

ML series

- One rank smaller case sizes than SL series.
- RoHS Compliance.
- SL 小型化品。



ML

SPECIFICATIONS

Items 項目	Characteristics 特性											
Capacitance Tolerance 靜電容量誤差	±20% (120Hz, 20°C)											
Operating Temperature Range 適用溫度範圍	-40 ~ +85°C					-40 ~ +85°C			-25 ~ +85°C			
Rated Voltage Range 工作電壓範圍	6.3 ~ 100V					160 ~ 250V			350 ~ 450V			
Leakage Current 洩漏電流	I ≤ 0.01CV or 3 (µA), Which is greater. (After 2 minutes application of working voltage)						I ≤ 0.03CV+20(µA), (After 3 minutes application of working voltage)					
Dissipation Factor 散逸因素 (tan δ)	Measurement Frequency: 120Hz. Temperature: 20°C											
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160~250	350~450	
	tan δ (Max)	0.28	0.24	0.16	0.15	0.12	0.10	0.10	0.08	0.20	0.25	
When nominal capacitance exceeds 1000µF, add 0.02 to the value above for each 1000µF increase. (20°C · 120Hz)												
Low Temperature Stability 低溫特性 Impedance Ratio (Max) 阻抗比率 (最大值)	Measurement Frequency: 120Hz.											
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160~250	350~400	450
	Z (-25°C) / Z (20°C)	5	4	3	2	2	2	2	2	3	6	15
	Z (-40°C) / Z (20°C)	12	10	8	5	4	3	3	3	4	-	-
Load Life 負荷壽命	2000hours, with application of working voltage at 85°C											
	Capacitance Change	Within ±20% of Initial Value										
	tan δ	200% or less of Initial Specified Value										
	Leakage Current	Initial Specified Value or less										
Shelf Life 放置壽命	1,000hours, no voltage applied, at 85°C · After Test: UR to be applied for 30 minutes, 24 to 48hours before measurement.											
	Capacitance Change	Within ±20% of Initial Value										
	tan δ	200% or less of Initial Specified Value										
	Leakage Current	Initial Specified Value or less										
Standards 參照標準	JIS C 5101-4-1 and JIS C 5101-2											

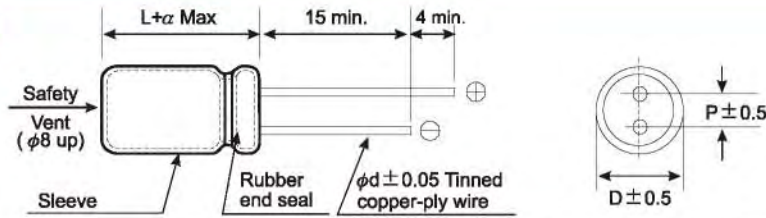
PERMISSIBLE RIPPLE CURRENT

Frequency Coefficient

WV(V)	Capacitance (µF)	Frequency (Hz)			
		50	120	1K	≥10K
6.3 ~ 100	< 100	0.75	1.00	1.57	2.00
	100 ~ 470	0.80	1.00	1.34	1.50
	> 470	0.85	1.00	1.13	1.15
160 ~ 450	0.1 ~ 220	0.80	1.00	1.40	1.60
	330 ~ 1000	0.90	1.00	1.13	1.15

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DIMENSIONS (mm)



ϕ D	5	6.3	8	10	12	13	16	18	20	22	25
P	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	10.0	10.0	12.5
ϕ d	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8	0.8	1.0

α	(L < 16) 1.0 (L \geq 16) 2.0
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STANDARD RATINGS

DxL (mm); R.C.: (mA rms) at 85°C, 120Hz.

Cap (μ F)	WV(V) (Code)	6.3 (0J)		10 (1A)		16 (1C)		25 (1E)		35 (1V)		50 (1H)		63 (1J)	
		D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.
10												5x11	66	5x11	78
22												5x11	109	5x11	121
33												5x11	127	6.3x11	157
47										5x11	157	6.3x11	169	6.3x11	194
68						5x11	132	6.3x11	149	6.3x11	182	6.3x11	242	8x12	266
100						5x11	194	6.3x11	218	6.3x11	254	8x12	303	8x12	327
220		5x11	218	5x11	242	6.3x11	303	6.3x11	339	8x12	387	10x13	508	10x16	593
330		6.3x11	303	6.3x11	339	6.3x11	363	8x12	460	10x13	581	10x16	702	10x20	847
470		6.3x11	363	6.3x11	411	8x12	508	10x13	641	10x16	762	10x20	908	13x21	1089
1000		8x12	616	10x13	787	10x13	905	10x16	992	13x21	1331	13x25	1513	16x26	2030
2200		10x16	956	10x16	1186	10x20	1187	12x25	1573	16x26	2057	16x32	2299	18x35	2783
						12x21	1331	13x25	1634						
3300		10x20	1531	10x25	1464	13x25	1997	16x26	2045	16x32	2420	18x35	2904	20x40	3146
				13x21	1634										
4700		13x21	1755	13x25	2057	16x26	2481	16x32	2541	16x36	2904	20x40	3388	22x50	3993
6800		13x25	2202	16x26	2541	16x32	2723	16x36	3025	18x40	3267	22x50	4114	25x50	4598
10000		16x26	2844	16x32	2965	16x36	3146	18x40	3267	22x50	4235	25x50	4719		
15000		16x32	3025	16x36	3243	18x40	3691	22x50	4356	25x50	4961				
22000		18x35	3751	18x40	3872	22x40	4477	25x50	5324						
33000		18x40	4114	22x50	5082	25x50	5687								
47000		22x50	4598	25x50	5929										
68000		25x50	5082												

Cap (μ F)	WV(V) (Code)	100 (2A)		160 (2C)		200 (2D)		250 (2E)		350 (2V)		400 (2G)		450 (2W)	
		D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.
0.1						5x11	2.5								
0.22						5x11	5.5								
0.33						5x11	8								
0.47						5x11	17					6.3x11	20		
1		5x11	22	5x11	24	5x11	26	5x11	30	6.3x11	33	6.3x11	30	6.3x11	20
2.2		5x11	31	5x11	31	5x11	36	6.3x11	40	6.3x11	44	8x12	44	8x12	33
3.3		5x11	40	5x11	42	6.3x11	48	6.3x11	50	8x12	54	8x12	54	10x13	45
4.7		5x11	53	6.3x11	55	6.3x11	61	6.3x11	63	8x12	66	10x13	66	10x16	61
10		5x11	80	8x12	97	8x12	102	10x13	120	10x13	130	10x16	100	10x20	92
22		6.3x11	145	10x13	160	10x16	169	10x20	180	13x21	200	13x21	242	13x25	160
33		8x12	240	10x16	220	10x20	245	10x20	260	13x25	280	16x22	280	16x26	271
47		8x12	266	10x20	280	13x21	310	13x21	310	16x26	370	16x26	340	16x32	280
68		10x13	359	13x21	390	13x25	424	16x26	455	16x26	500	16x32	430	18x35	310
100		10x16	453	13x25	530	16x26	570	16x26	610	18x32	630	18x35	515	18x40	340
220		13x21	732	16x32	760	16x36	820	18x35	850	22x50	890	22x50	787	25x50	450
330		13x25	1012	18x35	1050	18x40	1260	20x40	1320	25x50	1400				
470		16x26	1198	18x40	1350	22x40	1500	22x50	1700						
1000		18x35	1797	25x50	2500										
2200		22x50	3061												
3300		25x50	3727												

※ 13mm may be replaced by 12.5mm upon customer's request.