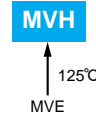


**Alchip™ - MVH Series**

- Lower ESR, Higher ripple current
- Endurance : 1,000 to 5,000 hours at 125°C
- Suitable to fit for automotive equipment
- Solvent resistant type (10 to 50V)
- RoHS Compliant

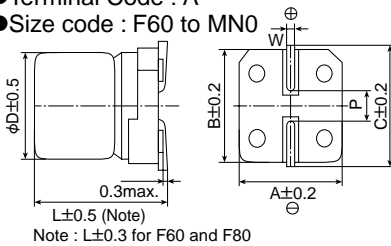


◆ **SPECIFICATIONS**

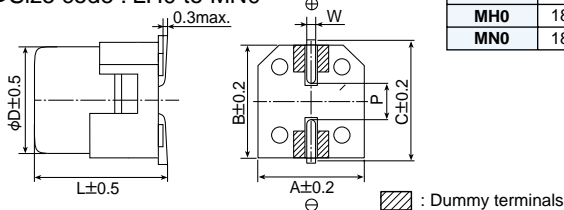
Items	Characteristics													
<b>Category Temperature Range</b>	-40 to +125°C													
<b>Rated Voltage Range</b>	10 to 450V <sub>dc</sub>													
<b>Capacitance Tolerance</b>	±20% (M) (at 20°C, 120Hz)													
<b>Leakage Current</b>	Rated voltage (V <sub>dc</sub> )	10 to 100V <sub>dc</sub>						160 to 450V <sub>dc</sub>						
	F60 to JA0	I=0.01CV or 3μA, whichever is greater.						I=0.04CV+100						
	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 (tanδ)</b>	Rated voltage (V <sub>dc</sub> )	10V	16V	25V	35V	50V	63V	80V	100V	160 to 250V	400 & 450V			
	tanδ (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	0.20	0.24		
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	160 to 250V	400 & 450V			
	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	3	6		
		Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	—	3	6	10	(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 KE0 to MN0 (160 to 450V <sub>dc</sub> ) : 2,000hours												
Capacitance change		≤±30% of the initial value												
D.F. (tanδ)		≤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 (500 hours for 400 to 450V <sub>dc</sub> ) 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 450V <sub>dc</sub>						
Capacitance change		≤±30% of the initial value						≤±30% of the initial value						
D.F. (tanδ)		≤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



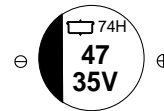
- Terminal Code : G
- Size code : LH0 to MN0



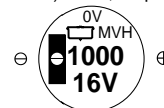
Size code	D	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3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

◆ **MARKING**

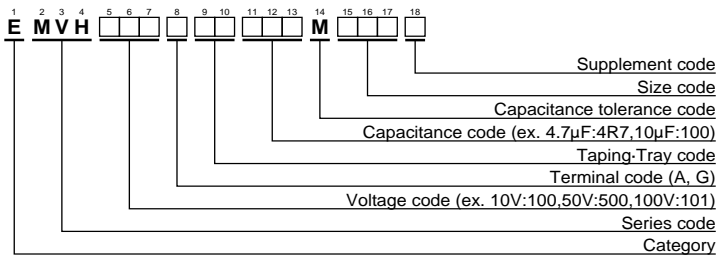
F60 to JA0  
EX) 35V47μF



KE0 to MN0  
EX) 16V1,000μF



◆PART NUMBERING SYSTEM



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

◆STANDARD RATINGS

□ is not solvent resistant (63 to 450V<sub>dc</sub>).

WV (V <sub>dc</sub> )	Cap (μF)	Size code	ESR (Ω <sub>max</sub> /100kHz)		Rated ripple current (mArms/125°C)		Part No.		
			20°C	-40°C	100kHz	120Hz			
10	100	F80	0.90	14.0	110	—	EMVH100ADA101MF80G		
	100	H63	0.90	14.0	110	—	EMVH100ADA101MH63G		
	220	F80	0.90	14.0	110	—	EMVH100ADA221MF80G		
	220	H63	0.90	14.0	110	—	EMVH100ADA221MH63G		
	220	HA0	0.40	6.0	220	—	EMVH100ADA471MJA0G		
	330	HA0	0.40	6.0	220	—	EMVH100ADA331MHA0G		
	330	JA0	0.30	4.5	296	—	EMVH100ADA331MJA0G		
	470	JA0	0.30	4.5	296	—	EMVH100ADA471MJA0G		
	1,000	KE0	0.14	2.1	750	—	EMVH100ARA102MKE0S		
	2,200	LH0	0.10	1.5	1,000	—	EMVH100DA222MLH0S		
	2,200	MH0	0.10	1.5	1,200	—	EMVH100DA222MMH0S		
	3,300	MH0	0.10	1.5	1,200	—	EMVH100DA332MMH0S		
	4,700	MN0	0.058	0.87	1,550	—	EMVH100DA472MMN0S		
	16	47	F60	1.6	24.0	69	—	EMVH160ADA470MF60G	
100		HA0	0.40	6.0	220	—	EMVH160ADA101MHA0G		
220		HA0	0.40	6.0	220	—	EMVH160ADA221MHA0G		
220		JA0	0.30	4.5	296	—	EMVH160ADA221MJA0G		
330		JA0	0.30	4.5	296	—	EMVH160ADA331MJA0G		
470		KE0	0.14	2.1	750	—	EMVH160ARA471MKE0S		
680		KE0	0.14	2.1	750	—	EMVH160ARA681MKE0S		
680		LH0	0.10	1.5	1,000	—	EMVH160DA681MLH0S		
1,000		MH0	0.10	1.5	1,200	—	EMVH160DA102MMH0S		
2,200		MH0	0.10	1.5	1,200	—	EMVH160DA222MMH0S		
25	33	F60	1.6	24.0	69	—	EMVH250ADA330MF60G		
	47	F80	0.90	14.0	110	—	EMVH250ADA470MF80G		
	47	H63	0.90	14.0	110	—	EMVH250ADA470MH63G		
	100	F80	0.90	14.0	110	—	EMVH250ADA101MF80G		
	100	H63	0.90	14.0	110	—	EMVH250ADA101MH63G		
	100	HA0	0.40	6.0	220	—	EMVH250ADA101MHA0G		
	220	HA0	0.40	6.0	220	—	EMVH250ADA221MHA0G		
	220	JA0	0.30	4.5	296	—	EMVH250ADA221MJA0G		
	330	JA0	0.30	4.5	296	—	EMVH250ADA331MJA0G		
	330	KE0	0.14	2.1	750	—	EMVH250ARA331MKE0S		
	470	KE0	0.14	2.1	750	—	EMVH250ARA471MKE0S		
	470	LH0	0.10	1.5	1,000	—	EMVH250DA471MLH0S		
	680	LH0	0.10	1.5	1,000	—	EMVH250DA681MLH0S		
	680	MH0	0.10	1.5	1,200	—	EMVH250DA681MMH0S		
1,000	MN0	0.058	0.87	1,550	—	EMVH250DA102MMN0S			
35	10	F60	1.6	24.0	69	—	EMVH350ADA100MF60G		
	22	F60	1.6	24.0	69	—	EMVH350ADA220MF60G		
	33	F80	0.90	14.0	110	—	EMVH350ADA330MF80G		
	33	H63	0.90	14.0	110	—	EMVH350ADA330MH63G		
	47	F80	0.90	14.0	110	—	EMVH350ADA470MF80G		
	47	H63	0.90	14.0	110	—	EMVH350ADA470MH63G		
	47	HA0	0.40	6.0	220	—	EMVH350ADA470MHA0G		
	100	HA0	0.40	6.0	220	—	EMVH350ADA101MHA0G		
	100	JA0	0.30	4.5	296	—	EMVH350ADA101MJA0G		
	220	JA0	0.30	4.5	296	—	EMVH350ADA221MJA0G		
	330	KE0	0.14	2.1	750	—	EMVH350ARA331MKE0S		
	330	LH0	0.10	1.5	1,000	—	EMVH350DA331MLH0S		
	470	KG5	0.11	1.5	900	—	EMVH350ARA471MKG5S		
	470	LH0	0.10	1.5	1,000	—	EMVH350DA471MLH0S		
680	MH0	0.10	1.5	1,200	—	EMVH350DA681MMH0S			
50	10	F60	2.8	42.0	51	—	EMVH500ADA100MF60G		
	10	H63	1.6	30.0	83	—	EMVH500ADA100MH63G		
	22	F80	2.0	30.0	83	—	EMVH500ADA220MF80G		
	22	H63	1.6	30.0	83	—	EMVH500ADA220MH63G		
	50	33	F80	2.0	30.0	83	—	EMVH500ADA330MF80G	
		33	HA0	0.70	11.0	160	—	EMVH500ADA330MHA0G	
		47	HA0	0.70	11.0	160	—	EMVH500ADA470MHA0G	
		47	JA0	0.50	7.5	247	—	EMVH500ADA470MJA0G	
		100	JA0	0.50	7.5	247	—	EMVH500ADA101MJA0G	
		100	KE0	0.23	3.5	550	—	EMVH500ARA101MKE0S	
		220	KE0	0.23	3.5	550	—	EMVH500ARA221MKE0S	
		220	LH0	0.15	2.3	850	—	EMVH500DA221MLH0S	
		330	KG5	0.18	2.7	700	—	EMVH500ARA331MKG5S	
		330	LH0	0.15	2.3	850	—	EMVH500DA331MLH0S	
470		MH0	0.15	2.3	920	—	EMVH500DA471MMH0S		
63		10	F80	2.0	100	60	—	EMVH630ADA100MF80G	
		10	H63	2.0	110	60	—	EMVH630ADA100MH63G	
		22	HA0	0.70	35.0	100	—	EMVH630ADA220MHA0G	
	33	HA0	0.70	35.0	100	—	EMVH630ADA330MHA0G		
	33	JA0	0.50	25.0	170	—	EMVH630ADA330MJA0G		
	47	HA0	0.70	35.0	100	—	EMVH630ADA470MHA0G		
	47	JA0	0.50	25.0	170	—	EMVH630ADA470MJA0G		
	100	KE0	0.25	12.5	500	—	EMVH630ARA101MKE0S		
	220	KG5	0.20	10.0	600	—	EMVH630ARA221MKG5S		
	330	LH0	0.18	9.0	820	—	EMVH630DA331MLH0S		
	470	LN0	0.11	5.5	1,100	—	EMVH630DA471MLN0S		
	80	10	HA0	0.75	50.0	70	—	EMVH800ADA100MHA0G	
		22	HA0	0.75	50.0	70	—	EMVH800ADA220MHA0G	
		22	JA0	0.55	35.0	115	—	EMVH800ADA220MJA0G	
33		HA0	0.75	50.0	70	—	EMVH800ADA330MHA0G		
33		JA0	0.55	35.0	115	—	EMVH800ADA330MJA0G		
47		JA0	0.55	35.0	115	—	EMVH800ADA470MJA0G		
100		10	HA0	0.75	50.0	70	—	EMVH101ADA100MHA0G	
		22	HA0	0.75	50.0	70	—	EMVH101ADA220MHA0G	
		22	JA0	0.55	35.0	115	—	EMVH101ADA220MJA0G	
		33	JA0	0.55	35.0	115	—	EMVH101ADA330MJA0G	
		47	KE0	0.33	16.5	450	—	EMVH101ARA470MKE0S	
		68	KG5	0.26	13.0	550	—	EMVH101ARA680MKG5S	
		100	LH0	0.24	12.0	650	—	EMVH101DA101MLH0S	
		220	MN0	0.16	8.0	950	—	EMVH101DA221MMN0S	
	160	10	KE0	—	—	100	—	EMVH161ARA100MKE0S	
		22	LH0	—	—	180	—	EMVH161DA220MLH0S	
		33	MH0	—	—	245	—	EMVH161DA330MMH0S	
		68	MN0	—	—	380	—	EMVH161DA680MMN0S	
		200	10	KE0	—	—	100	—	EMVH201ARA100MKE0S
			22	LH0	—	—	180	—	EMVH201DA220MLH0S
33			LN0	—	—	250	—	EMVH201DA330MLN0S	
33			MH0	—	—	245	—	EMVH201DA330MMH0S	
47			MN0	—	—	315	—	EMVH201DA470MMN0S	
250			10	KG5	—	—	110	—	EMVH251ARA100MKG5S
			22	LN0	—	—	200	—	EMVH251DA220MLN0S
			22	MH0	—	—	205	—	EMVH251DA220MMH0S
			33	MN0	—	—	260	—	EMVH251DA330MMN0S
			400	4.7	KE0	—	—	70	—
	6.8			LH0	—	—	100	—	EMVH401DA681MLH0S
	10			LN0	—	—	140	—	EMVH401DA100MLN0S
	10			MH0	—	—	135	—	EMVH401DA100MMH0S
	450			3.3	KG5	—	—	65	—
		4.7		LH0	—	—	85	—	EMVH451DA471MLH0S
		10		MN0	—	—	145	—	EMVH451DA100MMN0S

□ : Enter the appropriate terminal code.