

UD Series 85°C



Features

Standard capacitors

Applications

- ◆ Professional power supplies
- ◆ Frequency converters
- ◆ Uninterruptible power supplies
- ◆ Used for air conditioner, general-purpose inverter

Features

- ◆ High reliability
- ◆ Long useful life
- ◆ High ripple current capability
- ◆ Aluminum case designed explosion-proof vent
- ◆ RoHS-compatible

Construction

- ◆ Charge-discharge proof, polar
- ◆ Aluminum case with insulating sleeve
- ◆ Aluminum case designed explosion-proof vent
- ◆ Snap-in solder pins to hold component in place on PC-board

Specifications

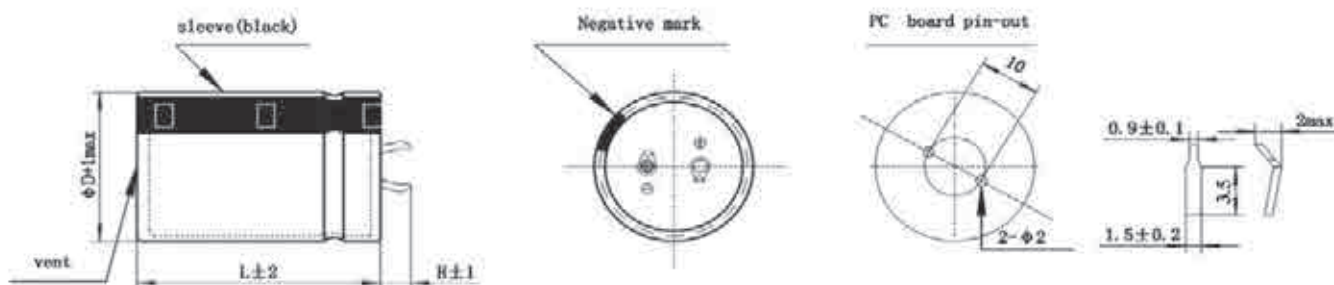
Item	Performance Characteristics				
Operating Temperature Range	-40 to +85°C	-25 to +85°C			
Rated voltage V_R	200 to 450 V DC	500 to 600 V DC			
Surge voltage V_S	$V_R \leq 315V$ 1.15 V_R $V_R > 315V$ 1.10 V_R				
Rated capacitance C_R	68 ~ 2700 μF	47 ~ 680 μF			
Capacitance tolerance	$\pm 20\%$ (120Hz, +20°C)				
Leakage Current I_{leak} (+20°C, max.)	$I \leq 3 \sqrt{CV}$ (μA) After 5 minutes with rated working voltage applied				
Dissipation Factor ($\tan \delta$, at 20°C, 120Hz)	Less than the value under table(%)				
	W.V.(V)	160~420 450~600			
	D.F.(%) max	15 20			
Self-inductance ESL	approx. 20 nH				
Useful life 85°C; $V_R, I_{AC,R}$	>10000 h	Requirements:			
		$\Delta C/C$ $\leq \pm 20\%$ of initial value $\tan \delta$ ≤ 2 times initial specified limit I_{leak} \leq initial specified limit			
Voltage Endurance test 85°C; V_R	5000 h	Post test requirements:			
		$\Delta C/C$ $\leq \pm 10\%$ of initial value $\tan \delta$ ≤ 1.3 times initial specified limit I_{leak} \leq initial specified limit			
Shelf Life 85°C	1000 h	Post test requirements:			
		$\Delta C/C$ $\leq \pm 10\%$ of initial value $\tan \delta$ ≤ 1.3 times initial specified limit I_{leak} \leq initial specified limit			
Vibration Resistance test	To IEC 60068-2-6, test Fc:				
	Displacement amplitude 0.75 mm, frequency range 10 ... 55 Hz, acceleration max. 10 g, duration 3x2 h. Capacitor mounted by its body which is rigidly clamped to the work surface.				
Characteristics at low temperature	Max. impedance ratio at 120 Hz				
	$V_R(V)$	200-250 V	315-450 V	500 V	550~600 V
	$Z_{-25^\circ C} / Z_{20^\circ C}$	4	5	6	7
	$Z_{-40^\circ C} / Z_{20^\circ C}$	7	10	-	-
Sectional specification	IEC 60384-4 and JIS-C-5101				

Multiplier for Ripple Current vs. Frequency

$V_R(V)/$ Frequency(Hz)	50(60)	120	300	1K	10K	50K-100K
$160 \leq V_R \leq 250$	0.81	1	1.17	1.32	1.45	1.5
$315 \leq V_R \leq 600$	0.77	1	1.16	1.30	1.41	1.43

Dimensional drawings

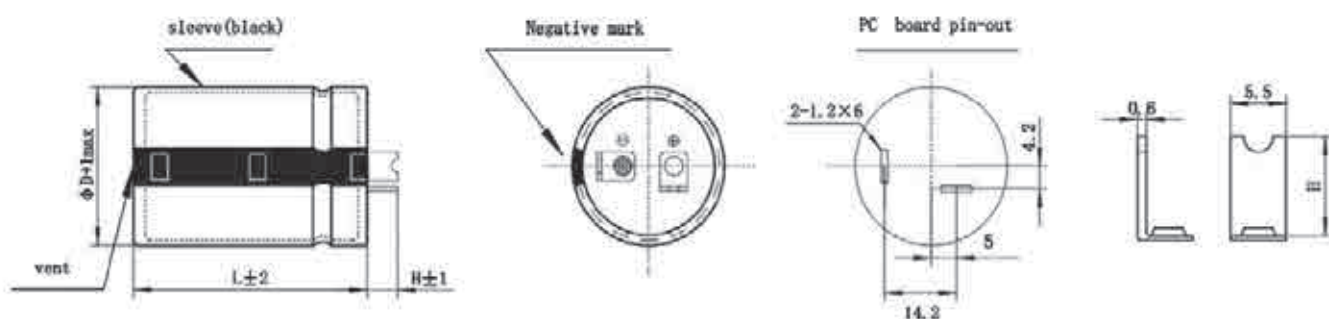
1. Standard 2 terminals



Standard snap-in terminals: length (6.0 ± 1) mm
 Also available with length of (4.0 ± 1) mm

H	h
6	2.5
4	1.5

2. Vibration proof terminal T type



Standard terminals: Length 4.5 ± 1 mm. Also available with length of 5.5 ± 1 mm

Packing

Capacitor diameter D(mm)	Length L(mm)	Terminal length H(mm)	Each carton packing Qty units(pcs.)	Box/carton units(pcs.)	Each box packing Qty units(pcs.)
20	all	/	720	6	120
22	< 55	/	600	6	100
22	≥ 55	/	400	4	100
25	< 65	/	500	5	100
25	≥ 65	/	400	4	100
30	≤ 36	< 6(L=35、36)	400	8	50
30	35 ≤ L ≤ 65	≥ 6(L=35、36)	300	6	50
30	> 65	/	200	4	50
35	≤ 25	/	400	8	50
35	25 < L < 45	/	300	6	50
35	45 ≤ L ≤ 85	/	200	4	50
35	> 85	/	100	2	50
40	35	< 6	200	5	40
40	35	≥ 6	160	4	40
40	40 ≤ L ≤ 45	/	160	4	40
40	45 < L ≤ 75	/	120	3	40
40	> 75	/	80	2	40
45	40 ≤ L ≤ 65	/	140	4	35
45	65 < L ≤ 100	/	70	2	35

Packing of snap-in



Case Size

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
200	330	22x25	1.55	330	600
200	330	25x25	1.65	330	600
200	390	22x30	1.76	280	510
200	390	25x25	1.66	280	510
200	470	22x30	1.98	230	420
200	470	25x25	1.93	230	420
200	560	22x35	2.25	200	360
200	560	25x30	2.15	200	360
200	680	22x40	2.62	160	290
200	680	25x35	2.56	160	290
200	680	30x25	2.48	160	290
200	820	22x45	2.99	130	240
200	820	25x35	2.84	130	240
200	820	30x30	2.60	130	240
200	820	35x25	2.42	130	240
200	1000	25x45	3.29	110	200
200	1000	30x30	2.76	110	200
200	1000	35x25	2.70	110	200
200	1200	25x50	3.75	94	170
200	1200	30x35	3.54	94	170
200	1200	35x30	3.54	94	170
200	1500	30x40	3.92	72	130
200	1500	35x35	3.92	72	130
200	1800	30x50	4.75	61	110
200	1800	35x40	4.70	61	110
200	2200	30x55	5.31	50	90
200	2200	35x45	5.30	50	90
200	2700	35x50	5.48	41	74
250	150	22x25	0.95	740	1330
250	180	22x25	1.15	620	1110
250	220	22x30	1.29	500	900
250	220	25x25	1.31	500	900
250	270	22x30	1.47	410	740
250	270	25x25	1.47	410	740
250	330	22x30	1.68	330	600
250	330	25x25	1.68	330	600
250	390	22x35	2.00	280	510
250	390	25x30	1.95	280	510
250	390	30x25	2.10	280	510

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
250	470	22x40	2.21	230	420
250	470	25x30	2.15	230	420
250	470	35x25	2.20	230	420
250	560	22x40	2.50	200	360
250	560	25x35	2.50	200	360
250	560	30x30	2.51	200	360
250	560	35x25	2.53	200	360
250	680	22x50	2.91	160	290
250	680	25x40	2.80	160	290
250	680	30x30	2.75	160	290
250	680	35x25	2.64	160	290
250	820	25x45	3.12	130	240
250	820	30x35	3.01	130	240
250	820	35x30	3.00	130	240
250	1000	25x50	3.60	110	200
250	1000	30x40	3.46	110	200
250	1000	35x30	3.39	110	200
250	1200	30x45	3.93	94	170
250	1200	35x35	3.81	94	170
250	1500	30x50	4.52	72	130
250	1500	35x40	4.52	72	130
250	1800	35x45	5.21	61	110
250	2200	35x55	5.70	50	90
350	560	35x50	3.21	200	360
350	680	35x40	3.19	160	290
350	820	35x50	3.67	130	240
350	1000	35x55	4.23	110	200
350	1500	40x80	6.52	72	130
350	1500	45x70	6.52	72	130
350	2200	45x100	8.70	50	90
400	82	22x25	0.79	1350	2430
400	100	22x25	0.90	1110	1990
400	100	25x25	1.05	1110	1990
400	120	22x30	1.05	920	1660
400	120	25x25	1.05	920	1660
400	150	22x30	1.15	740	1330
400	150	25x25	1.15	740	1330
400	180	22x35	1.31	620	1110
400	180	25x30	1.32	620	1110

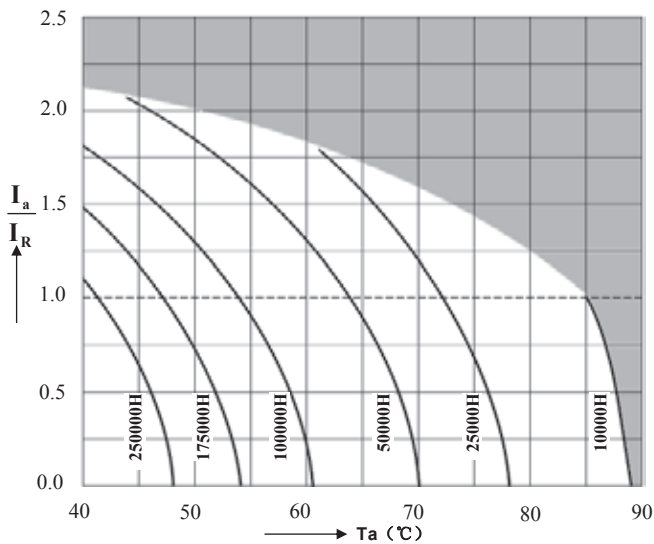
VV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
400	180	30x25	1.32	620	1110
400	220	22x40	1.55	500	900
400	220	25x35	1.52	500	900
400	220	30x25	1.51	500	900
400	220	35x25	1.55	500	900
400	270	22x45	1.80	410	740
400	270	25x40	1.76	410	740
400	270	30x30	1.76	410	740
400	270	35x25	1.72	410	740
400	330	25x45	2.05	330	600
400	330	30x35	2.02	330	600
400	330	35x25	2.01	330	600
400	390	25x50	2.33	280	510
400	390	30x35	2.18	280	510
400	390	35x30	2.24	280	510
400	470	25x55	2.68	230	420
400	470	30x40	2.65	230	420
400	470	35x35	2.59	230	420
400	560	30x45	3.00	200	360
400	560	35x35	2.98	200	360
400	680	30x55	3.51	160	290
400	680	35x40	3.20	160	290
400	680	35x45	3.42	160	290
400	820	35x50	3.72	130	240
400	1000	35x55	4.30	110	200
400	1200	35x65	4.82	94	170
400	1200	40x55	4.80	94	170
400	1500	40x80	6.62	72	130
400	1500	45x60	6.31	72	130
400	1800	45x80	7.60	61	110
450	68	22x25	0.68	2170	3900
450	82	22x25	0.81	1790	3230
450	82	25x25	0.81	1790	3230
450	100	22x30	0.94	1470	2650
450	100	30x25	0.98	1470	2650
450	120	22x30	1.05	1230	2210
450	120	25x25	1.09	1230	2210
450	150	22x35	1.21	980	1770
450	150	25x30	1.21	980	1770
450	150	30x25	1.21	980	1770
450	180	22x40	1.39	820	1470
450	180	25x35	1.39	820	1470
450	180	30x25	1.35	820	1470
450	220	22x50	1.68	670	1210
450	220	25x40	1.68	670	1210
450	220	30x30	1.62	670	1210
450	220	35x25	1.60	670	1210
450	270	25x45	1.85	540	980
450	270	30x35	1.82	540	980
450	270	35x30	1.91	540	980
450	330	25x50	2.18	440	800
450	330	30x40	2.21	440	800
450	330	35x30	2.20	440	800
450	390	30x45	2.51	380	680
450	390	35x35	2.50	380	680
450	470	30x50	2.88	310	560
450	470	35x40	2.80	310	560
450	560	30x55	3.25	260	470
450	560	35x45	3.26	260	470
450	680	35x50	3.48	220	390

VV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
450	1500	45x100	7.24	100	180
500	47	22x25	0.52	3130	5640
500	68	22x30	0.70	2170	3900
500	68	25x25	0.70	2170	3900
500	82	25x30	0.82	1790	3230
500	100	25x35	0.97	1470	2650
500	100	30x25	0.97	1470	2650
500	120	25x35	1.09	1230	2210
500	120	30x30	1.10	1230	2210
500	150	25x40	1.26	980	1770
500	150	30x30	1.30	980	1770
500	150	35x25	1.32	980	1770
500	180	25x45	1.50	820	1470
500	180	30x35	1.53	820	1470
500	180	35x30	1.55	820	1470
500	220	25x55	1.61	670	1210
500	220	30x40	1.75	670	1210
500	220	35x35	1.80	670	1210
500	270	30x45	2.01	540	980
500	270	35x35	2.03	540	980
500	330	30x55	2.32	440	800
500	330	35x40	2.32	440	800
500	390	35x45	2.63	380	680
500	470	35x55	2.99	310	560
500	560	35x65	3.24	260	470
500	680	40x60	3.90	220	390
550	56	25x25	0.66	2630	4740
550	68	25x30	0.75	2170	3900
550	82	25x35	0.84	1790	3230
550	82	30x25	0.87	1790	3230
550	100	25x35	1.01	1470	2650
550	100	30x30	1.01	1470	2650
550	120	25x40	1.12	1230	2210
550	120	30x35	1.15	1230	2210
550	120	35x25	1.15	1230	2210
550	150	25x50	1.36	980	1770
550	150	30x35	1.30	980	1770
550	150	35x30	1.45	980	1770
550	180	25x55	1.57	820	1470
550	180	30x40	1.58	820	1470
550	180	35x35	1.63	820	1470
550	220	30x50	1.87	670	1210
550	220	35x40	1.87	670	1210
550	270	30x55	2.12	540	980
550	270	35x45	2.15	540	980
550	330	35x50	2.45	440	800
550	390	35x55	2.78	380	680
600	47	25x25	0.61	3130	5640
600	56	25x30	0.68	2630	4740
600	68	25x35	0.82	2170	3900
600	68	30x25	0.82	2170	3900
600	82	25x35	0.88	1790	3230
600	82	30x30	0.92	1790	3230
600	100	25x40	1.05	1470	2650
600	100	30x35	1.07	1470	2650
600	100	35x25	1.11	1470	2650
600	120	25x50	1.19	1230	2210
600	120	30x35	1.23	1230	2210
600	120	35x30	1.31	1230	2210
600	150	25x55	1.53	980	1770

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
600	150	30x45	1.53	980	1770
600	150	35x35	1.53	980	1770
600	180	30x50	1.68	820	1470
600	180	35x40	1.72	820	1470

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
600	220	30x55	1.95	670	1210
600	220	35x45	1.95	670	1210
600	270	35x50	2.26	540	980

Useful life



depending on ambient temperature T_a versus under ripple current operating conditions