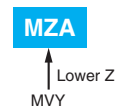


# Alchip™-MZA Series

- Endurance : 2,000 to 5,000 hours at 105°C
- Low impedance
- Solvent resistant type(see PRECAUTIONS AND GUIDELINES)
- Vibration resistant structure
- RoHS2 Compliant
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.



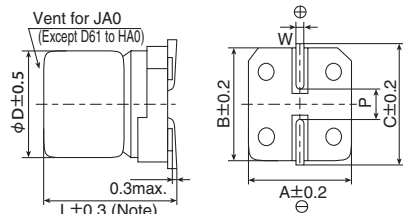
## ◆SPECIFICATIONS

Items	Characteristics										
<b>Category</b>	-55 to +105°C										
<b>Temperature Range</b>											
<b>Rated Voltage Range</b>	6.3 to 100V <sub>dc</sub>										
<b>Capacitance Tolerance</b>	±20%(M) (at 20°C, 120Hz)										
<b>Leakage Current</b>	I=0.01CV or 3μA, 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> )	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tan δ(Max.)	D61 to JA0	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	—
		KE0 to MN0	—	—	—	0.16	0.14	0.12	0.12	0.10	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> )	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(-25°C)/Z(+20°C)	2	2	2	2	2	2	2	2	2	
	Z(-40°C)/Z(+20°C)	3	3	3	3	3	3	3	3	3	
	Z(-55°C)/Z(+20°C)	4	4	4	3	3	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 specified time at 105°C.										
	Time	D61 to JA0 : 2,000 hours KE0 to MN0 : 5,000 hours									
	Capacitance change	≤ ±30% of the initial value									
	D.F. (tan δ)	≤200% of the initial specified value									
	Leakage current	≤The initial specified value									

## ◆DIMENSIONS [mm]

- Terminal Code : A

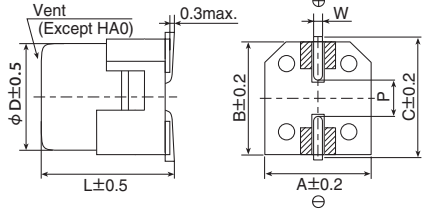
- Size code : D61 to MN0



Note : L±0.5 for HA0 to MN0

- Terminal Code : G(Vibration resistant structure)

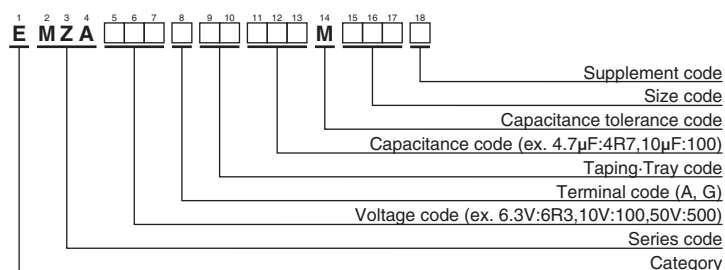
- Size code : HA0 to MN0



▨ : Dummy terminals

Size code	D	L	A	B	C	W	P
D61	4	5.8	4.3	4.3	5.1	0.5 to 0.8	1.0
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
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

**D61 to JA0**  
EX) 16V220μF



**KE0 to MN0**  
EX) 25V1,000μF



- Rated voltage symbol (D61 to JA0)

Rated voltage (V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80
Symbol	j	A	C	E	V	H	J	K

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Ω max./100kHz)		Rated ripple current (mA rms/105°C, 100kHz)	Part No.	WV (Vdc)	Cap (μF)	Size code	Impedance (Ω max./100kHz)		Rated ripple current (mA rms/105°C, 100kHz)	Part No.
			20°C	-40°C						20°C	-40°C		
6.3	22	D61	1.35	-	90	EMZA6R3ARA220MD61G	35	330	JA0	0.08	-	850	EMZA350 □ RA331MJA0G
	47	D61	1.35	-	90	EMZA6R3ARA470MD61G		620	KE0	0.060	0.30	1,320	EMZA350 □ RA621MKE0S
	47	E61	0.70	-	160	EMZA6R3ARA470ME61G		820	KG5	0.056	0.28	1,470	EMZA350 □ RA821MKG5S
	100	E61	0.70	-	160	EMZA6R3ARA101ME61G		1,200	LH0	0.047	0.24	1,820	EMZA350 □ RA122MLH0S
	100	F61	0.36	-	240	EMZA6R3ARA101MF61G		1,600	MH0	0.045	0.23	2,060	EMZA350 □ RA162MMH0S
	220	F61	0.36	-	240	EMZA6R3ARA221MF61G		1,800	LNO	0.034	0.17	2,400	EMZA350 □ RA182MLN0S
	330	F80	0.34	-	280	EMZA6R3ARA331MF80G		2,400	MNO	0.032	0.16	2,640	EMZA350 □ RA242MMN0S
	470	HA0	0.16	-	600	EMZA6R3 □ RA471MHA0G		4.7	D61	2.9	-	60	EMZA500ARA4R7MD61G
	1,000	HA0	0.16	-	600	EMZA6R3 □ RA102MHA0G		10	E61	1.52	-	85	EMZA500ARA100ME61G
	1,500	JA0	0.08	-	850	EMZA6R3 □ RA152MJA0G		10	F61	0.88	-	165	EMZA500ARA100MF61G
10	22	D61	1.35	-	90	EMZA100ARA220MD61G	22	F61	0.88	-	165	EMZA500ARA220MF61G	
	33	D61	1.35	-	90	EMZA100ARA330MD61G	33	F80	0.68	-	195	EMZA500ARA330MF80G	
	33	E61	0.70	-	160	EMZA100ARA330ME61G	47	F80	0.68	-	195	EMZA500ARA470MF80G	
	220	F80	0.34	-	280	EMZA100ARA221MF80G	100	HA0	0.34	-	350	EMZA500 □ RA101MHA0G	
	330	HA0	0.16	-	600	EMZA100 □ RA331MHA0G	220	JA0	0.18	-	670	EMZA500 □ RA221MJA0G	
	470	HA0	0.16	-	600	EMZA100 □ RA471MHA0G	330	KE0	0.11	0.55	980	EMZA500 □ RA331MKE0S	
	680	HA0	0.16	-	600	EMZA100 □ RA681MHA0G	430	KG5	0.10	0.50	1,090	EMZA500 □ RA431MKG5S	
	1,000	JA0	0.08	-	850	EMZA100 □ RA102MJA0G	620	LH0	0.087	0.44	1,320	EMZA500 □ RA621MLH0S	
	16	10	D61	1.35	-	90	EMZA160ARA100MD61G	820	MH0	0.087	0.44	1,420	EMZA500 □ RA821MMH0S
		22	D61	1.35	-	90	EMZA160ARA220MD61G	1,000	LNO	0.050	0.25	1,910	EMZA500 □ RA102MLN0S
22		E61	0.70	-	160	EMZA160ARA220ME61G	1,300	MNO	0.050	0.25	2,180	EMZA500 □ RA132MMN0S	
47		E61	0.70	-	160	EMZA160ARA470ME61G	4.7	E61	4.8	-	50	EMZA630ARA4R7ME61G	
47		F61	0.36	-	240	EMZA160ARA470MF61G	10	F61	2.2	-	80	EMZA630ARA100MF61G	
100		F61	0.36	-	240	EMZA160ARA101MF61G	22	F80	2.1	-	120	EMZA630ARA220MF80G	
220		F80	0.34	-	280	EMZA160ARA221MF80G	33	HA0	0.70	-	250	EMZA630 □ RA330MHA0G	
330		HA0	0.16	-	600	EMZA160 □ RA331MHA0G	47	HA0	0.70	-	250	EMZA630 □ RA470MHA0G	
470		HA0	0.16	-	600	EMZA160 □ RA471MHA0G	68	HA0	0.70	-	250	EMZA630 □ RA680MHA0G	
680		JA0	0.08	-	850	EMZA160 □ RA681MJA0G	100	JA0	0.45	-	400	EMZA630 □ RA101MJA0G	
25	10	D61	1.35	-	90	EMZA250ARA100MD61G	240	KE0	0.19	1.54	880	EMZA630 □ RA241MKE0S	
	22	E61	0.70	-	160	EMZA250ARA220ME61G	300	KG5	0.17	1.19	1,000	EMZA630 □ RA301MKG5S	
	33	E61	0.70	-	160	EMZA250ARA330ME61G	430	LH0	0.15	1.05	1,220	EMZA630 □ RA431MLH0S	
	33	F61	0.36	-	240	EMZA250ARA330MF61G	560	MH0	0.12	0.84	1,430	EMZA630 □ RA561MMH0S	
	47	F61	0.36	-	240	EMZA250ARA470MF61G	680	LNO	0.085	0.58	1,790	EMZA630 □ RA681MLN0S	
	100	F80	0.34	-	280	EMZA250ARA101MF80G	910	MNO	0.070	0.49	1,960	EMZA630 □ RA911MMN0S	
	220	HA0	0.16	-	600	EMZA250 □ RA221MHA0G	3.3	E61	5.0	-	25	EMZA800ARA3R3ME61G	
	330	HA0	0.16	-	600	EMZA250 □ RA331MHA0G	4.7	F61	3.0	-	40	EMZA800ARA4R7MF61G	
	470	JA0	0.08	-	850	EMZA250 □ RA471MJA0G	10	F80	2.4	-	60	EMZA800ARA100MF80G	
	1,000	KE0	0.060	0.30	1,320	EMZA250 □ RA102MKE0S	22	HA0	1.3	-	130	EMZA800 □ RA220MHA0G	
35	1,300	KG5	0.056	0.28	1,470	EMZA250 □ RA132MKG5S	33	HA0	1.3	-	130	EMZA800 □ RA330MHA0G	
	1,800	LH0	0.047	0.24	1,820	EMZA250 □ RA182MLH0S	47	JA0	0.70	-	200	EMZA800 □ RA470MJA0G	
	2,400	MH0	0.045	0.23	2,060	EMZA250 □ RA242MMH0S	150	KE0	0.22	1.54	810	EMZA800 □ RA151MKE0S	
	3,000	LNO	0.034	0.17	2,400	EMZA250 □ RA302MLN0S	220	KG5	0.17	1.19	1,000	EMZA800 □ RA221MKG5S	
	3,900	MNO	0.032	0.16	2,640	EMZA250 □ RA392MMN0S	330	LH0	0.15	1.05	1,220	EMZA800 □ RA331MLH0S	
	35	4.7	D61	1.35	-	90	EMZA350ARA4R7MD61G	430	MH0	0.12	0.84	1,430	EMZA800 □ RA431MMH0S
		10	D61	1.35	-	90	EMZA350ARA100MD61G	470	LNO	0.085	0.58	1,790	EMZA800 □ RA471MLN0S
		10	E61	0.70	-	160	EMZA350ARA100ME61G	680	MNO	0.070	0.49	1,960	EMZA800 □ RA681MMN0S
		22	E61	0.70	-	160	EMZA350ARA220ME61G	110	KE0	0.28	2.24	740	EMZA101 □ RA111MKE0S
		33	F61	0.36	-	240	EMZA350ARA330MF61G	130	KG5	0.21	1.68	900	EMZA101 □ RA131MKG5S
47		F61	0.36	-	240	EMZA350ARA470MF61G	200	LH0	0.18	1.44	1,090	EMZA101 □ RA201MLH0S	
100		F80	0.34	-	280	EMZA350ARA101MF80G	270	MH0	0.15	1.2	1,280	EMZA101 □ RA271MMH0S	
100		HA0	0.16	-	600	EMZA350 □ RA101MHA0G	330	LNO	0.11	0.88	1,580	EMZA101 □ RA331MLN0S	
220		HA0	0.16	-	600	EMZA350 □ RA221MHA0G	430	MNO	0.091	0.73	1,690	EMZA101 □ RA431MMN0S	

□ : Enter the appropriate terminal code.

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Size code	Capacitance(μF)	Frequency(Hz)			
		120	1k	10k	100k
D61 to JA0	3.3 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 MNO	110 to 200	0.40	0.75	0.90	1.00
	220 to 620	0.50	0.85	0.94	1.00
	680 to 1,800	0.60	0.87	0.95	1.00
	2,400 to 3,000	0.75	0.90	0.95	1.00
	3,900	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.

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