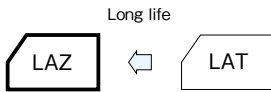


High-Reliability, High-Ripple, Long Life Capacitors

GREEN
CAP

105°C
3000hours

- High-reliability, high-ripple, long life capacitors.
- Guarantees 3000 hours at 105°C.



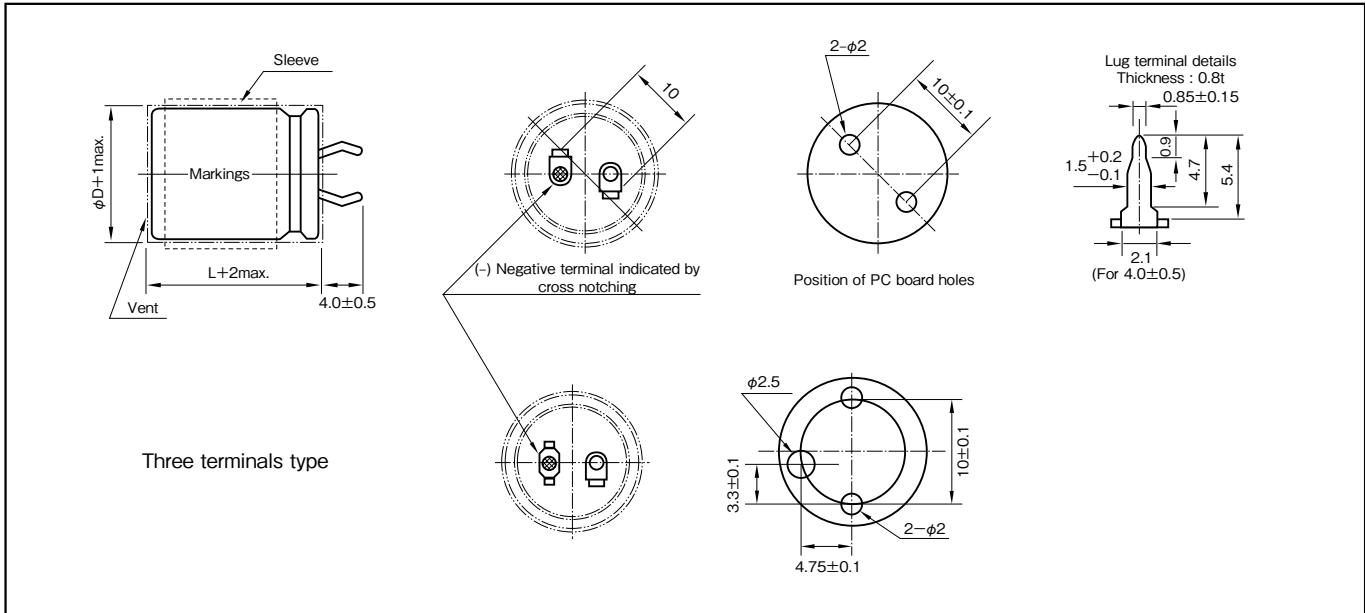
Marking color : White print on a black sleeve

Specifications

Item	Performance								
Category temperature range (°C)	-40 to +105 (-25 to +105 at 160V or more)								
Tolerance at rated capacitance (%)	±20 (20°C,120Hz)								
Leakage current (μA)	Less than 3√CV (after 5 minutes) C : Rated capacitance (μF) ; V : Rated voltage (V) (20°C)								
Tangent of loss angle (tanδ)	Rated voltage (V)		16	25	35	50	63 to 100	160 to 250	350 to 500
	tanδ (max.)		0.50	0.40	0.35	0.30	0.20	0.15	0.20
(20°C,120Hz)									
Characteristics at high and low temperature	Rated voltage (V)		16 to 100		160 to 250		350 to 500		
	Impedance ratio (max.)	Z-25°C/Z+20°C	4		4		4		
		Z-40°C/Z+20°C	15		—		—		
(120Hz)									
Endurance (105°C) (Applied ripple current)	Test time		3000 hours						
	Leakage current		The initial specified value or less						
	Percentage of capacitance change		Within ±20% of initial value						
	Tangent of the loss angle		200% or less of the initial specified value						
Shelf life (105°C)	Test time		1000 hours						
	Leakage current		The initial specified value or less						
	Percentage of capacitance change		Within ±15% of initial value						
	Tangent of the loss angle		150% or less of the initial specified value						
Voltage application treatment									
Applicable standards	JIS C5101-1, -4 1998 (IEC 60384-1 1992, -4 1985)								

Outline Drawing

Unit: mm



Part numbering system					
series LAZ, standard terminal type :400V470μF					
LAZ	—	400 V	471	M	S54 # B
Series code		Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol Optional symbol
series LTZ, three terminals type :400V470μF					
LTZ	—	400 V	471	M	S54 # B
Series code		Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol Optional symbol

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz)	50	120	1k	10k	30k
Rated voltage (V)					
100 or less	0.95	1	1.10	1.15	1.15
160 to 250	0.81	1	1.32	1.45	1.50
315 or more	0.77	1	1.30	1.41	1.43

Standard Ratings

Case φD×L (mm)		Casing Symbol	Item	Rated voltage (V)		16		25		35		50		63		80		100	
				Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)	Rated capacitance (μF)	Rated ripple current (Arms)
22×20	S21		4700	1.23	3300	1.21	2200	1.08	1200	0.99	820	0.96	560	0.85	390	0.83			
			5600	1.35	3900	1.31	2700	1.20	1500	1.11	1000	1.06	680	0.94	470	0.91			
			6800	1.48	4700	1.44	3300	1.33	1800	1.22	1200	1.16	820	1.03	560	0.99			
22×25	S22		6800	1.60	4700	1.55	3300	1.43	1800	1.31	1200	1.25	820	1.11	560	1.07			
			8200	1.76	5600	1.69	3900	1.55	2200	1.45	1500	1.40	1000	1.23	680	1.18			
			10000	1.94	6800	1.86	4700	1.71	2700	1.60	1800	1.53	1200	1.34	820	1.29			
22×30	S23		10000	1.99	6800	1.91	3900	1.65	2700	1.70	1800	1.60	1200	1.39	820	1.35			
			12000	2.18	8200	2.10	4700	1.81	3300	1.88	2200	1.68	1500	1.55	1000	1.49			
			15000	2.44	10000	2.32	5600	1.98	3900	2.04	2700	1.86	1800	1.70	1200	1.63			
22×35	S24		12000	2.28	8200	2.14	5600	2.02	3300	1.98	2200	1.73	1500	1.61	1000	1.54			
			15000	2.55	10000	2.36	6800	2.23	3900	2.15	2700	1.92	1800	1.76	1200	1.69			
			18000	2.79	12000	2.59	8200	2.44	4700	2.36	3300	2.12	2200	1.95	1500	1.89			
22×40	S25		18000	2.89	12000	2.63	6800	2.28	4700	2.47	3300	2.18	2200	2.02	1500	1.95			
			22000	3.20	15000	2.94	8200	2.50	5600	2.70	3900	2.37	2700	2.24	1800	2.13			
			—	—	—	—	10000	2.76	—	—	—	—	—	—	—	—	—		
22×45	S26		22000	3.29	15000	3.01	10000	2.83	5600	2.79	3900	2.42	2700	2.32	1800	2.18			
			27000	3.65	18000	3.29	12000	3.09	6800	3.08	4700	2.65	3300	2.56	2200	2.41			
22×50	S27		27000	3.81	18000	3.44	12000	3.23	6800	3.18	4700	2.77	3300	2.67	2200	2.52			
			33000	4.21	22000	3.80	—	—	8200	3.50	—	—	—	—	3900	2.90	—	—	
25×20	S31		6800	1.53	4700	1.48	3300	1.39	1800	1.29	1200	1.16	820	1.07	560	1.04			
			8200	1.68	5600	1.61	3900	1.51	2200	1.43	1500	1.29	1000	1.18	680	1.14			
			10000	1.85	6800	1.78	4700	1.66	2700	1.58	1800	1.42	1200	1.29	820	1.26			
25×25	S32		10000	1.99	6800	1.91	4700	1.78	2700	1.70	1800	1.52	1200	1.39	820	1.35			
			12000	2.18	8200	2.10	5600	1.94	3300	1.88	2200	1.68	1500	1.55	1000	1.49			
			15000	2.44	10000	2.32	6800	2.14	3900	2.04	2700	1.86	1800	1.70	1200	1.63			
25×30	S33		12000	2.30	8200	2.16	5600	2.04	3300	2.00	2200	1.75	1500	1.62	1000	1.56			
			15000	2.57	10000	2.39	6800	2.25	3900	2.17	2700	1.94	1800	1.77	1200	1.71			
			18000	2.82	12000	2.61	8200	2.47	4700	2.39	3300	2.14	2200	1.96	1500	1.91			
25×35	S34		18000	2.94	12000	2.67	8200	2.54	4700	2.50	3300	2.20	2200	2.01	1500	1.97			
			22000	3.25	15000	2.99	10000	2.80	5600	2.73	3900	2.39	2700	2.23	1800	2.16			
			—	—	—	—	—	—	—	—	—	—	—	3300	2.46	—	—		
25×40	S35		22000	3.36	15000	3.06	10000	2.87	5600	2.81	3900	2.47	2700	2.32	1800	2.22			
			27000	3.72	18000	3.36	12000	3.15	6800	3.10	4700	2.71	3300	2.57	2200	2.46			
			—	—	—	—	—	—	8200	3.40	—	—	3900	2.79	—	—			
25×45	S36		27000	3.77	18000	3.45	12000	3.20	6800	3.24	4700	2.79	3900	2.92	2200	2.52			
			33000	4.16	22000	3.81	15000	3.58	8200	3.56	5600	3.04	—	—	2700	2.79			
			—	—	—	—	—	—	10000	3.93	—	—	—	—	—	—			
25×50	S37		33000	4.21	22000	3.91	15000	3.64	10000	4.09	5600	3.14	4700	3.29	2700	2.85			
			39000	4.58	27000	4.34	18000	3.99	—	—	6800	3.46	—	—	3300	3.15			
30×20	S41		8200	1.84	5600	1.74	3900	1.65	2700	1.73	1800	1.47	1200	1.38	820	1.32			
			10000	2.03	6800	1.92	4700	1.82	3300	1.91	2200	1.63	1500	1.55	1000	1.46			
			12000	2.23	8200	2.10	5600	1.98	3900	2.08	2700	1.81	1800	1.69	1200	1.60			
30×25	S42		12000	2.38	8200	2.25	5600	2.12	3900	2.22	2700	1.93	1800	1.81	1200	1.71			
			15000	2.66	10000	2.48	6800	2.34	4700	2.44	3300	2.13	2200	2.00	1500	1.91			
			18000	2.91	12000	2.72	8200	2.57	5600	2.66	3900	2.32	2700	2.22	1800	2.09			
30×30	S43		18000	3.00	12000	2.70	8200	2.56	4700	2.58	3300	2.24	2200	2.10	1500	2.00			
			22000	3.32	15000	3.02	10000	2.83	5600	2.82	3900	2.44	2700	2.33	1800	2.19			
			27000	3.67	18000	3.31	12000	3.10	6800	3.10	4700	2.67	3300	2.57	2200	2.42			
30×35	S44		22000	3.39	15000	3.13	10000	2.92	6800	3.25	4700	2.80	3300	2.69	2200	2.51			
			27000	3.76	18000	3.43	12000	3.20	8200	3.57	5600	3.06	3900	2.92	2700	2.78			
			33000	4.15	22000	3.79	15000	3.58	—	—	—	—	—	—	—	—			
30×40	S45		33000	4.23	22000	3.91	15000	3.67	8200	3.72	5600	3.17	3900	3.02	2700	2.87			
			39000	4.60	27000	4.34	18000	4.02	10000	4.11	6800	3.49	4700	3.32	3300	3.17			
30×45	S46		39000	4.67	27000	4.70	18000	4.10	10000	4.30	6800	3.61	4700	3.43	3300	3.25			
			47000	5.13	33000	5.19	22000	4.53	12000	4.71	8200	3.97	5600	3.74	3900	3.53			
30×50	S47		47000	5.20	33000	5.40	22000	4.71	12000	4.68	8200	4.10	5600	3.89	3900	3.61			
			56000	5.68	39000	5.88	27000	5.22	15000	5.23	10000	4.52	6800	4.28	4700	3.96			
35×20	S51		12000	2.38	8200	2.17	5600	2.16	3300	2.10	2200	1.85	1500	1.68	1000	1.59			
			15000	2.66	10000	2.40	6800	2.38	3900	2.28	2700	2.05	1800	1.84	1200	1.74			
			18000	2.91	12000	2.63	8200	2.61	4700	2.51	3300	2.26	2200	2.04	1500	1.94			
35×25	S52		18000	3.10	12000	2.80	8200	2.78	4700	2.67	3300	2.41	2200	2.17	1500	2.07			
			22000	3.43	15000	3.13	10000	3.07	5600	2.91	3900	2.62	2700	2.40	1800	2.27			
			27000	3.80	18000	3.43	12000	3.36	6800	3.21	4700	2.88	3300	2.66	2200	2.51			
35×30	S53		27000	3.82	15000	3.22	12000	3.20	6800	3.31	4700	2.83	3300	2.71	2200	2.56			
			33000	4.22	18000	3.53	15000	3.58	8200	3.63	5600	3.09	3900	2.95	2700	2.79			
			39000	4.59	22000	3.90	18000	3.92	10000	4.01	6800	3.40	4700	3.23	3300	3.09			
35×35	S54		33000	4.24	22000	3.96	15000	3.69	8200	3.66	5600	3.24	3900	3.07	2700	2.90			
			39000	4.61	27000	4.39	18000	4.04	10000	4.05	6800	3.57	4700	3.37	3300	3.21			
			47000	5.06	33000	4.85	22000	4.47	12000	4.43	8200	3.92	5600	3.68	3900	3.49			
35×40	S55		47000	5.18	27000	4.56	22000	4.60	12000	4.46	8200	4.07	5600	3.82	3900	3.60			
			56000	5.66	33000	5.04	27000	5.09	15000	4.98	10000	4.50	6800	4.21	4700	3.95			
			—	—	39000	5.48	—	—	—	—	—	—	—						

Standard Ratings

Case φD×L (mm)		Item Casing Symbol	Rated voltage (V)		160		180		200		250		350		400		450		500	
			Rated capacitance		Rated ripple current		Rated capacitance		Rated ripple current		Rated capacitance		Rated ripple current		Rated capacitance		Rated ripple current		Rated capacitance	
			(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)
22×20	S21		220	0.90	220	0.91	180	0.82	120	0.67	82	0.55	56	0.53	56	0.53	39	0.44		
			270	1.00	270	1.00	220	0.91	150	0.75	100	0.61	68	0.58	68	0.58	47	0.48		
			330	1.10	330	1.11	270	1.00	180	0.82	120	0.67	82	0.64	—	—	56	0.53		
22×25	S22		330	1.24	330	1.25	270	1.17	180	1.00	100	0.69	82	0.71	68	0.65	56	0.59		
			390	1.35	390	1.35	330	1.29	220	1.11	120	0.75	100	0.79	82	0.71	68	0.65		
			470	1.48	470	1.49	390	1.35	270	1.13	150	0.84	120	0.86	100	0.79	82	0.71		
22×30	S23		470	1.56	390	1.41	390	1.57	270	1.33	150	0.88	120	0.90	100	0.82	68	0.68		
			560	1.68	470	1.55	470	1.67	330	1.47	180	0.96	150	1.01	120	0.90	82	0.74		
			680	1.85	560	1.69	560	1.69	390	1.49	220	1.06	180	1.10	150	1.01	100	0.82		
22×35	S24		560	1.75	560	1.73	470	1.70	330	1.50	180	0.98	150	1.03	120	0.92	100	0.84		
			680	1.93	680	1.90	560	1.73	390	1.52	220	1.08	180	1.13	150	1.03	120	0.92		
			820	2.08	—	—	680	1.90	470	1.58	270	1.20	220	1.25	180	1.13	—	—		
22×40	S25		820	2.17	680	1.97	680	1.97	470	1.64	270	1.24	220	1.29	180	1.17	120	0.95		
			1000	2.38	820	2.17	820	2.17	560	1.79	330	1.37	270	1.43	220	1.29	150	1.07		
22×45	S26		1000	2.42	820	2.21	820	2.21	560	1.82	330	1.40	270	1.46	220	1.32	150	1.09		
			1200	2.66	1000	2.44	—	—	680	2.01	390	1.52	—	—	—	—	180	1.19		
22×50	S27		1200	2.84	1000	2.50	1000	2.50	680	2.06	390	1.56	330	1.65	270	1.50	180	1.22		
			—	—	1200	2.74	—	—	—	—	—	—	—	—	—	—	—	—		
25×20	S31		330	1.25	270	1.14	220	1.03	150	0.92	100	0.69	82	0.72	68	0.66	47	0.55		
			390	1.36	330	1.26	270	1.14	180	1.01	120	0.76	100	0.80	82	0.72	56	0.60		
			470	1.49	390	1.37	330	1.26	220	1.12	150	0.85	120	0.87	100	0.80	68	0.66		
25×25	S32		470	1.59	390	1.42	330	1.40	270	1.33	150	0.88	120	0.91	100	0.84	68	0.68		
			560	1.74	470	1.56	390	1.52	330	1.47	180	0.97	150	1.01	120	0.91	82	0.75		
			680	1.86	560	1.70	470	1.67	390	1.50	220	1.07	180	1.11	150	1.01	100	0.83		
25×30	S33		560	1.73	560	1.74	470	1.56	330	1.51	180	0.99	150	1.01	120	0.93	82	0.77		
			680	1.91	680	1.91	560	1.70	390	1.55	220	1.09	180	1.11	150	1.03	100	0.85		
			820	2.09	820	2.10	680	1.87	470	1.61	270	1.18	220	1.23	180	1.13	120	0.93		
25×35	S34		820	2.17	680	1.95	560	1.77	470	1.68	270	1.23	220	1.28	180	1.16	120	0.95		
			1000	2.40	820	2.14	680	1.95	560	1.77	330	1.36	270	1.42	220	1.28	150	1.05		
			—	—	1000	2.37	820	2.14	—	—	—	—	—	—	—	—	—	—		
25×40	S35		1000	2.60	1000	2.43	820	2.20	560	1.82	330	1.40	270	1.45	220	1.31	150	1.08		
			1200	2.84	1200	2.67	1000	2.43	680	2.01	390	1.52	330	1.61	270	1.45	180	1.19		
25×45	S36		1200	2.90	1200	2.73	1000	2.49	680	2.06	390	1.56	330	1.65	270	1.49	180	1.22		
			1500	3.25	—	—	1200	2.73	820	2.26	470	1.71	390	1.79	330	1.65	220	1.35		
25×50	S37		1500	3.38	1500	3.26	1200	2.92	820	2.42	470	1.83	390	1.91	330	1.76	220	1.44		
			—	—	—	—	—	—	1000	2.66	560	1.99	—	—	—	—	270	1.59		
30×20	S41		470	1.50	390	1.37	390	1.37	270	1.14	150	0.85	120	0.87	100	0.80	68	0.66		
			560	1.63	470	1.50	470	1.50	330	1.26	180	0.93	150	0.98	120	0.87	82	0.72		
			680	1.80	560	1.64	560	1.64	390	1.37	220	1.03	180	1.07	150	0.98	100	0.80		
30×25	S42		680	1.85	560	1.69	560	1.75	390	1.47	220	1.06	180	1.10	150	1.00	100	0.82		
			820	2.03	680	1.86	680	1.92	470	1.61	270	1.17	220	1.22	180	1.10	120	0.90		
			1000	2.24	820	2.04	820	2.04	560	1.69	330	1.29	270	1.35	220	1.22	150	1.00		
30×30	S43		820	2.35	820	2.17	680	1.97	470	1.65	270	1.24	220	1.29	180	1.15	120	0.95		
			1000	2.60	1000	2.39	820	2.17	560	1.80	330	1.37	270	1.43	220	1.27	150	1.07		
			1200	2.84	1200	2.62	1000	2.39	680	1.98	390	1.49	330	1.58	270	1.43	180	1.17		
30×35	S44		1200	2.96	1000	2.43	1000	2.43	680	2.04	390	1.52	330	1.61	270	1.45	180	1.19		
			1500	3.10	1200	2.66	1200	2.66	820	2.24	470	1.67	390	1.75	330	1.61	220	1.31		
			—	—	1500	2.98	—	—	—	—	560	1.82	—	—	—	—	—	—		
30×40	S45		1500	3.21	1500	3.01	1200	2.69	820	2.42	470	1.69	390	1.77	330	1.62	220	1.33		
			1800	3.52	1800	3.30	1500	3.01	1000	2.60	560	1.84	470	1.94	390	1.77	270	1.47		
30×45	S46		1800	3.91	1800	3.42	1500	3.12	1000	2.76	680	2.10	470	2.01	390	1.83	270	1.52		
			2200	4.32	—	—	1800	3.42	1200	3.00	—	—	560	2.19	470	2.01	330	1.68		
30×50	S47		2200	4.50	2200	3.91	1800	3.54	1200	3.00	680	2.18	560	2.27	470	2.22	330	1.74		
			—	—	—	—	—	—	—	—	820	2.39	680	2.50	560	2.27	390	1.90		
35×20	S51		560	1.82	560	1.66	470	1.67	330	1.30	180	0.94	150	0.99	120	0.89	100	0.81		
			680	2.01	680	1.83	560	1.82	390	1.41	220	1.04	180	1.08	150	0.99	120	0.89		
			820	2.20	820	2.01	680	2.01	470	1.55	270	1.15	220	1.20	180	1.08	150	0.99		
35×25	S52		820	2.35	820	2.11	680	2.20	470	1.65	270	1.19	220	1.23	180	1.12	150	1.02		
			1000	2.60	1000	2.33	820	2.42	560	1.80	330	1.31	270	1.37	220	1.23	180	1.12		
			1200	2.84	1200	2.55	1000	2.67	680	1.98	390	1.43	330	1.51	270	1.37	220	1.23		
35×30	S53		1200	2.95	1000	2.42	820	2.40	680	2.04	390	1.51	330	1.56	270	1.50	180	1.15		
			1500	3.06	1200	2.65	1000	2.65	820	2.24	470	1.66	390	1.69	330	1.66	220	1.27		
			1800	3.35	1500	2.96	1200	2.90	1000	2.47	560	1.81	470	1.86	390	1.69	270	1.41		
35×35	S54		1500	3.21	1500	3.02	1200	2.65	820	2.35	470	1.69	390	1.76	330	1.62	270	1.46		
			1800	3.52	1800	3.31	1500	2.97	1000	2.60	560	1.85	470	1.93	390	1.76	330	1.62		
			2200	3.89	—	—	1800	3.25	1200	2.78	680	2.04	560	2.11	470	1.93	—	—		
35×40	S55		2200	4.36	1800	3.37	1500	3.45	1200	2.80	680	2.07	560	2.16	470	2.20	330	1.66		
			2700	4.83	2200	3.73	1800	3.78	1500	2.82	820	2.28	680	2.39	560	2.40	390	1.81		
35×45	S56		—	—	2200	3.84	2200	4.42	1500	2.88	680	2.14	680	2.53	560	2.48	390	1.86		
			—	—	2700	4.25	—	—	—	—	820	2.34	—	—	—	—	470	2.04		
35×50	S57		2700	5.15	2700	4.29	2200	4.60	1500	3.30	1000	2.61	820	3.00	680	2.61	470	2.06		
			3300	5.69	3300	4.74	2700	5.09	1800	3.44	—	—	—	—	—	—	560	2.25		