

## Radial Lead Type

Series : **NHG** Type : **A**



### Features

- Endurance : 105 °C 1000 h to 2000 h
- RoHS compliant

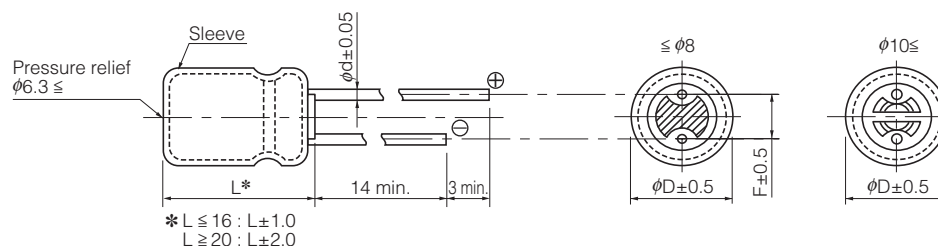
### Specifications

|                            |                                                                                                                                                                                                                                                                              |                                            |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Category temperature range | -55 °C to +105 °C                                                                                                                                                                                                                                                            | -25 °C to +105 °C                          |
| Rated voltage range        | 6.3 V.DC to 100 V.DC                                                                                                                                                                                                                                                         | 160 V.DC to 450 V.DC                       |
| Capacitance range          | 2.2 µF to 22000 µF                                                                                                                                                                                                                                                           | 1 µF to 330 µF                             |
| Capacitance tolerance      | ±20 % (120 Hz/+20 °C)                                                                                                                                                                                                                                                        |                                            |
| Leakage current            | $I \leq 0.01 CV$ or 3 (µA) After 2 minutes<br>(Which is greater)                                                                                                                                                                                                             | $I \leq 0.06 CV + 10$ (µA) After 2 minutes |
| Dissipation factor (tan δ) | Please see the attached characteristics list                                                                                                                                                                                                                                 |                                            |
| Endurance                  | After following life test with DC voltage and +105 °C±2 °C ripple current value applied (The sum of DC and ripple peak voltage shall not exceed the rated working voltage), When the capacitors are restored to 20 °C, the capacitors shall meet the limits specified below. |                                            |
|                            | Duration : 6.3 V.DC to 100 V.DC : (φ5 to φ8)=1000 hours, (φ10 to φ18)=2000 hours<br>160 V.DC to 450 V.DC : 2000 hours                                                                                                                                                        |                                            |
|                            | Capacitance change                                                                                                                                                                                                                                                           | Within ±20 % of the initial value          |
|                            | tan δ                                                                                                                                                                                                                                                                        | ≤ 200 % of the initial limit               |
| Shelf life                 | DC leakage current                                                                                                                                                                                                                                                           | Within the initial limit                   |
|                            | 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)                                                                                  |                                            |

### Frequency correction factor for ripple current

| Rated voltage (V.DC) | Capacitance (µF) | Frequency (Hz) |      |      |      |       |
|----------------------|------------------|----------------|------|------|------|-------|
|                      |                  | 60             | 120  | 1 k  | 10 k | 100 k |
| 6.3 to 100           | 2.2 to 33        | 0.75           | 1.00 | 1.55 | 1.80 | 2.00  |
|                      | 47 to 470        | 0.80           | 1.00 | 1.35 | 1.50 | 1.50  |
|                      | 1000 to 22000    | 0.85           | 1.00 | 1.10 | 1.15 | 1.15  |
| 160 to 450           | 1 to 330         | 0.80           | 1.00 | 1.35 | 1.50 | 1.50  |

### Dimensions



(Unit : mm)

|    |     |     |     |     |      |     |     |
|----|-----|-----|-----|-----|------|-----|-----|
| φD | 5   | 6.3 | 8   | 10  | 12.5 | 16  | 18  |
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6  | 0.8 | 0.8 |
| F  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 |

## Characteristics list

| Rated voltage<br>(V.DC) | Cap.<br>(±20 %) (μF) | Case size (mm) |      | Specification                                          |                               |                      | Lead length (mm) |            |              |              | Part No.      | Min. Packaging Q'ty     |                 |
|-------------------------|----------------------|----------------|------|--------------------------------------------------------|-------------------------------|----------------------|------------------|------------|--------------|--------------|---------------|-------------------------|-----------------|
|                         |                      | φD             | L    | Ripple current<br>(120 Hz)<br>(+105 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) | Lead dia.<br>φd  | Lead space |              |              |               | Straight leads<br>(pcs) | Taping<br>(pcs) |
|                         |                      |                |      |                                                        |                               |                      |                  | Straight   | Taping<br>*B | Taping<br>*i |               |                         |                 |
| 6.3                     | 220                  | 5              | 11   | 140                                                    | 0.28                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA0JHG221( ) | 200                     | 2000            |
|                         | 470                  | 6.3            | 11.2 | 230                                                    | 0.28                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA0JHG471( ) | 200                     | 2000            |
|                         | 1000                 | 8              | 11.5 | 380                                                    | 0.28                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA0JHG102( ) | 200                     | 1000            |
|                         | 2200                 | 10             | 16   | 710                                                    | 0.30                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA0JHG222( ) | 200                     | 500             |
|                         | 3300                 | 10             | 20   | 840                                                    | 0.32                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA0JHG332( ) | 200                     | 500             |
|                         | 4700                 | 12.5           | 20   | 1090                                                   | 0.34                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA0JHG472( ) | 200                     | 500             |
|                         | 6800                 | 12.5           | 25   | 1350                                                   | 0.38                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA0JHG682( ) | 200                     | 500             |
|                         | 10000                | 16             | 25   | 1650                                                   | 0.46                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA0JHG103( ) | 100                     | 250             |
|                         | 15000                | 16             | 31.5 | 2010                                                   | 0.56                          | 2000                 | 0.8              | 7.5        |              |              | ECA0JHG153    | 100                     |                 |
|                         | 22000                | 18             | 35.5 | 2350                                                   | 0.70                          | 2000                 | 0.8              | 7.5        |              |              | ECA0JHG223    | 50                      |                 |
| 10                      | 330                  | 6.3            | 11.2 | 200                                                    | 0.24                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1AHG331( ) | 200                     | 2000            |
|                         | 470                  | 8              | 11.5 | 250                                                    | 0.24                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1AHG471( ) | 200                     | 1000            |
|                         | 1000                 | 10             | 12.5 | 460                                                    | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1AHG102( ) | 200                     | 500             |
|                         | 2200                 | 10             | 20   | 760                                                    | 0.26                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1AHG222( ) | 200                     | 500             |
|                         | 3300                 | 12.5           | 20   | 1000                                                   | 0.28                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1AHG332( ) | 200                     | 500             |
|                         | 4700                 | 12.5           | 25   | 1260                                                   | 0.30                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1AHG472( ) | 200                     | 500             |
|                         | 6800                 | 16             | 25   | 1570                                                   | 0.34                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA1AHG682( ) | 100                     | 250             |
|                         | 10000                | 16             | 31.5 | 1890                                                   | 0.42                          | 2000                 | 0.8              | 7.5        |              |              | ECA1AHG103    | 100                     |                 |
|                         | 15000                | 18             | 35.5 | 2180                                                   | 0.52                          | 2000                 | 0.8              | 7.5        |              |              | ECA1AHG153    | 50                      |                 |
| 16                      | 100                  | 5              | 11   | 110                                                    | 0.20                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1CHG101( ) | 200                     | 2000            |
|                         | 220                  | 6.3            | 11.2 | 180                                                    | 0.20                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1CHG221( ) | 200                     | 2000            |
|                         | 330                  | 8              | 11.5 | 260                                                    | 0.20                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1CHG331( ) | 200                     | 1000            |
|                         | 470                  | 8              | 11.5 | 310                                                    | 0.20                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1CHG471( ) | 200                     | 1000            |
|                         | 1000                 | 10             | 16   | 560                                                    | 0.20                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1CHG102( ) | 200                     | 500             |
|                         | 2200                 | 12.5           | 20   | 920                                                    | 0.22                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1CHG222( ) | 200                     | 500             |
|                         | 3300                 | 12.5           | 25   | 1170                                                   | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1CHG332( ) | 200                     | 500             |
|                         | 4700                 | 16             | 25   | 1480                                                   | 0.26                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA1CHG472( ) | 100                     | 250             |
|                         | 6800                 | 16             | 31.5 | 1780                                                   | 0.30                          | 2000                 | 0.8              | 7.5        |              |              | ECA1CHG682    | 100                     |                 |
|                         | 10000                | 18             | 35.5 | 2060                                                   | 0.38                          | 2000                 | 0.8              | 7.5        |              |              | ECA1CHG103    | 50                      |                 |
| 25                      | 47                   | 5              | 11   | 91                                                     | 0.16                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1EHG470( ) | 200                     | 2000            |
|                         | 100                  | 6.3            | 11.2 | 130                                                    | 0.16                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1EHG101( ) | 200                     | 2000            |
|                         | 220                  | 8              | 11.5 | 230                                                    | 0.16                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1EHG221( ) | 200                     | 1000            |
|                         | 330                  | 8              | 11.5 | 310                                                    | 0.16                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1EHG331( ) | 200                     | 1000            |
|                         | 470                  | 10             | 12.5 | 380                                                    | 0.16                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1EHG471( ) | 200                     | 500             |
|                         | 1000                 | 10             | 20   | 680                                                    | 0.16                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1EHG102( ) | 200                     | 500             |
|                         | 2200                 | 12.5           | 25   | 1090                                                   | 0.18                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1EHG222( ) | 200                     | 500             |
|                         | 3300                 | 16             | 25   | 1400                                                   | 0.20                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA1EHG332( ) | 100                     | 250             |
|                         | 4700                 | 16             | 31.5 | 1750                                                   | 0.22                          | 2000                 | 0.8              | 7.5        |              |              | ECA1EHG472    | 100                     |                 |
|                         | 6800                 | 18             | 35.5 | 2040                                                   | 0.26                          | 2000                 | 0.8              | 7.5        |              |              | ECA1EHG682    | 50                      |                 |
| 35                      | 47                   | 5              | 11   | 90                                                     | 0.14                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1VHG470( ) | 200                     | 2000            |
|                         | 100                  | 6.3            | 11.2 | 150                                                    | 0.14                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1VHG101( ) | 200                     | 2000            |
|                         | 220                  | 8              | 11.5 | 270                                                    | 0.14                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1VHG221( ) | 200                     | 1000            |
|                         | 330                  | 10             | 12.5 | 350                                                    | 0.14                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1VHG331( ) | 200                     | 500             |
|                         | 470                  | 10             | 16   | 460                                                    | 0.14                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1VHG471( ) | 200                     | 500             |
|                         | 1000                 | 12.5           | 20   | 810                                                    | 0.14                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1VHG102( ) | 200                     | 500             |
|                         | 2200                 | 16             | 25   | 1260                                                   | 0.16                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA1VHG222( ) | 100                     | 250             |
|                         | 3300                 | 16             | 31.5 | 1610                                                   | 0.18                          | 2000                 | 0.8              | 7.5        |              |              | ECA1VHG332    | 100                     |                 |
|                         | 4700                 | 18             | 35.5 | 1910                                                   | 0.20                          | 2000                 | 0.8              | 7.5        |              |              | ECA1VHG472    | 50                      |                 |

· When requesting taped product, please put the letter "B" or "i" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm, i=2.5 mm.

· Please refer to the page of "Taping dimensions".

**Characteristics list**

| Rated voltage<br>(V.DC) | Cap.<br>(±20 %)<br>(μF) | Case size (mm) |      | Specification                                          |                               |                      | Lead length (mm) |            |              |              | Part No.      | Min. Packaging Q'ty     |                 |
|-------------------------|-------------------------|----------------|------|--------------------------------------------------------|-------------------------------|----------------------|------------------|------------|--------------|--------------|---------------|-------------------------|-----------------|
|                         |                         | φD             | L    | Ripple current<br>(120 Hz)<br>(+105 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) | Lead dia.<br>φd  | Lead space |              |              |               | Straight leads<br>(pcs) | Taping<br>(pcs) |
|                         |                         |                |      |                                                        |                               |                      |                  | Straight   | Taping<br>*B | Taping<br>*i |               |                         |                 |
| 50                      | 2.2                     | 5              | 11   | 18                                                     | 0.12                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1HHG2R2( ) | 200                     | 2000            |
|                         | 3.3                     | 5              | 11   | 22                                                     | 0.12                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1HHG3R3( ) | 200                     | 2000            |
|                         | 4.7                     | 5              | 11   | 26                                                     | 0.12                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1HHG4R7( ) | 200                     | 2000            |
|                         | 10                      | 5              | 11   | 39                                                     | 0.12                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1HHG100( ) | 200                     | 2000            |
|                         | 22                      | 5              | 11   | 65                                                     | 0.12                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1HHG220( ) | 200                     | 2000            |
|                         | 33                      | 5              | 11   | 90                                                     | 0.12                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1HHG330( ) | 200                     | 2000            |
|                         | 47                      | 6.3            | 11.2 | 110                                                    | 0.12                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1HHG470( ) | 200                     | 2000            |
|                         | 100                     | 8              | 11.5 | 180                                                    | 0.12                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA1HHG101( ) | 200                     | 1000            |
|                         | 220                     | 10             | 12.5 | 300                                                    | 0.12                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1HHG221( ) | 200                     | 500             |
|                         | 330                     | 10             | 16   | 410                                                    | 0.12                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1HHG331( ) | 200                     | 500             |
|                         | 470                     | 10             | 20   | 530                                                    | 0.12                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1HHG471( ) | 200                     | 500             |
|                         | 1000                    | 12.5           | 25   | 950                                                    | 0.12                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1HHG102( ) | 200                     | 500             |
|                         | 2200                    | 16             | 31.5 | 1470                                                   | 0.14                          | 2000                 | 0.8              | 7.5        |              |              | ECA1HHG222    | 100                     |                 |
|                         | 3300                    | 18             | 35.5 | 1770                                                   | 0.16                          | 2000                 | 0.8              | 7.5        |              |              | ECA1HHG332    | 50                      |                 |
| 63                      | 10                      | 5              | 11   | 46                                                     | 0.10                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1JHG100( ) | 200                     | 2000            |
|                         | 22                      | 5              | 11   | 71                                                     | 0.10                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA1JHG220( ) | 200                     | 2000            |
|                         | 33                      | 6.3            | 11.2 | 100                                                    | 0.10                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1JHG330( ) | 200                     | 2000            |
|                         | 47                      | 6.3            | 11.2 | 120                                                    | 0.10                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA1JHG470( ) | 200                     | 2000            |
|                         | 100                     | 10             | 12.5 | 215                                                    | 0.10                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1JHG101( ) | 200                     | 500             |
|                         | 220                     | 10             | 16   | 335                                                    | 0.10                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1JHG221( ) | 200                     | 500             |
|                         | 330                     | 10             | 20   | 510                                                    | 0.10                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1JHG331( ) | 200                     | 500             |
|                         | 470                     | 12.5           | 20   | 640                                                    | 0.10                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA1JHG471( ) | 200                     | 500             |
|                         | 1000                    | 16             | 25   | 930                                                    | 0.10                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA1JHG102( ) | 100                     | 250             |
|                         | 2200                    | 18             | 35.5 | 1610                                                   | 0.12                          | 2000                 | 0.8              | 7.5        |              |              | ECA1JHG222    | 50                      |                 |
| 100                     | 2.2                     | 5              | 11   | 21                                                     | 0.08                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA2AHG2R2( ) | 200                     | 2000            |
|                         | 3.3                     | 5              | 11   | 31                                                     | 0.08                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA2AHG3R3( ) | 200                     | 2000            |
|                         | 4.7                     | 5              | 11   | 38                                                     | 0.08                          | 1000                 | 0.5              | 2.0        | 5.0          | 2.5          | ECA2AHG4R7( ) | 200                     | 2000            |
|                         | 10                      | 6.3            | 11.2 | 54                                                     | 0.08                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2AHG100( ) | 200                     | 2000            |
|                         | 22                      | 6.3            | 11.2 | 93                                                     | 0.08                          | 1000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2AHG220( ) | 200                     | 2000            |
|                         | 33                      | 8              | 11.5 | 130                                                    | 0.08                          | 1000                 | 0.6              | 3.5        | 5.0          |              | ECA2AHG330( ) | 200                     | 1000            |
|                         | 47                      | 10             | 12.5 | 165                                                    | 0.08                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2AHG470( ) | 200                     | 500             |
|                         | 100                     | 10             | 20   | 265                                                    | 0.08                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2AHG101( ) | 200                     | 500             |
|                         | 220                     | 12.5           | 25   | 440                                                    | 0.08                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2AHG221( ) | 200                     | 500             |
|                         | 330                     | 16             | 25   | 540                                                    | 0.08                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2AHG331( ) | 100                     | 250             |
|                         | 470                     | 16             | 25   | 715                                                    | 0.08                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2AHG471( ) | 100                     | 250             |
|                         | 1000                    | 18             | 35.5 | 985                                                    | 0.08                          | 2000                 | 0.8              | 7.5        |              |              | ECA2AHG102    | 50                      |                 |

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· Please refer to the page of "Taping dimensions".

## Characteristics list

| Rated voltage<br>(V.DC) | Cap.<br>(±20 %) (μF) | Case size (mm) |      | Specification                                          |                               |                      | Lead length (mm) |            |              |              | Part No.      | Min. Packaging Q'ty     |                 |
|-------------------------|----------------------|----------------|------|--------------------------------------------------------|-------------------------------|----------------------|------------------|------------|--------------|--------------|---------------|-------------------------|-----------------|
|                         |                      | φD             | L    | Ripple current<br>(120 Hz)<br>(+105 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) | Lead dia.<br>φd  | Lead space |              |              |               | Straight leads<br>(pcs) | Taping<br>(pcs) |
|                         |                      |                |      |                                                        |                               |                      |                  | Straight   | Taping<br>*B | Taping<br>*i |               |                         |                 |
| 160                     | 1                    | 6.3            | 11.2 | 17                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2CHG010( ) | 200                     | 2000            |
|                         | 2.2                  | 6.3            | 11.2 | 25                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2CHG2R2( ) | 200                     | 2000            |
|                         | 3.3                  | 6.3            | 11.2 | 36                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2CHG3R3( ) | 200                     | 2000            |
|                         | 4.7                  | 6.3            | 11.2 | 43                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2CHG4R7( ) | 200                     | 2000            |
|                         | 10                   | 10             | 12.5 | 70                                                     | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2CHG100( ) | 200                     | 500             |
|                         | 22                   | 10             | 20   | 130                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2CHG220( ) | 200                     | 500             |
|                         | 33                   | 10             | 20   | 180                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2CHG330( ) | 200                     | 500             |
|                         | 47                   | 12.5           | 20   | 220                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2CHG470( ) | 200                     | 500             |
|                         | 100                  | 16             | 25   | 335                                                    | 0.15                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2CHG101( ) | 100                     | 250             |
|                         | 220                  | 16             | 31.5 | 540                                                    | 0.15                          | 2000                 | 0.8              | 7.5        |              |              | ECA2CHG221    | 100                     |                 |
| 330                     | 18                   | 31.5           | 705  | 0.15                                                   | 2000                          | 0.8                  | 7.5              |            |              | ECA2CHG331   | 50            |                         |                 |
| 200                     | 1                    | 6.3            | 11.2 | 17                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2DHG010( ) | 200                     | 2000            |
|                         | 2.2                  | 6.3            | 11.2 | 25                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2DHG2R2( ) | 200                     | 2000            |
|                         | 3.3                  | 6.3            | 11.2 | 36                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2DHG3R3( ) | 200                     | 2000            |
|                         | 4.7                  | 8              | 11.5 | 50                                                     | 0.15                          | 2000                 | 0.6              | 3.5        | 5.0          |              | ECA2DHG4R7( ) | 200                     | 1000            |
|                         | 10                   | 10             | 16   | 80                                                     | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2DHG100( ) | 200                     | 500             |
|                         | 22                   | 10             | 20   | 140                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2DHG220( ) | 200                     | 500             |
|                         | 33                   | 12.5           | 20   | 190                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2DHG330( ) | 200                     | 500             |
|                         | 47                   | 12.5           | 20   | 220                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2DHG470( ) | 200                     | 500             |
|                         | 100                  | 16             | 25   | 335                                                    | 0.15                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2DHG101( ) | 100                     | 250             |
|                         | 220                  | 18             | 31.5 | 575                                                    | 0.15                          | 2000                 | 0.8              | 7.5        |              |              | ECA2DHG221    | 50                      |                 |
| 250                     | 1                    | 6.3            | 11.2 | 17                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2EHG010( ) | 200                     | 2000            |
|                         | 2.2                  | 6.3            | 11.2 | 29                                                     | 0.15                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2EHG2R2( ) | 200                     | 2000            |
|                         | 3.3                  | 8              | 11.5 | 42                                                     | 0.15                          | 2000                 | 0.6              | 3.5        | 5.0          |              | ECA2EHG3R3    | 200                     | 1000            |
|                         | 4.7                  | 8              | 11.5 | 50                                                     | 0.15                          | 2000                 | 0.6              | 3.5        | 5.0          |              | ECA2EHG4R7( ) | 200                     | 1000            |
|                         | 10                   | 10             | 16   | 88                                                     | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2EHG100( ) | 200                     | 500             |
|                         | 22                   | 12.5           | 20   | 155                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2EHG220( ) | 200                     | 500             |
|                         | 33                   | 12.5           | 20   | 190                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2EHG330( ) | 200                     | 500             |
|                         | 47                   | 12.5           | 25   | 230                                                    | 0.15                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2EHG470( ) | 200                     | 500             |
|                         | 100                  | 16             | 31.5 | 365                                                    | 0.15                          | 2000                 | 0.8              | 7.5        |              |              | ECA2EHG101    | 100                     |                 |
| 350                     | 1                    | 6.3            | 11.2 | 18                                                     | 0.20                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2VHG010( ) | 200                     | 2000            |
|                         | 2.2                  | 8              | 11.5 | 31                                                     | 0.20                          | 2000                 | 0.6              | 3.5        | 5.0          |              | ECA2VHG2R2( ) | 200                     | 1000            |
|                         | 3.3                  | 10             | 12.5 | 38                                                     | 0.20                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2VHG3R3( ) | 200                     | 500             |
|                         | 4.7                  | 10             | 16   | 50                                                     | 0.20                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2VHG4R7( ) | 200                     | 500             |
|                         | 10                   | 10             | 20   | 82                                                     | 0.20                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2VHG100( ) | 200                     | 500             |
|                         | 22                   | 12.5           | 20   | 130                                                    | 0.20                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2VHG220( ) | 200                     | 500             |
|                         | 33                   | 16             | 25   | 195                                                    | 0.20                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2VHG330( ) | 100                     | 250             |
|                         | 47                   | 16             | 25   | 230                                                    | 0.20                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2VHG470( ) | 100                     | 250             |
|                         | 100                  | 18             | 31.5 | 375                                                    | 0.20                          | 2000                 | 0.8              | 7.5        |              |              | ECA2VHG101    | 50                      |                 |

· When requesting taped product, please put the letter "B" or "i" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm, i=2.5 mm.

· Please refer to the page of "Taping dimensions".

**Characteristics list**

| Rated voltage<br>(V.DC) | Cap.<br>(±20 %) (μF) | Case size (mm) |      | Specification                                          |                               |                      | Lead length (mm) |            |              |              | Part No.      | Min. Packaging Q'ty     |                 |
|-------------------------|----------------------|----------------|------|--------------------------------------------------------|-------------------------------|----------------------|------------------|------------|--------------|--------------|---------------|-------------------------|-----------------|
|                         |                      | φD             | L    | Ripple current<br>(120 Hz)<br>(+105 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) | Lead dia.<br>φd  | Lead space |              |              |               | Straight leads<br>(pcs) | Taping<br>(pcs) |
|                         |                      |                |      |                                                        |                               |                      |                  | Straight   | Taping<br>*B | Taping<br>*i |               |                         |                 |
| 400                     | 1                    | 6.3            | 11.2 | 18                                                     | 0.24                          | 2000                 | 0.5              | 2.5        | 5.0          | 2.5          | ECA2GHG010( ) | 200                     | 2000            |
|                         | 2.2                  | 8              | 11.5 | 30                                                     | 0.24                          | 2000                 | 0.6              | 3.5        | 5.0          |              | ECA2GHG2R2( ) | 200                     | 1000            |
|                         | 3.3                  | 10             | 12.5 | 40                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2GHG3R3( ) | 200                     | 500             |
|                         | 4.7                  | 10             | 16   | 50                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2GHG4R7( ) | 200                     | 500             |
|                         | 10                   | 10             | 20   | 80                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2GHG100( ) | 200                     | 500             |
|                         | 22                   | 12.5           | 25   | 145                                                    | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2GHG220( ) | 200                     | 500             |
|                         | 33                   | 16             | 25   | 195                                                    | 0.24                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2GHG330( ) | 100                     | 250             |
|                         | 47                   | 16             | 31.5 | 250                                                    | 0.24                          | 2000                 | 0.8              | 7.5        |              |              | ECA2GHG470    | 100                     |                 |
| 450                     | 1                    | 8              | 11.5 | 18                                                     | 0.24                          | 2000                 | 0.6              | 3.5        | 5.0          |              | ECA2WHG010( ) | 200                     | 1000            |
|                         | 2.2                  | 10             | 12.5 | 29                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2WHG2R2( ) | 200                     | 500             |
|                         | 3.3                  | 10             | 16   | 41                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2WHG3R3( ) | 200                     | 500             |
|                         | 4.7                  | 10             | 20   | 49                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2WHG4R7( ) | 200                     | 500             |
|                         | 10                   | 12.5           | 20   | 75                                                     | 0.24                          | 2000                 | 0.6              | 5.0        | 5.0          |              | ECA2WHG100( ) | 200                     | 500             |
|                         | 22                   | 16             | 25   | 115                                                    | 0.24                          | 2000                 | 0.8              | 7.5        | 7.5          |              | ECA2WHG220( ) | 100                     | 250             |
|                         | 33                   | 16             | 31.5 | 155                                                    | 0.24                          | 2000                 | 0.8              | 7.5        |              |              | ECA2WHG330    | 100                     |                 |

· When requesting taped product, please put the letter "B" or "i" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm, i=2.5 mm.

· Please refer to the page of "Taping dimensions".