

GW SERIES ■ LOW HEIGHT 85°C TYPE

KEY FEATURES



- ALUMINUM ELECTROLYTIC CAPACITOR • THT type
- Endurance: 85°C ■ 2 000 hours
- Miniaturized for space critical applications
- Low height ■ 9 to 25mm
- Wide voltage range, up to 450V

DISCONTINUED

Replaced by KM series



SPECIFICATIONS

Items		Performance Characteristics								
Operating Temperature Range		-40 ~ +85°C				-25 ~ +85°C				
Rated Voltage Range	V _R	6.3 ~ 100V DC				160 ~ 450V DC				
Surge Voltage	V _S	(V _R ≤ 315V): V _S = 1.15·V _R				(V _R > 315V): V _S = 1.10·V _R				
Capacitance Range	C _R	2.2 ~ 10000μF				1.5 ~ 150μF				
Cap. Tolerance	ΔC	±20% (120Hz ▪ 20°C)								
Leakage Current (20°C ▪ V _R applied)	I _{LEAK}	≤ 0.01·C _R ·V _R or 3μA, whichever is greater ▪ After 2 minutes				≤ 0.04·C _R ·V _R + 100μA After 2 minutes				
		[I _{LEAK} (μA) ; C _R (μF) ; V _R (V)]								
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	V _R (V DC)	6.3	10	16	25	35	50	63	100
		tanδ (%)	24	22	20	16	14	12	10	10
		V _R (V DC)	160	200	250	350	400	450		
		tanδ (%)	15	15	15	15	20	20		
		For C _R ≥ 1000μF, add 2% per every multiple 1000μF of rated capacitance value								
Low Temperature Characteristics at 120Hz	Z ratio max.	V _R (V DC)	6.3	10	16	25	35	50	63	100
		Z-25°C/Z+20°C	6	4	4	3	2	2	2	2
		Z-40°C/Z+20°C	12	10	8	6	4	3	3	3
		V _R (V DC)	160	200	250	350	400	450		
		Z-25°C/Z+20°C	2	2	3	5	5	7		
		For capacitance > 1000μF								
		Z-25°C/Z+20°C	Add 0.5 for every multiple 1000μF of rated capacitance value							
		Z-40°C/Z+20°C	Add 1 for every multiple 1000μF of rated capacitance value							
Lifetime Test										
Endurance 85°C (V _R & I _R applied)	Test	2 000 hours								
	ΔC/C _R	≤ ±20% of initial measured value								
	tanδ	≤ 200% of initial specified value								
	I _{Leak}	≤ the initial specified value								
Shelf Life 85°C (V _R = 0)	Test	1 000 hours								
	ΔC/C _R	≤ ±20% of initial measured value								
	tanδ	≤ 200% of initial specified value								
	I _{Leak}	≤ the initial specified value								
	Before measurement: Restore capacitor to 20°C, apply V _R for 30 min according JIS-C-5101-4									

STANDARD RATINGS

DISCONTINUED

Part number shows bulk version with straight leads

V _R (V)	C _R (μF)	ø D (mm)	L (mm)	I _R = Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
6.3	100	5	9	128	GW101M6R3C090A
	150	5	9	150	GW151M6R3C090A
	220	6.3	9	180	GW221M6R3E090A
	330	6.3	9	247	GW331M6R3E090A
	470	8	9	360	GW471M6R3F090A
	680	10	9	420	GW681M6R3G090A
	1000	10	9	530	GW102M6R3G090A
	2200	13	16	1050	GW222M6R3I160A
	3300	16	16	1200	GW332M6R3J160A
	4700	16	16	1500	GW472M6R3J160A
	6800	16	20	1550	GW682M6R3J200A
	6800	18	16	1600	GW682M6R3K160A
	10000	18	20	2000	GW103M6R3K200A
10	100	5	9	134	GW101M010C090A
	150	6.3	9	180	GW151M010E090A
	220	6.3	9	210	GW221M010E090A
	330	8	9	300	GW331M010F090A
	470	8	9	360	GW471M010F090A
	680	10	9	540	GW681M010G090A
	1000	10	12.5	625	GW102M010G125A
	2200	13	16	1080	GW222M010I160A
	3300	16	16	1350	GW332M010J160A
	4700	16	20	1550	GW472M010J200A
	6800	18	20	1850	GW682M010K200A
16	68	5	9	120	GW680M016C090A
	100	6.3	9	160	GW101M016E090A
	150	6.3	9	260	GW151M016E090A
	220	8	9	290	GW221M016F090A
	330	8	9	340	GW331M016F090A
	330	10	9	355	GW331M016G090A
	470	10	9	410	GW471M016G090A
	680	10	12.5	560	GW681M016G125A
	1000	13	13	750	GW102M016I130A
	2200	16	16	1150	GW222M016J160A
	3300	16	16	1500	GW332M016J160A
	3300	18	16	1460	GW332M016K160A
	4700	18	20	1650	GW472M016K200A
	470	10	12.5	525	GW471M025G125A
25	47	5	9	105	GW470M025C090A
	68	6.3	9	130	GW680M025E090A
	100	6.3	9	175	GW101M025E090A
	150	8	9	280	GW151M025F090A
	220	8	9	310	GW221M025F090A
	330	10	9	400	GW331M025G090A
	470	10	12.5	525	GW471M025G125A

See "ADDITIONAL INFORMATION" to taped or formed products.

STANDARD RATINGS

DISCONTINUED

Part number shows bulk version with straight leads

V _R (V)	C _R (μF)	ø D (mm)	L (mm)	I _R = Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
25	680	10	16	700	GW681M025G160A
	680	13	13	730	GW681M025I130A
	1000	13	16	1050	GW102M025I160A
	2200	16	20	1350	GW222M025J200A
	2200	18	16	1300	GW222M025K160A
	3300	18	20	1600	GW332M025K200A
35	33	5	9	95	GW330M035C090A
	47	6.3	9	120	GW470M035E090A
	68	6.3	9	140	GW680M035E090A
	100	8	9	220	GW101M035F090A
	150	8	9	300	GW151M035F090A
	220	10	9	335	GW221M035G090A
	330	10	12.5	475	GW331M035G125A
	470	13	13	590	GW471M035I130A
	470	13	16	650	GW471M035I160A
	680	13	16	750	GW681M035I160A
	1000	16	16	1230	GW102M035J160A
	2200	18	20	1600	GW222M035K200A
50	2.2	5	9	23	GW2R2M050C090A
	3.3	5	9	30	GW3R3M050C090A
	4.7	5	9	35	GW4R7M050C090A
	6.8	5	9	50	GW6R8M050C090A
	10	5	9	64	GW100M050C090A
	22	5	9	86	GW220M050C090A
	33	6.3	9	115	GW330M050E090A
	47	6.3	9	135	GW470M050E090A
	68	8	9	155	GW680M050F090A
	100	10	9	230	GW101M050G090A
	150	10	9	320	GW151M050G090A
	220	10	16	380	GW221M050G160A
	220	13	13	400	GW221M050I130A
	330	13	13	530	GW331M050I130A
	330	13	16	550	GW331M050I160A
	470	13	16	720	GW471M050I160A
	470	16	16	750	GW471M050J160A
	680	16	16	805	GW681M050J160A
	1000	16	20	1450	GW102M050J200A
63	2.2	5	9	26	GW2R2M063C090A
	3.3	5	9	31	GW3R3M063C090A
	4.7	5	9	36	GW4R7M063C090A
	6.8	5	9	54	GW6R8M063C090A
	10	6.3	9	68	GW100M063E090A
	22	6.3	9	102	GW220M063E090A
	33	8	9	135	GW330M063F090A

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DISCONTINUED

Part number shows bulk version with straight leads

V _R (V)	C _R (μF)	ø D (mm)	L (mm)	I _R = Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
63	47	10	9	170	GW470M063G090A
	68	10	9	200	GW680M063G090A
	100	10	16	340	GW101M063G160A
	150	13	13	384	GW151M063I130A
	220	13	13	490	GW221M063I130A
	330	16	16	610	GW331M063J160A
	470	16	16	840	GW471M063J160A
	680	16	20	950	GW681M063J200A
100	2.2	5	9	27	GW2R2M100C090A
	3.3	5	9	33	GW3R3M100C090A
	4.7	6.3	9	41	GW4R7M100E090A
	6.8	6.3	9	59	GW6R8M100E090A
	10	8	9	78	GW100M100F090A
	22	8	9	107	GW220M100F090A
	33	10	9	155	GW330M100G090A
	47	10	16	220	GW470M100G160A
	68	10	16	261	GW680M100G160A
	68	13	13	270	GW680M100I130A
	100	13	13	410	GW101M100I130A
	150	16	16	579	GW151M100J160A
	220	16	20	668	GW221M100J200A
	330	16	25	864	GW331M100J250A
160	4.7	8	9	50	GW4R7M160F090A
	6.8	8	9	75	GW6R8M160F090A
	10	10	9	87	GW100M160G090A
	22	10	16	135	GW220M160G160A
	33	13	16	175	GW330M160I160A
	47	13	16	285	GW470M160I160A
	47	16	16	325	GW470M160J160A
	68	16	16	340	GW680M160J160A
	100	16	20	515	GW101M160J200A
	150	18	20	620	GW151M160K200A
200	4.7	8	9	55	GW4R7M200F090A
	6.8	8	9	78	GW6R8M200F090A
	10	10	9	92	GW100M200G090A
	22	13	16	150	GW220M200I160A
	33	13	16	190	GW330M200I160A
	33	16	16	200	GW330M200J160A
	47	16	16	320	GW470M200J160A
	68	16	16	360	GW680M200J160A
	68	18	16	390	GW680M200K160A
	100	16	20	575	GW101M200J200A
250	4.7	8	9	60	GW4R7M250F090A
	4.7	10	9	52	GW4R7M250G090A

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STANDARD RATINGS

DISCONTINUED

Part number shows bulk version with straight leads

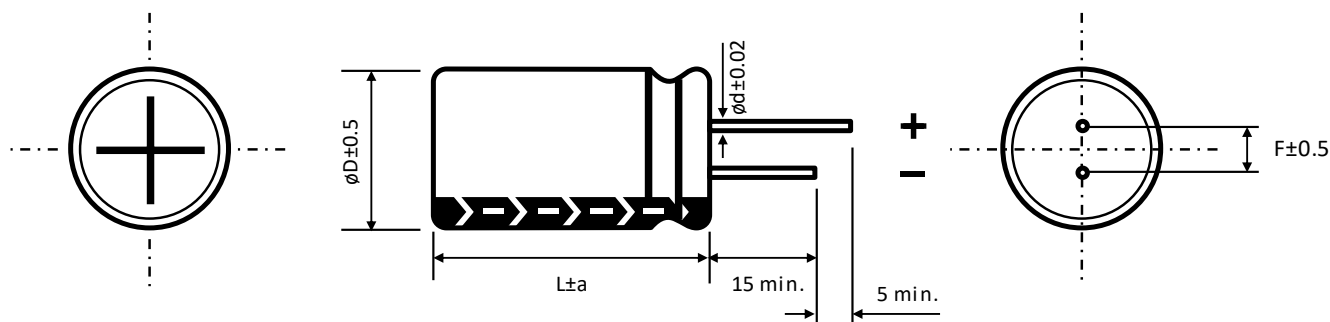
V _R (V)	C _R (μF)	ø D (mm)	L (mm)	I _R = Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
250	6.8	10	9	82	GW6R8M250G090A
	10	10	9	98	GW100M250G090A
	10	10	16	120	GW100M250G160A
	22	13	16	165	GW220M250I160A
	22	16	16	210	GW220M250J160A
	33	16	16	230	GW330M250J160A
	33	18	16	260	GW330M250K160A
	47	16	20	340	GW470M250J200A
	47	18	16	380	GW470M250K160A
	68	16	20	420	GW680M250J200A
	100	18	20	610	GW101M250K200A
350	3.3	8	9	45	GW3R3M350F090A
	4.7	10	9	78	GW4R7M350G090A
	6.8	10	16	105	GW6R8M350G160A
	10	13	16	145	GW100M350I160A
	22	16	16	190	GW220M350J160A
	33	16	20	270	GW330M350J200A
	33	18	16	335	GW330M350K160A
	47	18	20	360	GW470M350K200A
400	2.2	8	9	38	GW2R2M400F090A
	3.3	10	9	50	GW3R3M400G090A
	4.7	10	9	90	GW4R7M400G090A
	6.8	13	16	125	GW6R8M400I160A
	10	13	16	160	GW100M400I160A
	10	16	16	190	GW100M400J160A
	22	16	20	230	GW220M400J200A
	22	18	16	225	GW220M400K160A
	33	18	20	300	GW330M400K200A
	47	18	20	385	GW470M400K200A
450	1.5	8	9	30	GW1R5M450F090A
	2.2	10	9	46	GW2R2M450G090A
	3.3	10	9	55	GW3R3M450G090A
	4.7	10	12.5	105	GW4R7M450G125A
	6.8	13	16	135	GW6R8M450I160A
	10	16	16	200	GW100M450J160A
	22	16	20	250	GW220M450J200A
	33	18	20	320	GW330M450K200A

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MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

C _R (μF) / Frequency (Hz)	50/60	100/120	400	1k	≥ 10k
2.2 < C _R ≤ 68	0.8	1	1.2	1.3	1.5
68 < C _R ≤ 1000	0.8	1	1.1	1.15	1.2
1000 < C _R ≤ 10000	0.8	1	1.05	1.1	1.15

DIMENSIONS ▪ All dimensions in mm



ϕD	5	6.3	8		10	13	16	18
F	2	2.5	3.5		5	5	7.5	7.5
ϕd	0.5		L < 20	L ≥ 20	0.6		0.8	
			0.5	0.6				

a	$\phi D < 16$	$\phi D = 16$		$\phi D = 18$	
	1.5	L = 25 to 35.5	L < 25 and L ≥ 40	L = 25 to 31.5	L < 25 and L ≥ 35.5
		1.5	2	1.5	2

PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

General Precautions & Guidelines	Packaging Information	3D Models

DISCLAIMER

All product related data (e.g. specification, statements and general information) are subject to change without any notice. It is necessary that the customer observes all product related technical / application information and handling instructions.

CapXon products are designed and manufactured according to severe quality and safety standards. Under no circumstance, CapXon warrants that any CapXon product is suitable for the purposes intended for your application, even CapXon knows the application. It is customer's duty and obligation to check and make sure that CapXon products are suitable for the purposes intended and select the correct and proper CapXon product. Customers are requested to perform a sufficient validation and reliability evaluation to assure needed safety level and reliability performance by suitable designs and to apply proper safeguards (e.g. redundancies, protective circuits).

Particular operating conditions (ambient temperature, ripple current, voltage, thermal resistance, etc.) as well as storage, production or assembly may affect the performance and the lifetime of the capacitor. Please consult CapXon for lifetime estimation, failure mode considerations or worst-case scenarios according to the product technology, product tolerances / deviations or change of the characteristics of the capacitor due to shipment, storage, handling, production and usage.

For aerospace or military application, life-saving, life-sustaining, safety critical applications or any application where failure may cause severe personal injury or death, please consult us before design-in the capacitor in your application.

Except for the written expressed warranties, CapXon does not impliedly, by assumption or whatever else, warrant, undertake, promise any other warranty or guaranty for any CapXon product.

For further information, please visit our website www.capxongroup.com or contact CapXon directly.