

PS2 · Board-Mount · 6000 h/85 °C

High Ripple · Stronger Terminals and Cap · Bottom cooling Design

These capacitors combine both the advantage of screw type capacitors (higher CV values and higher ripple current capabilities) as well as the compact size and the termination of snap mount parts.

Diese Kondensatoren vereinen die Vorteile der Schraubanschlusstypen (höhere CV-Werte und höhere Wechselstrombelastungen) mit denen für die Leiterplattenmontage (kompakte Bauformen und Snap-Mount-Anschlüsse).

> Specifications · Spezifikationen

Items	Characteristics
Temperature range	-40°C ~ + 85°C (200VDC - 500VDC) -25°C ~ + 85°C (550VDC - 600VDC)
Capacitance tolerance (at 20°C)	Standard +/- 20%, -10%/+30% on request
Surge voltage	Repetitive max. 30 sec per 6 Minutes
Leakage current max. I _l (20°C, 5 min)	0.01 • C • V _r [μA] or 3 mA, which is smaller.
Useful life	6 000 hours at 85°C
Field failure rate	0.5 FIT = 0.5 • 10 ⁻⁹ Failures/hour
RoHS conform	Directive 2011/65/EU & (EU)2015/863
Specification / Vibration	JIS C 5101-4 / 0.75mm, 10...55Hz, 10g, 3x2h



> Outline Drawings · Bauformen

Refer to page 8 for available terminal shapes and dimensions. · Auf Seite 8 finden Sie die verfügbaren Bauformen und Maße.

> Product Code · Bestellbezeichnung

Example: Series PS2 · 400 V · 1200 μF ±20 % · 46x70 mm · 4-pin

PS2		2G		122		M		S		H		()																							
Type of series		Capacitance code				Terminal symbol code		Length code																											
		The first two digits are significant. The last digit indicates the number of following zeros in μF.				S: 4-pin terminal T: T-type terminal		<table border="1"> <thead> <tr> <th>Code</th> <th>L (mm)</th> <th>Code</th> <th>L (mm)</th> </tr> </thead> <tbody> <tr><td>Ly</td><td>y</td><td>S10</td><td>64</td></tr> <tr><td>S6</td><td>45</td><td>S11</td><td>70</td></tr> <tr><td>S7</td><td>51</td><td>S13</td><td>80</td></tr> <tr><td>S8</td><td>55</td><td>S15</td><td>90</td></tr> <tr><td>S9</td><td>61</td><td>S17</td><td>100</td></tr> </tbody> </table>				Code	L (mm)	Code	L (mm)	Ly	y	S10	64	S6	45	S11	70	S7	51	S13	80	S8	55	S15	90	S9	61	S17	100
Code	L (mm)	Code	L (mm)																																
Ly	y	S10	64																																
S6	45	S11	70																																
S7	51	S13	80																																
S8	55	S15	90																																
S9	61	S17	100																																
Rated voltage code				Capacitance tolerance		Case code diameter																													
Code	Voltage	Code	Voltage	M : ± 20%		Code	ØD																												
2D	200	2W	450	Q : -10% ~ +30%		B	41																												
2E	250	2H	500			H	46																												
2G	400	2L	550			C	51																												
420V	420	600V	600																																

Rated VoltageCode (Surge Voltage) V_r [V DC]	Capacitance C_r [μ F]	Ripple Current at 85°C/120Hz I_r [A RMS]	Ripple Current at 40°C/120Hz [A RMS]	ESR (typ) at 20°C/100Hz [m Ω]	Dissipation Factor at 20°C/100Hz Tan δ	DxL [mm]	Product Code
200 VDC Code: 2D Surge Voltage 250 VDC	1 800	6.36	12.72	63	0.15	41x45	PS22D182MSB
	2 200	6.98	13.96	52	0.15	41x55	PS22D222MSB
	2 700	7.24	14.48	42	0.15	46x51	PS22D272MSH
		8.21	16.42	34	0.15	41x64	PS22D332MSB
		8.09	16.18	34	0.15	46x61	PS22D332MSH
	3 300	7.78	15.56	35	0.15	51x51	PS22D332MTC
		8.78	17.56	29	0.15	46x70	PS22D392MSH
		8.54	17.08	30	0.15	51x61	PS22D392MTC
	4 700	9.34	18.68	25	0.15	51x70	PS22D472MTC
5 200	9.82	19.65	23	0.15	51x70	PS22D522MTCL70	
250 VDC Code: 2E Surge Voltage 300 VDC	1 200	5.19	10.38	95	0.15	41x45	PS22E122MSB
	1 800	5.91	11.82	63	0.15	46x51	PS22E182MSH
		6.32	12.64	63	0.15	41x55	PS22E182MSB
	2 200	7.05	14.10	52	0.15	41x64	PS22E222MSB
		6.60	13.20	52	0.15	46x61	PS22E222MSH
	2 700	7.04	14.08	43	0.15	51x51	PS22E272MTC
	3 300	8.07	16.14	34	0.15	46x70	PS22E332MSH
		7.85	15.70	35	0.15	51x61	PS22E332MTC
		8.50	17.00	30	0.15	51x70	PS22E392MTC
400 VDC Code: 2G Surge Voltage 450 VDC	560	4.64	9.28	132	0.15	41x45	PS22G561MSB
	680	5.08	10.16	109	0.15	41x55	PS22G681MSB
	820	5.64	11.28	90	0.15	46x51	PS22G821MSH
	1 000	6.23	12.46	80	0.15	41x64	PS22G102MSB
		6.23	12.46	80	0.15	46x51	PS22G102MSHL51
		6.47	12.94	80	0.15	51x51	PS22G102MTC
	1 100	6.69	13.38	71	0.15	41x68	PS22G112MSBL68
	1 200	6.89	13.78	66	0.15	46x70	PS22G122MSH
		7.16	14.32	66	0.15	51x61	PS22G122MTC
	1 400	7.95	15.91	57	0.15	41x78	PS22G142MSBL78
	1 500	7.98	15.96	53	0.15	51x70	PS22G152MTC
	1 700	6.82	13.64	48	0.15	46x70	PS22G172MSHL70
	1 800	9.56	19.12	46	0.20	41x100	PS22G182MSBS17CR
		8.73	17.47	46	0.15	51x70	PS22G182MTCL70
	1 900	8.35	16.70	45	0.20	41x100	PS22G192MTBS17
2 200	10.71	21.42	38	0.15	46x100	PS22G222MSHS17	
2 500	9.31	18.62	41	0.20	46x102	PS22G252MSHL102	
420 VDC Code: 420V Surge Voltage 470 VDC	470	4.08	8.16	158	0.15	41x45	PS2420V471MSB
	680	4.88	9.76	109	0.15	41x55	PS2420V681MSB
		4.93	9.86	109	0.15	46x51	PS2420V681MSH
	820	5.41	10.82	90	0.15	41x64	PS2420V821MSB
		5.62	11.24	90	0.15	51x51	PS2420V821MTC
	1 000	6.04	12.08	80	0.15	46x61	PS2420V102MSH
		6.20	12.41	80	0.15	51x51	PS2420V102MTCL51
	1 200	6.61	13.22	66	0.15	46x70	PS2420V122MSH
6.88		13.76	66	0.15	51x61	PS2420V122MTC	

Additional designs on request · Weitere Designs auf Anfrage

Rated VoltageCode (Surge Voltage) V_r [V DC]	Capacitance C_r [μ F]	Ripple Current at 85°C/120Hz I_r [A RMS]	Ripple Current at 40°C/120Hz [A RMS]	ESR (typ) at 20°C/100Hz [m Ω]	Dissipation Factor at 20°C/100Hz Tan δ	DxL [mm]	Product Code
420 VDC Code: 420V Surge Voltage 470 VDC	1 500	7.66	15.32	53	0.15	51x70	PS2420V152MTC
	1 800	7.27	14.54	45	0.15	46x80	PS2420V182MSHS13
	2 200	8.80	17.6	40	0.15	46x105	PS2420V222MTHL105
450 VDC Code: 2W Surge Voltage 500 VDC	390	3.72	7.44	190	0.15	41x45	PS22W391MSB
	560	4.43	8.86	132	0.15	41x55	PS22W561MSB
		4.60	9.20	132	0.15	41x64	PS22W561MSBL64
	680	4.93	9.86	109	0.15	46x51	PS22W681MSH
		5.41	10.82	90	0.15	41x64	PS22W821MSB
	820	5.48	10.96	90	0.15	46x61	PS22W821MSH
		5.62	11.24	90	0.15	51x51	PS22W821MTC
		6.03	12.06	80	0.15	46x70	PS22W102MSH
	1 000	6.27	12.54	80	0.15	51x61	PS22W102MTC
		6.58	13.16	72	0.15	51x61	PS22W112MTCL61
	1 100	8.52	17.05	72	0.15	46x70	PS22W112MSHL70
		8.83	17.66	40	0.15	46x105	PS22W222MSHL105
500 VDC Code: 2H Surge Voltage 550 VDC	330	3.26	6.51	290	0.20	41x45	PS22H331MSB
	470	3.86	7.72	210	0.20	41x55	PS22H471MSB
		3.89	7.79	210	0.20	46x51	PS22H471MSH
	560	4.26	8.51	180	0.20	41x64	PS22H561MSB
	680	4.74	9.48	150	0.20	46x61	PS22H681MSH
		4.87	9.75	150	0.20	51x51	PS22H681MTC
	820	5.19	10.38	120	0.20	46x70	PS22H821MSH
		5.40	10.80	120	0.20	51x61	PS22H821MTC
	1 000	5.94	11.88	100	0.20	51x70	PS22H102MTC
550 VDC Code: 2L Surge Voltage 600 VDC	220	2.56	4.35	510	0.20	41x45	PS22L221MSB
	270	2.83	4.81	420	0.20	41x55	PS22L271MSB
	330	3.16	5.37	340	0.20	46x51	PS22L331MSH
		3.43	5.83	290	0.20	41x64	PS22L391MSB
	390	3.46	5.88	290	0.20	46x61	PS22L391MSH
		3.56	6.05	290	0.20	51x51	PS22L391MTC
	560	4.15	7.06	200	0.20	46x70	PS22L561MSH
		4.31	7.33	200	0.20	51x61	PS22L561MTC
680	4.74	8.06	170	0.20	51x70	PS22L681MTC	
600 VDC Code: 600V Surge Voltage 650 VDC	180	2.32	3.94	620	0.20	41x45	PS2600V181MSB
	220	2.55	4.34	510	0.20	41x55	PS2600V221MSB
	270	2.85	4.85	420	0.20	46x51	PS2600V271MSH
	330	3.16	5.37	340	0.20	41x64	PS2600V331MSB
		3.46	5.88	290	0.20	46x61	PS2600V391MSH
	390	3.56	6.05	290	0.20	51x51	PS2600V391MTC
		3.80	6.46	240	0.20	46x70	PS2600V471MSH
	470	3.95	6.72	240	0.20	51x61	PS2600V471MTC
		4.30	7.31	200	0.20	51x70	PS2600V561MTC
680	4.97	9.94	165	0.20	51x80	PS2600V681MTC13	

Additional designs on request · Weitere Designs auf Anfrage

> Ripple Current Multiplier · Wechselstrommultiplikator

Frequency [Hz]		50/60	120	300	1k	≥ 10k	Forced cooling [m/sec]			
Multiplier		0.70	1.00	1.18	1.34	1.45	v < 0.5	v ≥ 0.5	v ≥ 1.0	v ≥ 2.0
200V – 500V		0.70	1.00	1.18	1.34	1.45	1.00	1.10	1.20	1.25
550V – 600V		0.70	1.00	1.20	1.50	1.70				

Temperature [°C]		40	60	70	85
Multiplier	200V – 500V	2.0	1.6	1.4	1.0
	550V – 600V	1.8	1.5	1.3	1.0

> Life Time Table · Brauchbarkeitsdauer – Tabelle

PS2 200V-500V	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
T _a = 40°C	250	250	250	249	202	161	127	98	74	56	41
T _a = 45°C	250	229	191	157	128	102	80	62	47	35	
T _a = 50°C	170	144	121	99	80	64	50	39	29		
T _a = 55°C	107	91	76	63	51	40	32	24			
T _a = 60°C	68	57	48	39	32	25	20				
T _a = 65°C	43	36	30	25	20	16					
T _a = 70°C	27	23	19	15	12						
T _a = 75°C	17	14	12	10							
T _a = 80°C	10	9	7								
T _a = 85°C	6										

Max. value limited to 250 000 hours.

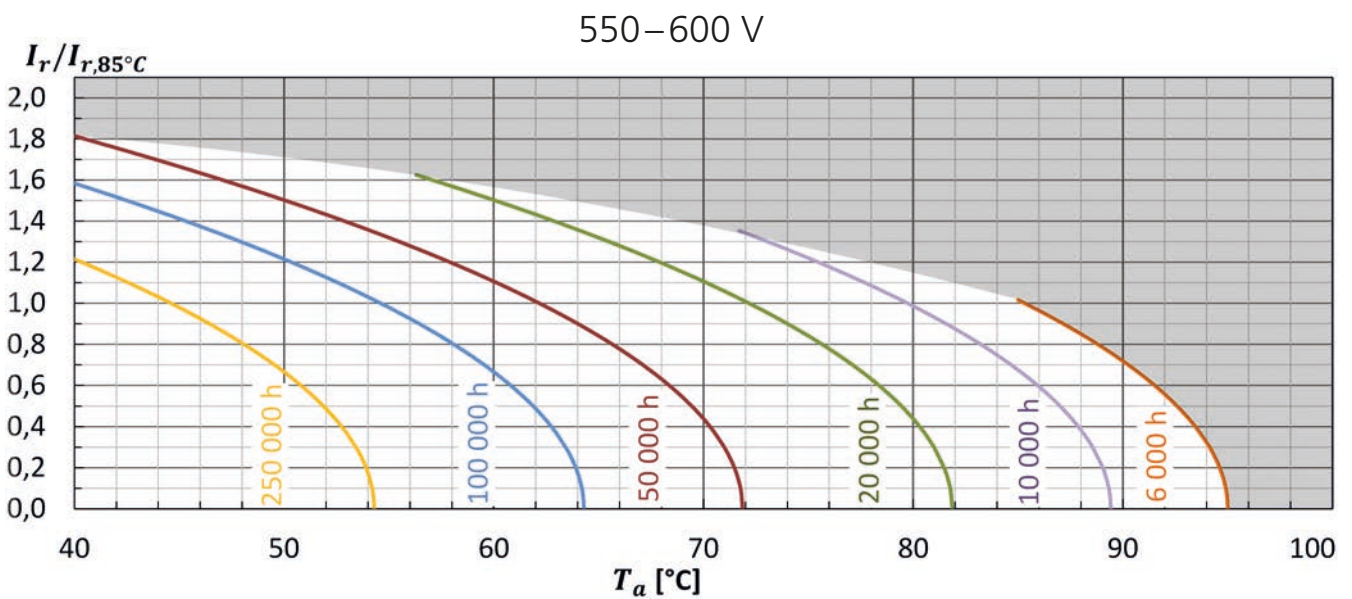
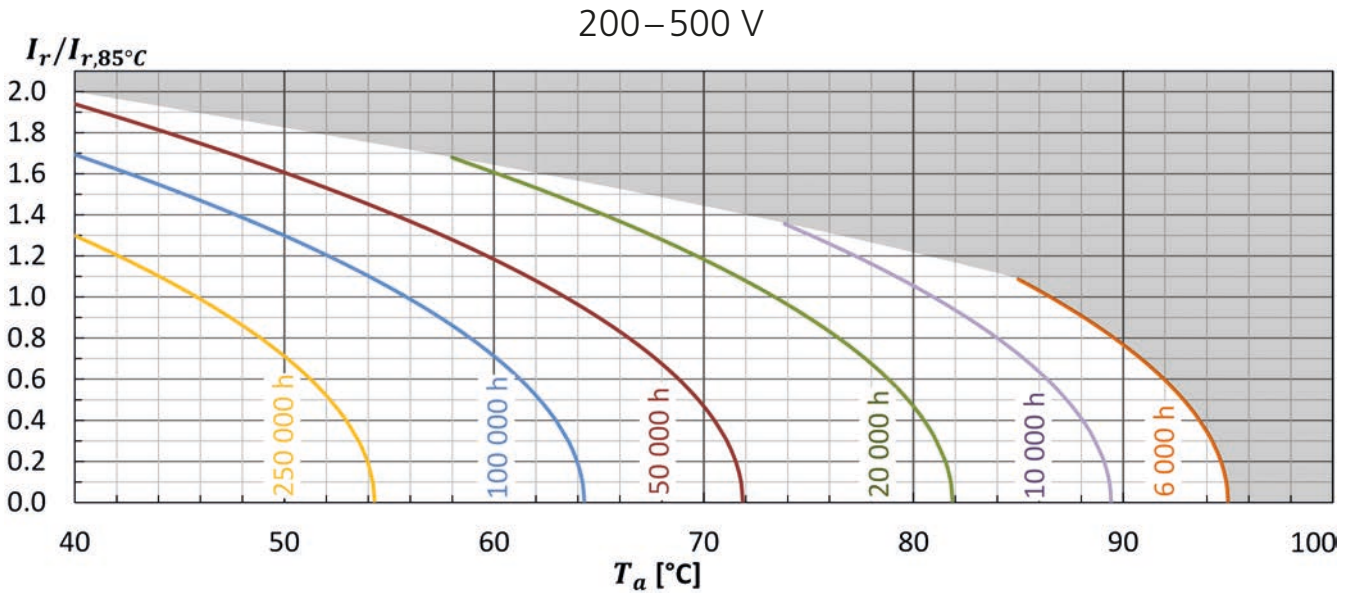
PS2 550V-600V	Useful life as function of ambient temperature and ripple current									
I _r at 85°C	x 1.0	x 1.1	x 1.2	x 1.3	x 1.4	x 1.5	x 1.6	x 1.7	x 1.8	
T _a = 40°C	250	250	250	206	162	125	95	71	52	
T _a = 45°C	241	200	163	130	103	79	60	45		
T _a = 50°C	152	126	103	82	65	50	38	28		
T _a = 55°C	96	80	65	52	41	31	24			
T _a = 60°C	61	50	41	33	26	20				
T _a = 65°C	38	32	26	20	16					
T _a = 70°C	24	20	16	13						
T _a = 75°C	15	12	10							
T _a = 80°C	9	8								
T _a = 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 $I_{r, 85^\circ\text{C}, 120\text{Hz}}$

Brauchbarkeitsdauer in Abhängigkeit von Umgebungstemperatur T_a und Wechselstrombelastung I_r im Verhältnis zur max. Wechselstrombelastung bei oberer Kategorie-temperatur $I_{r, 85^\circ\text{C}, 120\text{Hz}}$



> Life Time Tests and Requirements · Anforderungen Brauchbarkeitsdauer

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

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