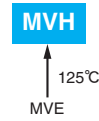


**Alchip™-MVH Series**

- Lower ESR, Higher ripple current
- Endurance : 1,000 to 5,000 hours at 125°C
- Suitable to fit for automotive equipment
- Solvent resistant type except 63 to 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.

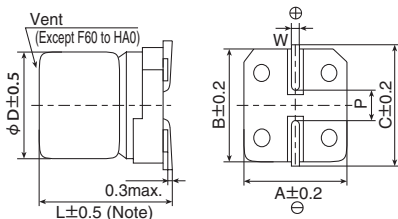


**◆ SPECIFICATIONS**

Items	Characteristics											
<b>Category Temperature Range</b>	-40 to +125°C											
<b>Rated Voltage Range</b>	10 to 100V <sub>dc</sub>											
<b>Capacitance Tolerance</b>	±20% (M) (at 20°C, 120Hz)											
<b>Leakage Current</b>	F60 to JA0	I=0.01CV or 3μA, whichever is greater.										
	KE0 to MN0	I=0.03CV or 4μA, whichever is greater.										
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 2 minutes)											
<b>Dissipation Factor (tan δ)</b>	Rated voltage (V <sub>dc</sub> )	10V	16V	25V	35V	50V	63V	80V	100V			
	tan δ (Max.)	F60 to JA0	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.10		
		KE0 to MN0	0.22	0.18	0.16	0.14	0.12	0.14	—	0.10		
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)												
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	Rated voltage (V <sub>dc</sub> )	10V	16V	25V	35V	50V	63V	80V	100V			
	F60 to JA0	Z(-25°C)/Z(+20°C)	3	2	2	2	2	2	2	2		
		Z(-40°C)/Z(+20°C)	6	4	4	3	3	3	3	3		
	KE0 to MN0	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	—	2		
		Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	—	3	(at 120Hz)	
<b>Endurance</b>												
The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for the specified time at 125°C.												
Time	F60 to H63 (10 to 100V <sub>dc</sub> ) : 1,000hours HA0 to JA0 (10 to 100V <sub>dc</sub> ) : 2,000hours KE0 to MN0 (10 to 100V <sub>dc</sub> ) : 5,000hours											
Capacitance change	≤ ±30% of the initial value											
D.F. (tan δ)	≤300% of the initial specified value											
Leakage current	≤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 125°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(V <sub>dc</sub> )	10 to 50V <sub>dc</sub>						63 to 100V <sub>dc</sub>					
Capacitance change	≤ ±30% of the initial value						≤ ±30% of the initial value					
D.F. (tan δ)	≤300% of the initial specified value						≤300% of the initial specified value					
Leakage current	≤The initial specified value						≤500% of the initial specified value					

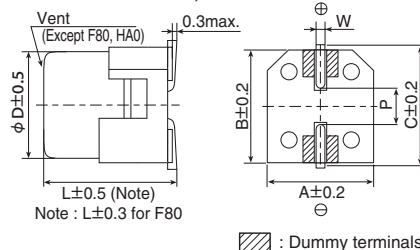
**◆ DIMENSIONS [mm]**

- Terminal Code : A
- Size code : F60 to MN0



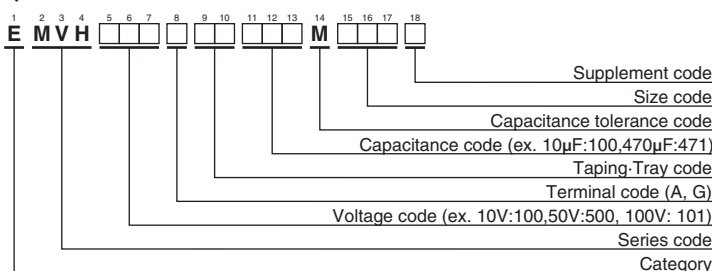
Note : L±0.3 for F60 and F80

- Terminal Code : G(Vibration resistant structure)
- Size code : F80, HA0 to MN0

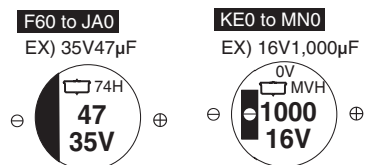


Size code	D	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	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**



**◆ MARKING**



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

Alchip™-**MVH**Series

◆ **STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size code	ESR (Ω max./100kHz)		Rated ripple current (mArms/125°C)		Part No.
			20°C	-40°C	100kHz	120Hz	
10	100	F80	0.90	14.0	110	—	EMVH100□RA101MF80G
	100	H63	0.90	14.0	110	—	EMVH100ARA101MH63G
	220	F80	0.90	14.0	110	—	EMVH100□RA221MF80G
	220	H63	0.90	14.0	110	—	EMVH100ARA221MH63G
	220	HA0	0.40	6.0	220	—	EMVH100□RA221MHA0G
	330	HA0	0.40	6.0	220	—	EMVH100□RA331MHA0G
	330	JA0	0.30	4.5	296	—	EMVH100□RA331MJA0G
	470	JA0	0.30	4.5	296	—	EMVH100□RA471MJA0G
	1,000	KE0	0.14	2.1	750	—	EMVH100□RA102MKE0S
	2,200	LH0	0.10	1.5	1,000	—	EMVH100□RA222MLH0S
	2,200	MH0	0.10	1.5	1,200	—	EMVH100□RA222MMH0S
	3,300	MH0	0.10	1.5	1,200	—	EMVH100□RA332MMH0S
4,700	MN0	0.058	0.87	1,550	—	EMVH100□RA472MMN0S	
16	47	F60	1.6	24.0	69	—	EMVH160ARA470MF60G
	100	HA0	0.40	6.0	220	—	EMVH160□RA101MHA0G
	220	HA0	0.40	6.0	220	—	EMVH160□RA221MHA0G
	220	JA0	0.30	4.5	296	—	EMVH160□RA221MJA0G
	330	JA0	0.30	4.5	296	—	EMVH160□RA331MJA0G
	470	KE0	0.14	2.1	750	—	EMVH160□RA471MKE0S
	680	KE0	0.14	2.1	750	—	EMVH160□RA681MKE0S
	680	LH0	0.10	1.5	1,000	—	EMVH160□RA681MLH0S
	1,000	MH0	0.10	1.5	1,200	—	EMVH160□RA102MMH0S
2,200	MH0	0.10	1.5	1,200	—	EMVH160□RA222MMH0S	
25	33	F60	1.6	24.0	69	—	EMVH250ARA330MF60G
	47	F80	0.90	14.0	110	—	EMVH250□RA470MF80G
	47	H63	0.90	14.0	110	—	EMVH250ARA470MH63G
	100	F80	0.90	14.0	110	—	EMVH250□RA101MF80G
	100	H63	0.90	14.0	110	—	EMVH250ARA101MH63G
	100	HA0	0.40	6.0	220	—	EMVH250□RA101MHA0G
	220	HA0	0.40	6.0	220	—	EMVH250□RA221MHA0G
	220	JA0	0.30	4.5	296	—	EMVH250□RA221MJA0G
	330	JA0	0.30	4.5	296	—	EMVH250□RA331MJA0G
	330	KE0	0.14	2.1	750	—	EMVH250□RA331MKE0S
	470	KE0	0.14	2.1	750	—	EMVH250□RA471MKE0S
	470	LH0	0.10	1.5	1,000	—	EMVH250□RA471MLH0S
	680	LH0	0.10	1.5	1,000	—	EMVH250□RA681MLH0S
	680	MH0	0.10	1.5	1,200	—	EMVH250□RA681MMH0S
	1,000	MN0	0.058	0.87	1,550	—	EMVH250□RA102MMN0S
35	10	F60	1.6	24.0	69	—	EMVH350ARA100MF60G
	22	F60	1.6	24.0	69	—	EMVH350ARA220MF60G
	33	F80	0.90	14.0	110	—	EMVH350□RA330MF80G
	33	H63	0.90	14.0	110	—	EMVH350ARA330MH63G
	47	F80	0.90	14.0	110	—	EMVH350□RA470MF80G
	47	H63	0.90	14.0	110	—	EMVH350ARA470MH63G
	47	HA0	0.40	6.0	220	—	EMVH350□RA470MHA0G
	100	HA0	0.40	6.0	220	—	EMVH350□RA101MHA0G
	100	JA0	0.30	4.5	296	—	EMVH350□RA101MJA0G
	220	JA0	0.30	4.5	296	—	EMVH350□RA221MJA0G
	330	KE0	0.14	2.1	750	—	EMVH350□RA331MKE0S
	330	LH0	0.10	1.5	1,000	—	EMVH350□RA331MLH0S
	470	KG5	0.11	1.5	900	—	EMVH350□RA471MKG5S
	470	LH0	0.10	1.5	1,000	—	EMVH350□RA471MLH0S
	680	MH0	0.10	1.5	1,200	—	EMVH350□RA681MMH0S

□ : Enter the appropriate terminal code.  
 Production of the products shown in [ ] is scheduled to be discontinued.  
 \*1: Assembly boards with the designated products attached cannot be cleaned.

◆ **RATED RIPPLE CURRENT MULTIPLIERS**

● Frequency Multipliers

Size code	Capacitance(μF)	Frequency(Hz)			
		120	1k	10k	100k
F60 to JA0	10	0.66	0.86	0.93	1.00
	22 to 470	0.93	0.97	1.00	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
	680 to 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	0.85	0.95	0.98	1.00

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.