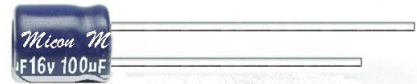


# SM series

## Features

- ◆ Load Life:105°C 2000 hours.
- ◆ Suitable for slim application
- ◆ For detail specifications, please refer to Engineering Bulletin No.E171



## Specifications

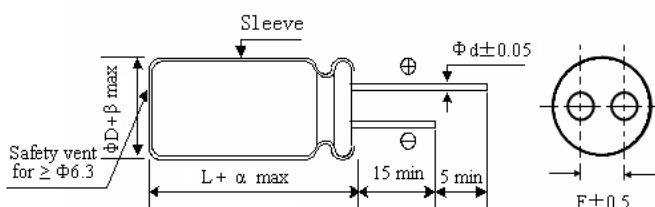
Item	Performance Characteristics																											
Operating Temperature Range	-40~+85°C																											
Rate Voltage Range	4~63 VDC																											
Capacitance Range	0.1~470µF																											
Capacitance Tolerance	±20% (120Hz, +20°C)																											
Leakage current (+20°C, max.)	$I \leq 0.01 CV$ or $3(\mu A)$ After 1 minute, whichever is greater measured with rated working voltage applied.																											
Dissipation factor (tgδ)	<table border="1"> <thead> <tr> <th>Working Voltage(VDC)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td>D.F.(%)max</td> <td>25</td> <td>22</td> <td>20</td> <td>16</td> <td>14</td> <td>12</td> <td>10</td> <td>9</td> </tr> </tbody> </table> (120Hz, +20°C)	Working Voltage(VDC)	4	6.3	10	16	25	35	50	63	D.F.(%)max	25	22	20	16	14	12	10	9									
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D.F.(%)max	25	22	20	16	14	12	10	9																				
Low Temperature Characteristics (120Hz)	Impedance ratio max. <table border="1"> <thead> <tr> <th>Working Voltage(VDC)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td>Z-25°C / Z+20°C</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>15</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Working Voltage(VDC)	4	6.3	10	16	25	35	50	63	Z-25°C / Z+20°C	7	4	3	2	2	2	2	2	Z-40°C / Z+20°C	15	8	6	4	4	3	3	3
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Z-25°C / Z+20°C	7	4	3	2	2	2	2	2																				
Z-40°C / Z+20°C	15	8	6	4	4	3	3	3																				
Load Life	Test conditions Duration time : 1000Hrs Ambient temperature : +85°C Applied voltage : Rated DC working voltage After test requirement at +20°C Capacitance change : ≤±20% of the initial measured value (4V: ≤ ±30%) Dissipation factor : ≤200% of the initial specified value Leakage current : ≤The initial specified value																											
Shelf Life	Test conditions Duration time : 1000Hrs Ambient temperature : +105°C Applied voltage : None After test requirement at +20°C : Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes																											

## Multiplier for Ripple Current vs. Frequency

CAP(µA) \ Frequency (Hz)	60(50)	120	400	1K	10K	50K-100K
CAP ≤ 10	0.8	1	1.30	1.45	1.65	1.70
10 < CAP ≤ 100	0.8	1	1.23	1.36	1.48	1.53
100 < CAP ≤ 1000	0.8	1	1.16	1.25	1.35	1.38

## Diagram of Dimensions

Unit: mm



ΦD	4	5	6.3	8
F	1.5±0.5	2.0±0.5	2.5±0.5	3.5±0.5
Φd	0.45		0.5	

# SM series

## Case Size

Φ D×L

Voltage	4V		6.3V		10V		16V		25V	
	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7							4×7	15	4×7	20
6.8							4×7	20	4×7	22
10							4×7	28	4×7	30
15			4×7	28	4×7	32	4×7	35	5×7	37
22			4×7	35	4×7	36	4×7	40	4×7	46
					5×7	38	5×7	42	5×7	50
33	4×7	33	4×7	40	4×7	43	4×7	45	5×7	52
			5×7	42	5×7	45	5×7	55	6.3×7	58
47	4×7	35	4×7	46	4×7	50	5×7	65	6.3×7	71
			5×7	48	5×7	58	6.3×7	68		
68	4×7	42	5×7	50	5×7	60	6.3×7	70	6.3×7	79
100	4×7	55	5×7	75	5×7	82	6.3×7	98	8×7	113
	5×7	61	6.3×7	80	6.3×7	90	8×7	105		
150	5×7	72	6.3×7	82	6.3×7	95	8×7	111		
			8×7	85						
220	6.3×7	110	6.3×7	120	6.3×7	136	8×7	152		
			8×7	133	8×7	140				
330	6.3×7	120	8×7	160	8×7	182				
	8×7	165								
470	8×7	235								

Voltage	35V		50V		63V	
	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
0.1			4×7	1.3	4×7	1.3
0.15			4×7	2	4×7	2.0
0.22			4×7	3	4×7	3.0
0.33			4×7	3.5	4×7	4.0
0.47			4×7	5	4×7	6.3
0.68			4×7	7.5	4×7	8
1			4×7	10	4×7	12
1.5			4×7	13	4×7	14
2.2			4×7	17	4×7	18
3.3	4×7	18	4×7	23	5×7	25
4.7	4×7	22	4×7	24	5×7	30
			5×7	26	6.3×7	33
6.8	5×7	25	5×7	28	6.3×7	31
10	4×7	31	5×7	35	6.3×7	48
	5×7	33	6.3×7	38		
15	5×7	37	6.3×7	42	8×7	45
22	5×7	47	6.3×7	59	8×7	65
	6.3×7	55	8×7	63		
33	6.3×7	65	8×7	75		
	8×7	68				
47	8×7	85	8×7	88		
68	8×7	88				
100	8×7	119				

Ripple Current (mA,rms) at 105°C 120KHz