

► Specifications / Spezifikationen

Items	Characteristics
Temperature range	-25°C ~ + 85°C
Capacitance tolerance	+/- 20%
Surge voltage	Repetitive max. 30 sec per 6 Minutes
Leakage current max. I _L (20°C, 5 min)	0.01 • C _r • V _r [µA] or 5 mA, which is smaller.
Useful life	6000 h at 85°C
Field failure rate	0.5 FIT = 0.5 • 10 ⁻⁹ Failures/hour
RoHS conform	Directive 2002/95/ECff Annex
Specification / Vibration	JIS C 5101-4 / 0.75mm, 10...55Hz, 10g, 3x2h

^{*)} 650 VDC ~ 700 VDC under development



► Outline Drawings / Bauformen

Shape: B (ØD = 64-90)
(for Bolt – Mounting, M12x16, stud bolt is not isolated)

Form: B (ØD = 64-90)
(für Bolzenbefestigung, M12x16, Bolzen nicht isoliert)

Shape: N (for PBT-Holder ØD = 77-90 and Press Ring ØD = 64-90)

Form: N (für PBT-Halter ØD = 77-90 und Einpressring ØD = 64-90)

Shape: Y (ØD = 64-90)
(double sleeve, bracket free of charge)

Form: Y (ØD = 64-90)
(mit doppelter Isolierung, Y-Schelle wird kostenlos mitgeliefert)

ØD	P	S	T _L	T _D	Cap material
64	28.6	M5x10	5.5	10	PH
77	32.0	M5x10	5.0	10	PH
		M6x12	5.0	16	PPS
90	32.0	M5x10	5.0	10	PH
		M6x12	4.0	16	PPS

Size in mm. First listed terminal is standard.

► Ripple Current Multiplier / Wechselstrommultiplikator

Frequency [Hz]	50/60	120	300	1k	≥ 10k
multiplier	0.70	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: 3300µF 600V D=77mm L=155mm with Y-Bracket

PH

Type of series

600V

Rated voltage code

Code	Voltage
600V	600
650V	650
700V	700

332

Capacitance code

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

Y

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 113 – 119

E

Case code diameter

ØD	Code
64	D
77	E
90	F

155

Case Code length

Length in mm (3 digits)

()

Customers' specification

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 85°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
600 600V (650)	1 200	16.2	7.7	121	125	18	64x96	PH600V122□D096
	1 300	19.3	9.2	112	115	18	64x103	PH600V132□D103
	1 500	19.5	9.3	112	115	18	64x115	PH600V152□D115
	1 800	21.2	10.1	97	100	20	77x96	PH600V182□E096
	2 200	25.2	12.0	81	83	20	77x115	PH600V222□E115
	2 700	29.2	13.9	66	67	20	77x130	PH600V272□E130
	3 000	32.8	15.6	49	50	20	77x155	PH600V302□E155
	3 300	34.4	16.4	44	45	20	77x155	PH600V332□E155
		34.4	16.4	44	45	20	90x131	PH600V332□F131
		35.9	17.1	44	45	20	77x171	PH600V332□E171
	3 900	41.4	19.7	37	40	20	77x195	PH600V392□E195
4 700	44.1	21.0	31	32	20	90x157	PH600V472□F157	

Life Time Table / Brauchbarkeitsdauer - Tabelle

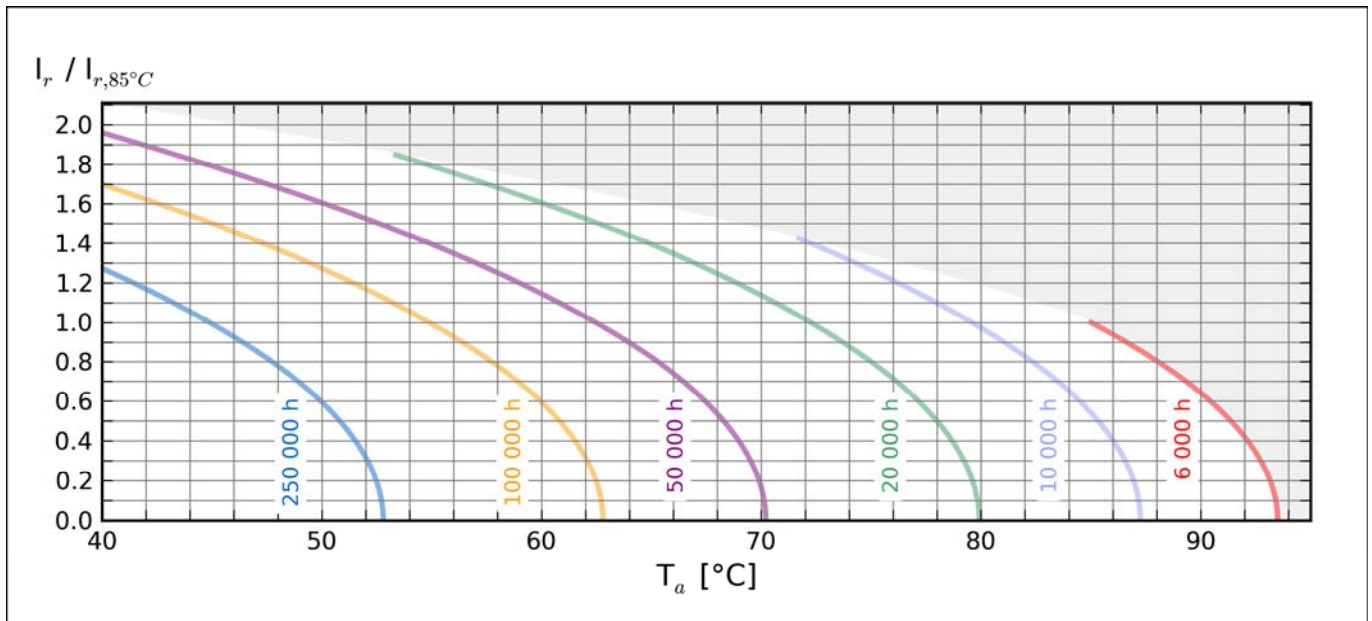
PH	Useful life as function of ambient temperature and ripple current												
	I_r at 85°C	x 1.0	x 1.1	x 1.2	x 1.3	x 1.4	x 1.5	x 1.6	x 1.7	x 1.8	x 1.9	x 2.0	x 2.1
Ta = 40°C	250	250	250	237	195	158	126	99	77	59	44	33	
Ta = 45°C	247	212	180	150	123	100	80	63	48	37	28		
Ta = 50°C	156	134	113	95	78	63	50	39	30	23			
Ta = 55°C	99	85	72	60	49	40	32	25	19				
Ta = 60°C	62	53	45	38	31	25	20	15					
Ta = 65°C	39	34	28	24	19	16							
Ta = 70°C	25	21	18	15									
Ta = 75°C	15	13	11										
Ta = 80°C	10	8											
Ta = 85°C	6												

Max. value limited to 250 000 hours.

Life Time Graph / Brauchbarkeitsdauer – Diagramm

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

Brauchbarkeitsdauer in Abhängigkeit von Umgebungstemperatur T_a und Wechselstrombelastung I_r im Verhältnis zur max. Wechselstrombelastung bei oberer Kategoriertemperatur $I_{r,85°C,120Hz}$



Life Time Tests and Requirements / Anforderungen Brauchbarkeitsdauer

Life time test	Test procedure	Life time criteria
Endurance test	$T_a = 85°C$; V_r, I_r applied 4000 hours	$\Delta C/C \leq 15\%$ (of initial value) $\tan\delta \leq 175\%$ (of specified value) $I_L \leq$ specified value
Useful life	$T_a = 85°C$; V_r, I_r applied 6000 hours	$\Delta C/C \leq 20\%$ (of initial value) $\tan\delta < 200\%$ (of specified value) $I_L \leq$ specified value

Reference Specification: JIS C 5101-4, JIS C 5102, IEC 60384-4