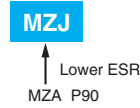


**Alchip™-MZJ Series**

- Lower ESR, 2,000 hours at 105°C
- Rated voltage range : 6.3 to 35V
- Nominal capacitance range : 10 to 1,800μF
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- Vibration resistant structure
- RoHS Compliant



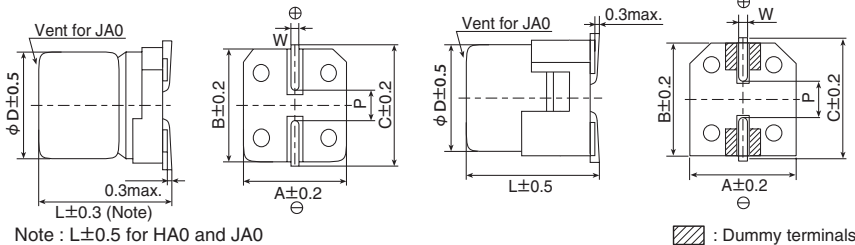
**◆ SPECIFICATIONS**

Items	Characteristics																								
<b>Category</b>	-55 to +105°C																								
<b>Temperature Range</b>																									
<b>Rated Voltage Range</b>	6.3 to 35V <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>	<table border="1"> <tr> <td>Rated voltage (V<sub>dc</sub>)</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> </tr> <tr> <td>tan δ (Max.)</td> <td>0.26</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> </tr> </table> (at 20°C, 120Hz)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	tan δ (Max.)	0.26	0.19	0.16	0.14	0.12												
Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V																				
tan δ (Max.)	0.26	0.19	0.16	0.14	0.12																				
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	<table border="1"> <tr> <td>Rated voltage (V<sub>dc</sub>)</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td>Z(-55°C)/Z(+20°C)</td> <td>4</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </table> (at 120Hz)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	Z(-25°C)/Z(+20°C)	2	2	2	2	2	Z(-40°C)/Z(+20°C)	3	3	3	3	3	Z(-55°C)/Z(+20°C)	4	4	4	3	3
Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V																				
Z(-25°C)/Z(+20°C)	2	2	2	2	2																				
Z(-40°C)/Z(+20°C)	3	3	3	3	3																				
Z(-55°C)/Z(+20°C)	4	4	4	3	3																				
<b>Endurance</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C. <table border="1"> <tr> <td>Capacitance change</td> <td>≤ ±30% of the initial value</td> </tr> <tr> <td>D.F. (tan δ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table>	Capacitance change	≤ ±30% of the initial value	D.F. (tan δ)	≤200% of the initial specified value	Leakage current	≤The initial specified value																		
Capacitance change	≤ ±30% of the initial value																								
D.F. (tan δ)	≤200% 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 105°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. <table border="1"> <tr> <td>Capacitance change</td> <td>≤ ±30% of the initial value</td> </tr> <tr> <td>D.F. (tan δ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table>	Capacitance change	≤ ±30% of the initial value	D.F. (tan δ)	≤200% of the initial specified value	Leakage current	≤The initial specified value																		
Capacitance change	≤ ±30% of the initial value																								
D.F. (tan δ)	≤200% of the initial specified value																								
Leakage current	≤The initial specified value																								
<b>Surge Voltage Test</b>	The capacitors shall be subjected to 1,000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (as required for RC=0.1±0.05sec) and open-circuiting for 5.5 minutes at a room temperature of 15 to 35°C. <table border="1"> <tr> <td>Rated voltage (V<sub>dc</sub>)</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> </tr> <tr> <td>Surge voltage (V<sub>dc</sub>)</td> <td>7.2V</td> <td>12V</td> <td>18V</td> <td>29V</td> <td>40V</td> </tr> </table> <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td>≤ ±20% of the initial value</td> </tr> <tr> <td>D.F. (tan δ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table> (Caution) Surge Voltage Test intends to evaluate capacitors in durability of an exceptional excessive voltage under specific conditions. It does not imply long-term use at all.	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	Surge voltage (V <sub>dc</sub> )	7.2V	12V	18V	29V	40V	Appearance	No significant damage	Capacitance change	≤ ±20% of the initial value	D.F. (tan δ)	≤200% of the initial specified value	Leakage current	≤The initial specified value				
Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V																				
Surge voltage (V <sub>dc</sub> )	7.2V	12V	18V	29V	40V																				
Appearance	No significant damage																								
Capacitance change	≤ ±20% 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 JA0

- Terminal Code : G (Vibration resistant structure)
- Size code : HA0 and JA0



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

**◆ MARKING**

EX) 35V10μF



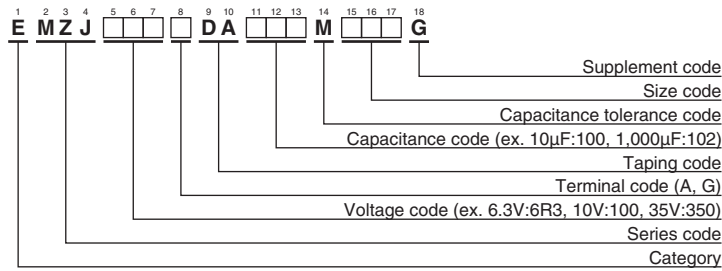
- Rated voltage symbol

Rated voltage (V <sub>dc</sub> )	6.3	10	16	25	35
Symbol	j	A	C	E	V

Applying voltage over the rated voltages causes the capacitors to have short lifetime. Besides, applying voltage over the specified surge voltages may cause to have short circuit failure. A protection circuit should be used if applied voltage will exceed the rated voltages.

Alchip™-MZJ Series

◆PART NUMBERING SYSTEM



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

◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size code	tan δ	ESR (Ω max./20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part No.
6.3	(47)	(D61)	(0.26)	(0.85)	(160)	(EMZJ6R3ADA470MD61G)
	100	E61	0.26	0.36	240	EMZJ6R3ADA101ME61G
	220	F61	0.26	0.26	300	EMZJ6R3ADA221MF61G
	330	F80	0.26	0.16	600	EMZJ6R3ADA331MF80G
	1,000	HA0	0.26	0.08	850	EMZJ6R3□DA102MHA0G
	1,500	JA0	0.26	0.06	1,190	EMZJ6R3□DA152MJA0G
	1,800	JA0	0.26	0.06	1,190	EMZJ6R3□DA182MJA0G
10	(33)	(D61)	(0.19)	(0.85)	(160)	(EMZJ100ADA330MD61G)
	150	F61	0.19	0.26	300	EMZJ100ADA151MF61G
	680	HA0	0.19	0.08	850	EMZJ100□DA681MHA0G
	1,000	JA0	0.19	0.06	1,190	EMZJ100□DA102MJA0G
	1,200	JA0	0.19	0.06	1,190	EMZJ100□DA122MJA0G
16	(22)	(D61)	(0.16)	(0.85)	(160)	(EMZJ160ADA220MD61G)
	47	E61	0.16	0.36	240	EMZJ160ADA470ME61G
	100	F61	0.16	0.26	300	EMZJ160ADA101MF61G
	150	F80	0.16	0.16	600	EMZJ160ADA151MF80G
	220	F80	0.16	0.16	600	EMZJ160ADA221MF80G
	470	HA0	0.16	0.08	850	EMZJ160□DA471MHA0G
	680	JA0	0.16	0.06	1,190	EMZJ160□DA681MJA0G
	820	JA0	0.16	0.06	1,190	EMZJ160□DA821MJA0G
25	(10)	(D61)	(0.14)	(0.85)	(160)	(EMZJ250ADA100MD61G)
	22	E61	0.14	0.36	240	EMZJ250ADA220ME61G
	33	E61	0.14	0.36	240	EMZJ250ADA330ME61G
	33	F61	0.14	0.26	300	EMZJ250ADA330MF61G
	47	F61	0.14	0.26	300	EMZJ250ADA470MF61G
	68	F61	0.14	0.26	300	EMZJ250ADA680MF61G
	100	F80	0.14	0.16	600	EMZJ250ADA101MF80G
	330	HA0	0.14	0.08	850	EMZJ250□DA331MHA0G
	470	JA0	0.14	0.06	1,190	EMZJ250□DA471MJA0G
560	JA0	0.14	0.06	1,190	EMZJ250□DA561MJA0G	
35	(10)	(D61)	(0.12)	(0.85)	(160)	(EMZJ350ADA100MD61G)
	22	E61	0.12	0.36	240	EMZJ350ADA220ME61G
	33	F61	0.12	0.26	300	EMZJ350ADA330MF61G
	47	F61	0.12	0.26	300	EMZJ350ADA470MF61G
	68	F61	0.12	0.26	300	EMZJ350ADA680MF61G
	100	F80	0.12	0.16	600	EMZJ350ADA101MF80G
	100	HA0	0.12	0.08	850	EMZJ350□DA101MHA0G
	150	HA0	0.12	0.08	850	EMZJ350□DA151MHA0G
	220	HA0	0.12	0.08	850	EMZJ350□DA221MHA0G
	330	JA0	0.12	0.06	1,190	EMZJ350□DA331MJA0G
	390	JA0	0.12	0.06	1,190	EMZJ350□DA391MJA0G

□ : Enter the appropriate terminal code.

( ) : Second standard

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Capacitance(μF)	Frequency(Hz)			
	120	1k	10k	100k
10 to 150	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	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.