

# MK series

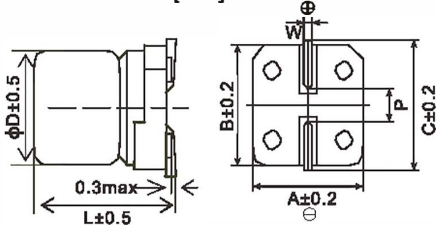
- Endurance: +105°C 2,000 ~ 3,000 hours
- Designed for surface mounting on high density PC board
- RoHS Compliant



## SPECIFICATIONS

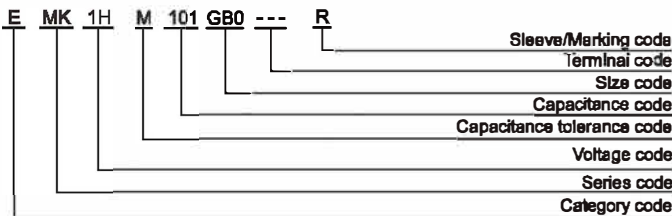
Items	Characteristics												
Category Temperature Range	-40~+105°C(8.3~450V <sub>dc</sub> )												
Rated Voltage Range	6.3~450V <sub>dc</sub>												
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)												
Leakage Current	6.3~100V <sub>dc</sub>						160~450V <sub>dc</sub>						(at 20°C)
	I ≤ 0.01CV or 3μA, whichever is greater. (2 minutes)						I ≤ 0.04CV + 100μA (1 minute)						
Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V)													(at 20°C)
Dissipation Factor (tanδ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	160~250	400~450	(at 20°C, 120Hz)
	tanδ (max.)	D80~E80	0.30	0.24	0.20	0.16	0.14	0.12	0.12	0.12	0.12	-	
													(at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	160~250	400~450	(at 120Hz)
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	2	6	6	
	Z(-40°C)/Z(+20°C)	10	8	6	4	3	3	3	3	3	10	18	
Endurance	The specifications listed below shall be met when the capacitors are restored to 20°C after rated voltage is applied for a specified period of time at 105°C.												
	Load Life	2,000 hours( 160~450V <sub>dc</sub> : 3,000 hours)											
	Capacitance Change	≤±20% of the initial value											
	Dissipation Factor (tanδ)	≤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 leaving them under no load at 105°C for 1,000 hours (6.3~100V <sub>dc</sub> : 500 hours).												
	Capacitance Change	≤±20% of the initial value											
	Dissipation Factor (tanδ)	≤200% of the initial specified value											
	Leakage Current	≤200% of the initial specified value											

## DIMENSIONS[mm]



Size code	D	L	A	B	C	W	P
D80	5	7.7	5.3	5.3	5.9	0.5~0.8	1.4
E80	8.3	7.7	8.6	8.6	7.2	0.5~0.8	1.9
E80	8.3	10.5	8.8	8.6	7.2	0.5~0.8	1.9
F80	8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
FD0	8	12.5	8.3	8.3	9.0	0.7~1.1	3.1
FE0	8	13.5	8.3	8.3	9.0	0.7~1.1	3.1
FG0	8	15.5	8.3	8.3	9.0	0.7~1.1	3.1
GB0	10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
GD0	10	12.5	10.3	10.3	11.0	0.7~1.1	4.5
GE0	10	13.5	10.3	10.3	11.0	0.7~1.1	4.5
GH0	10	16.5	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5
WM5	12.5	21.0	13.0	13.0	13.7	1.0~1.3	4.5
LH0	16	16.5	17.0	17.0	18.0	1.0~1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0~1.3	6.5
MH0	18	18.5	19.0	19.0	20.0	1.0~1.3	8.5
MN0	18	21.5	19.0	19.0	20.0	1.0~1.3	8.5

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)	120	1k	10k	100k
6.3~450		0.50	0.80	0.90	1.00

Surface Mount Type

# MK series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105°C,100kHz)
6.3(0J)	100	D80	0.30	105
	220	E80	0.30	160
	330	FB0	0.40	340
	1000	GB0	0.40	860
10(1A)	33	D80	0.24	105
	100	E80	0.24	175
	220	E80	0.24	180
	330	FB0	0.30	340
	470	FB0	0.30	360
16(1C)	820	GB0	0.30	860
	47	D80	0.20	105
	100	E80	0.20	175
	150	E80	0.20	190
	220	FB0	0.26	500
25(1E)	330	FB0	0.26	545
	470	GB0	0.26	800
	33	D80	0.16	105
	47	E80	0.16	180
	100	E80	0.16	205
35(1V)	220	FB0	0.16	550
	330	GB0	0.16	780
	470	GD0	0.16	875
	10	D80	0.14	105
	22	D80	0.14	110
50(1H)	47	E80	0.14	210
	100	FB0	0.14	575
	220	GB0	0.14	835
	330	GD0	0.14	900
	10	D80	0.12	90
63(1J)	22	E80	0.12	175
	33	E80	0.12	180
	47	FB0	0.12	540
	100	GB0	0.12	700
	220	WE0	0.12	900
80(1B)	330	WG5	0.12	1180
	10	E80	0.12	140
	22	FB0	0.12	375
	33	FB0	0.12	450
	47	GB0	0.12	575
100(1K)	100	GD0	0.12	600
	150	WE0	0.12	800
	220	WG5	0.12	960
	4.7	D80	0.12	70
	10	E80	0.12	135
100(1K)	22	FB0	0.12	345
	33	GB0	0.12	560
	47	GB0	0.12	575
	100	WE0	0.12	680

WV (V <sub>dc</sub> )	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105°C,100kHz)
160(2C)	10	GB0	0.15	90
	15	GB0	0.15	136
	22	GE0	0.15	180
		WE0	0.15	200
	33	GH0	0.15	240
		WE0	0.15	310
	47	WG5	0.15	420
		LH0	0.15	520
	68	LN0	0.15	660
		MH0	0.15	660
100	LN0	0.15	780	
	MN0	0.15	780	
200(2D)	10	GB0	0.15	120
	15	GB0	0.15	164
	22	GE0	0.15	200
		WG5	0.15	236
	33	GH0	0.15	260
		WG5	0.15	300
	47	WM5	0.15	440
LN0		0.15	556	
250(2E)	68	LN0	0.15	680
	2.2	EB0	0.15	56
	3.3	EB0	0.15	68
	4.7	FB0	0.15	96
		GB0	0.15	104
	10	WE0	0.15	184
	22	LH0	0.15	364
33	LN0	0.15	470	
	MH0	0.15	470	
47	MN0	0.15	580	
400(2G)	1	E80	0.20	28
	1.5	EB0	0.20	36
		EB0	0.20	44
	2.2	FB0	0.20	52
		FB0	0.20	64
	3.3	GB0	0.20	72
		GB0	0.20	72
	3.9	FE0	0.20	72
		GB0	0.20	76
	4.7	FB0	0.20	78
		FD0	0.20	80
	4.7	GB0	0.20	84
		5.6	FD0	0.20
	6.8	FE0	0.20	108
	8.2	FG0	0.20	130
	10	GH0	0.20	156
		LH0	0.20	176
15	WG5	0.20	184	
	LH0	0.20	210	
22	LN0	0.20	260	
33	MN0	0.20	280	
450(2W)	2.2	GB0	0.20	50
	3.3	WE0	0.20	80
	4.7	WE0	0.20	96
	10	LH0	0.20	170
	15	LN0	0.20	200
22	LN0	0.20	240	