MKR Series

Features

- Endurance with ripple current at: 85℃, 5,000 hours
- High speed charge-discharge
- Suitable for high frequency regenerative voltage for AC servomotor, general inverter
- Suitable for equipment used at voltage fluctuating area and rectifier circuit of voltage doubler
- Application of charge-discharge DC voltage for 20 million times
- RoHS Compliance

Sleeve & Marking Color: Black & Golden

Specifications

Items	Performance
Category Temperature Range	-25℃ ~ +85℃
Capacitance Tolerance	±20% (at 120Hz, 20℃)
Leakage Current (at 20℃)	$I = 3\sqrt{CV}$ or 5 (mA) whichever is smaller (after 5 minutes) Where, C= rated capacitance in μF. V = rated DC working voltage in V.
Dissipation Factor (Tanδ at 120 Hz, 20℃)	See the Dimensions & Permissible Ripple Current
Low Temperature Characteristics (at 120Hz)	Capacitance change : C(-25℃) / C(+20℃) ≧ 0.7
Endurance of Charge / Discharge behavior	After an application of charge-discharge voltage for 20 million times, capacitors shall meet the characteristics requirement listed below. Charge discharge voltage (ΔV) = rated voltage × 0.3 Frequency: 3 Hz Temperature: 15 ~ 35℃

Capacitor Change	Within ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value
Appearance	There shall be found to remarkable abnormality on the capacitor

Endurance

Test Time	5,000 hrs
Capacitance Change	Within ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

* The above Specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with rated ripple current applied for 5,000 hrs at 85℃.

Shelf Life Test

Test Time	1,000 hrs
Capacitance Change	Within ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

* The above Specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hrs at 85℃ without voltage applied. The rated voltage shall be applied to the capacitors before the measurements (Refer to JIS C 5102-4.4).

Ripple Current & Frequency Multipliers

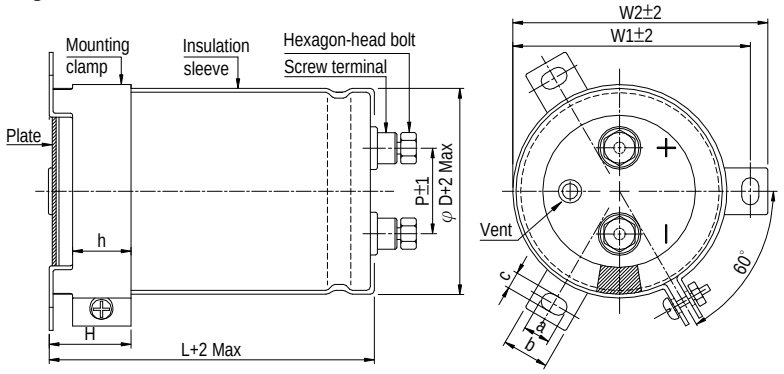
Frequency (Hz)	50 / 60	100 / 120	300	1k	10k up
Multiplier	0.7	1.0	1.1	1.3	1.4

Ripple Current & Temperature Multipliers

Temperature (℃)	40	60	85
Multiplier	1.89	1.67	1.0

Failure percentage Failure rate	≦ 3% (During useful life) 70 fit (70 10^{-9}/h)

Diagram of Dimensions



Unit: mm

ϕD	P	W1	W2	H	h	a	b	c
51	22.0	61.0	65.5	21.0	15.0	7.0	12.0	4.5
64	28.6	72.5	78.0	25.0	20.0	7.0	14.0	4.5
77	32.0	85.5	91.0	35.0	20.0	8.0	16.0	4.5
90	32.0	101	106	34.5	20.0	8.0	16.0	5.0

Screw Specifications:
Plus hexagon-headed screw: M5×0.8×10
Max. screw tightening torque: 3.23Nm

Dimension & Permissible Ripple Current

Working Voltage V. DC	Capacitance 120Hz, 20℃ μF	ϕD×L mm	Ripple Current 120 Hz, 85℃ A/rms	Tan δ at 120Hz, 20℃	ESR 120Hz, 20℃ mΩ	LC 5 miniutes mA	Part Number
350	1,200	51 × 75	5.6	0.15	166	1.94	MKR122M2V--B075
	1,500	51 × 75	6.3	0.15	133	2.17	MKR152M2V--B075
	1,800	51 × 96	7.7	0.15	111	2.38	MKR182M2V--B096
	2,200	51 × 96	8.5	0.15	90.5	2.63	MKR222M2V--B096
	2,700	51 × 130	10.7	0.15	73.7	2.92	MKR272M2V--B130
	3,300	51 × 130	11.9	0.15	60.3	3.22	MKR332M2V--B130
	3,900	64 × 115	13.8	0.15	51.0	3.50	MKR392M2V--C115
	4,700	64 × 130	15.9	0.15	42.3	3.85	MKR472M2V--C130
	5,600	64 × 155	18.6	0.15	35.5	4.20	MKR562M2V--C155
	5,600	77 × 115	18.6	0.15	35.5	4.20	MKR562M2V--D115
	6,800	77 × 130	21.6	0.15	29.3	4.63	MKR682M2V--D130
	8,200	77 × 155	25.7	0.15	24.3	5.00	MKR822M2V--D155
	10,000	90 × 157	28.8	0.15	19.9	5.00	MKR103M2V--E157
	12,000	90 × 157	31.5	0.15	16.6	5.00	MKR123M2V--E157
	15,000	90 × 196	38.9	0.15	13.3	5.00	MKR153M2V--E196
	18,000	90 × 236	45.2	0.15	11.1	5.00	MKR183M2V--E236
400	1,000	51 × 75	5.2	0.15	199	1.90	MKR102M2G--B075
	1,200	51 × 75	5.7	0.15	166	2.08	MKR122M2G--B075
	1,500	51 × 96	7.1	0.15	133	2.32	MKR152M2G--B096
	1,800	51 × 96	7.7	0.15	111	2.55	MKR182M2G--B096
	2,200	51 × 130	9.9	0.15	90.5	2.81	MKR222M2G--B130
	2,700	64 × 96	10.7	0.15	73.7	3.12	MKR272M2G--C096
	3,300	64 × 115	12.7	0.15	60.3	3.45	MKR332M2G--C115
	3,900	64 × 130	14.7	0.15	51.0	3.75	MKR392M2G--C130
	3,900	77 × 100	15.3	0.15	51.0	3.75	MKR392M2G--D100
	4,700	64 × 155	17.5	0.15	42.3	4.11	MKR472M2G--C155
	4,700	77 × 110	18.3	0.15	42.3	4.11	MKR472M2G--D110
	5,600	64 × 195	21.1	0.15	35.5	4.49	MKR562M2G--C195
	5,600	77 × 130	19.9	0.15	35.5	4.49	MKR562M2G--D130
	6,800	77 × 155	23.0	0.15	29.3	4.95	MKR682M2G--D155
	8,200	90 × 157	26.3	0.15	24.3	5.00	MKR822M2G--E157
	10,000	90 × 157	28.8	0.15	19.9	5.00	MKR103M2G--E157
	12,000	90 × 196	34.6	0.15	16.6	5.00	MKR123M2G--E196
	15,000	90 × 236	41.9	0.15	13.3	5.00	MKR153M2G--E236
450	1,000	51 × 75	4.5	0.15	199	2.01	MKR102M2W--B075
	1,200	51 × 96	5.3	0.15	166	2.20	MKR122M2W--B096
	1,500	51 × 115	6.8	0.15	133	2.46	MKR152M2W--B115
	1,800	51 × 130	7.9	0.15	111	2.70	MKR182M2W--B130
	2,200	64 × 96	8.4	0.15	90.5	2.98	MKR222M2W--C096
	2,700	64 × 115	10.5	0.15	73.7	3.31	MKR272M2W--C115
	3,300	64 × 130	12.5	0.15	60.3	3.66	MKR332M2W--C130
	3,900	77 × 115	14.3	0.15	51.0	3.97	MKR392M2W--D115
	4,700	64 × 195	17.5	0.15	42.3	4.36	MKR472M2W--C195
	4,700	77 × 130	16.1	0.15	42.3	4.36	MKR472M2W--D130
	5,600	77 × 155	19.2	0.15	35.5	4.76	MKR562M2W--D155
	6,800	90 × 157	23.6	0.15	29.3	5.00	MKR682M2W--E157
	8,200	90 × 157	25.3	0.15	24.3	5.00	MKR822M2W--E157
	10,000	90 × 196	30.2	0.15	19.9	5.00	MKR103M2W--E196
	12,000	90 × 236	35.0	0.15	16.6	5.00	MKR123M2W--E236

Part Numbering System

MKR series	3300μF	±20%	350V	Plain case + Mounting clamp	M5 Post	51ϕ×130L	Pb-free Terminal + PVC Sleeve
MKR	**332**	**M**	**2V**	**-**	**-**	**B130**	
Series name	Capacitance	Capacitance tolerance	Rated voltage	Case Type	Terminal type	Case size	Terminal and Sleeve Type

Example:

Cap.	Symbol
1,000	102
3,300	332
10,000	103

M = ±20%
K = ±10%

Example:

WV	Symbol
350	2V
400	2G
450	2W

Example:

ϕD×L	Code
64×130	C130
77×115	D115
90×157	E157

Note: For more details, please refer to “Part Numbering System (Screw Type)” on page 14.