



GM Series

- Large size for PCB board mounting hole



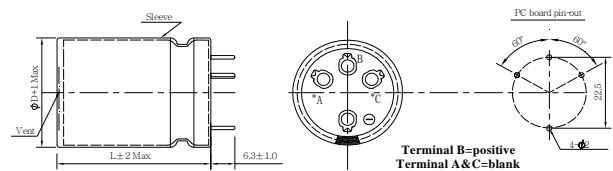
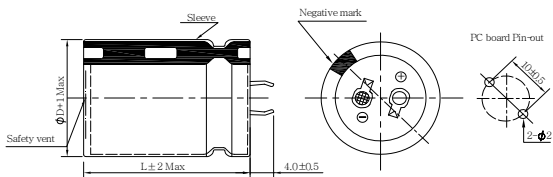
SPECIFICATIONS

Item	Performance Characteristics	
Category Temperature Range	-40 ~ +85°C	-25 ~ +85°C
Working Voltage Range	16 ~ 100Vdc	160 ~ 500Vdc
Capacitance Range	820 ~ 68,000µF	56 ~ 2,700 µF
Capacitance Tolerance	±20% (at 25°C and 120Hz)	
Dissipation Factor (tanδ) (at 25°C, 120Hz)	Rated Voltage (V)	16 25 35 50 63 80 ~ 100 160 ~ 250 350 ~ 450 500
	tanδ(Max)	0.35 0.35 0.25 0.25 0.25 0.20 0.15 0.15 0.20
The above values should be increased by 0.02 for every additional 1000µF		
Leakage Current	I=0.02CV or 3000µA, whichever is smaller I : Leakage current (µA) C : Rated capacitance (µF) V : Rated voltage (V) Impress the rated voltage for 5 minutes	
Low Temperature Characteristics Impedance Ratio(MAX)	Rated voltage (V)	16 25 35 50 63 80 100 160 ~ 250 350 400 420 ~ 450 500
	Z(-40°C)/Z(+20°C)	15 10 8 6 6 5 5 — — — — —
	Z(-25°C)/Z(+20°C)	— — — — — — — 4 4 4 8 8
(at 120Hz)		
Endurance	The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85°C.	
	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°C after exposing them for 1,000 hours at 85°C 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), characteristic W	

DIMENSIONS (mm)

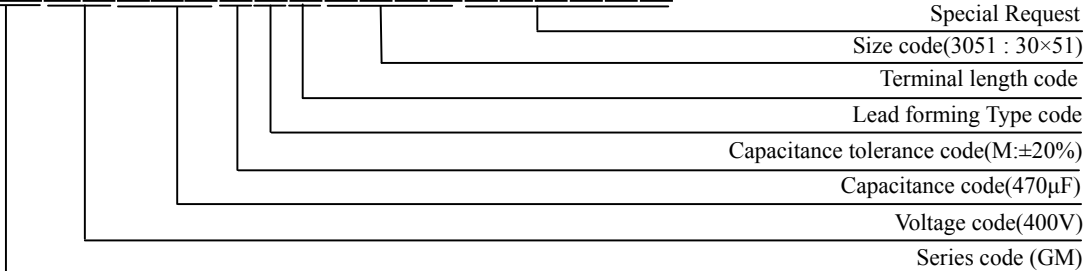
Terminal Code : ND : Standard

Terminal Code :K6 (ø35)



PART NUMBER SYSTEM (Example : 400V 470µF)

GM 2 G 4 7 1 M N D 3 0 5 1





GM Series

◆ Case size & Permissible rated ripple current (mA rms) at 85°C / 120Hz

uF	Vdc		16								uF	Vdc		25							
	ΦD	ΦD	Φ 22		Φ 25		Φ30		Φ35			ΦD	ΦD	Φ 22		Φ 25		Φ30		Φ35	
			ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC				ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
8200	22×25	2455								4700											
10000	22×25	2710								5600	22×25	2165									
12000	22×30	2890	25×25	2890						6800	22×30	2500	25×25	2500							
15000	22×35	3390	25×30	3390	30×25	3390				8200	22×35	2740	25×25	2740							
18000	22×40	3900	25×35	3900	30×25	3900				10000	22×40	3055	25×30	3055	30×25	3055					
22000	22×50	4170	25×40	4170	30×30	4170	35×25	4170		12000	22×45	3410	25×35	3410	30×30	3410	35×25	3410			
27000			25×45	4625	30×35	4625	35×30	4625		15000	22×50	3920	25×40	3920	30×30	3920	35×25	3920			
33000			25×50	5250	30×40	5250	35×30	5250		18000			25×45	4370	30×35	4370	35×30	4370			
39000					30×45	5885	35×35	5885		22000			25×50	5050	30×45	5050	35×35	5050			
47000					30×50	6650	35×40	6650		27000					30×50	5820	35×40	5820			
56000							35×45	7465		33000							35×45	6615			
68000							35×50	8455		39000							35×50	7400			

uF	Vdc		35								uF	Vdc		50							
	ΦD	ΦD	Φ 22		Φ 25		Φ30		Φ35			ΦD	ΦD	Φ 22		Φ 25		Φ30		Φ35	
			ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC				ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
3900	22×25	2175								2200	22×25	1870									
4700	22×30	2370	25×25	2370						3300	22×30	2330	25×25	2330							
5600	22×35	2695	25×25	2695						3900	22×35	2595	25×30	2595	30×25	2595					
6800	22×40	2740	25×30	2740	30×25	2740				4700	22×40	2750	25×35	2750	30×25	2750					
8200	22×45	3065	25×35	3065	30×30	3065	35×25	3065		5600	22×45	3300	25×35	3300	30×30	3300	35×25	3300			
10000	22×50	3495	25×40	3495	30×30	3495	35×25	3495		6800	22×50	3730	25×40	3730	30×35	3730	35×30	3730			
12000			25×45	3925	30×35	3925	35×30	3925		8200			25×50	4270	30×40	4270	35×30	4270			
15000			25×50	4445	30×40	4445	35×35	4445		10000					30×45	4870	35×35	4870			
18000					30×45	5425	35×40	5425		12000					30×50	5485	35×40	5485			
22000					30×50	5915	35×45	5915		15000							35×45	6310			
27000							35×50	6750		18000							35×50	6575			

uF	Vdc		63								uF	Vdc		80							
	ΦD	ΦD	Φ 22		Φ 25		Φ30		Φ35			ΦD	ΦD	Φ 22		Φ 25		Φ30		Φ35	
			ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC				ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
1500										1200	22×25	1655									
1800	22×25	1780								1500	22×25	1840									
2200	22×30	2260	25×25	2260						1800	22×30	2210	25×25	2210							
2700	22×35	2350	25×25	2350						2200	22×35	2410	25×30	2410	30×25	2410					
3300	22×35	2585	25×30	2585	30×25	2585				2700	22×40	2720	25×35	2720	30×25	2720					
3900	22×40	2940	25×35	2940	30×30	2940	35×25	2940		3300	22×45	3145	25×40	3145	30×30	3145	35×25	3145			
4700	22×50	3290	25×40	3290	30×30	3290	35×25	3290		3900	22×50	3430	25×45	3430	30×35	3430	35×25	3430			
5600			25×45	3690	30×35	3690	35×30	3690		4700			25×50	3965	30×40	3965	35×30	3965			
6800			25×50	4180	30×40	4180	35×30	4180		5600					30×45	4455	35×35	4455			
8200					30×45	4730	35×35	4730		6800					30×50	5050	35×40	5050			
10000					30×50	5280	35×40	5280		8200							35×45	5710			
12000							35×45	6065		10000							35×50	6495			



GM Series

◆ Case size & Permissible rated ripple current (mA rms) at 85°C / 120Hz

Vdc ΦD uF	100								Vdc ΦD uF	160							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
820	22×25	1650							330	22×25	1050						
1200	22×30	1890	25×25	1890					390	22×25	1310						
1500	22×35	2080	25×30	2080	30×25	2080			470	22×30	1600	25×25	1600				
1800	22×40	2470	25×35	2470	30×25	2470			560	22×35	1810	25×25	1810				
2200	22×45	2850	25×40	2850	30×30	2850	35×25	2850	680	22×40	2250	25×30	2250	30×25	2250		
2700	22×50	3180	25×45	3180	30×35	3180	35×30	3180	820	22×45	2510	25×35	2510	30×30	2510	35×25	2510
3300			25×50	3650	30×40	3650	35×30	3650	1000	22×50	2780	25×40	2780	30×30	2780	35×25	2780
3900					30×45	4050	35×35	4050	1200			25×45	3050	30×35	3050	35×30	3050
4700					30×50	4300	35×40	4300	1500			25×50	3210	30×45	3210	35×35	3210
5600							35×45	4650	1800					30×50	3800	35×40	3800
6800							35×50	5150	2200							35×45	4150
8200									2700							35×50	4780

Vdc ΦD uF	200								Vdc ΦD uF	220							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
270	22×25	1180							220	22×25	1130						
330	22×30	1350	25×25	1350					270	22×25	1200	25×25	1200				
390	22×30	1410	25×25	1410					330	22×30	1410	25×25	1410				
470	22×35	1650	25×30	1650	30×25	1650			390	22×35	1580	25×30	1580	30×25	1580		
560	22×40	1980	25×35	1980	30×25	1980			470	22×40	1800	25×35	1800	30×25	1800		
680	22×45	2450	25×40	2450	30×30	2450	35×25	2450	560	22×45	2030	25×40	2030	30×30	2030	35×25	2030
820			25×45	2690	30×35	2690	35×25	2690	680	22×50	2330	25×45	2330	30×35	2330	35×25	2330
1000			25×50	2900	30×40	2900	35×30	2900	820			25×50	2560	30×40	2560	35×30	2560
1200					30×45	3200	35×35	3200	1000					30×45	2850	35×35	2850
1500					30×50	3650	35×40	3650	1200					30×50	3130	35×40	3130
1800							35×45	3870	1500							35×45	3750
2200							35×50	4100	1800							35×50	3900

Vdc ΦD uF	250								Vdc ΦD uF	400							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
180	22×25	1050							82	22×25	750						
220	22×25	1160							100	22×30	880	25×25	880				
270	22×30	1240	25×25	1240					120	22×35	1050	25×25	1050				
330	22×35	1580	25×30	1580	30×25	1580			150	22×40	1150	25×30	1150	30×25	1150		
390	22×40	1760	25×35	1760	30×25	1760			180	22×45	1400	25×35	1400	30×30	1400	35×25	1400
470	22×45	1910	25×35	1910	30×30	1910	35×25	1910	220	22×45	1530	25×40	1530	30×30	1530	35×25	1530
560	22×50	2080	25×40	2080	30×35	2080	35×25	2080	270	22×50	1650	25×45	1650	30×35	1650	35×30	1650
680			25×50	2260	30×40	2260	35×30	2260	330			25×50	1850	30×40	1850	35×30	1850
820					30×45	2480	35×35	2480	390					30×45	2100	35×35	2100
1000					30×50	2780	35×40	2780	470					30×50	2350	35×40	2350
1200							35×45	3150	560							35×45	2500
1500							35×50	3980	680							35×50	2860



GM Series

◆ Case size & Permissible rated ripple current (mA rms) at 85°C / 120Hz

Vdc ΦD uF	420								Vdc ΦD uF	450							
	Φ 22		Φ 25		Φ30		Φ35			Φ 22		Φ 25		Φ30		Φ35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
68	22×25	735							56	22×25	450						
82	22×25	755	25×25	755					68	22×25	580						
100	22×30	860	25×25	860					82	22×30	760	25×25	760				
120	22×35	1030	25×25	1030	30×25				100	22×35	810	25×25	810				
150	22×40	1165	25×30	1165	30×25	1165	35×25	1165	120	22×40	890	25×30	890	30×25	890		
180	22×45	1370	25×35	1370	30×30	1370	35×25	1370	150	22×45	1210	25×35	1210	30×30	1210	35×25	1210
220	22×50	1500	25×40	1500	30×35	1500	35×25	1500	180	22×50	1360	25×40	1360	30×35	1360	35×25	1360
270			25×45	1615	30×40	1615	35×30	1615	220			25×50	1580	30×40	1580	35×30	1580
330			25×50	1805	30×45	1805	35×35	1805	270					30×45	1760	35×35	1760
390					30×50	1950	35×40	1950	330					30×50	1930	35×40	1930
470							35×45	2400	390							35×45	2060
560							35×50	2550	470							35×50	2410

Vdc ΦD uF	500							
	Φ 22		Φ 25		Φ30		Φ35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
56	22×25	465						
68	22×30	600	25×25	600				
82	22×35	785	25×25	785				
100	22×40	840	25×30	840	30×25	840		
120	22×45	920	25×35	920	30×25	920	35×25	920
150	22×50	1245	25×40	1245	30×30	1245	35×25	1245
180			25×45	1380	30×35	1380	35×25	1380
220			25×50	1610	30×40	1610	35×30	1610
270					30×45	1810	35×35	1810
330					30×50	1985	35×40	1985
390							35×45	2120
470							35×50	2480

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Frequency (Hz)				
	50	120	1K	10K	≥50K
16 ~ 100	0.80	1.00	1.15	1.15	1.15
160 ~ 250	0.81	1.00	1.32	1.45	1.50
350 ~ 500	0.77	1.00	1.30	1.41	1.43



GM Series

Downsize

High current

Rated Voltage Range: 200-450V

◆ Case size & Permissible rated ripple current (mA rms) at 85°C/ 120Hz

Vdc ΦD μF	200										Vdc ΦD μF	250									
	Φ20		Φ22		Φ 25		Φ30		Φ35			Φ20		Φ22		Φ 25		Φ30		Φ35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
220	20×25	930									220	20×25	1000								
330	20×25	1235									330	20×30	1325	22×30	1325						
390	20×30	1510	22×25	1510							390	20×40	1715	22×30	1715	25×25	1715				
470	20×35	1725	22×30	1725	25×25	1725					470			22×35	1980	25×30	1980	30×25	1980		
560	20×40	1895	22×30	1895	25×25	1895					560			22×40	2090	25×35	2090	30×25	2090		
680			22×35	2000	25×30	2000	30×25	2000			680			22×45	2260	25×40	2260	30×30	2260	35×25	2260
820			22×40	2360	25×35	2360	30×25	2360			820			22×50	2485	25×45	2485	30×35	2485	35×30	2485
1000					25×40	3000	30×30	3000	35×25	3000	1000					25×50	2845	30×40	2845	35×30	2845

Vdc ΦD μF	400										Vdc ΦD μF	450									
	Φ20		Φ22		Φ 25		Φ30		Φ35			Φ20		Φ22		Φ 25		Φ30		Φ35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
100	20×25	845									82	20×25	680								
120	20×30	970	22×25	970							100	20×30	700	22×25	700						
150	20×35	1000	22×30	1000	25×25	1000					120	20×35	850	22×30	850	25×25	850				
180	20×40	1260	22×35	1260	25×30	1260					150	20×40	1015	22×35	1015	25×30	1015				
220	20×50	1355	22×40	1355	25×35	1355	30×25	1355			180			22×40	1250	25×30	1250	30×25	1250		
270			22×45	1560	25×35	1560	30×30	1560			220			22×45	1450	25×35	1450	30×30	1450		
330			22×50	1690	25×40	1690	30×35	1690	35×25	1690	270			22×50	1600	25×40	1600	30×35	1600	35×25	1600
390					25×50	1870	30×35	1870	35×30	1870	330					25×50	1785	30×40	1785	35×30	1785
470							30×40	2185	35×35	2185	390							30×45	2000	35×35	2000