

Diese Kondensatoren vereinen die Vorteile der Schraubenschlusstypen (hohe CV-Werte und **sehr hohe Wechselstrombelastungen**) mit denen für die Leiterplattenmontage (kompakte Bauformen und Snap-Mount-Anschlüsse).

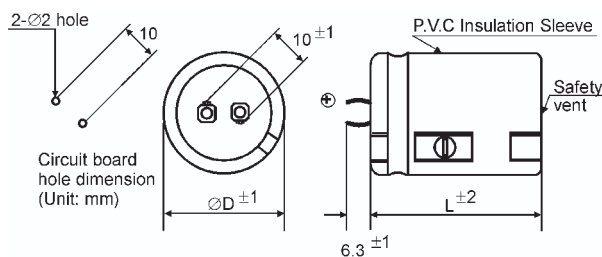
These capacitors combine both the advantage of screw type capacitors (high CV values and **high ripple currents**) as well as the compact size and the termination of snap mount parts.

► Spezifikationen / Specifications

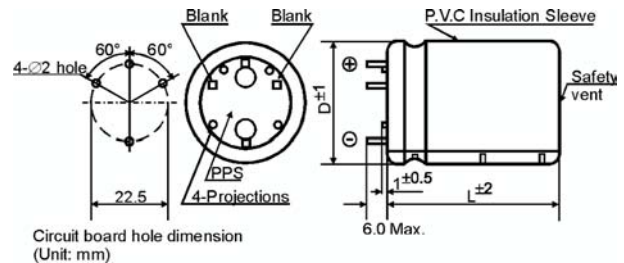
Items	Characteristics
Temperaturbereich / Temperature range	-40°C ~ + 85°C
Nennspannung / Rated voltage	200V - 450V
Spitzenspannung / Surge voltage	Max. 30 sec alle/per 6 Minuten/Minutes
Leckstrom bei 20°C Leakage current at 20°C	0,01CV[μA] oder 3mA. Es gilt der kleinere Wert. 0.01CV[μA] or 3mA, which is smaller.
Kapazitätstoleranz / Capacitance tolerance	+/- 20%
Brauchbarkeitsdauer / Useful life	6000h bei / at 105°C
Ausfallrate / Field failure rate	0,5 FIT = 0,5 x 10 ⁻⁹ Ausfälle/Std. / Failures/hour
Ausfallsatz Failure rate	Weniger als 0,1% innerhalb der Brauchbarkeitsdauer Less than 0.1% within the useful life



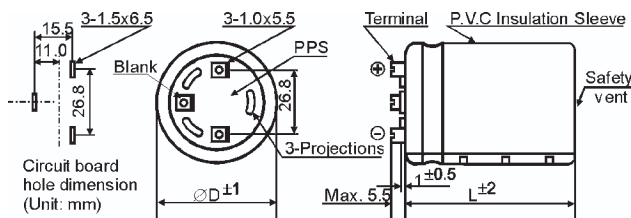
► Bauformen / Outline Drawing



Form / Shape: R (D = 35mm)



Form / Shape: S (D = 41, 46mm)



Form / Shape: T (D = 51mm)

► Wechselstrommultiplikator / Ripple current multiplier

Frequency [Hz]	50/60	120	300	1k	≥ 10k
multiplier	0,8	1,0	1,1	1,3	1,4

Forced cooling [m/sec]	v < 1,0	v ≥ 1,0
multiplier	1,0	1,3

► Bestellbezeichnung / Product code

Example: US2 420V 122 µF ±20% Bauform / Shape „T“

US2	420V	122	M	T	C	()																																									
Type of series	Rated voltage code	Capacitance code	Capacitance tolerance	Terminal symbol code	Case code diameter	Case code length																																									
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Nennspannung Rated Voltage Code (Spitzenspannung) (Surge Voltage) [V DC]	Kapazität Capacitance [µF]	Max. Verlustfaktor Dissipation factor	Max. Wechselstrom Ripple Current bei / at 105°C/120Hz [A RMS]	ESR (typ) bei / at 20°C/100Hz [mΩ]	ESL (typ) [nH]	DxL [mm]	Bestellbezeichnung Product code
200 2D (250)	1 500	0,15	4,39	76	25	41x45	US22D152MSB
	2 200	0,15	5,28	52	25	41x55	US22D222MSB
	2 200	0,15	4,94	52	25	46x51	US22D222MSH
	2 700	0,15	5,91	42	25	41x64	US22D272MSB
	2 700	0,15	5,32	43	25	51x51	US22D272MTC
	3 300	0,15	6,12	34	25	46x61	US22D332MSH
	3 900	0,15	6,63	29	25	46x70	US22D392MSH
	3 900	0,15	6,46	30	25	51x61	US22D392MTC
	4 700	0,15	7,06	25	25	51x70	US22D472MTC
250 2E (300)	1 000	0,15	3,59	115	25	41x45	US22E102MSB
	1 500	0,15	4,36	76	25	41x55	US22E152MSB
	1 800	0,15	4,82	63	25	41x64	US22E182MSB
	1 800	0,15	4,47	63	25	46x51	US22E182MSH
	1 800	0,15	4,34	67	25	51x51	US22E182MTC
	2 200	0,15	4,99	52	25	46x61	US22E222MSH
	2 700	0,15	5,52	42	25	46x70	US22E272MSH
	2 700	0,15	5,37	45	25	51x61	US22E272MTC
	3 300	0,15	5,92	38	25	51x70	US22E332MTC
400 2G (450)	470	0,15	2,68	120	25	35x42	US22G471MRA
	470	0,15	3,21	120	25	41x45	US22G471MSB
	680	0,15	3,38	83	25	35x52	US22G681MRA
	680	0,15	3,85	83	25	41x55	US22G681MSB
	680	0,15	3,88	83	25	46x51	US22G681MSH
	820	0,15	3,74	69	25	35x61	US22G821MRA
	820	0,15	4,26	69	25	41x64	US22G821MSB
	820	0,15	4,43	69	25	51x51	US22G821MTC
	1 000	0,15	4,76	56	25	46x61	US22G102MSH
	1 200	0,15	5,17	47	25	41x78	US22G122MSBL78
	1 200	0,15	5,20	47	25	46x70	US22G122MSH
	1 200	0,15	5,41	47	25	51x61	US22G122MTC
420 420V 470	390	0,15	2,82	190	25	41x45	US2420V391MSB
	560	0,15	3,34	132	25	41x55	US2420V561MSB
	680	0,15	3,73	109	25	46x51	US2420V681MSH
	820	0,15	4,09	90	25	41x64	US2420V821MSB
	820	0,15	4,14	90	25	46x61	US2420V821MSH
	820	0,15	4,26	91	25	51x51	US2420V821MTC
	1 000	0,15	4,57	74	25	46x70	US2420V102MSH
	1 000	0,15	4,74	74	25	51x61	US2420V102MTC
	1 200	0,15	5,18	62	25	51x70	US2420V122MTC
450 2W (500)	330	0,15	2,58	225	25	41x45	US22W331MSB
	470	0,15	2,74	158	25	35x52	US22W471MRA
	470	0,15	3,07	158	25	41x55	US22W471MSB
	560	0,15	3,01	132	25	35x61	US22W561MRA
	560	0,15	3,38	132	25	41x64	US22W561MSB
	560	0,15	3,38	132	25	46x51	US22W561MSH
	680	0,15	3,77	109	25	46x61	US22W681MSH
	680	0,15	3,87	109	25	51x51	US22W681MTC
	820	0,15	4,12	90	25	46x70	US22W821MSH
	820	0,15	4,29	91	25	51x61	US22W821MTC
	1 000	0,15	4,73	74	25	51x70	US22W102MTC

► **Brauchbarkeitsdauer - Tabelle / Life time table**

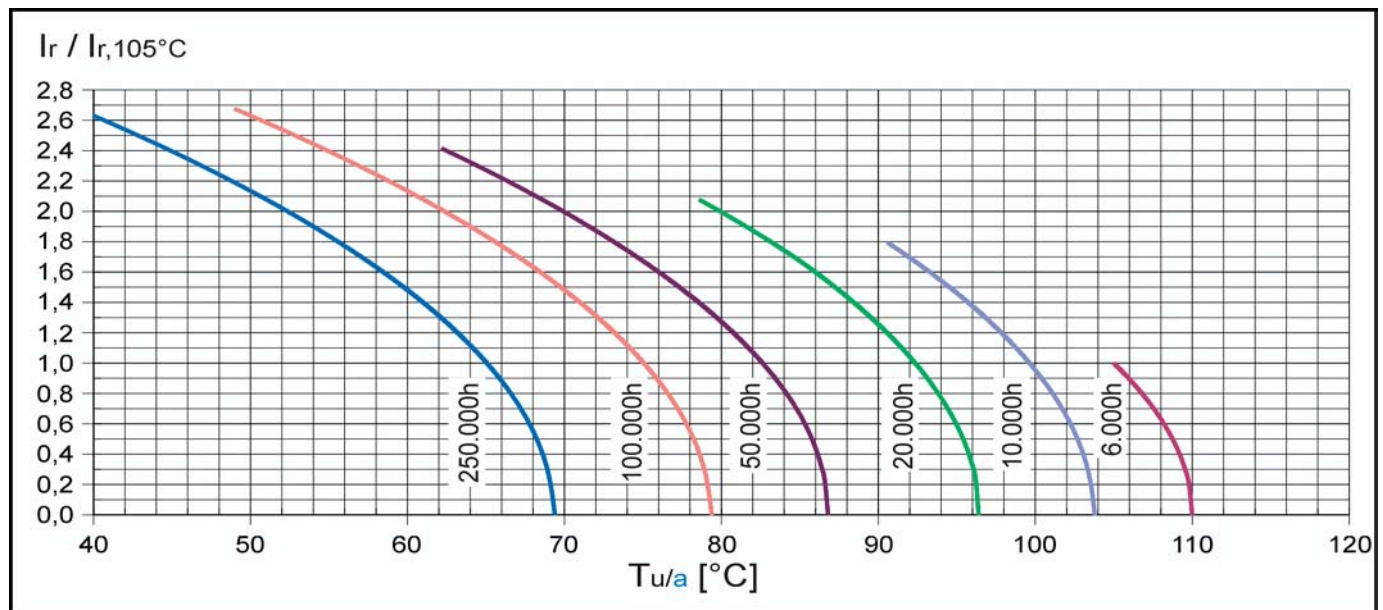
US2	Brauchbarkeitsdauer als Funktion von Umgebungstemperatur und Wechselstrombelastung Useful life as function of ambient temperature and ripple current													
	x 1,0	x 1,2	x 1,4	x 1,6	x 1,8	x 2,0	x 2,1	x 2,2	x 2,3	x 2,4	x 2,5	x 2,6	x 2,7	x 2,8
Ir bei/at 105°C														
Tu/a = 40°C	250	250	250	250	250	250	250	250	250	250	250	250	216	175
Tu/a = 45°C	250	250	250	250	250	250	250	250	250	248	205	168	137	
Tu/a = 50°C	250	250	250	250	250	250	250	224	188	157	130	106		
Tu/a = 55°C	250	250	250	250	250	196	167	142	119	99	82			
Tu/a = 60°C	250	250	250	217	167	124	106	90	75	63				
Tu/a = 65°C	250	212	173	137	105	78	67	57	48					
Tu/a = 70°C	159	134	110	87	67	50	42							
Tu/a = 75°C	101	85	69	55	42	31	27							
Tu/a = 80°C	64	54	44	35	27	20								
Tu/a = 85°C	40	34	28	22	17	13								
Tu/a = 90°C	25	21	18	14	11									
Tu/a = 95°C	16	14	11	9										
Tu/a = 100°C	10	9												
Tu/a = 105°C	6	kStd. / khrs												

Maximalwert begrenzt auf 250 000 Stunden.
Max. value limited to 250 000 hours.

► **Brauchbarkeitsdauer – Diagramm / Life time graph**

Brauchbarkeitsdauer in Abhängigkeit von Umgebungstemperatur T_u und Wechselstrombelastung I_r im Verhältnis zur max. Wechselstrombelastung bei oberer Kategorietemperatur $I_{r,105°C,120Hz}$

Useful life depending on ambient temperature T_a and ripple current operating conditions I_r versus rated ripple current at the upper category temperature $I_{r,105°C,120Hz}$



► **Anforderungen Brauchbarkeitsdauer / Life time tests and requirements**

Brauchbarkeitsdauer typ Life time test	Referenz Reference	Testbedingung Test procedure	Kriterien der Brauchbarkeitsdauer Life time criteria
Endurance test	JIS-C-5104-4 JIS-C-5102 IEC 60384-4	Ta = 105°C; Un, Ir applied 4000 hours	$\Delta C/C < 15\%$ $\tan\delta < 175\%$ $I_L \leq \text{spec. value}$
Useful life	JIS-C-5104-4 IEC 60384-4	Ta = 105°C; Un, Ir applied 6000 hours	$\Delta C/C < 20\%$ $\tan\delta < 200\%$ $I_L \leq \text{spec. value}$