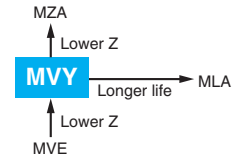


**Alchip™-MVY Series** *Upgrade!*

- Endurance : 1,000 to 5,000 hours at 105°C
- Low impedance
- For digital equipment, especially DC-DC converters
- Solvent resistant type except 80 & 100V<sub>dc</sub> (see PRECAUTIONS AND GUIDELINES)
- Vibration resistant structure
- RoHS2 Compliant
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.



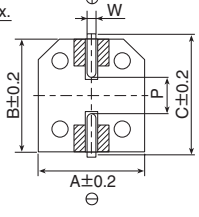
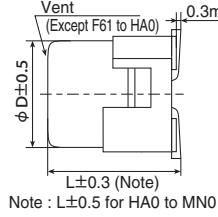
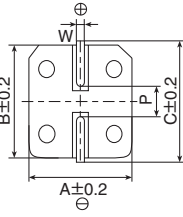
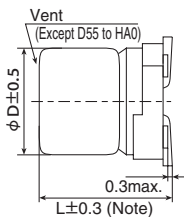
**SPECIFICATIONS**

| Items   | Characteristics   |   |      |      |      |      |                                      |      |     |      |   |   |
|---|---|---|------|------|------|------|--------------------------------------|------|-----|------|---|---|
| <b>Category</b>   | -55 to +105°C (6.3 to 63V <sub>dc</sub> )    -40 to +105°C (80 & 100V <sub>dc</sub> )   |   |      |      |      |      |                                      |      |     |      |   |   |
| <b>Temperature Range</b>                                      |   |   |      |      |      |      |                                      |      |     |      |   |   |
| <b>Rated Voltage Range</b>                                    | 6.3 to 100V <sub>dc</sub>   |   |      |      |      |      |                                      |      |     |      |   |   |
| <b>Capacitance Tolerance</b>                                  | ±20% (M) <span style="float:right">(at 20°C, 120Hz)</span>  |   |      |      |      |      |                                      |      |     |      |   |   |
| <b>Leakage Current</b>  | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) <span style="float:right">(at 20°C after 2 minutes)</span>  |   |      |      |      |      |                                      |      |     |      |   |   |
| <b>Dissipation Factor (tan δ)</b>                             | Rated voltage (V <sub>dc</sub> )  | 6.3V  | 10V  | 16V  | 25V  | 35V  | 50V                                  | 63V  | 80V | 100V | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase.<br><span style="float:right">(at 20°C, 120Hz)</span> |   |
|   | tan δ (Max.)  | D55 to F80  | 0.24 | 0.20 | 0.16 | 0.14 | 0.12                                 | 0.12 | —   | —    |   | — |
|   |   | HA0 & JA0   | 0.28 | 0.24 | 0.20 | 0.16 | 0.14                                 | 0.12 | —   | —    |   | — |
| <b>Low Temperature Characteristics (Max. Impedance Ratio)</b> | Rated voltage (V <sub>dc</sub> )  | 6.3V  | 10V  | 16V  | 25V  | 35V  | 50V                                  | 63V  | 80V | 100V | <span style="float:right">(at 120Hz)</span>   |   |
|   | Z(-40°C)/Z(+20°C)   | D55 to JA0  | 3    | 2    | 2    | 2    | 2                                    | 2    | —   | —    |   | — |
|   |   | KE0 to MN0  | 10   | 8    | 6    | 4    | 3                                    | 3    | 3   | 3    |   | 3 |
| <b>Endurance</b>  | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for specified time at 105°C.  |   |      |      |      |      |                                      |      |     |      |   |   |
|   | Time  | D55 to F80 : 1,000 hours<br>HA0 & JA0 : 2,000 hours<br>KE0 to MN0 : 5,000 hours |      |      |      |      |                                      |      |     |      |   |   |
|   | Rated voltage   | 6.3V <sub>dc</sub> (D55 to JA0)   |      |      |      |      | 6.3 to 100V <sub>dc</sub>            |      |     |      |   |   |
|   | Capacitance change  | ≤ ±30% of the initial value   |      |      |      |      | ≤ ±20% of the initial value          |      |     |      |   |   |
|   | D.F. (tan δ)  | ≤300% of the initial specified value  |      |      |      |      | ≤200% of the initial specified value |      |     |      |   |   |
|   | Leakage current   | ≤The initial specified value  |      |      |      |      | ≤The initial specified value         |      |     |      |   |   |
| <b>Shelf Life</b>   | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. |   |      |      |      |      |                                      |      |     |      |   |   |
|   | Rated voltage   | 6.3V <sub>dc</sub> (D55 to JA0)   |      |      |      |      | 6.3 to 100V <sub>dc</sub>            |      |     |      |   |   |
|   | Capacitance change  | ≤ ±30% of the initial value   |      |      |      |      | ≤ ±20% of the initial value          |      |     |      |   |   |
|   | D.F. (tan δ)  | ≤300% of the initial specified value  |      |      |      |      | ≤200% of the initial specified value |      |     |      |   |   |
|   | Leakage current   | ≤The initial specified value  |      |      |      |      | ≤The initial specified value         |      |     |      |   |   |

**DIMENSIONS [mm]**

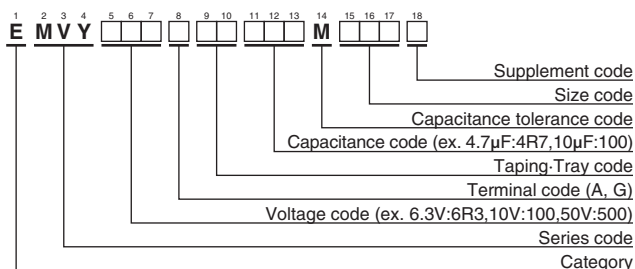
- Terminal Code : A
- Size code : D55 to MN0

- Terminal Code : G (Vibration resistant structure)
- Size code : F61 to MN0



| Size code | D    | L    | A    | B    | C    | W          | P   |
|-----------|------|------|------|------|------|------------|-----|
| D55       | 4    | 5.2  | 4.3  | 4.3  | 5.1  | 0.5 to 0.8 | 1.0 |
| E55       | 5    | 5.2  | 5.3  | 5.3  | 5.9  | 0.5 to 0.8 | 1.4 |
| F55       | 6.3  | 5.2  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| F61       | 6.3  | 5.8  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| F80       | 6.3  | 7.7  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| HA0       | 8    | 10.0 | 8.3  | 8.3  | 9.0  | 0.7 to 1.1 | 3.1 |
| JA0       | 10   | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| KE0       | 12.5 | 13.5 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| KG5       | 12.5 | 16.0 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| LH0       | 16   | 16.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| LN0       | 16   | 21.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| MH0       | 18   | 16.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |
| MN0       | 18   | 21.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |

**PART NUMBERING SYSTEM**



Please refer to "Product code guide (surface mount type)"

**MARKING**

**D55 to JA0**  
EX) 6.3V100μF

**KE0 to MN0**  
EX) 16V1,000μF



◆ **STANDARD RATINGS**

□ is not solvent resistant (80/100V<sub>dc</sub>).

| WV (V <sub>dc</sub> ) | Cap (μF) | Size code | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz) | Part No.           | WV (V <sub>dc</sub> ) | Cap (μF)           | Size code          | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz) | Part No.           |                    |                    |
|-----------------------|----------|-----------|---------------------------------|---|--------------------|-----------------------|--------------------|--------------------|---------------------------------|---|--------------------|--------------------|--------------------|
| 6.3                   | 22       | D55       | 3.0                             | 60  | EMVY6R3ARA220MD55G | 25                    | 330                | HA0                | 0.30                            | 450   | EMVY250□RA331MHA0G |                    |                    |
|                       | 33       | E55       | 1.8                             | 95  | EMVY6R3ARA330ME55G |                       | 470                | JA0                | 0.15                            | 670   | EMVY250□RA471MJA0G |                    |                    |
|                       | 47       | E55       | 1.8                             | 95  | EMVY6R3ARA470ME55G |                       | 1,000              | LH0                | 0.054                           | 1,260   | EMVY250□RA102MLH0S |                    |                    |
|                       | 100      | F55       | 1.0                             | 140   | EMVY6R3ARA101MF55G |                       | 1,000              | MH0                | 0.054                           | 1,350   | EMVY250□RA102MMH0S |                    |                    |
|                       | 220      | F55       | 1.0                             | 140   | EMVY6R3ARA221MF55G |                       | 2,200              | LN0                | 0.038                           | 1,630   | EMVY250□RA222MLN0S |                    |                    |
|                       | 330      | F80       | 0.34                            | 280   | EMVY6R3□RA331MF80G |                       | 2,200              | MN0                | 0.038                           | 1,750   | EMVY250□RA222MMN0S |                    |                    |
|                       | 470      | HA0       | 0.30                            | 450   | EMVY6R3□RA471MHA0G |                       | 3,300              | MN0                | 0.038                           | 1,750   | EMVY250□RA332MMN0S |                    |                    |
|                       | 680      | HA0       | 0.30                            | 450   | EMVY6R3□RA681MHA0G |                       | 35                 | 4.7                | D55                             | 3.0   | 60                 | EMVY350ARA4R7MD55G |                    |
|                       | 1,000    | HA0       | 0.30                            | 450   | EMVY6R3□RA102MHA0G |                       |                    | 10                 | E55                             | 1.8   | 95                 | EMVY350ARA100ME55G |                    |
|                       | 1,500    | JA0       | 0.15                            | 670   | EMVY6R3□RA152MJA0G |                       |                    | 22                 | F55                             | 1.0   | 140                | EMVY350ARA220MF55G |                    |
|                       | 2,200    | KE0       | 0.070                           | 820   | EMVY6R3□RA222MKE0S |                       |                    | 33                 | F55                             | 1.0   | 140                | EMVY350ARA330MF55G |                    |
|                       | 2,200    | LH0       | 0.054                           | 1,260   | EMVY6R3□RA222MLH0S |                       |                    | 47                 | F55                             | 1.0   | 140                | EMVY350ARA470MF55G |                    |
|                       | 3,300    | KG5       | 0.060                           | 950   | EMVY6R3□RA332MKG5S |                       |                    | 47                 | F61                             | 1.0   | 140                | EMVY350□RA470MF61G |                    |
|                       | 3,300    | MH0       | 0.054                           | 1,350   | EMVY6R3□RA332MMH0S |                       |                    | 68                 | F80                             | 0.34  | 280                | EMVY350□RA680MF80G |                    |
|                       | 4,700    | LN0       | 0.038                           | 1,630   | EMVY6R3□RA472MLN0S |                       |                    | 100                | HA0                             | 0.30  | 450                | EMVY350□RA101MHA0G |                    |
|                       | 4,700    | MH0       | 0.054                           | 1,350   | EMVY6R3□RA472MMH0S |                       |                    | 220                | HA0                             | 0.30  | 450                | EMVY350□RA221MHA0G |                    |
|                       | 6,800    | LN0       | 0.038                           | 1,630   | EMVY6R3□RA682MLN0S |                       |                    | 330                | JA0                             | 0.15  | 670                | EMVY350□RA331MJA0G |                    |
|                       | 6,800    | MN0       | 0.038                           | 1,750   | EMVY6R3□RA682MMN0S |                       |                    | 470                | KE0                             | 0.070   | 820                | EMVY350□RA471MKE0S |                    |
| 8,200                 | MN0      | 0.038     | 1,750                           | EMVY6R3□RA822MMN0S                                      | 470                | LH0                   |                    | 0.054              | 1,260                           | EMVY350□RA471MLH0S                                      |                    |                    |                    |
| 10                    | 22       | E55       | 1.8                             | 95  | EMVY100ARA220ME55G | 1,000                 |                    | LH0                | 0.054                           | 1,260   | EMVY350□RA102MLH0S |                    |                    |
|                       | 33       | E55       | 1.8                             | 95  | EMVY100ARA330ME55G | 1,000                 |                    | MH0                | 0.054                           | 1,350   | EMVY350□RA102MMH0S |                    |                    |
|                       | 47       | F55       | 1.0                             | 140   | EMVY100ARA470MF55G | 2,200                 |                    | MN0                | 0.038                           | 1,750   | EMVY350□RA222MMN0S |                    |                    |
|                       | 100      | F55       | 1.0                             | 140   | EMVY100ARA101MF55G | 50                    |                    | 1.0                | D55                             | 5.0   | 30                 | EMVY500ARA1R0MD55G |                    |
|                       | 220      | F80       | 0.34                            | 280   | EMVY100□RA221MF80G |                       |                    | 2.2                | D55                             | 5.0   | 30                 | EMVY500ARA2R2MD55G |                    |
|                       | 330      | HA0       | 0.30                            | 450   | EMVY100□RA331MHA0G |                       |                    | 3.3                | D55                             | 5.0   | 30                 | EMVY500ARA3R3MD55G |                    |
|                       | 470      | HA0       | 0.30                            | 450   | EMVY100□RA471MHA0G |                       | 4.7                | E55                | 3.0                             | 50  | EMVY500ARA4R7ME55G |                    |                    |
|                       | 680      | JA0       | 0.15                            | 670   | EMVY100□RA681MJA0G |                       | 10                 | F55                | 2.0                             | 70  | EMVY500ARA100MF55G |                    |                    |
|                       | 1,000    | JA0       | 0.15                            | 670   | EMVY100□RA102MJA0G |                       | 22                 | F55                | 2.0                             | 70  | EMVY500ARA220MF55G |                    |                    |
|                       | 2,200    | KG5       | 0.060                           | 950   | EMVY100□RA222MKG5S |                       | 33                 | F80                | 0.60                            | 170   | EMVY500□RA330MF80G |                    |                    |
|                       | 2,200    | LH0       | 0.054                           | 1,260   | EMVY100□RA222MLH0S |                       | 47                 | F80                | 0.60                            | 170   | EMVY500□RA470MF80G |                    |                    |
|                       | 3,300    | LH0       | 0.054                           | 1,260   | EMVY100□RA332MLH0S |                       | 68                 | HA0                | 0.60                            | 300   | EMVY500□RA680MHA0G |                    |                    |
|                       | 3,300    | MH0       | 0.054                           | 1,350   | EMVY100□RA332MMH0S |                       | 100                | HA0                | 0.60                            | 300   | EMVY500□RA101MHA0G |                    |                    |
|                       | 4,700    | LN0       | 0.038                           | 1,630   | EMVY100□RA472MLN0S |                       | 220                | JA0                | 0.30                            | 500   | EMVY500□RA221MJA0G |                    |                    |
|                       | 4,700    | MN0       | 0.038                           | 1,750   | EMVY100□RA472MMN0S |                       | 330                | KE0                | 0.11                            | 650   | EMVY500□RA331MKE0S |                    |                    |
|                       | 6,800    | MN0       | 0.038                           | 1,750   | EMVY100□RA682MMN0S |                       | 330                | LH0                | 0.087                           | 900   | EMVY500□RA331MLH0S |                    |                    |
|                       | 16       | 10        | D55                             | 3.0   | 60                 |                       | EMVY160ARA100MD55G | 470                | LH0                             | 0.087   | 900                | EMVY500□RA471MLH0S |                    |
|                       |          | 22        | E55                             | 1.8   | 95                 |                       | EMVY160ARA220ME55G | 470                | MH0                             | 0.087   | 1,060              | EMVY500□RA471MMH0S |                    |
| 33                    |          | F55       | 1.0                             | 140   | EMVY160ARA330MF55G |                       | 1,000              | MN0                | 0.050                           | 1,520   | EMVY500□RA102MMN0S |                    |                    |
| 47                    |          | F55       | 1.0                             | 140   | EMVY160ARA470MF55G |                       | 63                 | 68                 | KE0                             | 0.19  | 500                | EMVY630□RA680MKE0S |                    |
| 100                   |          | F55       | 1.0                             | 140   | EMVY160ARA101MF55G |                       |                    | 100                | KE0                             | 0.19  | 500                | EMVY630□RA101MKE0S |                    |
| 220                   |          | F80       | 0.34                            | 280   | EMVY160□RA221MF80G | 220                   |                    | KE0                | 0.19                            | 500   | EMVY630□RA221MKE0S |                    |                    |
| 330                   |          | HA0       | 0.30                            | 450   | EMVY160□RA331MHA0G | 220                   |                    | LH0                | 0.12                            | 845   | EMVY630□RA221MLH0S |                    |                    |
| 470                   |          | HA0       | 0.30                            | 450   | EMVY160□RA471MHA0G | 330                   |                    | LH0                | 0.12                            | 845   | EMVY630□RA331MLH0S |                    |                    |
| 680                   |          | JA0       | 0.15                            | 670   | EMVY160□RA681MJA0G | 330                   |                    | MH0                | 0.12                            | 905   | EMVY630□RA331MMH0S |                    |                    |
| 1,000                 |          | KE0       | 0.070                           | 820   | EMVY160□RA102MKE0S | 470                   |                    | LN0                | 0.085                           | 1,100   | EMVY630□RA471MLN0S |                    |                    |
| 1,000                 |          | LH0       | 0.054                           | 1,260   | EMVY160□RA102MLH0S | 470                   |                    | MH0                | 0.12                            | 905   | EMVY630□RA471MMH0S |                    |                    |
| 2,200                 |          | LH0       | 0.054                           | 1,260   | EMVY160□RA222MLH0S | 80                    |                    | 100                | KE0                             | 0.33  | 450                | EMVY800□RA101MKE0S |                    |
| 2,200                 |          | MH0       | 0.054                           | 1,350   | EMVY160□RA222MMH0S |                       |                    | 220                | KG5                             | 0.26  | 550                | EMVY800□RA221MKG5S |                    |
| 3,300                 |          | LN0       | 0.038                           | 1,630   | EMVY160□RA332MLN0S |                       |                    | 330                | LN0                             | 0.16  | 900                | EMVY800□RA331MLN0S |                    |
| 3,300                 |          | MH0       | 0.054                           | 1,350   | EMVY160□RA332MMH0S |                       |                    | 330                | MH0                             | 0.24  | 700                | EMVY800□RA331MMH0S |                    |
| 4,700                 |          | MN0       | 0.038                           | 1,750   | EMVY160□RA472MMN0S |                       |                    | 470                | MN0                             | 0.16  | 950                | EMVY800□RA471MMN0S |                    |
| 25                    |          | 10        | E55                             | 1.8   | 95                 |                       |                    | EMVY250ARA100ME55G | 100                             | 47  | KE0                | 0.33               | 450                |
|                       |          | 22        | F55                             | 1.0   | 140                | EMVY250ARA220MF55G    |                    | 68                 |                                 | KE0   | 0.33               | 450                | EMVY101□RA680MKE0S |
|                       | 33       | F55       | 1.0                             | 140   | EMVY250ARA330MF55G | 100                   |                    | KE0                |                                 | 0.33  | 450                | EMVY101□RA101MKE0S |                    |
|                       | 47       | F55       | 1.0                             | 140   | EMVY250ARA470MF55G | 100                   |                    | LH0                |                                 | 0.24  | 650                | EMVY101□RA101MLH0S |                    |
|                       | 100      | F80       | 0.34                            | 280   | EMVY250□RA101MF80G | 220                   |                    | LN0                |                                 | 0.16  | 900                | EMVY101□RA221MLN0S |                    |
|                       | 220      | HA0       | 0.30                            | 450   | EMVY250□RA221MHA0G | 220                   | MH0                | 0.24               |                                 | 700   | EMVY101□RA221MMH0S |                    |                    |
|                       |          |           |                                 |   |                    | 330                   | MN0                | 0.16               |                                 | 950   | EMVY101□RA331MMN0S |                    |                    |

□ : Enter the appropriate terminal code.

◆ **RATED RIPPLE CURRENT MULTIPLIERS**

● Frequency Multipliers

| Size code  | Capacitance(μF) | Frequency(Hz) |      |      |      |
|------------|-----------------|---------------|------|------|------|
|            |                 | 120           | 1k   | 10k  | 100k |
| D55 to JA0 | 1.0 to 4.7      | 0.35          | 0.70 | 0.90 | 1.00 |
|            | 10 to 100       | 0.40          | 0.75 | 0.90 | 1.00 |
|            | 220 to 470      | 0.50          | 0.85 | 0.94 | 1.00 |
|            | 680 to 1,500    | 0.60          | 0.87 | 0.95 | 1.00 |
| KE0 to MN0 | 47 to 100       | 0.40          | 0.75 | 0.90 | 1.00 |
|            | 220 to 470      | 0.50          | 0.85 | 0.94 | 1.00 |
|            | 1,000           | 0.60          | 0.87 | 0.95 | 1.00 |
|            | 2,200 to 3,300  | 0.75          | 0.90 | 0.95 | 1.00 |
|            | 4,700 to 8,200  | 0.85          | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.