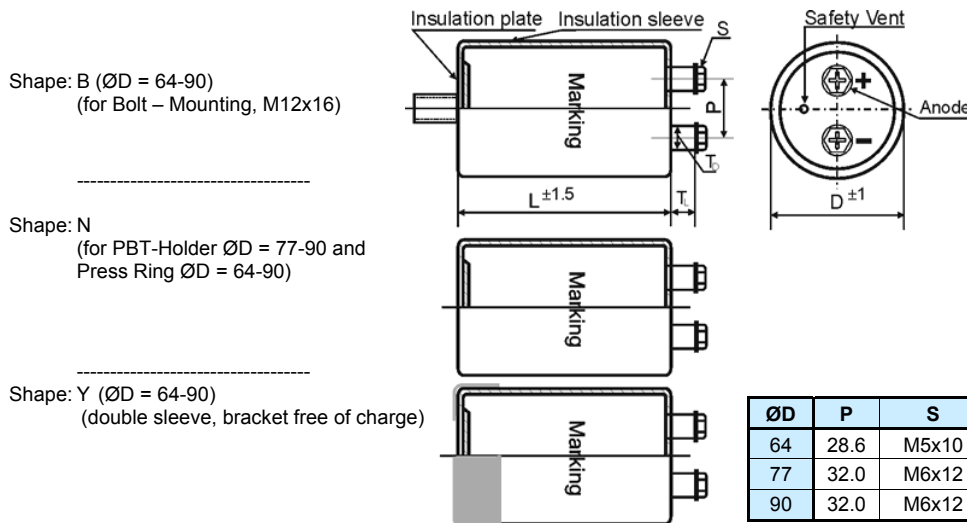


► **Specifications /**

Items	Characteristics
Temperature range	-40°C ~ + 105°C
Rated voltage V_r	350 VDC - 450 VDC
Surge voltage	Repetitive max. 30 sec per 6 Minutes
Leakage current max. I_L (20°C, 5 min)	$0.01 \cdot C \cdot V_r$ [μ A] or 3 mA, which is smaller.
Capacitance tolerance	+/- 20%
Useful life	12000 h at 105°C
Field failure rate	0.5 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 < 0.5	v ≥ 0.5
multiplier	1.0	1.1

► **Product Code /**

Example: 3900µF 450V D=77mm L=161mm with Y-Bracket

GXR **2W** **392** **Y** **E** **161** **()**

Type of series

Capacitance code

The first two digits are significant. The last digit indicates the number of following zeros in µF.

Fixing symbol code

B : Bolt
ØD = 64 - 90

N : No double sleeve (PBT-Safety-holder or press ring)

Y : 3 Stoppers Bracket
ØD = 64 – 90

refer to pages 89 – 96

Case code diameter

ØD	Code
64	D
77	E
90	F

Case Code length

Length in mm (3 digits)

Customers' specification

Rated voltage code			
Code	Voltage	Code	Voltage
2V	350	2W	450
2G	400		

Rated Voltage Code (Surge Voltage) V_r [V DC]	Capacitance C_r [μ F]	Ripple Current at 40°C/120Hz [A RMS]	Ripple Current at 105°C/120Hz I_r [A RMS]	ESR (typ) at 20°C/100Hz [m Ω]	Zmax at 20°C/10kHz [m Ω]	ESL (typ) [nH]	DxL [mm]	Product Code
350 2V (400)	2 700	25.5	10.2	25	25	18	64x100	GXR2V272□D100
	3 300	29.5	11.8	22	22	18	64x115	GXR2V332□D115
	3 900	34.0	13.6	19	21	18	64x131	GXR2V392□D131
		40.0	16.0	16	17	18	64x155	GXR2V472□D155
		43.8	17.5	15	14	19	77x121	GXR2V472□E121
	4 700	45.2	18.1	16	15	19	90x106	GXR2V472□F106
		50.0	20.0	15	14	19	77x137	GXR2V562□E137
		52.2	20.9	15	14	19	90x121	GXR2V562□F121
	6 800	59.0	23.6	13	10	19	77x161	GXR2V682□E161
		60.5	24.2	14	11	19	90x137	GXR2V682□F137
8 200	71.2	28.5	8	8	19	90x161	GXR2V822□F161	
10 000	78.8	31.5	8	8	19	90x161	GXR2V103□F161	
11 000	82.5	33.0	9	9	19	90x161	GXR2V113□F161	
400 2G (450)	2 700	26.8	10.7	24	25	18	64x115	GXR2G272□D115
	3 300	31.2	12.5	21	22	18	64x131	GXR2G332□D131
	3 900	36.5	14.6	18	19	18	64x155	GXR2G392□D155
		39.8	15.9	17	16	19	77x121	GXR2G392□E121
		41.0	16.4	18	17	19	90x106	GXR2G392□F106
	4 700	45.8	18.3	16	14	19	77x137	GXR2G472□E137
		48.0	19.2	17	15	19	90x121	GXR2G472□F121
	5 600	53.5	21.4	15	12	19	77x161	GXR2G562□E161
		55.0	22.0	16	14	19	90x137	GXR2G562□F137
	6 300	59.5	23.8	17	18	19	77x155	GXR2G632□E161
	6 800	65.0	26.0	13	10	19	90x161	GXR2G682□F161
8 200	71.2	28.5	8	7	19	90x161	GXR2G822□F161	
10 000	81.2	32.5	7	7	19	90x178	GXR2G103□F178	
11 000	85.5	34.2	9	9	19	90x178	GXR2G113□F178	
450 2W (500)	1 800	20.8	8.3	51	56	18	64x100	GXR2W182□D100
	2 200	25.5	10.2	42	45	18	64x131	GXR2W222□D131
		28.4	11.4	42	45	19	77x106	GXR2W222□E106
	2 700	30.2	12.1	38	40	18	64x155	GXR2W272□D155
		33.0	13.2	26	25	19	77x121	GXR2W272□E121
	3 300	37.8	15.1	22	25	19	90x106	GXR2W332□F106
		38.5	15.4	21	23	19	77x137	GXR2W332□E137
	3 900	36.2	14.5	26	28	19	77x137	GXR2W392□E137
		43.8	17.5	20	21	19	90x121	GXR2W392□F121
		44.5	17.8	19	20	19	77x161	GXR2W392□E161
	4 700	49.0	19.6	16	17	19	77x161	GXR2W472□E161
		50.2	20.1	18	17	19	90x137	GXR2W472□F137
	5 600	59.0	23.6	17	17	19	90x161	GXR2W562□F161
6 800	64.5	25.8	15	15	19	90x161	GXR2W682□F161	
	67.0	26.8	14	14	19	90x178	GXR2W682□F178	
8 200	73.2	29.3	13	13	19	90x178	GXR2W822□F178	

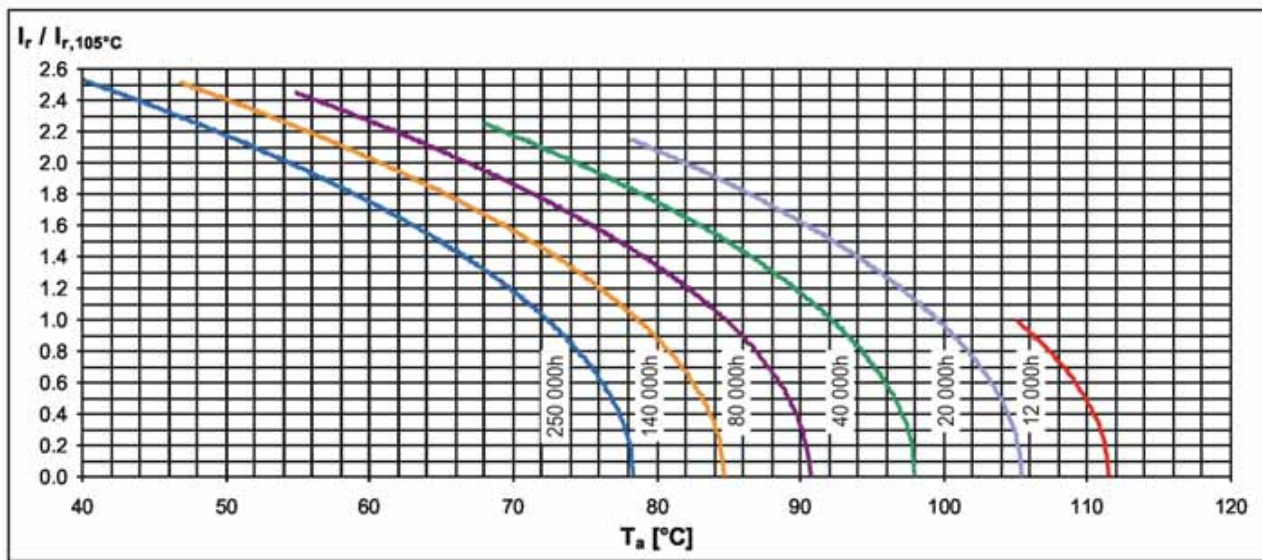
► **Life Time Table /**

GXR I_r at 105°C	Useful life as function of ambient temperature and ripple current										
	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
$T_a = 40^\circ\text{C}$	250	250	250	250	250	250	250	250	250	250	250
$T_a = 45^\circ\text{C}$	250	250	250	250	250	250	250	250	250	224	171
$T_a = 50^\circ\text{C}$	250	250	250	250	250	250	250	235	183	142	
$T_a = 55^\circ\text{C}$	250	250	250	250	250	236	188	149	116	90	
$T_a = 60^\circ\text{C}$	250	250	250	250	226	149	119	94	73		
$T_a = 65^\circ\text{C}$	250	250	250	208	143	94	75	59			
$T_a = 70^\circ\text{C}$	250	244	183	132	91	60	48	38			
$T_a = 75^\circ\text{C}$	196	154	116	83	57	38	30				
$T_a = 80^\circ\text{C}$	124	97	73	53	36	24	19				
$T_a = 85^\circ\text{C}$	79	62	46	33	23	15					
$T_a = 90^\circ\text{C}$	49	39	29	21	14						
$T_a = 95^\circ\text{C}$	30	25	19	13							
$T_a = 100^\circ\text{C}$	19	15									
$T_a = 105^\circ\text{C}$	12										

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 $I_{r,105^\circ\text{C},120\text{Hz}}$



► **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	$T_a = 105^\circ\text{C}$; V_r, I_r applied 8000 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	$T_a = 105^\circ\text{C}$; V_r, I_r applied 12000 hours	$\Delta C/C < 20\%$ $\text{Tan}\delta < 200\%$ (of initial value) $I_L = \text{spec. value}$