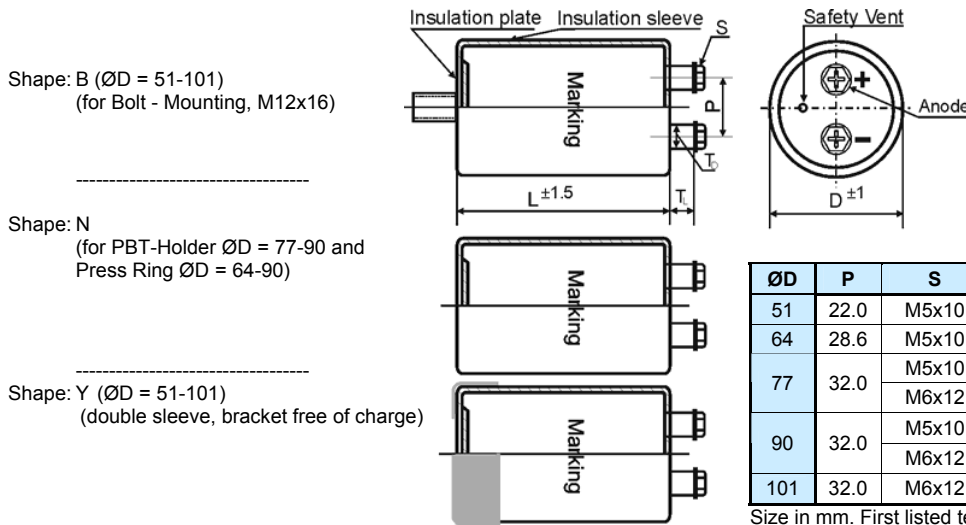


## ► Specifications /

Items	Characteristics
Temperature range	-25°C ~ + 85°C
Rated voltage $V_r$	350 VDC - 500 VDC
Surge voltage	Repetitive max. 30 sec per 6 Minutes
Leakage current max. $I_L$ (20°C, 5 min)	$0.01 \cdot C \cdot V_r$ [ $\mu$ A] or 3 mA, which is smaller.
Capacitance tolerance	+/- 20%
Useful life	6000 h at 85°C
Field failure rate	$0.5 \text{ FIT} = 0.5 \cdot 10^{-9}$ Failures/hour
Failure rate	Less than 0.1% within the useful life



## ► Outline Drawing /



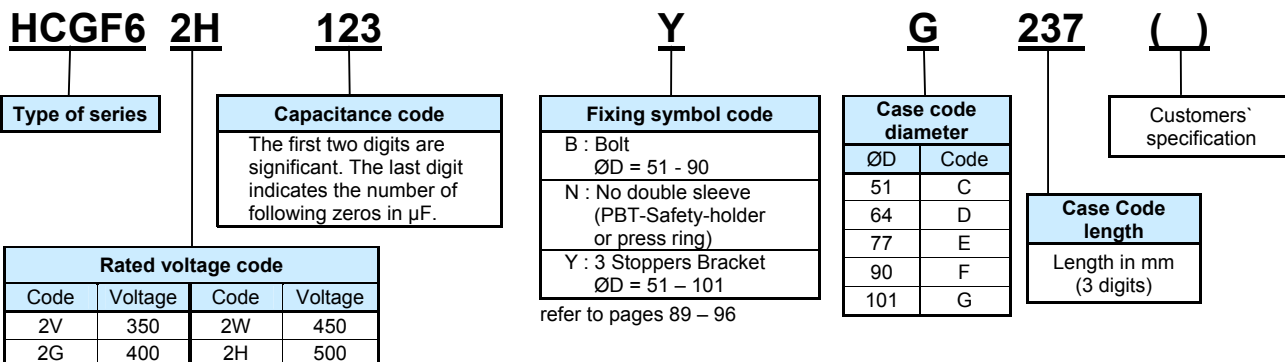
## ► Ripple Current Multiplier /

Frequency [Hz]	50/60	120	300	1k	≥ 10k
multiplier	0.80	1.00	1.18	1.34	1.45

Forced cooling [m/sec]	v < 1.0	v ≥ 1.0
multiplier	1.0	1.1

## ► Product Code / Bestellbezeichnung

Example: 12000µF 500V D=101mm L=237mm with Y-Bracket



Rated Voltage Code (Surge Voltage) $V_r$ [V DC]	Capacitance $C_r$ [ $\mu$ F]	Ripple Current at 40°C/120Hz [A RMS]	Ripple Current at 85°C/120Hz $I_r$ [A RMS]	ESR (typ) at 20°C/100Hz [m $\Omega$ ]	Zmax at 20°C/10kHz [m $\Omega$ ]	ESL (typ) [nH]	DxL [mm]	Product Code
350 2V (400)	2 700	20.8	7.7	48	50	17	51x115	HCGF62V272□C115
	3 300	24.3	9.0	39	40	17	51x130	HCGF62V332□C130
	3 900	25.6	9.5	33	35	18	64x96	HCGF62V392□D096
	4 700	30.5	11.3	27	30	18	64x115	HCGF62V472□D115
	5 600	34.6	12.8	25	28	18	64x130	HCGF62V562□D130
	6 800	38.6	14.3	21	24	20	77x115	HCGF62V682□E115
	8 200	44.1	16.3	17	21	20	77x130	HCGF62V822□E130
	10 000	52.4	19.4	14	17	20	77x155	HCGF62V103□E155
	12 000	57.5	21.3	12	15	20	90x131	HCGF62V123□F131
		59.6	22.1	12	15	20	77x171	HCGF62V123□E171
	15 000	68.8	25.5	10	13	20	90x157	HCGF62V153□F157
	18 000	82.0	30.4	9	15	20	90x196	HCGF62V183□F196
	20 000	86.4	32.0	8	11	20	90x196	HCGF62V203□F196
	22 000	88.8	32.9	8	11	29	101x175	HCGF62V223□G175
		97.8	36.2	8	13	20	90x236	HCGF62V223□F236
98.0		36.3	8	10	20	90x221	HCGF62V223□F221	
27 000	110.4	40.9	7	8	29	101x237	HCGF62V273□G237	
400 2G (450)	2 200	17.8	6.6	58	60	17	51x100	HCGF62G222□C100
		18.9	7.0	58	60	17	51x115	HCGF62G222□C115
	2 700	21.4	7.9	48	50	18	64x96	HCGF62G272□D096
		22.0	8.2	48	50	17	51x130	HCGF62G272□C130
	3 300	23.6	8.7	39	40	18	64x96	HCGF62G332□D096
	3 900	27.5	10.2	33	35	18	64x115	HCGF62G392□D115
	4 700	31.7	11.7	27	30	18	64x130	HCGF62G472□D130
	5 600	35.1	13.0	25	28	20	77x115	HCGF62G562□E115
	6 800	40.4	15.0	21	24	20	77x130	HCGF62G682□E130
	8 200	47.5	17.6	17	20	20	77x155	HCGF62G822□E155
	10 000	52.5	19.4	14	17	20	90x131	HCGF62G103□F131
		55.1	20.4	17	20	20	77x171	HCGF62G103□E171
		57.8	21.4	17	20	20	77x195	HCGF62G103□E195
	12 000	61.8	22.9	12	15	20	90x157	HCGF62G123□F157
	15 000	75.3	27.9	10	13	20	90x196	HCGF62G153□F196
	18 000	80.1	29.7	9	12	29	101x175	HCGF62G183□G175
		86.9	32.2	9	12	20	90x221	HCGF62G183□F221
		89.1	33.0	9	12	20	90x236	HCGF62G183□F236
	20 000	94.2	34.9	9	12	20	90x236	HCGF62G203□F236
22 000	99.6	36.9	8	11	29	101x237	HCGF62G223□G237	
	102.0	37.8	8	11	29	101x250	HCGF62G223□G250	
27 000	119.0	44.1	7	10	29	101x283	HCGF62G273□G283	
450 2W (500)	1 800	17.0	6.3	77	80	17	51x115	HCGF62W182□C115
		19.5	7.2	63	65	18	64x96	HCGF62W222□D096
	2 200	19.9	7.4	63	65	17	51x130	HCGF62W222□C130
		21.3	7.9	52	54	18	64x96	HCGF62W272□D096
	3 300	25.2	9.3	42	44	20	77x96	HCGF62W332□E096
		25.4	9.4	42	44	18	64x115	HCGF62W332□D115
	3 900	28.9	10.7	38	40	18	64x130	HCGF62W392□D130
	4 700	32.0	11.8	34	36	20	77x115	HCGF62W472□E115
	5 600	36.6	13.6	31	33	20	77x130	HCGF62W562□E130
	6 800	43.5	16.1	25	27	20	77x155	HCGF62W682□E155
	8 200	47.5	17.6	21	23	20	90x131	HCGF62W822□F131
		52.5	19.4	21	23	20	77x195	HCGF62W822□E195
	10 000	58.0	21.5	17	19	20	90x171	HCGF62W103□F171
	12 000	65.5	24.3	16	18	29	101x175	HCGF62W123□G175
		67.4	25.0	16	18	20	90x196	HCGF62W123□F196

# HCGF6 Series

## Screw-Terminal

6 000 h / 85°C

Rated Voltage Code (Surge Voltage) $V_r$ [V DC]	Capacitance $C_r$ [ $\mu$ F]	Ripple Current at 40°C/120Hz [A RMS]	Ripple Current at 85°C/120Hz $I_r$ [A RMS]	ESR (typ) at 20°C/100Hz [m $\Omega$ ]	Zmax at 20°C/10kHz [m $\Omega$ ]	ESL (typ) [nH]	DxL [mm]	Product Code
450 2W (500)	15 000	76.4	28.3	15	17	29	101x195	HCGF62W153□G195
		79.2	29.4	15	17	20	90x221	HCGF62W153□F221
		81.4	30.1	15	17	20	90x236	HCGF62W153□F236
	18 000	90.2	33.4	14	16	29	101x237	HCGF62W183□G237
		92.2	34.2	14	16	29	101x250	HCGF62W183□G250
	22 000	107.4	39.8	12	14	29	101x283	HCGF62W223□G283
500 2H (550)	1 200	14.0	5.2	112	120	17	51x115	HCGF62H122□C115
		14.3	5.3	112	120	18	64x96	HCGF62H122□D096
	1 500	15.8	5.9	90	96	18	64x96	HCGF62H152□D096
		16.1	6.0	90	96	17	51x130	HCGF62H152□C130
	1 800	18.6	6.9	75	80	18	64x115	HCGF62H182□D115
	2 200	21.6	8.0	61	65	18	64x130	HCGF62H222□D130
		24.0	8.9	61	65	20	77x145	HCGF62H222□E145
	2 700	24.6	9.1	50	53	20	77x115	HCGF62H272□E115
	3 300	28.4	10.5	45	48	20	77x130	HCGF62H332□E130
	3 900	32.9	12.2	38	41	20	77x155	HCGF62H392□E155
	4 700	36.0	13.3	34	37	20	90x131	HCGF62H472□F131
		37.6	13.9	34	37	20	77x171	HCGF62H472□E171
	5 600	41.9	15.5	28	31	20	90x157	HCGF62H562□F157
		43.1	16.0	28	31	20	77x195	HCGF62H562□E195
	6 800	47.8	17.7	23	25	20	90x171	HCGF62H682□F171
	8 200	54.0	20.0	21	23	29	101x175	HCGF62H822□G175
		55.6	20.6	21	23	20	90x196	HCGF62H822□F196
	10 000	62.1	23.0	17	19	29	101x195	HCGF62H103□G195
		64.8	24.0	17	19	20	90x221	HCGF62H103□F221
		66.4	24.6	17	19	20	90x236	HCGF62H103□F236
	12 000	72.9	27.0	16	18	20	90x236	HCGF62H123□F236
		73.6	27.3	16	18	29	101x237	HCGF62H123□G237
	15 000	82.4	30.5	14	16	29	101x237	HCGF62H153□G237

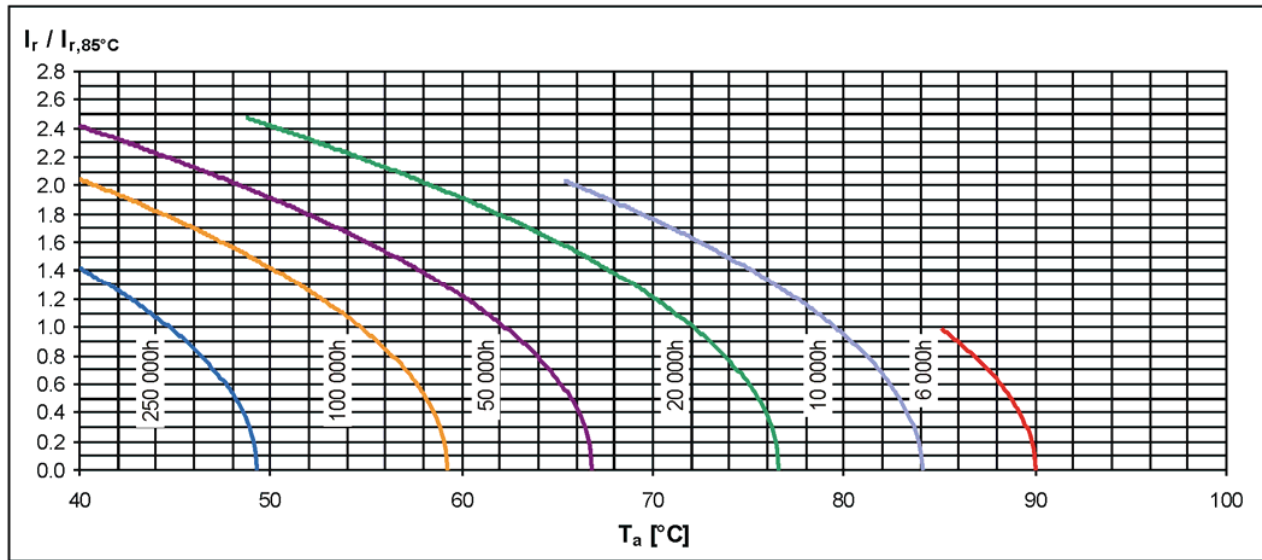
► **Life Time Table /**

HCGF6	Useful life as function of ambient temperature and ripple current												
$I_r$ at 85°C	x 1.0	x 1.2	x 1.4	x 1.6	x 1.8	x 2.0	x 2.1	x 2.2	x 2.3	x 2.4	x 2.5	x 2.6	x 2.7
$T_a = 40^\circ\text{C}$	250	250	250	199	150	109	91	76	63	52	42	34	27
$T_a = 45^\circ\text{C}$	243	202	162	126	95	69	58	48	40	33	27		
$T_a = 50^\circ\text{C}$	154	128	103	80	60	43	37	30	25	21			
$T_a = 55^\circ\text{C}$	97	81	65	50	38	27	23	19	16				
$T_a = 60^\circ\text{C}$	62	51	41	32	24	17	15						
$T_a = 65^\circ\text{C}$	39	32	26	20	15	11							
$T_a = 70^\circ\text{C}$	25	20	16	13	10								
$T_a = 75^\circ\text{C}$	16	13	10										
$T_a = 80^\circ\text{C}$	10	8											
$T_a = 85^\circ\text{C}$	6												

khrs                      Max. value limited to 250 000 hours.

► **Life Time Graph /**

Useful life depending on ambient temperature  $T_a$  and ripple current operating conditions  $I_r$  versus rated ripple current at the upper category temperature  $I_{r,85^\circ\text{C},120\text{Hz}}$



► **Life Time Tests and Requirements /**

Life time test	Reference	Test procedure	Life time criteria
Endurance test	JIS-C-5101-4 JIS-C-5102 IEC 60384-4	$T_a = 85^\circ\text{C}$ ; $V_r$ , $I_r$ applied 4000 hours	$\Delta C/C < 15\%$ $\text{Tan}\delta < 175\%$ (of initial value) $I_L = \text{spec. value}$
Useful life	JIS-C-5104-4 IEC 60384-4	$T_a = 85^\circ\text{C}$ ; $V_r$ , $I_r$ applied 6000 hours	$\Delta C/C < 20\%$ $\text{Tan}\delta < 200\%$ (of initial value) $I_L = \text{spec. value}$