



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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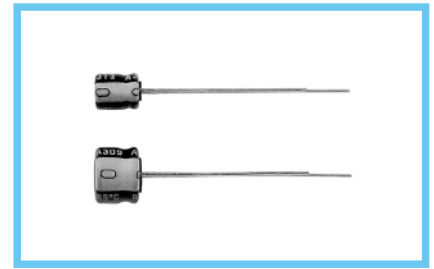
ML series 5mmL, Low Leakage Current



- Low leakage current series with 5mm height.
- Adapted to the RoHS directive (2002/95/EC).

Products which are scheduled to discontinue.
Not recommended for new designs

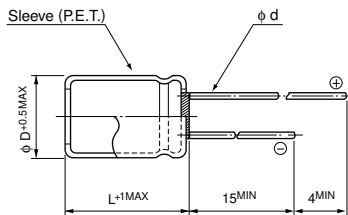
MA Low Leakage Current ML



Specifications

Item	Performance Characteristics	
Category Temperature Range	-40 to +85°C	
Rated Voltage Range	4 to 50V	
Rated Capacitance Range	0.1 to 100μF	
Rated Capacitance Tolerance	±20% at 120Hz, 20°C	
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.002CV or 0.4 (μA), whichever is greater.	
tan δ	Measurement frequency : 120Hz, Temperature : 20°C	
	Rated voltage (V)	4 6.3 10 16 25 35 50
	tan δ (MAX.)	0.35 0.24 0.20 0.16 0.14 0.12 0.10
Stability at Low Temperature	Measurement frequency : 120Hz	
	Rated voltage (V)	4 6.3 10 16 25 35 50
	Impedance ratio Z _T / Z ₂₀ (MAX.)	Z _T = -25°C / Z ₂₀ = +20°C: 7 4 3 2 2 2 2 Z _T = -40°C / Z ₂₀ = +20°C: 15 10 8 6 4 3 3
Endurance	After 1000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right.	
	Capacitance change	Within ±20% of initial value
	tan δ	200% or less of initial specified value
Shelf Life	After storing the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.	
	Leakage current	
Marking	Printed with white color letter on black sleeve.	

Radial Lead Type



(mm)			
φD	4	5	6.3
P	1.5	2.0	2.5
φd	0.45	0.45	0.45

Type numbering system (Example : 10V 33μF)

1	2	3	4	5	6	7	8	9	10	11
U	M	L	1	A	3	3	0	M	D	D
Configuration ※										
Capacitance tolerance (±20%)										
Rated capacitance (33μF)										
Rated voltage (10V)										
Serise name										
Type										
※ Configuration										
φD					Pb-free leadwire Pb-free PET sleeve					
4 to 6.3					DD					

Dimensions

V		4	6.3	10	16	25	35	50
Cap.(μF)	Code	0G	0J	1A	1C	1E	1V	1H
0.1	0R1							4×5 1.0
0.22	R22							4×5 2.0
0.33	R33							4×5 2.8
0.47	R47							4×5 4.0
1	010							4×5 8.4
2.2	2R2							4×5 13
3.3	3R3							5×5 17
4.7	4R7							5×5 20
10	100				4×5 23	5×5 27	5×5 29	6.3×5 33
22	220		4×5 28	5×5 33	5×5 37	6.3×5 42	6.3×5 46	
33	330	5×5 28	5×5 37	5×5 41	6.3×5 49	6.3×5 52		
47	470	5×5 33	5×5 45	6.3×5 52	6.3×5 58			
100	101	6.3×5 56	6.3×5 70					Case size φD×L (mm)

Rated Ripple (mA) at 85°C 120Hz

Frequency coefficient of rated ripple current

Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
Coefficient	0.70	1.00	1.17	1.36	1.50

Please refer to page 20, 21, 22 about the formed or taped product spec.
Please refer to page 4 for the minimum order quantity.

CAT.8100W