

LT Series 4 Terminals Snap-in Type 85°C



Features

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

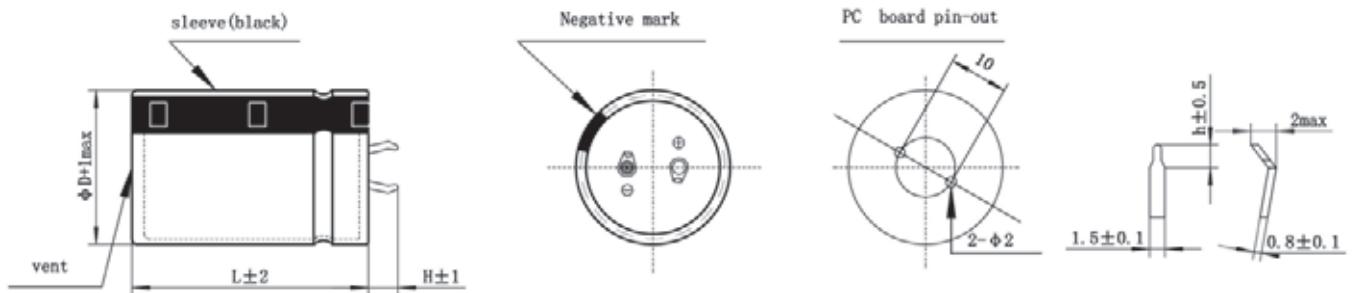
Specifications

Item	Performance Characteristics										
Operating Temperature Range	-40 to +85°C	-25 to +85°C									
Rated voltage V_R	16 to 350 V DC	385 to 500 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	390 to 82000 μF	220 to 2700 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 δ , at 20°C, 120Hz)	Less than the value under table(%)										
	$\mu F/Vdc$	16	25	35	50	63	80	100	160~420	450~500	
	≤ 8200	35	30	25	20	20	15	15	15	20	
	10000 to 22000	40	35	30	30	25	15	-	-	-	
≥ 27000	40	35	35	30	25	-	-	-	-		
Self-inductance ESL	approx. 20 nH										
Useful life 85°C; $V_R, I_{AC,R}$ 85°C; $V_R, I_{AC,R}$	$V_R \leq 100V$: >3000 h	Requirements:								$V_R > 100V$	
		$V_R \leq 100V$ $\Delta C/C \leq \pm 30\%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_{leak} \leq$ initial specified limit								$\Delta C/C \leq \pm 20\%$ of initial value $\tan \delta \leq 2$ times initial specified limit $I_{leak} \leq$ initial specified limit	
Voltage Endurance test 85°C; V_R	2000 h	Post test requirements:								$V_R > 100V$	
		$V_R \leq 100V$ $\Delta C/C \leq \pm 15\%$ of initial value $\tan \delta \leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit								$\Delta C/C \leq \pm 10\%$ of initial value $\tan \delta \leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit	
Shelf Life 85°C	1000 h	Post test requirements:								$V_R > 100V$	
		$V_R \leq 100V$ $\Delta C/C \leq \pm 15\%$ of initial value $\tan \delta \leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit								$\Delta C/C \leq \pm 10\%$ of initial value $\tan \delta \leq 1.3$ 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										
	$V_R(V)$	16	25	35~100	160~250	300~350	400~600				
	$Z_{25^\circ C} / Z_{20^\circ C}$	5	4	4	4	8	8				
$Z_{-40^\circ C} / Z_{20^\circ C}$	15	15	12	8	102	-					
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
$10 \leq V_R \leq 100$	0.88	1	1.07	1.15	1.15	1.15
$160 \leq V_R \leq 250$	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



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

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	$35 \leq L \leq 65$	≥ 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	$45 \leq L \leq 85$	/	200	4	50
35	> 85	/	100	2	50
40	35	< 6	200	5	40
40	35	≥ 6	160	4	40
40	$40 \leq L \leq 45$	/	160	4	40
40	$45 < L \leq 75$	/	120	3	40
40	> 75	/	80	2	40
45	$40 \leq L \leq 65$	/	140	4	35
45	$65 < L \leq 100$	/	70	2	35

Packing of snap-in



Case Size

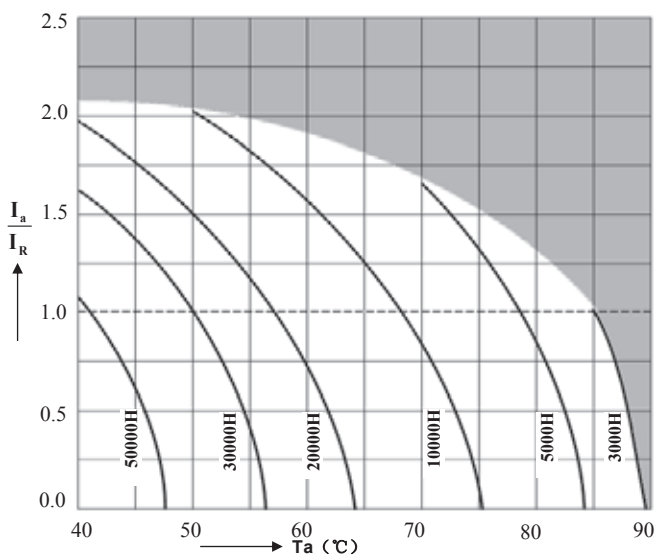
WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
16	47000	35x30	5.91	9	11
16	56000	35x60	6.51	7	10
16	56000	40x50	6.51	7	10
16	68000	35x80	7.23	6	8
16	68000	40x60	7.23	6	8
16	82000	40x80	8.19	5	7
25	33000	35x50	5.79	11	14
25	39000	35x60	6.27	9	12
25	39000	40x50	6.27	9	12
25	47000	35x80	7.11	8	10
25	47000	40x60	7.11	8	10
25	56000	40x80	7.43	6	8
25	68000	40x80	8.58	5	7
35	22000	35x50	5.01	14	18
35	27000	35x60	5.85	13	17
35	33000	35x80	6.03	11	14
35	33000	40x60	6.41	11	14
35	39000	35x80	6.94	9	12
35	39000	40x60	7.03	9	12
35	47000	40x80	7.55	8	10
50	15000	35x50	4.56	20	27
50	18000	35x60	5.10	17	22
50	18000	40x50	5.10	17	22
50	22000	35x80	5.77	14	18
50	22000	40x60	5.77	14	18
50	27000	40x60	6.19	11	15
63	12000	35x60	4.68	21	28
63	12000	40x50	4.83	21	28
63	15000	35x80	4.93	17	22
63	15000	40x60	5.03	17	22
63	18000	35x80	5.89	14	18
63	18000	40x80	6.03	14	18
80	4700	35x50	3.23	33	42
80	6800	35x50	3.65	23	29
80	8200	35x60	3.95	19	24
80	8200	40x50	3.95	19	24
80	10000	35x80	4.45	15	20
80	10000	40x60	4.45	15	20
80	12000	40x80	5.13	13	17
80	15000	40x80	5.61	10	13
100	5600	35x60	3.67	27	36
100	5600	40x50	3.67	27	36
100	6800	35x80	3.97	23	29
100	6800	40x60	3.97	23	29
100	8200	40x80	4.50	19	24
160	1800	35x50	2.49	61	110
160	2200	35x60	2.80	50	90
160	2200	40x50	2.80	50	90
160	2700	35x80	3.03	41	74
160	2700	40x60	3.03	41	74
160	3300	40x80	3.29	33	60
220	1000	35x50	2.05	110	200
220	1200	35x50	2.27	94	170
220	1500	35x60	2.47	72	130
220	1800	35x80	2.68	61	110
220	1800	40x60	2.68	61	110
220	2700	40x80	3.06	41	74
250	390	35x50	1.21	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	1000	35x60	2.13	110	200
250	1200	35x60	2.27	94	170
250	1200	40x50	2.27	94	170
250	1500	35x80	2.40	72	130
250	1500	40x60	2.40	72	130
250	1800	40x80	2.82	61	110
385	470	35x40	2.87	230	420
385	560	35x45	3.22	200	360
385	680	35x50	3.67	160	290
385	680	40x40	3.62	160	290
385	820	35x55	4.16	130	240
385	820	40x45	4.09	130	240
385	1000	35x65	4.82	110	200
385	1000	40x50	4.64	110	200
385	1000	45x40	4.48	110	200
385	1200	35x75	5.53	94	170
385	1200	40x60	5.32	94	170
385	1200	45x45	5.04	94	170
385	1500	35x90	6.57	72	130
385	1500	40x70	6.22	72	130
385	1500	45x55	5.91	72	130
385	1800	40x80	7.09	61	110
385	1800	45x60	6.60	61	110
385	2200	40x95	8.28	50	90
385	2200	45x75	7.75	50	90
385	2700	45x85	8.90	41	74
400	470	35x40	2.88	230	420
400	560	35x45	3.24	200	360
400	560	40x40	3.29	200	360
400	680	35x50	3.69	160	290
400	680	40x40	3.64	160	290
400	820	35x60	4.24	130	240
400	820	40x50	4.19	130	240
400	820	45x40	4.13	130	240
400	1000	35x70	4.90	110	200
400	1000	40x55	4.75	110	200
400	1000	45x45	4.66	110	200
400	1200	35x80	5.62	94	170
400	1200	40x60	5.35	94	170
400	1200	45x50	5.22	94	170
400	1500	35x95	6.68	72	130
400	1500	40x75	6.34	72	130
400	1500	45x55	5.94	72	130
400	1800	40x85	7.24	61	110
400	1800	45x65	6.79	61	110
400	2200	45x80	7.93	50	90
400	2700	45x90	9.11	41	74
420	390	35x40	2.47	280	510
420	470	35x45	2.80	230	420
420	560	35x50	3.15	200	360
420	560	40x40	3.15	200	360
420	680	35x55	3.60	160	290
420	680	40x45	3.57	160	290
420	820	35x65	4.13	130	240
420	820	40x50	4.03	130	240
420	820	45x40	3.96	130	240
420	1000	35x75	4.78	110	200
420	1000	40x60	4.65	110	200

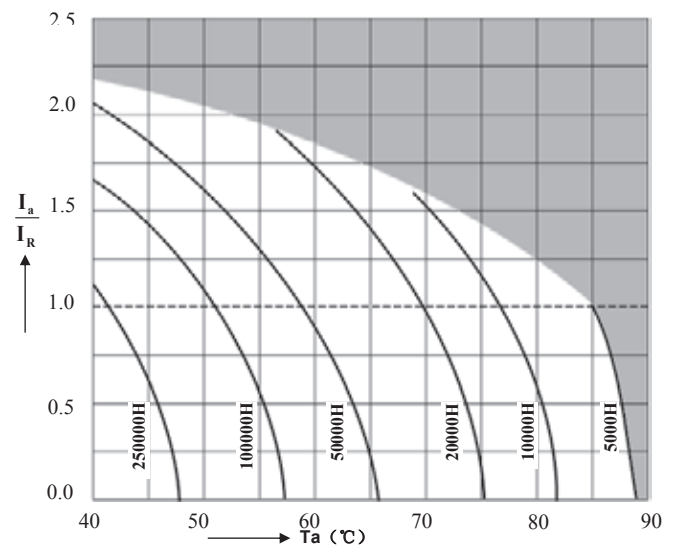
WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
420	1000	45x45	4.48	110	200
420	1200	35x85	5.49	94	170
420	1200	40x70	5.30	94	170
420	1200	45x55	5.14	94	170
420	1500	40x80	6.21	72	130
420	1500	45x65	5.99	72	130
420	1800	40x95	7.15	61	110
420	1800	45x70	6.72	61	110
420	2200	45x85	7.83	50	90
450	330	35x40	2.29	440	800
450	390	35x40	2.56	380	680
450	470	35x45	2.90	310	560
450	470	40x40	2.94	310	560
450	560	35x55	3.30	260	470
450	560	40x45	3.30	260	470
450	680	35x60	3.77	220	390
450	680	40x50	3.74	220	390
450	680	45x40	3.70	220	390
450	820	35x70	4.34	180	320
450	820	40x55	4.23	180	320
450	820	45x45	4.17	180	320
450	1000	35x80	5.04	150	270
450	1000	40x60	4.71	150	270
450	1000	40x65	4.87	150	270
450	1000	45x50	4.71	150	270
450	1200	35x95	5.82	120	220
450	1200	40x75	5.56	120	220

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)
450	1200	45x60	5.39	120	220
450	1500	40x90	6.59	100	180
450	1500	45x70	6.28	100	180
450	1800	45x80	7.15	83	150
450	2200	45x95	8.31	67	120
500	220	35x40	1.30	670	1210
500	270	35x45	1.48	540	980
500	330	35x50	1.69	440	800
500	330	40x40	1.72	440	800
500	390	35x55	1.90	380	680
500	390	40x45	1.92	380	680
500	470	35x60	2.16	310	560
500	470	40x50	2.16	310	560
500	470	45x40	2.17	310	560
500	560	35x70	2.46	260	470
500	560	40x55	2.43	260	470
500	560	45x45	2.43	260	470
500	680	35x80	2.84	220	390
500	680	40x65	2.79	220	390
500	680	45x50	2.75	220	390
500	820	35x95	3.29	180	320
500	820	40x75	3.19	180	320
500	820	45x60	3.14	180	320
500	1000	40x85	3.69	150	270
500	1000	45x70	3.61	150	270
500	1200	45x80	4.11	120	220
500	1500	45x100	4.86	100	180

Useful life



depending on ambient temperature T_a versus under ripple current operating conditions $V_R \leq 100V$



depending on ambient temperature T_a versus under ripple current operating conditions $V_R \geq 160V$