

# 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.

MVH

↑ 125°C  
MVE

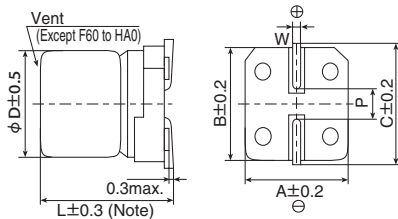


## ◆ SPECIFICATIONS

Items	Characteristics									
Category	-40 to +125°C									
Temperature Range	-40 to +125°C									
Rated Voltage Range	10 to 100V <sub>dc</sub>									
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)									
Leakage Current	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)										
Dissipation Factor (tan δ)	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)										
Low Temperature Characteristics (Max. Impedance Ratio)	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)										
Endurance	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								
Shelf Life	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					

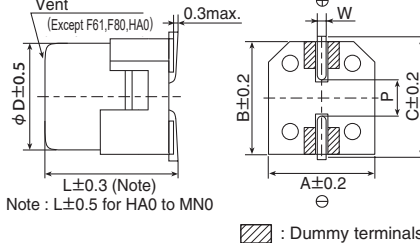
## ◆ DIMENSIONS [mm]

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



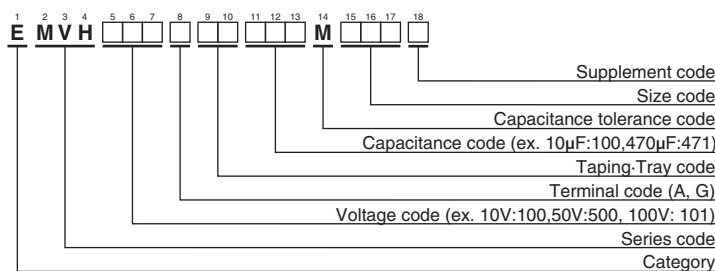
Note : L±0.5 for HA0 to MN0

- Terminal Code : G (Vibration resistant structure)
- Size code : F61, F80, HA0 to MN0



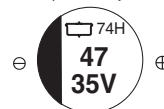
Size code	D	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 ~ 0.8	1.9
F61	6.3	5.8	6.6	6.6	7.2	0.5 ~ 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 ~ 0.8	1.9
H63	8	6.3	8.3	8.3	9	0.5 ~ 0.8	2.3
HA0	8	10	8.3	8.3	9	0.7 ~ 1.1	3.1
JA0	10	10	10.3	10.3	11	0.7 ~ 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 ~ 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 ~ 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 ~ 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 ~ 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 ~ 1.3	6.5

## ◆ PART NUMBERING SYSTEM

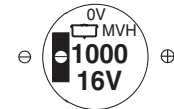


## ◆ MARKING

F60 to JA0  
EX) 35V47μF



KE0 to MN0  
EX) 16V1,000μF



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



Alchip™-MVH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	ESR (Ω max./100kHz)		Rated ripple current (mA rms/125°C, 100kHz)	Part No.	WV (Vdc)	Cap (μF)	Size code	ESR (Ω max./100kHz)		Rated ripple current (mA rms/125°C, 100kHz)	Part No.	
			20°C	-40°C						20°C	-40°C			
10	100	F80	0.90	14.0	110	EMVH100 □ RA101MF80G	35	100	JA0	0.30	4.5	296	EMVH350 □ RA101MJA0G	
	100	H63	0.90	14.0	110	EMVH100ARA101MH63G		220	JA0	0.30	4.5	296	EMVH350 □ RA221MJA0G	
	220	F80	0.90	14.0	110	EMVH100 □ RA221MF80G		330	KE0	0.14	2.1	750	EMVH350 □ RA331MKE0S	
	220	H63	0.90	14.0	110	EMVH100ARA221MH63G		330	LH0	0.10	1.5	1,000	EMVH350 □ RA331MLH0S	
	220	HA0	0.40	6.0	220	EMVH100 □ RA221MHA0G		470	KG5	0.11	1.5	900	EMVH350 □ RA471MKG5S	
	330	HA0	0.40	6.0	220	EMVH100 □ RA331MHA0G		470	LH0	0.10	1.5	1,000	EMVH350 □ RA471MLH0S	
	330	JA0	0.30	4.5	296	EMVH100 □ RA331MJA0G		680	MH0	0.10	1.5	1,200	EMVH350 □ RA681MMH0S	
	470	JA0	0.30	4.5	296	EMVH100 □ RA471MJA0G		50	10	F60	2.8	42.0	51	EMVH500ARA100MF60G
	1,000	KE0	0.14	2.1	750	EMVH100 □ RA102MKE0S			10	F61	2.8	42.0	51	EMVH500 □ RA100MF61G
	2,200	LH0	0.10	1.5	1,000	EMVH100 □ RA222MLH0S			10	H63	1.6	30.0	83	EMVH500ARA100MH63G
	2,200	MH0	0.10	1.5	1,200	EMVH100 □ RA222MMH0S			22	F80	2.0	30.0	83	EMVH500 □ RA220MF80G
	3,300	MH0	0.10	1.5	1,200	EMVH100 □ RA332MMH0S			22	H63	1.6	30.0	83	EMVH500ARA220MH63G
	4,700	MN0	0.058	0.87	1,550	EMVH100 □ RA472MMN0S			33	F80	2.0	30.0	83	EMVH500 □ RA330MF80G
16	47	F60	1.6	24.0	69	EMVH160ARA470MF60G	33		H63	1.6	30.0	83	EMVH500ARA330MH63G	
	47	F61	1.6	24.0	69	EMVH160 □ RA470MF61G	33		HA0	0.70	11.0	160	EMVH500 □ RA330MHA0G	
	100	HA0	0.40	6.0	220	EMVH160 □ RA101MHA0G	47		HA0	0.70	11.0	160	EMVH500 □ RA470MHA0G	
	220	HA0	0.40	6.0	220	EMVH160 □ RA221MHA0G	47		JA0	0.50	7.5	247	EMVH500 □ RA470MJA0G	
	220	JA0	0.30	4.5	296	EMVH160 □ RA221MJA0G	100		JA0	0.50	7.5	247	EMVH500 □ RA101MJA0G	
	330	JA0	0.30	4.5	296	EMVH160 □ RA331MJA0G	100		KE0	0.23	3.5	550	EMVH500 □ RA101MKE0S	
	470	KE0	0.14	2.1	750	EMVH160 □ RA471MKE0S	220		KE0	0.23	3.5	550	EMVH500 □ RA221MKE0S	
	680	KE0	0.14	2.1	750	EMVH160 □ RA681MKE0S	220	LH0	0.15	2.3	850	EMVH500 □ RA221MLH0S		
	680	LH0	0.10	1.5	1,000	EMVH160 □ RA681MLH0S	330	KG5	0.18	2.7	700	EMVH500 □ RA331MKG5S		
	1,000	MH0	0.10	1.5	1,200	EMVH160 □ RA102MMH0S	330	LH0	0.15	2.3	850	EMVH500 □ RA331MLH0S		
	2,200	MH0	0.10	1.5	1,200	EMVH160 □ RA222MMH0S	470	MH0	0.15	2.3	920	EMVH500 □ RA471MMH0S		
	25	33	F60	1.6	24.0	69	EMVH250ARA330MF60G	※ 1 63	10	F80	2.0	100	60	EMVH630 □ RA100MF80G
		33	F61	1.6	24.0	69	EMVH250 □ RA330MF61G		10	H63	2.0	110	60	EMVH630ARA100MH63G
47		F80	0.90	14.0	110	EMVH250 □ RA470MF80G	22		HA0	0.70	35.0	100	EMVH630 □ RA220MHA0G	
47		H63	0.90	14.0	110	EMVH250ARA470MH63G	33		HA0	0.70	35.0	100	EMVH630 □ RA330MHA0G	
100		F80	0.90	14.0	110	EMVH250 □ RA101MF80G	33		JA0	0.50	25.0	170	EMVH630 □ RA330MJA0G	
100		H63	0.90	14.0	110	EMVH250ARA101MH63G	47		HA0	0.70	35.0	100	EMVH630 □ RA470MHA0G	
100		HA0	0.40	6.0	220	EMVH250 □ RA101MHA0G	47		JA0	0.50	25.0	170	EMVH630 □ RA470MJA0G	
220		HA0	0.40	6.0	220	EMVH250 □ RA221MHA0G	100		KE0	0.25	12.5	500	EMVH630 □ RA101MKE0S	
220		JA0	0.30	4.5	296	EMVH250 □ RA221MJA0G	220		KG5	0.20	10.0	600	EMVH630 □ RA221MKG5S	
330		JA0	0.30	4.5	296	EMVH250 □ RA331MJA0G	330		LH0	0.18	9.0	820	EMVH630 □ RA331MLH0S	
330		KE0	0.14	2.1	750	EMVH250 □ RA331MKE0S	470		LN0	0.11	5.5	1,100	EMVH630 □ RA471MLN0S	
470		KE0	0.14	2.1	750	EMVH250 □ RA471MKE0S	※ 1 80		10	HA0	0.75	50.0	70	EMVH800 □ RA100MHA0G
470		LH0	0.10	1.5	1,000	EMVH250 □ RA471MLH0S			22	HA0	0.75	50.0	70	EMVH800 □ RA220MHA0G
680	LH0	0.10	1.5	1,000	EMVH250 □ RA681MLH0S	22		JA0	0.55	35.0	115	EMVH800 □ RA220MJA0G		
680	MH0	0.10	1.5	1,200	EMVH250 □ RA681MMH0S	33		HA0	0.75	50.0	70	EMVH800 □ RA330MHA0G		
1,000	MN0	0.058	0.87	1,550	EMVH250 □ RA102MMN0S	33		JA0	0.55	35.0	115	EMVH800 □ RA330MJA0G		
35	10	F60	1.6	24.0	69	EMVH350ARA100MF60G	※ 1 100	47	JA0	0.55	35.0	115	EMVH800 □ RA470MJA0G	
	10	F61	1.6	24.0	69	EMVH350 □ RA100MF61G		10	HA0	0.75	50.0	70	EMVH101 □ RA100MHA0G	
	22	F60	1.6	24.0	69	EMVH350ARA220MF60G		22	HA0	0.75	50.0	70	EMVH101 □ RA220MHA0G	
	22	F61	1.6	24.0	69	EMVH350 □ RA220MF61G		22	JA0	0.55	35.0	115	EMVH101 □ RA220MJA0G	
	33	F80	0.90	14.0	110	EMVH350 □ RA330MF80G		33	JA0	0.55	35.0	115	EMVH101 □ RA330MJA0G	
	33	H63	0.90	14.0	110	EMVH350ARA330MH63G		47	KE0	0.33	16.5	450	EMVH101 □ RA470MKE0S	
	47	F80	0.90	14.0	110	EMVH350 □ RA470MF80G		68	KG5	0.26	13.0	550	EMVH101 □ RA680MKG5S	
	47	H63	0.90	14.0	110	EMVH350ARA470MH63G		100	LH0	0.24	12.0	650	EMVH101 □ RA101MLH0S	
	47	HA0	0.40	6.0	220	EMVH350 □ RA470MHA0G		220	MN0	0.16	8.0	950	EMVH101 □ RA221MMN0S	
	100	HA0	0.40	6.0	220	EMVH350 □ RA101MHA0G								

□ : 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
	47 to 100	0.40	0.75	0.90	1.00
KE0 to MN0	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.

## Looking for pricing, stock, or lifecycle information?

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