



## Alchip™-MVE Series

- Endurance : 1,000 to 2,000 hours at 105°C
- Case size range :  $\phi 6.3 \times 5.2\text{L}$  to  $\phi 18 \times 21.5\text{L}$
- Solvent resistant type except 100V<sub>dc</sub> (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.

MVE → Longer life → MVL



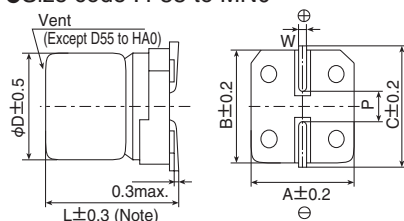
### SPECIFICATIONS

| Items  | Characteristics  |   |     |     |     |     |                                      |     |      |            |
|--|--|---|-----|-----|-----|-----|--------------------------------------|-----|------|------------|
| Category   | -40 to +105℃   |   |     |     |     |     |                                      |     |      |            |
| Temperature Range                                      |  |   |     |     |     |     |                                      |     |      |            |
| Rated Voltage Range                                    | 6.3 to 100V <sub>dc</sub>  |   |     |     |     |     |                                      |     |      |            |
| Capacitance Tolerance                                  | ±20%(M) (at 20℃, 120Hz)  |   |     |     |     |     |                                      |     |      |            |
| Leakage Current  | F55 to JA0   | I=0.01CV or 3μA, whichever is greater (2 minutes)   |     |     |     |     |                                      |     |      |            |
|  | KE0 to MN0   | I=0.03CV or 4μA, whichever is greater (1 minute)  |     |     |     |     |                                      |     |      |            |
|  | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃)   |   |     |     |     |     |                                      |     |      |            |
| Dissipation Factor (tan δ)                             | See STANDARD RATINGS (at 20℃, 120Hz)   |   |     |     |     |     |                                      |     |      |            |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (V <sub>dc</sub> )   | 6.3V  | 10V | 16V | 25V | 35V | 50V                                  | 63V | 100V | (at 120Hz) |
|  | F55 to JA0   | Z(-25℃)/Z(+20℃)   | 4   | 3   | 2   | 2   | 2                                    | 2   | 3    |            |
|  |  | Z(-40℃)/Z(+20℃)   | 12  | 8   | 6   | 4   | 3                                    | 3   | 4    |            |
|  | KE0 to MN0   | Z(-25℃)/Z(+20℃)   | 5   | 4   | 3   | 2   | 2                                    | 2   | 2    |            |
|  |  | Z(-40℃)/Z(+20℃)   | 10  | 8   | 6   | 4   | 3                                    | 3   | 3    |            |
| Endurance  | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified period of time at 105℃. |   |     |     |     |     |                                      |     |      |            |
|  | Size code  | F55 to F80  |     |     |     |     | HA0 to MN0                           |     |      |            |
|  | Time   | 1,000 hours   |     |     |     |     | 2,000 hours                          |     |      |            |
|  | 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         |     |      |            |
|  | Shelf Life   | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for F55 to F80 size) at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. |     |     |     |     |                                      |     |      |            |
| Size code  |  | F55 to F80  |     |     |     |     | HA0 to MN0                           |     |      |            |
| Capacitance change                                     |  | ≤ ±25% of the initial value   |     |     |     |     | ≤ ±20% of the initial value          |     |      |            |
| D.F. (tan δ)   |  | ≤200% 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

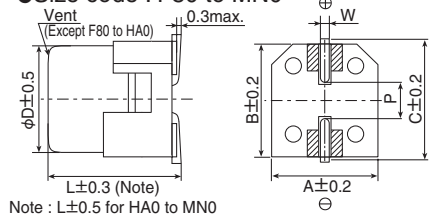
● Size code : F55 to MN0



Note : L±0.5 for HA0 to MN0

● Terminal Code : G (Vibration resistant structure)

● Size code : F80 to MN0



Note : L±0.5 for HA0 to MN0

▨ : Dummy terminals

| Size code | D    | L    | A    | B    | C    | W          | P   |
|-----------|------|------|------|------|------|------------|-----|
| F55       | 6.3  | 5.2  | 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 |

### MARKING

F55 to JA0

Ex) 16V33μF

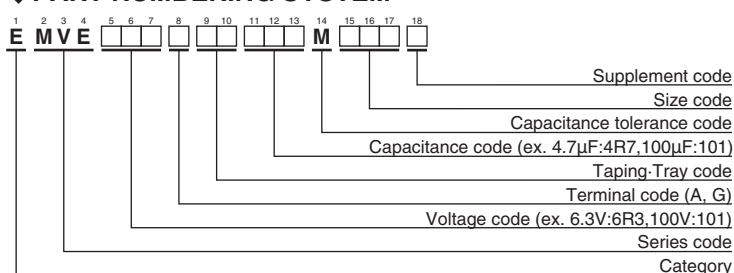


KE0 to MN0

Ex) 25V1,000μF



### PART NUMBERING SYSTEM



### RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

| Size code  | Capacitance(μF) | Frequency(Hz) |      |      |      |
|------------|-----------------|---------------|------|------|------|
|            |                 | 120           | 1k   | 10k  | 100k |
| F55 to JA0 | 4.7 to 10       | 1.00          | 1.30 | 1.40 | 1.50 |
|            | 22 to 1,500     | 1.00          | 1.05 | 1.08 | 1.08 |
| KE0 to MN0 | 47, 68          | 1.00          | 1.50 | 1.75 | 1.80 |
|            | 100 to 1,000    | 1.00          | 1.30 | 1.40 | 1.50 |
|            | 2,200 to 6,800  | 1.00          | 1.05 | 1.08 | 1.08 |

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.

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



Alchip™-MVE Series

## ◆STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size code | tan δ | Rated ripple<br>current<br>(mA <sub>rms</sub> /<br>105°C, 120Hz) | Part No.           | WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size code | tan δ | Rated ripple<br>current<br>(mA <sub>rms</sub> /<br>105°C, 120Hz) | Part No.           |
|--------------------------|-------------|-----------|-------|--|--------------------|--------------------------|-------------|-----------|-------|--|--------------------|
| 6.3                      | 100         | F55       | 0.30  | 69   | EMVE6R3ARA101MF55G | 35                       | 22          | F55       | 0.14  | 44   | EMVE350ARA220MF55G |
|                          | 220         | F80       | 0.45  | 120  | EMVE6R3□RA221MF80G |                          | 47          | F80       | 0.16  | 80   | EMVE350□RA470MF80G |
|                          | 330         | HA0       | 0.40  | 290  | EMVE6R3□RA331MHA0G |                          | 100         | F80       | 0.16  | 100  | EMVE350□RA101MF80G |
|                          | 470         | HA0       | 0.45  | 320  | EMVE6R3□RA471MHA0G |                          | 150         | HA0       | 0.16  | 260  | EMVE350□RA151MHA0G |
|                          | 680         | HA0       | 0.45  | 340  | EMVE6R3□RA681MHA0G |                          | 220         | JA0       | 0.16  | 375  | EMVE350□RA221MJA0G |
|                          | 1,000       | JA0       | 0.40  | 410  | EMVE6R3□RA102MJA0G |                          | 330         | JA0       | 0.16  | 450  | EMVE350□RA331MJA0G |
|                          | 1,500       | JA0       | 0.45  | 550  | EMVE6R3□RA152MJA0G |                          | 470         | KE0       | 0.22  | 520  | EMVE350□RA471MKE0S |
|                          | 2,200       | KE0       | 0.40  | 680  | EMVE6R3□RA222MKE0S |                          | 470         | LH0       | 0.22  | 650  | EMVE350□RA471MLH0S |
|                          | 2,200       | LH0       | 0.40  | 840  | EMVE6R3□RA222MLH0S |                          | 1,000       | LH0       | 0.22  | 750  | EMVE350□RA102MLH0S |
|                          | 3,300       | KG5       | 0.42  | 850  | EMVE6R3□RA332MKG5S |                          | 1,000       | MH0       | 0.22  | 1,000  | EMVE350□RA102MMH0S |
|                          | 3,300       | MH0       | 0.42  | 1,000  | EMVE6R3□RA332MMH0S |                          | 2,200       | MN0       | 0.24  | 1,450  | EMVE350□RA222MMN0S |
|                          | 4,700       | LN0       | 0.44  | 1,200  | EMVE6R3□RA472MLN0S |                          | 50          | 10        | F55   | 0.12   | 32                 |
|                          | 4,700       | MH0       | 0.44  | 1,200  | EMVE6R3□RA472MMH0S | 33                       |             | F80       | 0.14  | 65   | EMVE500□RA330MF80G |
|                          | 6,800       | LN0       | 0.48  | 1,200  | EMVE6R3□RA682MLN0S | 47                       |             | F80       | 0.14  | 80   | EMVE500□RA470MF80G |
|                          | 6,800       | MN0       | 0.48  | 1,350  | EMVE6R3□RA682MMN0S | 100                      |             | HA0       | 0.14  | 230  | EMVE500□RA101MHA0G |
| 10                       | 47          | F55       | 0.24  | 48   | EMVE100ARA470MF55G | 220                      |             | JA0       | 0.14  | 375  | EMVE500□RA221MJA0G |
|                          | 100         | F55       | 0.30  | 69   | EMVE100ARA101MF55G | 330                      |             | KE0       | 0.18  | 500  | EMVE500□RA331MKE0S |
|                          | 150         | F80       | 0.35  | 100  | EMVE100□RA151MF80G | 330                      |             | LH0       | 0.18  | 600  | EMVE500□RA331MLH0S |
|                          | 220         | F80       | 0.35  | 120  | EMVE100□RA221MF80G | 470                      |             | LH0       | 0.18  | 700  | EMVE500□RA471MLH0S |
|                          | 330         | HA0       | 0.35  | 290  | EMVE100□RA331MHA0G | 470                      |             | MH0       | 0.18  | 750  | EMVE500□RA471MMH0S |
|                          | 470         | HA0       | 0.35  | 320  | EMVE100□RA471MHA0G | 1,000                    |             | MN0       | 0.18  | 1,200  | EMVE500□RA102MMN0S |
|                          | 1,000       | JA0       | 0.35  | 410  | EMVE100□RA102MJA0G | 63                       | 4.7         | F55       | 0.12  | 22   | EMVE630ARA47MF55G  |
|                          | 2,200       | KG5       | 0.36  | 750  | EMVE100□RA222MKG5S |                          | 10          | F55       | 0.12  | 32   | EMVE630ARA100MF55G |
|                          | 2,200       | LH0       | 0.36  | 850  | EMVE100□RA222MLH0S |                          | 22          | F80       | 0.12  | 58   | EMVE630□RA220MF80G |
|                          | 3,300       | LH0       | 0.38  | 1,000  | EMVE100□RA332MLH0S |                          | 33          | HA0       | 0.12  | 140  | EMVE630□RA330MHA0G |
| 3,300                    | MH0         | 0.38      | 1,100 | EMVE100□RA332MMH0S   | 47                 |                          | HA0         | 0.12      | 170   | EMVE630□RA470MHA0G   |                    |
| 4,700                    | LN0         | 0.40      | 1,300 | EMVE100□RA472MLN0S   | 100                |                          | JA0         | 0.12      | 310   | EMVE630□RA101MJA0G   |                    |
| 4,700                    | MN0         | 0.40      | 1,350 | EMVE100□RA472MMN0S   | 220                |                          | KE0         | 0.14      | 470   | EMVE630□RA221MKE0S   |                    |
| 16                       | 33          | F55       | 0.20  | 45   | EMVE160ARA330MF55G |                          | 220         | LH0       | 0.14  | 560  | EMVE630□RA221MLH0S |
|                          | 47          | F55       | 0.20  | 48   | EMVE160ARA470MF55G |                          | 330         | LH0       | 0.14  | 700  | EMVE630□RA331MLH0S |
|                          | 100         | F55       | 0.26  | 69   | EMVE160ARA101MF55G |                          | 330         | MH0       | 0.14  | 750  | EMVE630□RA331MMH0S |
|                          | 150         | F80       | 0.28  | 100  | EMVE160□RA151MF80G |                          | 470         | LN0       | 0.14  | 900  | EMVE630□RA471MLN0S |
|                          | 220         | F80       | 0.28  | 120  | EMVE160□RA221MF80G |                          | 470         | MH0       | 0.14  | 900  | EMVE630□RA471MMH0S |
|                          | 330         | HA0       | 0.28  | 290  | EMVE160□RA331MHA0G | 100                      | 22          | HA0       | 0.12  | 100  | EMVE101□RA220MHA0G |
|                          | 470         | HA0       | 0.28  | 320  | EMVE160□RA471MHA0G |                          | 33          | JA0       | 0.12  | 150  | EMVE101□RA330MJA0G |
|                          | 680         | JA0       | 0.28  | 470  | EMVE160□RA681MJA0G |                          | 47          | KE0       | 0.10  | 250  | EMVE101□RA470MKE0S |
|                          | 1,000       | KE0       | 0.30  | 550  | EMVE160□RA102MKE0S |                          | 68          | KE0       | 0.10  | 300  | EMVE101□RA680MKE0S |
|                          | 1,000       | LH0       | 0.30  | 650  | EMVE160□RA102MLH0S |                          | 100         | KE0       | 0.10  | 380  | EMVE101□RA101MKE0S |
| 2,200                    | LH0         | 0.32      | 950   | EMVE160□RA222MLH0S   | 100                |                          | LH0         | 0.10      | 450   | EMVE101□RA101MLH0S   |                    |
| 2,200                    | MH0         | 0.32      | 1,000 | EMVE160□RA222MMH0S   | 220                |                          | LN0         | 0.10      | 750   | EMVE101□RA221MLN0S   |                    |
| 3,300                    | LN0         | 0.34      | 1,200 | EMVE160□RA332MLN0S   | 220                |                          | MH0         | 0.10      | 750   | EMVE101□RA221MMH0S   |                    |
| 3,300                    | MH0         | 0.34      | 1,200 | EMVE160□RA332MMH0S   | 330                |                          | MN0         | 0.10      | 980   | EMVE101□RA331MMN0S   |                    |
| 25                       | 22          | F55       | 0.16  | 44   | EMVE250ARA220MF55G |                          |             |           |       |  |                    |
|                          | 33          | F55       | 0.16  | 50   | EMVE250ARA330MF55G |                          |             |           |       |  |                    |
|                          | 47          | F55       | 0.16  | 60   | EMVE250ARA470MF55G |                          |             |           |       |  |                    |
|                          | 100         | F80       | 0.18  | 100  | EMVE250□RA101MF80G |                          |             |           |       |  |                    |
|                          | 150         | HA0       | 0.18  | 240  | EMVE250□RA151MHA0G |                          |             |           |       |  |                    |
|                          | 220         | HA0       | 0.18  | 320  | EMVE250□RA221MHA0G |                          |             |           |       |  |                    |
|                          | 330         | JA0       | 0.16  | 450  | EMVE250□RA331MJA0G |                          |             |           |       |  |                    |
|                          | 470         | JA0       | 0.18  | 490  | EMVE250□RA471MJA0G |                          |             |           |       |  |                    |
|                          | 1,000       | LH0       | 0.26  | 820  | EMVE250□RA102MLH0S |                          |             |           |       |  |                    |
|                          | 1,000       | MH0       | 0.26  | 880  | EMVE250□RA102MMH0S |                          |             |           |       |  |                    |
|                          | 2,200       | LN0       | 0.28  | 1,250  | EMVE250□RA222MLN0S |                          |             |           |       |  |                    |
|                          | 2,200       | MN0       | 0.28  | 1,300  | EMVE250□RA222MMN0S |                          |             |           |       |  |                    |

□ : Enter the appropriate terminal code.

\*1: Assembly boards with the designated products attached cannot be cleaned.



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
- Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.
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- The circuits described as examples in this catalog and the "delivery specifications" are featured in order to show the operations and usage of our products, however, this fact does not guarantee that the circuits are available to function in your equipment systems. We are not in any case responsible for any failures or damage caused by the use of information contained herein. You should examine our products, of which the characteristics are described in the "delivery specifications" and other documents, and determine whether or not our products suit your requirements according to the specifications of your equipment systems. Therefore, you bear final responsibility regarding the use of our products.  
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The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products
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In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.

[Part Numbering System](#)

[Part Numbering System \(Appendix\)](#)

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