

GS SERIES ▪ STANDARD 85°C TYPE

KEY FEATURES

- **ALUMINUM ELECTROLYTIC CAPACITOR ▪ THT type**
- Endurance: 85°C ▪ 2 000 hours
- Optimized for cost effective applications
- High capacitance range
- Wide voltage range, up to 450V



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	$(V_R \leq 315V): V_S = 1.15 \cdot V_R$				$(V_R > 315V): V_S = 1.10 \cdot V_R$					
Capacitance Range	C_R	1 ~ 33000µF				1 ~ 560µF					
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 1 minute				≤ 0.03· C_R · V_R or 3µA, whichever is greater ▪ After 1 minute					
		[I_{LEAK} (µA) ; C_R (µF) ; V_R (V)]									
Dissipation Factor % (20°C ▪ 120Hz)	$\tan\delta$	V_R (V DC)	6.3	10	16	25	35	50	63	100	
		$\tan\delta$ (%)	22	19	16	14	12	10	9	8	
		V_R (V DC)	160	200	250	350	400	450			
		$\tan\delta$ (%)	12	12	12	15	15	17			
		For $C_R > 1000\mu F$, 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	4	3	2	2	2	2	2	2	
		Z-40°C/Z+20°C	8	6	4	3	3	3	3	3	
		V_R (V DC)	160	200	250	350	400	450			
		Z-25°C/Z+20°C	2	2	3	5	15	15			
		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									
	$\Delta C/C_R$	≤ ±20% of initial measured value									
	$\tan\delta$	≤ 200% of initial specified value									
	I_{Leak}	≤ the initial specified value									
Shelf Life 85°C ($V_R = 0$)	Test	1 000 hours									
	$\Delta C/C_R$	≤ ±20% of initial measured value									
	$\tan\delta$	≤ 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

Part number shows bulk version with straight leads

V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
6.3	33	5	11	72	GS330M6R3C110A
	47	5	11	88	GS470M6R3C110A
	68	5	11	110	GS680M6R3C110A
	100	5	11	143	GS101M6R3C110A
	120	5	11	165	GS121M6R3C110A
	150	5	11	198	GS151M6R3C110A
	180	5	11	220	GS181M6R3C110A
	220	5	11	242	GS221M6R3C110A
	220	6.3	11	264	GS221M6R3E110A
	330	6.3	11	330	GS331M6R3E110A
	470	6.3	11	385	GS471M6R3E110A
	470	8	11.5	418	GS471M6R3F115A
	560	8	11.5	473	GS561M6R3F115A
	680	8	11.5	539	GS681M6R3F115A
	820	8	11.5	605	GS821M6R3F115A
	1000	8	11.5	649	GS102M6R3F115A
	1000	10	12.5	715	GS102M6R3G125A
	1200	10	12.5	814	GS122M6R3G125A
	1500	10	16	935	GS152M6R3G160A
	1800	10	16	1035	GS182M6R3G160A
	2200	10	20	1135	GS222M6R3G200A
	2700	10	20	1353	GS272M6R3G200A
	3300	10	20	1430	GS332M6R3G200A
	3300	13	20	1485	GS332M6R3I200A
	3900	13	20	1529	GS392M6R3I200A
	4700	13	20	1672	GS472M6R3I200A
	4700	13	25	1870	GS472M6R3I250A
	5600	13	25	2002	GS562M6R3I250A
	6800	16	25	2310	GS682M6R3J250A
	8200	16	25	2332	GS822M6R3J250A
	10000	16	31.5	2530	GS103M6R3J315A
	12000	16	35.5	2783	GS123M6R3J355A
	15000	16	35.5	2948	GS153M6R3J355A
15000	18	35.5	3168	GS153M6R3K355A	
18000	18	35.5	3300	GS183M6R3K355A	
22000	18	40	3575	GS223M6R3K400A	
33000	22	40	4290	GS333M6R3M400A	
10	22	5	11	66	GS220M010C110A
	33	5	11	88	GS330M010C110A
	47	5	11	105	GS470M010C110A
	68	5	11	132	GS680M010C110A
	100	5	11	198	GS101M010C110A
	120	5	11	209	GS121M010C110A
	150	5	11	231	GS151M010C110A

See "PACKAGING INFORMATION" to taped or formed products.

STANDARD RATINGS

Part number shows bulk version with straight leads

V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
10	180	6.3	11	253	GS181M010E110A
	220	6.3	11	294	GS221M010E110A
	330	6.3	11	363	GS331M010E110A
	470	6.3	11	418	GS471M010E110A
	470	8	11.5	440	GS471M010F115A
	560	8	11.5	506	GS561M010F115A
	680	8	11.5	572	GS681M010F115A
	820	10	12.5	671	GS821M010G125A
	1000	8	16	725	GS102M010F160A
	1000	8	20	803	GS102M010F200A
	1000	10	12.5	726	GS102M010G125A
	1200	10	16	902	GS122M010G160A
	1500	10	16	1001	GS152M010G160A
	1800	10	20	1089	GS182M010G200A
	2200	10	20	1210	GS222M010G200A
	2200	13	20	1330	GS222M010I200A
	2700	13	20	1419	GS272M010I200A
	3300	13	20	1540	GS332M010I200A
	3900	13	20	1760	GS392M010I200A
	4700	13	25	1980	GS472M010I250A
	5600	16	25	2189	GS562M010J250A
	6800	16	25	2475	GS682M010J250A
	8200	16	31.5	2541	GS822M010J315A
	10000	16	35.5	2640	GS103M010J355A
	10000	18	35.5	2915	GS103M010K355A
	12000	18	35.5	3025	GS123M010K355A
15000	18	35.5	3310	GS153M010K355A	
18000	18	40	3410	GS183M010K400A	
22000	22	40	4092	GS223M010M400A	
33000	22	50	4620	GS333M010M500A	
16	10	5	11	44	GS100M016C110A
	22	5	11	83	GS220M016C110A
	33	5	11	84	GS330M016C110A
	47	5	11	132	GS470M016C110A
	68	5	11	149	GS680M016C110A
	100	5	11	176	GS101M016C110A
	100	6.3	11	204	GS101M016E110A
	120	6.3	11	231	GS121M016E110A
	150	6.3	11	253	GS151M016E110A
	180	6.3	11	275	GS181M016E110A
	220	6.3	11	308	GS221M016E110A
	220	8	11.5	352	GS221M016F115A
	330	8	11.5	407	GS331M016F115A
	470	8	11.5	517	GS471M016F115A

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V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
16	560	10	12.5	572	GS561M016G125A
	680	8	16	640	GS681M016F160A
	680	10	12.5	682	GS681M016G125A
	820	10	16	803	GS821M016G160A
	1000	10	16	869	GS102M016G160A
	1200	10	16	979	GS122M016G160A
	1500	10	20	1100	GS152M016G200A
	1800	13	20	1298	GS182M016I200A
	2200	13	20	1485	GS222M016I200A
	2700	13	20	1716	GS272M016I200A
	3300	13	20	1750	GS332M016I200A
	3300	13	25	1870	GS332M016I250A
	3900	16	25	2002	GS392M016J250A
	4700	16	25	2310	GS472M016J250A
	5600	16	31.5	2453	GS562M016J315A
	6800	16	31.5	2805	GS682M016J315A
	8200	16	35.5	2893	GS822M016J355A
	10000	18	35.5	2970	GS103M016K355A
	10000	18	40	3190	GS103M016K400A
	12000	18	35.5	3058	GS123M016K355A
12000	18	40	3212	GS123M016K400A	
15000	22	40	3905	GS153M016M400A	
25	4.7	5	11	34	GS4R7M025C110A
	10	5	11	50	GS100M025C110A
	22	5	11	94	GS220M025C110A
	33	5	11	105	GS330M025C110A
	47	5	11	132	GS470M025C110A
	68	6.3	11	176	GS680M025E110A
	100	6.3	11	209	GS101M025E110A
	120	6.3	11	253	GS121M025E110A
	150	6.3	11	275	GS151M025E110A
	180	6.3	11	280	GS181M025E110A
	180	8	11.5	319	GS181M025F115A
	220	6.3	11	310	GS221M025E110A
	220	8	11.5	363	GS221M025F115A
	330	8	11.5	451	GS331M025F115A
	330	10	12.5	484	GS331M025G125A
	470	8	11.5	561	GS471M025F115A
	470	10	12.5	594	GS471M025G125A
	560	10	16	693	GS561M025G160A
	680	10	16	792	GS681M025G160A
	680	10	20	825	GS681M025G200A
820	10	20	891	GS821M025G200A	
1000	10	20	1050	GS102M025G200A	

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V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
25	1200	13	20	1155	GS122M025I200A
	1500	13	20	1353	GS152M025I200A
	1800	13	20	1496	GS182M025I200A
	2200	13	25	1705	GS222M025I250A
	2700	16	25	1804	GS272M025J250A
	3300	16	25	1870	GS332M025J250A
	3300	16	31.5	2145	GS332M025J315A
	3900	16	31.5	2343	GS392M025J315A
	4700	16	31.5	2640	GS472M025J315A
	5600	18	31.5	2816	GS562M025K315A
	6800	18	35.5	2970	GS682M025K355A
	8200	18	35.5	2981	GS822M025K355A
10000	22	40	3960	GS103M025M400A	
35	4.7	5	11	44	GS4R7M035C110A
	10	5	11	66	GS100M035C110A
	22	5	11	108	GS220M035C110A
	33	5	11	121	GS330M035C110A
	47	5	11	143	GS470M035C110A
	47	6.3	11	154	GS470M035E110A
	68	6.3	11	198	GS680M035E110A
	100	6.3	11	231	GS101M035E110A
	100	8	11.5	253	GS101M035F115A
	120	8	11.5	275	GS121M035F115A
	150	8	11.5	308	GS151M035F115A
	180	8	11.5	352	GS181M035F115A
	220	8	11.5	385	GS221M035F115A
	220	10	12.5	407	GS221M035G125A
	330	10	12.5	528	GS331M035G125A
	330	10	16	539	GS331M035G160A
	470	10	16	693	GS471M035G160A
	470	10	20	748	GS471M035G200A
	560	10	20	847	GS561M035G200A
	680	10	20	891	GS681M035G200A
	820	13	20	1045	GS821M035I200A
	1000	13	20	1265	GS102M035I200A
	1200	13	20	1375	GS122M035I200A
	1500	13	25	1570	GS152M035I250A
	1800	16	25	1749	GS182M035J250A
	2200	16	25	1870	GS222M035J250A
	2200	16	31.5	1980	GS222M035J315A
	2700	16	31.5	2178	GS272M035J315A
	3300	16	31.5	2365	GS332M035J315A
	3300	16	35.5	2552	GS332M035J355A
3900	18	31.5	2640	GS392M035K315A	

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STANDARD RATINGS

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V _R (V)	C _R (μF)	∅ D (mm)	L (mm)	I _r - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
35	4700	18	35.5	2860	GS472M035K355A
	5600	18	40	2915	GS562M035K400A
	6800	22	40	3630	GS682M035M400A
50	1	5	11	17	GS010M050C110A
	2.2	5	11	28	GS2R2M050C110A
	3.3	5	11	39	GS3R3M050C110A
	4.7	5	11	46	GS4R7M050C110A
	10	5	11	72	GS100M050C110A
	22	5	11	110	GS220M050C110A
	33	5	11	132	GS330M050C110A
	33	6.3	11	138	GS330M050E110A
	47	6.3	11	165	GS470M050E110A
	68	8	11.5	220	GS680M050F115A
	100	8	11.5	286	GS101M050F115A
	120	8	11.5	319	GS121M050F115A
	150	10	12.5	363	GS151M050G125A
	180	10	12.5	418	GS181M050G125A
	220	10	12.5	468	GS221M050G125A
	220	10	16	484	GS221M050G160A
	330	10	16	649	GS331M050G160A
	330	10	20	671	GS331M050G200A
	470	10	20	828	GS471M050G200A
	470	13	20	858	GS471M050I200A
	560	13	20	902	GS561M050I200A
	680	13	20	1056	GS681M050I200A
	820	13	25	1287	GS821M050I250A
	1000	13	25	1485	GS102M050I250A
	1000	16	25	1540	GS102M050J250A
	1200	16	25	1617	GS122M050J250A
	1500	16	31.5	1848	GS152M050J315A
	1800	16	31.5	2112	GS182M050J315A
2200	16	35.5	2310	GS222M050J355A	
2700	18	31.5	2420	GS272M050K315A	
3300	18	35.5	2750	GS332M050K355A	
3900	18	40	2871	GS392M050K400A	
4700	22	40	3355	GS472M050M400A	

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V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
63	1	5	11	17	GS010M063C110A
	2.2	5	11	31	GS2R2M063C110A
	3.3	5	11	39	GS3R3M063C110A
	4.7	5	11	50	GS4R7M063C110A
	10	5	11	77	GS100M063C110A
	22	6.3	11	127	GS220M063E110A
	33	6.3	11	149	GS330M063E110A
	33	8	11.5	160	GS330M063F115A
	47	6.3	11	198	GS470M063E110A
	47	8	11.5	209	GS470M063F115A
	68	8	11.5	253	GS680M063F115A
	100	10	12.5	330	GS101M063G125A
	120	10	16	396	GS121M063G160A
	150	10	16	462	GS151M063G160A
	180	10	16	528	GS181M063G160A
	220	10	16	550	GS221M063G160A
	220	10	20	583	GS221M063G200A
	330	10	20	759	GS331M063G200A
	330	13	20	781	GS331M063I200A
	470	13	20	968	GS471M063I200A
	470	13	25	1023	GS471M063I250A
	560	13	25	1056	GS561M063I250A
	560	16	25	1089	GS561M063J250A
	680	16	25	1265	GS681M063J250A
	820	16	25	1430	GS821M063J250A
	1000	16	25	1540	GS102M063J250A
	1000	16	31.5	1705	GS102M063J315A
1200	16	31.5	1837	GS122M063J315A	
1500	16	35.5	2090	GS152M063J355A	
1800	16	35.5	2255	GS182M063J355A	
2200	18	35.5	2475	GS222M063K355A	
2200	18	40	2750	GS222M063K400A	
2700	22	40	2860	GS272M063M400A	
3300	22	40	3080	GS332M063M400A	
100	1	5	11	27	GS010M100C110A
	2.2	5	11	40	GS2R2M100C110A
	3.3	5	11	48	GS3R3M100C110A
	4.7	5	11	58	GS4R7M100C110A
	10	5	11	85	GS100M100C110A
	10	6.3	11	92	GS100M100E110A

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V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
100	22	6.3	11	157	GS220M100E110A
	22	8	11.5	164	GS220M100F115A
	33	8	11.5	206	GS330M100F115A
	33	10	12.5	218	GS330M100G125A
	47	10	12.5	278	GS470M100G125A
	47	10	16	303	GS470M100G160A
	68	10	16	387	GS680M100G160A
	100	10	20	472	GS101M100G200A
	120	10	20	532	GS121M100G200A
	150	13	20	629	GS151M100I200A
	180	13	20	667	GS181M100I200A
	220	13	25	740	GS221M100I250A
	220	16	25	872	GS221M100J250A
	330	13	25	920	GS331M100I250A
	330	16	25	1040	GS331M100J250A
	470	16	25	1210	GS471M100J250A
	470	16	31.5	1330	GS471M100J315A
	560	16	35.5	1465	GS561M100J355A
	680	16	35.5	1634	GS681M100J355A
	820	18	35.5	1815	GS821M100K355A
1000	18	40	1940	GS102M100K400A	
160	1	5	11	17	GS010M160C110A
	2.2	6.3	11	30	GS2R2M160E110A
	3.3	6.3	11	36	GS3R3M160E110A
	4.7	6.3	11	40	GS4R7M160E110A
	4.7	8	11.5	48	GS4R7M160F115A
	10	8	11.5	80	GS100M160F115A
	22	10	12.5	135	GS220M160G125A
	33	10	16	180	GS330M160G160A
	47	10	20	230	GS470M160G200A
	68	13	20	360	GS680M160I200A
	100	13	25	430	GS101M160I250A
	120	16	25	530	GS121M160J250A
	150	16	25	560	GS151M160J250A
	180	16	31.5	650	GS181M160J315A
	220	16	31.5	850	GS221M160J315A
	220	16	35.5	890	GS221M160J355A
	330	18	31.5	890	GS331M160K315A
	330	18	35.5	920	GS331M160K355A
	470	18	35.5	1180	GS471M160K355A
	470	18	40	1250	GS471M160K400A
560	18	45	1320	GS561M160K450A	

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V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
200	1	6.3	11	17	GS010M200E110A
	2.2	6.3	11	30	GS2R2M200E110A
	3.3	6.3	11	36	GS3R3M200E110A
	4.7	8	11.5	51	GS4R7M200F115A
	10	10	12.5	83	GS100M200G125A
	10	10	16	88	GS100M200G160A
	22	10	20	135	GS220M200G200A
	33	13	20	205	GS330M200I200A
	47	13	20	250	GS470M200I200A
	47	13	25	280	GS470M200I250A
	68	13	25	370	GS680M200I250A
	100	16	25	460	GS101M200J250A
	120	16	25	550	GS121M200J250A
	150	16	31.5	580	GS151M200J315A
	180	16	31.5	660	GS181M200J315A
	220	18	31.5	750	GS221M200K315A
	220	18	35.5	800	GS221M200K355A
	330	18	35.5	940	GS331M200K355A
330	18	40	1000	GS331M200K400A	
470	18	40	1330	GS471M200K400A	
250	1	6.3	11	17	GS010M250E110A
	2.2	6.3	11	20	GS2R2M250E110A
	2.2	8	11.5	33	GS2R2M250F115A
	3.3	8	11.5	38	GS3R3M250F115A
	3.3	10	12.5	43	GS3R3M250G125A
	4.7	8	11.5	48	GS4R7M250F115A
	4.7	10	12.5	51	GS4R7M250G125A
	10	10	12.5	90	GS100M250G125A
	22	10	20	135	GS220M250G200A
	22	13	20	165	GS220M250I200A
	33	13	20	210	GS330M250I200A
	33	13	25	220	GS330M250I250A
	47	13	20	240	GS470M250I200A
	47	13	25	260	GS470M250I250A
	68	13	25	340	GS680M250I250A
	68	16	25	390	GS680M250J250A
	100	16	25	410	GS101M250J250A
	100	16	31.5	450	GS101M250J315A
120	16	31.5	560	GS121M250J315A	
150	18	31.5	600	GS151M250K315A	
180	18	31.5	680	GS181M250K315A	

See "PACKAGING INFORMATION" to taped or formed products.

STANDARD RATINGS

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
350	1	6.3	11	22	GS010M350E110A
	2.2	8	11.5	30	GS2R2M350F115A
	2.2	10	12.5	32	GS2R2M350G125A
	3.3	8	11.5	46	GS3R3M350F115A
	3.3	10	12.5	51	GS3R3M350G125A
	4.7	8	11.5	55	GS4R7M350F115A
	4.7	10	12.5	63	GS4R7M350G125A
	4.7	10	16	66	GS4R7M350G160A
	10	10	16	115	GS100M350G160A
	10	10	20	125	GS100M350G200A
	22	13	20	180	GS220M350I200A
	33	13	20	225	GS330M350I200A
	33	13	25	250	GS330M350I250A
	47	16	25	290	GS470M350J250A
	68	16	31.5	400	GS680M350J315A
	100	18	31.5	430	GS101M350K315A
120	18	35.5	550	GS121M350K355A	
150	18	40	570	GS151M350K400A	
400	1	6.3	11	20	GS010M400E110A
	1	8	11.5	22	GS010M400F115A
	2.2	8	11.5	32	GS2R2M400F115A
	2.2	10	12.5	35	GS2R2M400G125A
	3.3	8	11.5	45	GS3R3M400F115A
	3.3	10	12.5	53	GS3R3M400G125A
	4.7	8	11.5	55	GS4R7M400F115A
	4.7	10	12.5	66	GS4R7M400G125A
	4.7	10	16	70	GS4R7M400G160A
	10	10	16	100	GS100M400G160A
	10	10	20	115	GS100M400G200A
	10	13	20	120	GS100M400I200A
	22	13	20	190	GS220M400I200A
	22	13	25	200	GS220M400I250A
	33	13	25	230	GS330M400I250A
	33	16	25	250	GS330M400J250A
	47	16	25	270	GS470M400J250A
	47	16	31.5	290	GS470M400J315A
	68	16	35.5	410	GS680M400J355A
	68	18	25	380	GS680M400K250A
68	18	31.5	420	GS680M400K315A	
100	18	31.5	440	GS101M400K315A	
100	18	35.5	450	GS101M400K355A	
120	18	40	520	GS121M400K400A	

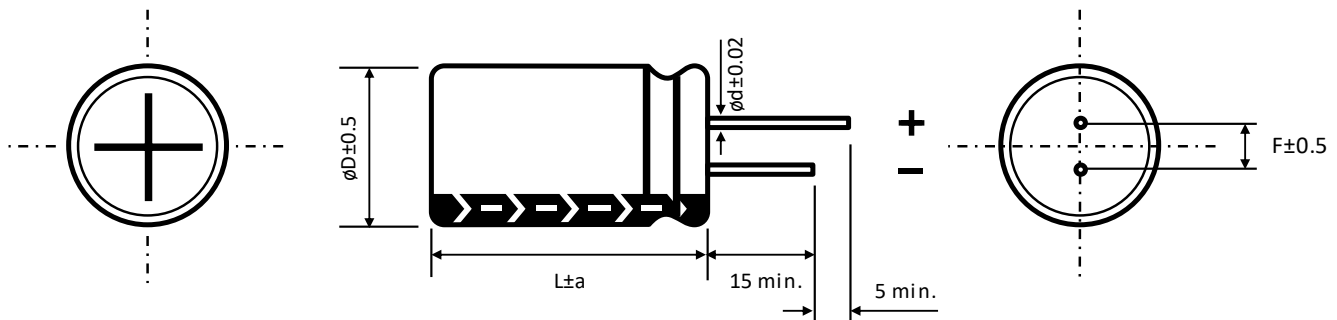
See "PACKAGING INFORMATION" to taped or formed products.

STANDARD RATINGS

Part number shows bulk version with straight leads

V_R (V)	C_R (μ F)	ϕD (mm)	L (mm)	I_R - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
450	1	8	11.5	22	GS010M450F115A
	2.2	8	11.5	32	GS2R2M450F115A
	2.2	10	12.5	35	GS2R2M450G125A
	3.3	8	11.5	35	GS3R3M450F115A
	3.3	10	12.5	37	GS3R3M450G125A
	3.3	10	16	40	GS3R3M450G160A
	4.7	10	12.5	50	GS4R7M450G125A
	4.7	10	16	56	GS4R7M450G160A
	10	10	20	90	GS100M450G200A
	10	13	20	105	GS100M450I200A
	10	13	25	110	GS100M450I250A
	22	13	20	140	GS220M450I200A
	22	13	25	150	GS220M450I250A
	22	16	25	165	GS220M450J250A
	33	16	25	190	GS330M450J250A
	33	16	31.5	210	GS330M450J315A
	47	16	31.5	260	GS470M450J315A
	47	16	35.5	280	GS470M450J355A
	68	18	31.5	370	GS680M450K315A
	68	18	35.5	390	GS680M450K355A
100	18	40	420	GS101M450K400A	
120	18	45	510	GS121M450K450A	

See "PACKAGING INFORMATION" to taped or formed products.

DIMENSIONS ▪ All dimensions in mm


ϕD	5	6.3	8	10	13	16	18	22
F	2	2.5	3.5	5	5	7.5	7.5	10
ϕd	0.5		L < 20	L ≥ 20	0.6		0.8	
			0.5	0.6				
a	$\phi D < 16$		$\phi D = 16$		$\phi D = 18$		$\phi D > 18$	
	1.5		L = 25 to 35.5	L < 25 and L ≥ 40	L = 25 to 31.5	L < 25 and L ≥ 35.5	2	
			1.5	2	1.5	2		

MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

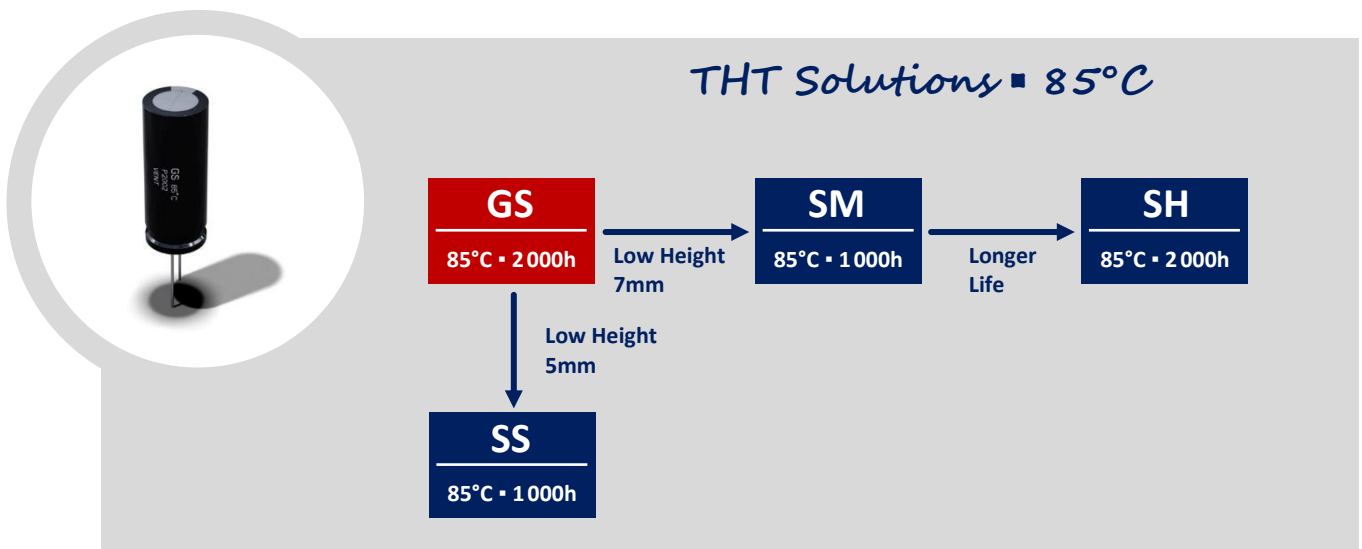
C_R (μF) / Frequency (Hz)	50/60	100/120	400	1k	10k	50k - 100k
$C_R \leq 10$	0.8	1	1.3	1.45	1.65	1.7
$10 < C_R \leq 100$	0.8	1	1.23	1.36	1.48	1.53
$100 < C_R \leq 1000$	0.8	1	1.16	1.25	1.35	1.38
$1000 \leq C_R$	0.8	1	1.11	1.17	1.25	1.28

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	Reliability Tests

GROUP CHART





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.