

### Surface Mount Type

Series: **S** Type: **V**



#### ■ Features

- Endurance: 85 °C 2000 h
- Vibration-proof product is available upon request. (φ8 mm and larger)
- RoHS directive compliant

#### ■ Specifications

|                                    |  |                                 |                  |    |                  |    |    |    |    |     |                             |
|------------------------------------|--|---------------------------------|------------------|----|------------------|----|----|----|----|-----|-----------------------------|
| Category Temp. Range               | -40 °C to +85 °C   |                                 |                  |    |                  |    |    |    |    |     |                             |
| Rated W.V. Range                   | 4 V.DC to 100 V.DC   |                                 |                  |    |                  |    |    |    |    |     |                             |
| Nominal Cap. Range                 | 0.1 μF to 1500 μF  |                                 |                  |    |                  |    |    |    |    |     |                             |
| Capacitance Tolerance              | ±20 % (120 Hz/+20 °C)  |                                 |                  |    |                  |    |    |    |    |     |                             |
| DC Leakage Current                 | I ≤ 0.01 CV or 3 (μA) (Bi-Polar I ≤ 0.02 CV or 6 (μA) After 2 minutes (Whichever is greater)   |                                 |                  |    |                  |    |    |    |    |     |                             |
| tan δ                              | Please see the attached standard products list   |                                 |                  |    |                  |    |    |    |    |     |                             |
| Characteristics at Low Temperature | W.V. (V)   | 4                               | 6.3              | 10 | 16               | 25 | 35 | 50 | 63 | 100 | (Impedance ratio at 120 Hz) |
|                                    | Z(-25 °C)/Z(+20 °C)  | 7                               | 4                | 3  | 2                | 2  | 2  | 2  | 3  | 3   |                             |
|                                    | Z(-40 °C)/Z(+20 °C)  | 15                              | 8                | 6  | 4                | 4  | 3  | 3  | 4  | 4   |                             |
| Endurance                          | After applying rated working voltage for 2000 hours (Bi-polar:1000 hours for each polarity) at +85 °C ±2 °C and then being stabilized at +20 °C, Capacitors shall meet the following limits. |                                 |                  |    |                  |    |    |    |    |     |                             |
|                                    | Capacitance change   | ±20 % of initial measured value |                  |    |                  |    |    |    |    |     |                             |
|                                    |  | Size code                       | Rated W.V.       |    | Cap. change      |    |    |    |    |     |                             |
|                                    |  | A(φ3)                           | 4 W.V to 50 W.V  |    | 1000 hours ±30 % |    |    |    |    |     |                             |
|                                    |  | B(φ4) to D, D8(φ6.3)            | 4 W.V            |    |                  |    |    |    |    |     |                             |
| ≤ D(φ6.3) Miniature                | 6.3 W.V  |                                 | 1000 hours ±20 % |    |                  |    |    |    |    |     |                             |
|                                    | ≥ 10 W.V   |                                 |                  |    |                  |    |    |    |    |     |                             |
| tan δ                              | ≤ 200 % 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)   |                                 |                  |    |                  |    |    |    |    |     |                             |
|                                    | After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.  |                                 |                  |    |                  |    |    |    |    |     |                             |
| Resistance to Soldering Heat       | After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.  |                                 |                  |    |                  |    |    |    |    |     |                             |
|                                    | Capacitance change   | ±10 % of initial measured value |                  |    |                  |    |    |    |    |     |                             |
|                                    | tan δ  | ≤ initial specified value       |                  |    |                  |    |    |    |    |     |                             |
|                                    | DC leakage current   | ≤ initial specified value       |                  |    |                  |    |    |    |    |     |                             |

#### ■ Frequency correction factor for ripple current

|                   |                |      |      |         |
|-------------------|----------------|------|------|---------|
| Correction factor | Frequency (Hz) |      |      |         |
|                   | 50, 60         | 120  | 1 k  | 10 k to |
|                   | 0.70           | 1.00 | 1.30 | 1.70    |

#### ■ Marking

Example:4V 33 μF (Polarized)  
Marking color: BLACK

Negative polarity marking (-)  
(No marking for the bi-polar)

Capacitance (μF)

Series identification (S) or (A)  
(A size=Lot number)

Mark for Lead-Free Products  
Black Dot (Square)

Rated voltage Mark (V.DC)  
(6=6.3 V.DC)

Lot number  
(No marking=A size)

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

(Unit : mm)

Pressure Relief (φ10 and larger)

( ) Reference size

| Size code | D    | L                                   | A, B | H         | I   | W        | P   | K                                      |
|-----------|------|-------------------------------------|------|-----------|-----|----------|-----|--|
| A         | 3.0  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 3.3  | 4.5 max.  | 1.5 | 0.55±0.1 | 0.6 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| B         | 4.0  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 4.3  | 5.5 max.  | 1.8 | 0.65±0.1 | 1.0 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| C         | 5.0  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 5.3  | 6.5 max.  | 2.2 | 0.65±0.1 | 1.5 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| D         | 6.3  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 6.6  | 7.8 max.  | 2.6 | 0.65±0.1 | 1.8 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| D8        | 6.3  | 7.7±0.3                             | 6.6  | 7.8 max.  | 2.6 | 0.65±0.1 | 1.8 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| E         | 8.0  | 6.2±0.3                             | 8.3  | 9.5 max.  | 3.4 | 0.65±0.1 | 2.2 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| F         | 8.0  | 10.2±0.3                            | 8.3  | 10.0 max. | 3.4 | 0.90±0.2 | 3.1 | 0.70±0.20                              |
| G         | 10.0 | 10.2±0.3                            | 10.3 | 12.0 max. | 3.5 | 0.90±0.2 | 4.6 | 0.70±0.20                              |

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Standard Products

Endurance : 85 °C 2000 h

| W.V. | Cap.<br>(±20 %) | Case size |        |               | Specification   |                               |             | Part No.<br>(RoHS:compliant) | Reflow | Min.<br>Packaging Q'ty |
|------|-----------------|-----------|--------|---------------|---|-------------------------------|-------------|------------------------------|--------|------------------------|
|      |                 | Dia.      | Length | *Size<br>Code | Ripple<br>Current<br>(120 Hz<br>(+85 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance   |                              |        | Taping                 |
| (V)  | (μF)            | (mm)      | (mm)   |               |   | (hours)                       |             |                              | (pcs)  |                        |
| 4    | 22              | 3         | 5.4    | A             | 19  | 0.37                          | 1000        | EEE0GS220SR **               | (1)    | 2000                   |
|      | 33              | 4         | 5.4    | B             | 26  | 0.35                          | 1000        | EEE0GA330SR                  | (1)    | 2000                   |
|      | 47              | 4         | 5.4    | B             | 34  | 0.35                          | 1000        | EEE0GA470SR                  | (1)    | 2000                   |
|      | 100             | 5         | 5.4    | C             | 61  | 0.35                          | 1000        | EEE0GA101SR                  | (1)    | 1000                   |
|      | 220             | 6.3       | 5.4    | D             | 82  | 0.35                          | 1000        | EEE0GA221SP                  | (1)    | 1000                   |
|      | 330             | 6.3       | 5.4    | (D)           | 80  | 0.50                          | 1000        | EEE0GA331WP                  | (1)    | 1000                   |
|      | 470             | 6.3       | 7.7    | D8            | 200   | 0.35                          | 1000        | EEE0GA471XP                  | (1)    | 900                    |
| 6.3  | 22              | 3         | 5.4    | (A)           | 20  | 0.35                          | 1000        | EEE0JS220WR **               | (1)    | 2000                   |
|      |                 | 4         | 5.4    | B             | 29  | 0.26                          | 2000        | EEE0JA220SR                  | (1)    | 2000                   |
|      | 33              | 4         | 5.4    | (B)           | 22  | 0.35                          | 1000        | EEE0JA330WR                  | (1)    | 2000                   |
|      |                 | 4         | 5.4    | (B)           | 36  | 0.35                          | 1000        | EEE0JA470WR                  | (1)    | 2000                   |
|      | 47              | 5         | 5.4    | C             | 46  | 0.26                          | 2000        | EEE0JA470SR                  | (1)    | 1000                   |
|      |                 | 5         | 5.4    | (C)           | 47  | 0.35                          | 1000        | EEE0JA101WR                  | (1)    | 1000                   |
|      | 100             | 6.3       | 5.4    | D             | 71  | 0.26                          | 2000        | EEE0JA101SP                  | (1)    | 1000                   |
|      |                 | 6.3       | 5.4    | (D)           | 74  | 0.35                          | 1000        | EEE0JA221WP                  | (1)    | 1000                   |
|      | 330             | 6.3       | 7.7    | D8            | 188   | 0.26                          | 2000        | EEE0JA331XP                  | (1)    | 900                    |
|      |                 | 8         | 6.2    | E             | 300   | 0.35                          | 2000        | EEE0JA331P                   | (2)    | 1000                   |
| 470  | 8               | 10.2      | F      | 380           | 0.35  | 2000                          | EEE0JA471P  | (2)                          | 500    |                        |
|      | 8               | 10.2      | (F)    | 500           | 0.35  | 2000                          | EEE0JA102UP | (2)                          | 500    |                        |
| 1000 | 10              | 10.2      | G      | 700           | 0.35  | 2000                          | EEE0JA102P  | (2)                          | 500    |                        |
|      | 10              | 10.2      | G      | 750           | 0.35  | 2000                          | EEE0JA152P  | (2)                          | 500    |                        |
| 10   | 22              | 4         | 5.4    | (B)           | 28  | 0.30                          | 1000        | EEE1AA220WR                  | (1)    | 2000                   |
|      |                 | 4         | 5.4    | (B)           | 29  | 0.30                          | 1000        | EEE1AA330WR                  | (1)    | 2000                   |
|      | 33              | 5         | 5.4    | C             | 43  | 0.20                          | 2000        | EEE1AA330SR                  | (1)    | 1000                   |
|      |                 | 5         | 5.4    | (C)           | 43  | 0.30                          | 1000        | EEE1AA470WR                  | (1)    | 1000                   |
|      | 100             | 5         | 5.4    | (C)           | 50  | 0.30                          | 1000        | EEE1AA101WR                  | (1)    | 1000                   |
|      |                 | 6.3       | 5.4    | D             | 70  | 0.26                          | 2000        | EEE1AA101SP                  | (1)    | 1000                   |
|      | 220             | 6.3       | 7.7    | D8            | 173   | 0.20                          | 2000        | EEE1AA221XP                  | (1)    | 900                    |
|      |                 | 8         | 6.2    | E             | 250   | 0.26                          | 2000        | EEE1AA221P                   | (2)    | 1000                   |
|      | 330             | 8         | 10.2   | F             | 390   | 0.26                          | 2000        | EEE1AA331P                   | (2)    | 500                    |
|      |                 | 8         | 10.2   | (F)           | 390   | 0.26                          | 2000        | EEE1AA471UP                  | (2)    | 500                    |
| 470  | 10              | 10.2      | G      | 400           | 0.26  | 2000                          | EEE1AA471P  | (2)                          | 500    |                        |
|      | 10              | 10.2      | G      | 580           | 0.26  | 2000                          | EEE1AA102P  | (2)                          | 500    |                        |
| 16   | 10              | 3         | 5.4    | A             | 20  | 0.18                          | 1000        | EEE1CS100SR **               | (1)    | 2000                   |
|      |                 | 4         | 5.4    | B             | 28  | 0.16                          | 2000        | EEE1CA100SR                  | (1)    | 2000                   |
|      | 22              | 4         | 5.4    | (B)           | 28  | 0.26                          | 1000        | EEE1CA220WR                  | (1)    | 2000                   |
|      |                 | 5         | 5.4    | C             | 39  | 0.16                          | 2000        | EEE1CA220SR                  | (1)    | 1000                   |
|      | 33              | 5         | 5.4    | (C)           | 35  | 0.26                          | 1000        | EEE1CA330WR                  | (1)    | 1000                   |
|      |                 | 5         | 5.4    | (C)           | 39  | 0.26                          | 1000        | EEE1CA470WR                  | (1)    | 1000                   |
|      | 47              | 6.3       | 5.4    | D             | 70  | 0.16                          | 2000        | EEE1CA470SP                  | (1)    | 1000                   |
|      |                 | 6.3       | 5.4    | (D)           | 70  | 0.26                          | 1000        | EEE1CA101WP                  | (1)    | 1000                   |
|      | 100             | 8         | 6.2    | E             | 200   | 0.20                          | 2000        | EEE1CA101P                   | (2)    | 1000                   |
|      |                 | 6.3       | 7.7    | D8            | 162   | 0.16                          | 2000        | EEE1CA221XP                  | (1)    | 900                    |
|      | 220             | 8         | 10.2   | F             | 280   | 0.20                          | 2000        | EEE1CA221P                   | (2)    | 500                    |
|      |                 | 8         | 10.2   | (F)           | 320   | 0.20                          | 2000        | EEE1CA331UP                  | (2)    | 500                    |
|      | 330             | 10        | 10.2   | G             | 380   | 0.20                          | 2000        | EEE1CA331P                   | (2)    | 500                    |
| 8    |                 | 10.2      | (F)    | 350           | 0.20  | 2000                          | EEE1CA471UP | (2)                          | 500    |                        |
| 470  | 10              | 10.2      | G      | 420           | 0.20  | 2000                          | EEE1CA471P  | (2)                          | 500    |                        |

\* Size code( ):Miniaturization product

\*\* Dia.3mm is not recommended for new design. Please consider Dia.4mm.(Available upon request)

· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

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### Standard Products

Endurance : 85 °C 2000 h

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                |               | Specification  |                               |                      | Part No.<br>(RoHS:compliant) | Reflow | Min.<br>Packaging Q'ty |
|-------------|-------------------------|--------------|----------------|---------------|--|-------------------------------|----------------------|------------------------------|--------|------------------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | *Size<br>Code | Ripple<br>Current<br>(120 Hz)<br>(+85 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) |                              |        | Taping<br>(pcs)        |
| 25          | 4.7                     | 3            | 5.4            | A             | 12   | 0.16                          | 1000                 | EEE1ES4R7SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 22   | 0.14                          | 2000                 | EEE1EA4R7SR                  | (1)    | 2000                   |
|             | 10                      | 4            | 5.4            | (B)           | 22   | 0.20                          | 1000                 | EEE1EA100WR                  | (1)    | 2000                   |
|             |                         | 5            | 5.4            | C             | 28   | 0.14                          | 2000                 | EEE1EA100SR                  | (1)    | 1000                   |
|             | 22                      | 5            | 5.4            | (C)           | 35   | 0.20                          | 1000                 | EEE1EA220WR                  | (1)    | 1000                   |
|             |                         | 6.3          | 5.4            | D             | 55   | 0.14                          | 2000                 | EEE1EA220SP                  | (1)    | 1000                   |
|             | 33                      | 5            | 5.4            | (C)           | 42   | 0.20                          | 1000                 | EEE1EA330WR                  | (1)    | 1000                   |
|             |                         | 6.3          | 5.4            | D             | 65   | 0.14                          | 2000                 | EEE1EA330SP                  | (1)    | 1000                   |
|             | 47                      | 6.3          | 5.4            | (D)           | 70   | 0.20                          | 1000                 | EEE1EA470WP                  | (1)    | 1000                   |
|             | 100                     | 6.3          | 7.7            | D8            | 143  | 0.14                          | 2000                 | EEE1EA101XP                  | (1)    | 900                    |
|             |                         | 8            | 6.2            | (E)           | 91   | 0.16                          | 2000                 | EEE1EA101UP                  | (2)    | 1000                   |
|             |                         | 8            | 10.2           | F             | 180  | 0.16                          | 2000                 | EEE1EA101P                   | (2)    | 500                    |
|             | 220                     | 8            | 10.2           | (F)           | 230  | 0.16                          | 2000                 | EEE1EA221UP                  | (2)    | 500                    |
|             |                         | 10.0         | 10.2           | G             | 310  | 0.16                          | 2000                 | EEE1EA221P                   | (2)    | 500                    |
|             | 330                     | 8            | 10.2           | (F)           | 270  | 0.16                          | 2000                 | EEE1EA331UP                  | (2)    | 500                    |
| 10          |                         | 10.2         | G              | 340           | 0.16   | 2000                          | EEE1EA331P           | (2)                          | 500    |                        |
| 470         | 10                      | 10.2         | G              | 380           | 0.16   | 2000                          | EEE1EA471P           | (2)                          | 500    |                        |
| 35          | 2.2                     | 3            | 5.4            | A             | 8  | 0.14                          | 1000                 | EEE1VS2R2SR **               | (1)    | 2000                   |
|             | 3.3                     | 3            | 5.4            | A             | 10   | 0.14                          | 1000                 | EEE1VS3R3SR **               | (1)    | 2000                   |
|             | 4.7                     | 4            | 5.4            | B             | 22   | 0.12                          | 2000                 | EEE1VA4R7SR                  | (1)    | 2000                   |
|             | 10                      | 4            | 5.4            | (B)           | 22   | 0.16                          | 1000                 | EEE1VA100WR                  | (1)    | 2000                   |
|             |                         | 5            | 5.4            | C             | 30   | 0.12                          | 2000                 | EEE1VA100SR                  | (1)    | 1000                   |
|             | 22                      | 5            | 5.4            | (C)           | 36   | 0.16                          | 1000                 | EEE1VA220WR                  | (1)    | 1000                   |
|             |                         | 6.3          | 5.4            | D             | 60   | 0.12                          | 2000                 | EEE1VA220SP                  | (1)    | 1000                   |
|             | 33                      | 6.3          | 5.4            | (D)           | 60   | 0.16                          | 1000                 | EEE1VA330WP                  | (1)    | 1000                   |
|             |                         | 8            | 6.2            | E             | 130  | 0.14                          | 2000                 | EEE1VA330P                   | (2)    | 1000                   |
|             | 47                      | 6.3          | 5.4            | (D)           | 70   | 0.16                          | 1000                 | EEE1VA470WP                  | (1)    | 1000                   |
|             |                         | 8            | 6.2            | E             | 165  | 0.14                          | 2000                 | EEE1VA470P                   | (2)    | 1000                   |
|             | 100                     | 6.3          | 7.7            | D8            | 132  | 0.12                          | 2000                 | EEE1VA101XP                  | (1)    | 900                    |
|             |                         | 8            | 10.2           | (F)           | 140  | 0.14                          | 2000                 | EEE1VA101UP                  | (2)    | 500                    |
|             |                         | 10           | 10.2           | G             | 210  | 0.14                          | 2000                 | EEE1VA101P                   | (2)    | 500                    |
|             | 220                     | 8            | 10.2           | (F)           | 200  | 0.14                          | 2000                 | EEE1VA221UP                  | (2)    | 500                    |
| 10          |                         | 10.2         | G              | 310           | 0.14   | 2000                          | EEE1VA221P           | (2)                          | 500    |                        |
| 330         | 10                      | 10.2         | G              | 350           | 0.14   | 2000                          | EEE1VA331P           | (2)                          | 500    |                        |

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■ Standard Products

Endurance : 85 °C 2000 h

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                |               | Specification  |                               |                      | Part No.<br>(RoHS:compliant) | Reflow | Min.<br>Packaging Q'ty |
|-------------|-------------------------|--------------|----------------|---------------|--|-------------------------------|----------------------|------------------------------|--------|------------------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | *Size<br>Code | Ripple<br>Current<br>(120 Hz)<br>(+85 °C)<br>(mA r.m.s.) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) |                              |        | Taping<br>(pcs)        |
| 50          | 0.1                     | 3            | 5.4            | A             | 1  | 0.14                          | 1000                 | EEE1HS0R1SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 1  | 0.12                          | 2000                 | EEE1HA0R1SR                  | (1)    | 2000                   |
|             | 0.22                    | 3            | 5.4            | A             | 2  | 0.14                          | 1000                 | EEE1HSR22SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 2  | 0.12                          | 2000                 | EEE1HAR22SR                  | (1)    | 2000                   |
|             | 0.33                    | 3            | 5.4            | A             | 3  | 0.14                          | 1000                 | EEE1HSR33SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 3  | 0.12                          | 2000                 | EEE1HAR33SR                  | (1)    | 2000                   |
|             | 0.47                    | 3            | 5.4            | A             | 5  | 0.14                          | 1000                 | EEE1HSR47SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 5  | 0.12                          | 2000                 | EEE1HAR47SR                  | (1)    | 2000                   |
|             | 1                       | 3            | 5.4            | A             | 8  | 0.14                          | 1000                 | EEE1HS010SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 10   | 0.12                          | 2000                 | EEE1HA010SR                  | (1)    | 2000                   |
|             | 2.2                     | 3            | 5.4            | A             | 8  | 0.14                          | 1000                 | EEE1HS2R2SR **               | (1)    | 2000                   |
|             |                         | 4            | 5.4            | B             | 16   | 0.12                          | 2000                 | EEE1HA2R2SR                  | (1)    | 2000                   |
|             | 3.3                     | 4            | 5.4            | B             | 16   | 0.12                          | 2000                 | EEE1HA3R3SR                  | (1)    | 2000                   |
|             | 4.7                     | 4            | 5.4            | (B)           | 18   | 0.14                          | 1000                 | EEE1HA4R7WR                  | (1)    | 2000                   |
|             |                         | 5            | 5.4            | C             | 23   | 0.12                          | 2000                 | EEE1HA4R7SR                  | (1)    | 1000                   |
|             | 10                      | 5            | 5.4            | (C)           | 27   | 0.14                          | 1000                 | EEE1HA100WR                  | (1)    | 1000                   |
|             |                         | 6.3          | 5.4            | D             | 35   | 0.12                          | 2000                 | EEE1HA100SP                  | (1)    | 1000                   |
|             | 22                      | 6.3          | 5.4            | (D)           | 40   | 0.14                          | 1000                 | EEE1HA220WP                  | (1)    | 1000                   |
|             |                         | 8            | 6.2            | E             | 120  | 0.12                          | 2000                 | EEE1HA220P                   | (2)    | 1000                   |
|             | 33                      | 6.3          | 7.7            | D8            | 85   | 0.12                          | 2000                 | EEE1HA330XP                  | (1)    | 900                    |
| 8           |                         | 6.2          | (E)            | 65            | 0.12   | 2000                          | EEE1HA330UP          | (2)                          | 1000   |                        |
| 8           |                         | 10.2         | F              | 110           | 0.12   | 2000                          | EEE1HA330P           | (2)                          | 500    |                        |
| 47          | 6.3                     | 7.7          | D8             | 105           | 0.12   | 2000                          | EEE1HA470XP          | (1)                          | 900    |                        |
|             | 8                       | 10.2         | (F)            | 110           | 0.12   | 2000                          | EEE1HA470UP          | (2)                          | 500    |                        |
|             | 10                      | 10.2         | G              | 130           | 0.12   | 2000                          | EEE1HA470P           | (2)                          | 500    |                        |
| 100         | 8                       | 10.2         | (F)            | 200           | 0.12   | 2000                          | EEE1HA101UP          | (2)                          | 500    |                        |
|             | 10                      | 10.2         | G              | 250           | 0.12   | 2000                          | EEE1HA101P           | (2)                          | 500    |                        |
| 220         | 10                      | 10.2         | G              | 300           | 0.12   | 2000                          | EEE1HA221P           | (2)                          | 500    |                        |
| 63          | 22                      | 8            | 6.2            | (E)           | 40   | 0.18                          | 2000                 | EEE1JA220UP                  | (2)    | 1000                   |
|             |                         | 8            | 10.2           | F             | 40   | 0.18                          | 2000                 | EEE1JA220P                   | (2)    | 500                    |
|             | 33                      | 8            | 10.2           | F             | 45   | 0.18                          | 2000                 | EEE1JA330P                   | (2)    | 500                    |
|             | 47                      | 8            | 10.2           | (F)           | 45   | 0.18                          | 2000                 | EEE1JA470UP                  | (2)    | 500                    |
|             |                         | 10           | 10.2           | G             | 45   | 0.18                          | 2000                 | EEE1JA470P                   | (2)    | 500                    |
| 100         | 10                      | 10.2         | G              | 60            | 0.18   | 2000                          | EEE1JA101P           | (2)                          | 500    |                        |
| 100         | 3.3                     | 8            | 6.2            | E             | 50   | 0.18                          | 2000                 | EEE2AA3R3P                   | (2)    | 1000                   |
|             | 4.7                     | 8            | 6.2            | (E)           | 50   | 0.18                          | 2000                 | EEE2AA4R7UP                  | (2)    | 1000                   |
|             |                         | 8            | 10.2           | F             | 80   | 0.18                          | 2000                 | EEE2AA4R7P                   | (2)    | 500                    |
|             | 10                      | 8            | 6.2            | (E)           | 50   | 0.18                          | 2000                 | EEE2AA100UP                  | (2)    | 1000                   |
|             |                         | 8            | 10.2           | F             | 85   | 0.18                          | 2000                 | EEE2AA100P                   | (2)    | 500                    |
|             | 22                      | 8            | 10.2           | (F)           | 55   | 0.18                          | 2000                 | EEE2AA220UP                  | (2)    | 500                    |
|             |                         | 10           | 10.2           | G             | 85   | 0.18                          | 2000                 | EEE2AA220P                   | (2)    | 500                    |
| 33          | 10                      | 10.2         | G              | 90            | 0.18   | 2000                          | EEE2AA330P           | (2)                          | 500    |                        |

\* Size code( ):Miniaturization product

\*\* Dia.3mm is not recommended for new design. Please consider Dia.4mm.(Available upon request)

· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

· When requesting vibration-proof product, please put the last "V" instead to "P"

### ■ Standard Products (Bi-polar)

Endurance : 85 °C 2000 h

| W.V. | Cap.<br>(±20 %) | Case size |        |              | Specification  |                                      |           | Part No.<br>(RoHS:compliant) | Reflow | Min.<br>Packaging Q'ty |
|------|-----------------|-----------|--------|--------------|--|--------------------------------------|-----------|------------------------------|--------|------------------------|
|      |                 | Dia.      | Length | Size<br>Code | Ripple<br>Current<br>(120 Hz)<br>(+85 °C)<br>(mA r.m.s.) | tan $\delta$<br>(120 Hz)<br>(+20 °C) | Endurance |                              |        | Taping                 |
| (V)  | ( $\mu$ F)      | (mm)      | (mm)   |              |  |                                      | (hours)   |                              |        | (pcs)                  |
| 6.3  | 22              | 5         | 5.4    | C            | 29   | 0.52                                 | 2000      | EEE0JA220NR                  | (1)    | 1000                   |
|      | 47              | 6.3       | 5.4    | D            | 46   | 0.52                                 | 2000      | EEE0JA470NP                  | (1)    | 1000                   |
| 10   | 10              | 4         | 5.4    | B            | 25   | 0.40                                 | 2000      | EEE1AA100NR                  | (1)    | 2000                   |
|      | 33              | 6.3       | 5.4    | D            | 43   | 0.40                                 | 2000      | EEE1AA330NP                  | (1)    | 1000                   |
| 16   | 4.7             | 4         | 5.4    | B            | 20   | 0.32                                 | 2000      | EEE1CA4R7NR                  | (1)    | 2000                   |
|      | 10              | 5         | 5.4    | C            | 25   | 0.32                                 | 2000      | EEE1CA100NR                  | (1)    | 1000                   |
|      | 22              | 6.3       | 5.4    | D            | 39   | 0.32                                 | 2000      | EEE1CA220NP                  | (1)    | 1000                   |
| 25   | 3.3             | 4         | 5.4    | B            | 12   | 0.28                                 | 2000      | EEE1EA3R3NR                  | (1)    | 2000                   |
|      | 4.7             | 5         | 5.4    | C            | 21   | 0.28                                 | 2000      | EEE1EA4R7NR                  | (1)    | 1000                   |
|      | 10              | 6.3       | 5.4    | D            | 28   | 0.28                                 | 2000      | EEE1EA100NP                  | (1)    | 1000                   |
| 35   | 2.2             | 4         | 5.4    | B            | 12   | 0.24                                 | 2000      | EEE1VA2R2NR                  | (1)    | 2000                   |
|      | 4.7             | 5         | 5.4    | C            | 22   | 0.24                                 | 2000      | EEE1VA4R7NR                  | (1)    | 1000                   |
|      | 10              | 6.3       | 5.4    | D            | 30   | 0.24                                 | 2000      | EEE1VA100NP                  | (1)    | 1000                   |
| 50   | 0.22            | 4         | 5.4    | B            | 2  | 0.24                                 | 2000      | EEE1HAR22NR                  | (1)    | 2000                   |
|      | 0.33            | 4         | 5.4    | B            | 3  | 0.24                                 | 2000      | EEE1HAR33NR                  | (1)    | 2000                   |
|      | 0.47            | 4         | 5.4    | B            | 5  | 0.24                                 | 2000      | EEE1HAR47NR                  | (1)    | 2000                   |
|      | 1               | 4         | 5.4    | B            | 10   | 0.24                                 | 2000      | EEE1HA010NR                  | (1)    | 2000                   |
|      | 2.2             | 5         | 5.4    | C            | 16   | 0.24                                 | 2000      | EEE1HA2R2NR                  | (1)    | 1000                   |
|      | 3.3             | 5         | 5.4    | C            | 21   | 0.24                                 | 2000      | EEENZ1H3R3R                  | (1)    | 1000                   |
|      | 4.7             | 6.3       | 5.4    | D            | 31   | 0.24                                 | 2000      | EEE1HA4R7NP                  | (1)    | 1000                   |

- Please refer to the page of "Reflow Profile" and "The Taping Dimensions".
- When requesting vibration-proof product, please put the last "V" instead to "P"

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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