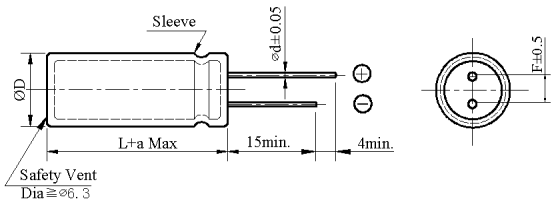
MA Series

- **Low ESR**
- **105℃ long life 5,000 hours, ultra miniature size**
  body diameter of Φ10mm to Φ14.5mm with high ripple current capability

◆ SPECIFICATIONS

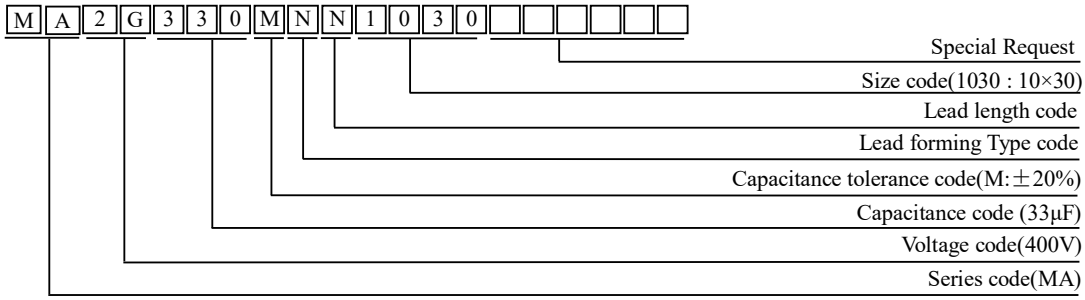
Item	Performance Characteristics
Category Temperature Range	-40~ +105℃
Working Voltage Range	400~ 450dc
Capacitance Range	27~120 μF
Capacitance Tolerance	±20% (at 25℃ and 120Hz)
Dissipation Factor (tanδ) (at 25℃, 120Hz)	Rated Voltage (V): 200~450; tanδ(Max): 0.15
Leakage Current	I=0.03CV + 10μA I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Impress the rated voltage for 2 minutes
Low Temperature Characteristics Impedance Ratio(MAX)	Rated voltage (V): 400 ~ 450; Z(-40℃)/Z(+20℃): 8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 25℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 105℃. Capacitance change: ≦ ±20% of the initial value Dissipation factor(tanδ): ≦ 200% of the specified value Leakage current: ≦ specified value
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Capacitance change: ≦ ±20% of the initial value Dissipation factor(tanδ): ≦ 200% of the specified value Leakage current: ≦ 200% of the specified value
Others	Conforms to JIS-C-5101-4 (1998)

◆ DIMENSIONS (mm)



ΦD	10	12.5	14.5
ΦD	ΦD + 0.5 Max		
Φd	0.6	0.6	0.8
F	5.0	5.0	7.5
a	L+ 1.5 Max	≦ 35 L+1.5Max ≧ 40 L+2.0 Max	L+ 2.0 Max

◆ PART NUMBER SYSTEM(Example : 400V 33μF)



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◆ **STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Case Size (mm) ΦD×L	Rated Ripple current (mA rms/ 105℃, 120Hz)	Part Number
400 (2G)	33	10×30	260	MA2G330MNN1030
	39	10×40	330	MA2G390MNN1040
	47	10×45	393	MA2G470MNN1045
	56	10×50	435	MA2G560MNN1050
	56	12.5×35	440	MA2G560MNN1235W
	68	12.5×40	555	MA2G680MNN1240W
	82	12.5×45	580	MA2G820MNN1245W
	82	14.5×35	575	MA2G820MNN1435
	100	12.5×50	645	MA2G101MNN1250W
	100	14.5×40	655	MA2G101MNN1440
	120	14.5×50	675	MA2G121MNN1450
420 (2S)	33	10×35	270	MA2S330MNN1035
	39	10×40	340	MA2S390MNN1040
	47	10×45	405	MA2S470MNN1045
	56	10×50	465	MA2S560MNN1050
	56	12.5×40	497	MA2S560MNN1240W
	68	12.5×40	555	MA2S680MNN1240W

WV (Vdc)	Cap (μF)	Case Size (mm) ΦD×L	Rated Ripple current (mA rms/ 105℃, 120Hz)	Part Number
420 (2S)	68	14.5×35	560	MA2S680MNN1435
	82	12.5×45	610	MA2S820MNN1245W
	82	14.5×40	620	MA2S820MNN1440
	100	14.5×45	670	MA2S101MNN1445
	120	14.5×50	690	MA2S121MNN1450
450 (2W)	27	10×30	260	MA2W270MNN1030
	33	10×40	280	MA2W330MNN1040
	39	10×45	350	MA2W390MNN1045
	47	10×50	390	MA2W470MNN1050
	47	12.5×35	405	MA2W470MNN1235W
	56	12.5×40	505	MA2W560MNN1240W
	68	12.5×45	560	MA2W680MNN1245W
	68	14.5×40	565	MA2W680MNN1440
	82	12.5×50	625	MA2W820MNN1250W
	82	14.5×45	650	MA2W820MNN1445
	100	14.5×50	708	MA2W101MNN1450

◆ **RIPPLE CURRENT MULTIPLIERS**

Frequency Multipliers

Vdc	Frequency (Hz)				
	60(50)	120	500	1K	≥10K
400 ~ 450	0.80	1.00	1.25	1.40	1.50