V .DC                                                                                                                                                                                                                                                                          |                                    |      |      |      |      |      |                  |
| Nominal Cap. Range    | 2.2 μF to 4700 μF                                                                                                                                                                                                                                                                             |                                    |      |      |      |      |      |                  |
| Capacitance Tolerance | ±20 % (120 Hz/+20 °C)                                                                                                                                                                                                                                                                         |                                    |      |      |      |      |      |                  |
| DC Leakage Current    | I ≤ 0.01 CV or 3 (μA) After 2 minutes (Whichever is greater)                                                                                                                                                                                                                                  |                                    |      |      |      |      |      |                  |
| tan δ                 | W.V.(V)                                                                                                                                                                                                                                                                                       | 10                                 | 16   | 25   | 35   | 50   | 63   | (120Hz / +20 °C) |
|                       | tan δ                                                                                                                                                                                                                                                                                         | 0.20                               | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 |                  |
|                       | For capacitance value ≥ 1000 μF , add 0.02 per every 1000 μF.                                                                                                                                                                                                                                 |                                    |      |      |      |      |      |                  |
| Endurance             | After following life test with DC voltage and +125 °C±2 °C ripple current value applied (The sum of DC and ripple peak voltage shall not exceed the rated working voltage), for 2000 hours, when the capacitors are restored to 20 °C, the capacitors, shall meet the limits specified below. |                                    |      |      |      |      |      |                  |
|                       | Capacitance change                                                                                                                                                                                                                                                                            | ±30% of initial measured value     |      |      |      |      |      |                  |
|                       | tan δ                                                                                                                                                                                                                                                                                         | ≤ 300 % of initial specified value |      |      |      |      |      |                  |
|                       | DC leakage current                                                                                                                                                                                                                                                                            | ≤ initial specified value          |      |      |      |      |      |                  |
| 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)                                                                                                   |                                    |      |      |      |      |      |                  |

### ■ Frequency correction factor for ripple current

| W.V.<br>(V.DC) | Cap. (μF) |         | Frequency (Hz) |      |      |      |       |
|----------------|-----------|---------|----------------|------|------|------|-------|
|                |           |         | 60             | 120  | 1 k  | 10 k | 100 k |
| 10 to 63       | 1         | to 330  | 0.55           | 0.65 | 0.85 | 0.90 | 1.00  |
|                | 470       | to 1000 | 0.70           | 0.75 | 0.90 | 0.95 | 1.00  |
|                | 2200      | to 4700 | 0.75           | 0.80 | 0.90 | 0.95 | 1.00  |

### ■ Dimensions in mm (not to scale)

(Unit : mm)

|              |     |     |      |     |     |
|--------------|-----|-----|------|-----|-----|
|              |     |     |      |     |     |
| Body Dia. φD | 8   | 10  | 12.5 | 16  | 18  |
| Lead Dia. φd | 0.6 | 0.6 | 0.6  | 0.8 | 0.8 |
| Lead space F | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 |

\* This product qualify for AEC-Q200, but it has some deviations.

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.

03 Mar. 2015

■ Standard Products

Endurance : 125 °C 2000 h

| W.V. | Cap.<br>(±20 %) | Case size |        | Specification                                              |                                                | Lead Length          |            |              | Part No.       | Min. Packaging Q'ty |        |
|------|-----------------|-----------|--------|------------------------------------------------------------|------------------------------------------------|----------------------|------------|--------------|----------------|---------------------|--------|
|      |                 | Dia.      | Length | Ripple<br>Current<br>(100 kHz)<br>(+125 °C)<br>(mA r.m.s.) | Imped-<br>ance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Lead<br>Dia.<br>(mm) | Lead Space |              |                | Straight<br>Leads   | Taping |
|      |                 |           |        |                                                            |                                                |                      | Straight   | Taping<br>*B |                |                     |        |
| (V)  | (μF)            | (mm)      | (mm)   |                                                            |                                                | (mm)                 | (mm)       | (mm)         |                | (pcs)               | (pcs)  |
| 10   | 330             | 8         | 11.5   | 500                                                        | 0.130                                          | 0.6                  | 3.5        | 5.0          | EEUTA1A331( )  | 200                 | 1000   |
|      | 470             | 10        | 12.5   | 680                                                        | 0.100                                          | 0.6                  | 5.0        | 5.0          | EEUTA1A471( )  | 200                 | 500    |
|      | 1000            | 10        | 20     | 1100                                                       | 0.057                                          | 0.6                  | 5.0        | 5.0          | EEUTA1A102( )  | 200                 | 500    |
|      |                 | 12.5      | 15     | 1085                                                       | 0.070                                          | 0.6                  | 5.0        | 5.0          | EEUTA1A102S( ) | 200                 | 500    |
|      | 2200            | 12.5      | 25     | 1750                                                       | 0.033                                          | 0.6                  | 5.0        | 5.0          | EEUTA1A222L( ) | 200                 | 500    |
|      |                 | 16        | 20     | 1985                                                       | 0.032                                          | 0.8                  | 7.5        | 7.5          | EEUTA1A222( )  | 100                 | 250    |
|      |                 | 18        | 15     | 1800                                                       | 0.042                                          | 0.8                  | 7.5        | 7.5          | EEUTA1A222S( ) | 100                 | 250    |
|      | 3300            | 16        | 25     | 2300                                                       | 0.024                                          | 0.8                  | 7.5        | 7.5          | EEUTA1A332( )  | 100                 | 250    |
|      |                 | 18        | 20     | 2250                                                       | 0.031                                          | 0.8                  | 7.5        | 7.5          | EEUTA1A332S( ) | 100                 | 250    |
|      | 4700            | 16        | 31.5   | 2710                                                       | 0.020                                          | 0.8                  | 7.5        |              | EEUTA1A472     | 100                 |        |
|      |                 | 18        | 25     | 2470                                                       | 0.022                                          | 0.8                  | 7.5        | 7.5          | EEUTA1A472S( ) | 100                 | 250    |
| 16   | 220             | 8         | 11.5   | 500                                                        | 0.130                                          | 0.6                  | 3.5        | 5.0          | EEUTA1C221( )  | 200                 | 1000   |
|      | 330             | 10        | 12.5   | 680                                                        | 0.100                                          | 0.6                  | 5.0        | 5.0          | EEUTA1C331( )  | 200                 | 500    |
|      | 470             | 10        | 16     | 945                                                        | 0.075                                          | 0.6                  | 5.0        | 5.0          | EEUTA1C471( )  | 200                 | 500    |
|      | 1000            | 12.5      | 20     | 1490                                                       | 0.042                                          | 0.6                  | 5.0        | 5.0          | EEUTA1C102( )  | 200                 | 500    |
|      |                 | 16        | 15     | 1520                                                       | 0.047                                          | 0.8                  | 7.5        | 7.5          | EEUTA1C102S( ) | 100                 | 250    |
|      | 2200            | 16        | 25     | 2300                                                       | 0.024                                          | 0.8                  | 7.5        | 7.5          | EEUTA1C222( )  | 100                 | 250    |
|      |                 | 18        | 20     | 2250                                                       | 0.031                                          | 0.8                  | 7.5        | 7.5          | EEUTA1C222S( ) | 100                 | 250    |
|      | 3300            | 16        | 31.5   | 2710                                                       | 0.020                                          | 0.8                  | 7.5        |              | EEUTA1C332     | 100                 |        |
|      |                 | 18        | 25     | 2470                                                       | 0.022                                          | 0.8                  | 7.5        | 7.5          | EEUTA1C332S( ) | 100                 | 250    |
|      | 4700            | 18        | 31.5   | 3270                                                       | 0.018                                          | 0.8                  | 7.5        |              | EEUTA1C472     | 50                  |        |
| 25   | 100             | 8         | 11.5   | 500                                                        | 0.130                                          | 0.6                  | 3.5        | 5.0          | EEUTA1E101( )  | 200                 | 1000   |
|      | 220             | 10        | 12.5   | 680                                                        | 0.100                                          | 0.6                  | 5.0        | 5.0          | EEUTA1E221( )  | 200                 | 500    |
|      | 330             | 10        | 16     | 945                                                        | 0.075                                          | 0.6                  | 5.0        | 5.0          | EEUTA1E331( )  | 200                 | 500    |
|      | 470             | 10        | 20     | 1100                                                       | 0.057                                          | 0.6                  | 5.0        | 5.0          | EEUTA1E471( )  | 200                 | 500    |
|      |                 | 12.5      | 15     | 1085                                                       | 0.070                                          | 0.6                  | 5.0        | 5.0          | EEUTA1E471S( ) | 200                 | 500    |
|      | 1000            | 12.5      | 25     | 1750                                                       | 0.033                                          | 0.6                  | 5.0        | 5.0          | EEUTA1E102L( ) | 200                 | 500    |
|      |                 | 16        | 20     | 1985                                                       | 0.032                                          | 0.8                  | 7.5        | 7.5          | EEUTA1E102( )  | 100                 | 250    |
|      |                 | 18        | 15     | 1800                                                       | 0.042                                          | 0.8                  | 7.5        | 7.5          | EEUTA1E102S( ) | 100                 | 250    |
|      | 2200            | 16        | 31.5   | 2710                                                       | 0.020                                          | 0.8                  | 7.5        |              | EEUTA1E222     | 100                 |        |
|      |                 | 18        | 25     | 2470                                                       | 0.022                                          | 0.8                  | 7.5        | 7.5          | EEUTA1E222S( ) | 100                 | 250    |
|      | 3300            | 18        | 35.5   | 3310                                                       | 0.017                                          | 0.8                  | 7.5        |              | EEUTA1E332     | 50                  |        |
| 35   | 100             | 10        | 12.5   | 555                                                        | 0.180                                          | 0.6                  | 5.0        | 5.0          | EEUTA1V101( )  | 200                 | 500    |
|      | 220             | 10        | 16     | 765                                                        | 0.130                                          | 0.6                  | 5.0        | 5.0          | EEUTA1V221( )  | 200                 | 500    |
|      | 330             | 10        | 20     | 930                                                        | 0.100                                          | 0.6                  | 5.0        | 5.0          | EEUTA1V331( )  | 200                 | 500    |
|      | 470             | 12.5      | 20     | 1330                                                       | 0.070                                          | 0.6                  | 5.0        | 5.0          | EEUTA1V471( )  | 200                 | 500    |
|      |                 | 16        | 15     | 1450                                                       | 0.088                                          | 0.8                  | 7.5        | 7.5          | EEUTA1V471S( ) | 100                 | 250    |
|      | 1000            | 16        | 25     | 2010                                                       | 0.037                                          | 0.8                  | 7.5        | 7.5          | EEUTA1V102( )  | 100                 | 250    |
|      |                 | 18        | 20     | 2180                                                       | 0.046                                          | 0.8                  | 7.5        | 7.5          | EEUTA1V102S( ) | 100                 | 250    |
|      | 2200            | 18        | 35.5   | 2790                                                       | 0.025                                          | 0.8                  | 7.5        |              | EEUTA1V222     | 50                  |        |

- When requesting taped product, please put the letter "B" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm.
- Please refer to the page of "Taping Dimensions".

■ Standard Products

Endurance : 125 °C 2000 h

| W.V. | Cap.<br>(±20 %) | Case size |        | Specification                                              |                                                | Lead Length  |            |              | Part No.       | Min. Packaging Q'ty |        |
|------|-----------------|-----------|--------|------------------------------------------------------------|------------------------------------------------|--------------|------------|--------------|----------------|---------------------|--------|
|      |                 | Dia.      | Length | Ripple<br>Current<br>(100 kHz)<br>(+125 °C)<br>(mA r.m.s.) | Imped-<br>ance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Lead<br>Dia. | Lead Space |              |                | Straight<br>Leads   | Taping |
|      |                 |           |        |                                                            |                                                |              | Straight   | Taping<br>*B |                |                     |        |
| (V)  | (μF)            | (mm)      | (mm)   | (mA r.m.s.)                                                | (Ω)                                            | (mm)         | (mm)       | (mm)         |                | (pcs)               | (pcs)  |
| 50   | 10              | 8         | 11.5   | 180                                                        | 0.950                                          | 0.6          | 3.5        | 5.0          | EEUTA1H100( )  | 200                 | 1000   |
|      | 22              | 8         | 11.5   | 250                                                        | 0.650                                          | 0.6          | 3.5        | 5.0          | EEUTA1H220( )  | 200                 | 1000   |
|      | 33              | 8         | 11.5   | 300                                                        | 0.450                                          | 0.6          | 3.5        | 5.0          | EEUTA1H330( )  | 200                 | 1000   |
|      | 47              | 8         | 11.5   | 440                                                        | 0.350                                          | 0.6          | 3.5        | 5.0          | EEUTA1H470S( ) | 200                 | 1000   |
|      | 100             | 10        | 12.5   | 555                                                        | 0.180                                          | 0.6          | 5.0        | 5.0          | EEUTA1H101( )  | 200                 | 500    |
|      | 220             | 10        | 20     | 930                                                        | 0.100                                          | 0.6          | 5.0        | 5.0          | EEUTA1H221( )  | 200                 | 500    |
|      | 330             | 12.5      | 20     | 1330                                                       | 0.070                                          | 0.6          | 5.0        | 5.0          | EEUTA1H331( )  | 200                 | 500    |
|      |                 | 16        | 15     | 1450                                                       | 0.088                                          | 0.8          | 7.5        | 7.5          | EEUTA1H331S( ) | 100                 | 250    |
|      | 470             | 12.5      | 25     | 1650                                                       | 0.055                                          | 0.6          | 5.0        | 5.0          | EEUTA1H471L( ) | 200                 | 500    |
|      |                 | 16        | 20     | 1650                                                       | 0.053                                          | 0.8          | 7.5        | 7.5          | EEUTA1H471( )  | 100                 | 250    |
|      |                 | 18        | 15     | 1710                                                       | 0.075                                          | 0.8          | 7.5        | 7.5          | EEUTA1H471S( ) | 100                 | 250    |
|      | 1000            | 16        | 31.5   | 2430                                                       | 0.031                                          | 0.8          | 7.5        |              | EEUTA1H102     | 100                 |        |
|      |                 | 18        | 25     | 2350                                                       | 0.032                                          | 0.8          | 7.5        | 7.5          | EEUTA1H102S( ) | 100                 | 250    |
| 63   | 22              | 8         | 11.5   | 310                                                        | 0.470                                          | 0.6          | 3.5        | 5.0          | EEUTA1J220( )  | 200                 | 1000   |
|      | 33              | 10        | 12.5   | 410                                                        | 0.360                                          | 0.6          | 5.0        | 5.0          | EEUTA1J330( )  | 200                 | 500    |
|      | 47              | 10        | 16     | 460                                                        | 0.270                                          | 0.6          | 5.0        | 5.0          | EEUTA1J470( )  | 200                 | 500    |
|      | 100             | 10        | 20     | 680                                                        | 0.205                                          | 0.6          | 5.0        | 5.0          | EEUTA1J101( )  | 200                 | 500    |
|      | 220             | 12.5      | 25     | 1325                                                       | 0.100                                          | 0.6          | 5.0        | 5.0          | EEUTA1J221L( ) | 200                 | 500    |
|      |                 | 16        | 20     | 1360                                                       | 0.085                                          | 0.8          | 7.5        | 7.5          | EEUTA1J221( )  | 100                 | 250    |
|      |                 | 18        | 15     | 1300                                                       | 0.120                                          | 0.8          | 7.5        | 7.5          | EEUTA1J221S( ) | 100                 | 250    |
|      | 330             | 16        | 25     | 1660                                                       | 0.070                                          | 0.8          | 7.5        | 7.5          | EEUTA1J331( )  | 100                 | 250    |
|      |                 | 18        | 20     | 1760                                                       | 0.077                                          | 0.8          | 7.5        | 7.5          | EEUTA1J331S( ) | 100                 | 250    |
|      | 470             | 16        | 31.5   | 2055                                                       | 0.060                                          | 0.8          | 7.5        |              | EEUTA1J471     | 100                 |        |
|      |                 | 18        | 25     | 1990                                                       | 0.060                                          | 0.8          | 7.5        | 7.5          | EEUTA1J471S( ) | 100                 | 250    |

- When requesting taped product, please put the letter "B" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm.
- Please refer to the page of "Taping Dimensions".

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