

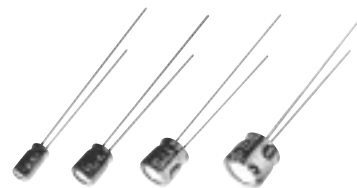
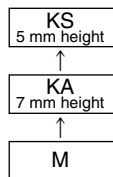
### Radial Lead Type

Series: **KS** Type: **A**

#### ■ Features

- Endurance : 85° C 1000 h
- 5 mm height
- RoHS directive compliant

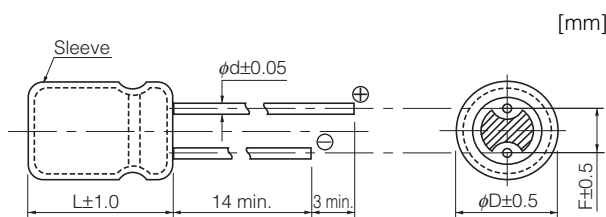
Low Profile



#### ■ Specifications

|                       |                                                                                                                                                                                           |                                               |  |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|
| Category Temp. Range  | -40 °C to +85 °C                                                                                                                                                                          |                                               |  |
| Rated W.V. Range      | 4 V.DC to 50 V.DC                                                                                                                                                                         |                                               |  |
| Nominal Cap. Range    | 0.1 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)                                                                                                                              |                                               |  |
| tan δ                 | Please see the attached standard products list                                                                                                                                            |                                               |  |
| Endurance             | After applying rated working voltage for 1000 hours at +85 °C±2 °C, when the capacitors are restored to 20°C capacitors, shall meet the following limits.                                 |                                               |  |
|                       | Capacitance change                                                                                                                                                                        | ± 20% of initial measured value (4 V : ±30 %) |  |
|                       | tan δ                                                                                                                                                                                     | ≤ 200 % of initial specified value            |  |
|                       | DC leakage current                                                                                                                                                                        | ≤ initial specified value                     |  |
| Shelf Life            | After storage for 1000 hours at +85 °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) |                                               |  |

#### ■ Dimensions in mm (not to scale)



(mm)

|                    |      |      |      |      |
|--------------------|------|------|------|------|
| Body Dia. $\phi D$ | 4    | 5    | 6.3  | 8    |
| Lead Dia. $\phi d$ | 0.45 | 0.45 | 0.45 | 0.45 |
| Lead space F       | 1.5  | 2.0  | 2.5  | 2.5  |

■ Standard Products

| W.V. | Cap.<br>(±20 %) | Case size |        | Specification                                            |                               | Lead Length  |            |              |              | Part No.       | Min. Packaging Q'ty |        |
|------|-----------------|-----------|--------|----------------------------------------------------------|-------------------------------|--------------|------------|--------------|--------------|----------------|---------------------|--------|
|      |                 | Dia.      | Length | Ripple<br>Current<br>(120 Hz)<br>(+85 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Lead<br>Dia. | Lead Space |              |              |                | Straight<br>Leads   | Taping |
|      |                 |           |        |                                                          |                               |              | Straight   | Taping<br>*B | Taping<br>*i |                |                     |        |
| (V)  | (μF)            | (mm)      | (mm)   | (mA r.m.s.)                                              |                               | (mm)         | (mm)       | (mm)         | (mm)         |                | (pcs)               | (pcs)  |
| 4    | 33              | 4         | 5      | 26                                                       | 0.35                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA0GKS330( ) | 200                 | 2000   |
|      | 47              | 4         | 5      | 34                                                       | 0.35                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA0GKS470( ) | 200                 | 2000   |
|      | 100             | 5         | 5      | 61                                                       | 0.35                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA0GKS101( ) | 200                 | 2000   |
|      | 220             | 6.3       | 5      | 82                                                       | 0.35                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA0GKS221( ) | 200                 | 2000   |
| 6.3  | 22              | 4         | 5      | 29                                                       | 0.24                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA0JKS220( ) | 200                 | 2000   |
|      | 33              | 5         | 5      | 38                                                       | 0.24                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA0JKS330( ) | 200                 | 2000   |
|      | 47              | 5         | 5      | 46                                                       | 0.24                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA0JKS470( ) | 200                 | 2000   |
|      | 100             | 6.3       | 5      | 71                                                       | 0.24                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA0JKS101( ) | 200                 | 2000   |
|      | 330             | 8         | 5      | 130                                                      | 0.24                          | 0.45         | 2.5        |              | 2.5          | ECEA0JKS331( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 130                                                      | 0.24                          | 0.45         |            | 5.0          |              | ECEA0JKS331Q   |                     | 1000   |
|      | 10              | 22        | 5      | 5                                                        | 35                            | 0.20         | 0.45       | 2.0          | 5.0          | 2.5            | ECEA1AKS220( )      | 200    |
| 33   |                 | 5         | 5      | 43                                                       | 0.20                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA1AKS330( ) | 200                 | 2000   |
| 47   |                 | 6.3       | 5      | 65                                                       | 0.20                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1AKS470( ) | 200                 | 2000   |
| 100  |                 | 6.3       | 5      | 80                                                       | 0.20                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1AKS101( ) | 200                 | 2000   |
| 220  |                 | 8         | 5      | 120                                                      | 0.20                          | 0.45         | 2.5        |              | 2.5          | ECEA1AKS221( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 120                                                      | 0.20                          | 0.45         |            | 5.0          |              | ECEA1AKS221Q   |                     | 1000   |
| 16   | 10              | 4         | 5      | 28                                                       | 0.16                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1CKS100( ) | 200                 | 2000   |
|      | 22              | 5         | 5      | 39                                                       | 0.16                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA1CKS220( ) | 200                 | 2000   |
|      | 33              | 6.3       | 5      | 60                                                       | 0.16                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1CKS330( ) | 200                 | 2000   |
|      | 47              | 6.3       | 5      | 70                                                       | 0.16                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1CKS470( ) | 200                 | 2000   |
|      | 100             | 8         | 5      | 91                                                       | 0.16                          | 0.45         | 2.5        |              | 2.5          | ECEA1CKS101( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 91                                                       | 0.16                          | 0.45         |            | 5.0          |              | ECEA1CKS101Q   |                     | 1000   |
| 25   | 4.7             | 4         | 5      | 22                                                       | 0.14                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1EKS4R7( ) | 200                 | 2000   |
|      | 10              | 5         | 5      | 28                                                       | 0.14                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA1EKS100( ) | 200                 | 2000   |
|      | 22              | 6.3       | 5      | 55                                                       | 0.14                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1EKS220( ) | 200                 | 2000   |
|      | 33              | 6.3       | 5      | 65                                                       | 0.14                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1EKS330( ) | 200                 | 2000   |
|      | 100             | 8         | 5      | 85                                                       | 0.14                          | 0.45         | 2.5        |              | 2.5          | ECEA1EKS101( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 85                                                       | 0.14                          | 0.45         |            | 5.0          |              | ECEA1EKS101Q   |                     | 1000   |
| 35   | 3.3             | 4         | 5      | 16                                                       | 0.12                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1VKS3R3( ) | 200                 | 2000   |
|      | 4.7             | 4         | 5      | 22                                                       | 0.12                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1VKS4R7( ) | 200                 | 2000   |
|      | 10              | 5         | 5      | 30                                                       | 0.12                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA1VKS100( ) | 200                 | 2000   |
|      | 22              | 6.3       | 5      | 60                                                       | 0.12                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1VKS220( ) | 200                 | 2000   |
|      | 33              | 8         | 5      | 65                                                       | 0.12                          | 0.45         | 2.5        |              | 2.5          | ECEA1VKS330( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 65                                                       | 0.12                          | 0.45         |            | 5.0          |              | ECEA1VKS330Q   |                     | 1000   |
|      | 47              | 8         | 5      | 85                                                       | 0.12                          | 0.45         | 2.5        |              | 2.5          | ECEA1VKS470( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 85                                                       | 0.12                          | 0.45         |            | 5.0          |              | ECEA1VKS470Q   |                     | 1000   |
| 50   | 0.1             | 4         | 5      | 1                                                        | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKS0R1( ) | 200                 | 2000   |
|      | 0.22            | 4         | 5      | 2                                                        | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKSR22( ) | 200                 | 2000   |
|      | 0.33            | 4         | 5      | 3                                                        | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKSR33( ) | 200                 | 2000   |
|      | 0.47            | 4         | 5      | 5                                                        | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKSR47( ) | 200                 | 2000   |
|      | 1               | 4         | 5      | 10                                                       | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKS010( ) | 200                 | 2000   |
|      | 2.2             | 4         | 5      | 16                                                       | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKS2R2( ) | 200                 | 2000   |
|      | 3.3             | 4         | 5      | 16                                                       | 0.10                          | 0.45         | 1.5        | 5.0          | 2.5          | ECEA1HKS3R3( ) | 200                 | 2000   |
|      | 4.7             | 5         | 5      | 23                                                       | 0.10                          | 0.45         | 2.0        | 5.0          | 2.5          | ECEA1HKS4R7( ) | 200                 | 2000   |
|      | 10              | 6.3       | 5      | 35                                                       | 0.10                          | 0.45         | 2.5        | 5.0          | 2.5          | ECEA1HKS100( ) | 200                 | 2000   |
|      | 22              | 8         | 5      | 60                                                       | 0.10                          | 0.45         | 2.5        |              | 2.5          | ECEA1HKS220( ) | 200                 | 1000   |
|      |                 | 8         | 5      | 60                                                       | 0.10                          | 0.45         |            | 5.0          |              | ECEA1HKS220Q   |                     | 1000   |

Endurance : 85 °C 1000 h

When requesting taped product, please put the letter "B" or "i" between the "( )". Lead wire pitch B=5 mm, i=2.5 mm.  
The taping dimensions are explained on EE189 of our Catalog. Please use it as a reference guide.

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.