

## Alchip™-MKB Series



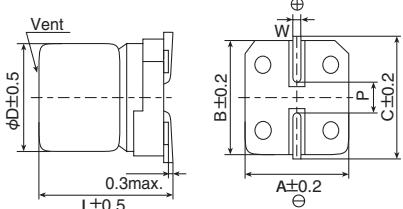
- Low ESR
- Endurance : 3,000 hours at 105°C
- Rated voltage 400V, Capacitance 2.2 to 4.7μF
- RoHS2 Compliant

## ◆SPECIFICATIONS

Items	Characteristics	
Category		
Temperature Range	-40 to +105°C	
Rated Voltage Range	400V <sub>dc</sub>	
Capacitance Tolerance	±20%(M)	(at 20°C, 120Hz)
Leakage Current	$I=0.04CV+100$ (max.) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	(at 20°C after 1 minute)
Dissipation Factor (tan δ)	Rated voltage(V <sub>dc</sub> ) tan δ (Max.)	400V 0.25 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(V <sub>dc</sub> ) Z(-25°C)/Z(+20°C) Z(-40°C)/Z(+20°C)	400V 6 10 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 3,000 hours at 105°C.	
	Capacitance change	≤ ±20% of the initial value
	D.F. (tan δ)	≤200% 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 500 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.	
	Capacitance change	≤ ±20% of the initial value
	D.F. (tan δ)	≤200% of the initial specified value
	Leakage current	≤The initial specified value

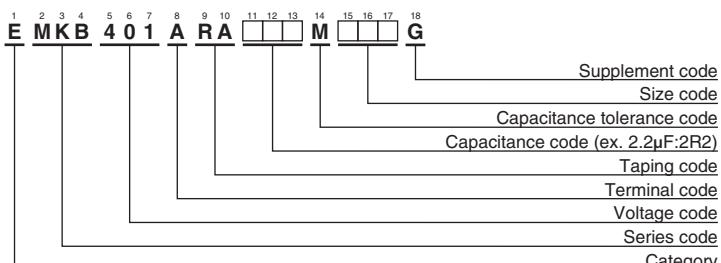
## ◆DIMENSIONS [mm]

## ●Terminal Code : A



Size code	D	L	A	B	C	W	P
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

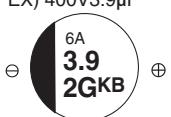
## ◆PART NUMBERING SYSTEM



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

## ◆MARKING

EX) 400V3.9μF



## ●Rated voltage symbol

Rated voltage (V <sub>dc</sub> )	Symbol
400	2G

## ◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size code	ESR (Ω max./120Hz)		Rated ripple current (mA rms/105°C, 120Hz)	Part No.
			20°C	-40°C		
400	2.2	HA0	20	1,000	26	EMKB401ARA2R2MHA0G
	3.3	JA0	10	500	37	EMKB401ARA3R3MJA0G
	3.9	JA0	10	500	38	EMKB401ARA3R9MJA0G
	4.7	JA0	10	500	39	EMKB401ARA4R7MJA0G

## ◆RATED RIPPLE CURRENT MULTIPLIERS

## ●Frequency Multipliers

Frequency(Hz)	120	1k	10k	100k
400V <sub>dc</sub>	1.00	1.30	1.40	1.50

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.