

## LV Series

### Features

- ◆ 85°C standard, case diameter  $\phi 4 \sim \phi 10\text{mm}$
- ◆ Reflow soldering is available
- ◆ Available for high density mounting
- ◆ For detail specifications, please refer to Engineering Bulletin No. E130
- ◆ RoHS Compliant



SMD

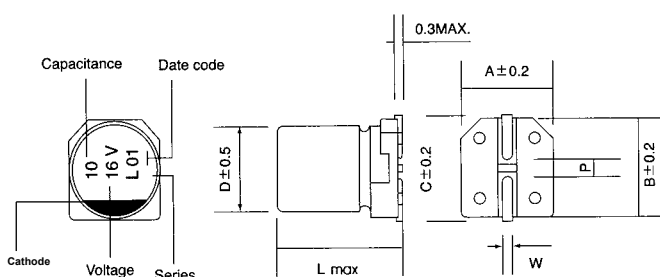
### Specifications

Item	Performance Characteristics																										
Operating Temperature Range	-40~ +85°C																										
Rated Voltage Range	4~50 VDC																										
Capacitance Range	0.1 to 3300 $\mu\text{F}$																										
Capacitance Tolerance	$\pm 20\%$ (120Hz, +20°C)																										
Leakage Current (+20°C, max.)	$I \leq 0.01 \text{ CV}$ or $3 (\mu\text{A})$ After 2 minutes, whichever is greater measured with rated working voltage applied																										
Dissipation Factor ( $\tan \delta$ , at 20°C , 120Hz)	<table border="1"> <tr> <td>Rated voltage(VDC)</td> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>D.F.(%)</td> <td><math>\phi 4 \sim 6.3</math></td> <td>42</td> <td>30</td> <td>22</td> <td>18</td> <td>16</td> <td>14</td> <td>14</td> </tr> <tr> <td>max</td> <td><math>\phi 8 \sim 10</math></td> <td>45</td> <td>34</td> <td>26</td> <td>20</td> <td>16</td> <td>14</td> <td>14</td> </tr> </table>	Rated voltage(VDC)	4	6.3	10	16	25	35	50	D.F.(%)	$\phi 4 \sim 6.3$	42	30	22	18	16	14	14	max	$\phi 8 \sim 10$	45	34	26	20	16	14	14
	Rated voltage(VDC)	4	6.3	10	16	25	35	50																			
	D.F.(%)	$\phi 4 \sim 6.3$	42	30	22	18	16	14	14																		
max	$\phi 8 \sim 10$	45	34	26	20	16	14	14																			
Low Temperature Characteristics (at 120Hz)	Impedance ratio max																										
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	Rated voltage(VDC)	4	6.3	10	16	25	35	50																			
Z-25°C / Z+20°C	7	4	3	2	2	2	2																				
Z-40°C / Z+20°C	15	8	8	4	4	3	3																				
Load Life	Test conditions Duration time :2000 Hrs Ambient temperature :+85°C Applied voltage :Rated DC working voltage After test requirement at +20°C : Capacitance change :Within $\pm 25\%$ of the initial value Dissipation factor :Not more than 200% of specified value Leakage current :Not more than the specified value																										
Shelf Life	Test conditions Duration time :1000 Hrs Ambient temperature :+85°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.																										
Resistance to soldering heat	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed under.																										
	<table border="1"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within <math>\pm 10\%</math> of initial value</td> </tr> <tr> <td><math>\tan \delta</math></td> <td>Less than specified value</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within $\pm 10\%$ of initial value	$\tan \delta$	Less than specified value																				
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### Multiplier for Ripple Current vs. Frequency

CAP( $\mu\text{F}$ ) \ Frequency(Hz)	60(50)	120	500	1K	$\geq 10\text{K}$
$0.1 \leq \text{CAP} \leq 100 \mu\text{F}$	0.8	1.0	1.20	1.30	1.50
$100 < \text{CAP} \leq 1500 \mu\text{F}$	0.8	1.0	1.10	1.15	1.20

### Diagram of Dimensions:(unit:mm)



$\phi D$	L	A	B	C	W	P
4	5.5	4.3	4.3	4.9	0.5~0.8	1.0
5	5.5	5.3	5.3	5.9	0.5~0.8	1.4
6.3	5.5	6.6	6.6	7.2	0.5~0.8	2.2
6.3	6.3	6.6	6.6	7.2	0.5~0.8	2.2
6.3	7.7	6.6	6.6	7.2	0.5~0.8	2.2
8	6.5	8.3	8.3	9.0	0.5~0.8	2.3
8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5	14	13.5	13.5	15.0	1.0~1.4	5.5

## Case Size

φ DxL(mm)

WV(V) Cap(μF)	4		6.3		10		16		25		35		50	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1													4X5.5	1.0
0.22													4X5.5	2.0
0.33													4X5.5	2.8
0.47													4X5.5	4.0
1													4X5.5	8.4
2.2													4X5.5	14
3.3													4X5.5	17
4.7													4X5.5	22
10					4X5.5	21	4X5.5	23	4X5.5	27	4X5.5	29	6.3X5.5	35
22			4X5.5	29	4X5.5 5X5.5	33 37	4X5.5	37	5X5.5 6.3X5.5	40	5X5.5 6.3X5.5	45 48	6.3x6.3 6.3X7.7 8X6.5	60 75 80
33			4X5.5 5X5.5	33 37	4X5.5 5X5.5	41 43	5X5.5	45	5X5.5 6.3X5.5	46 54	6.3X5.5	58	6.3X7.7 8X6.5	188 200
47	4X5.5	28	4X5.5 5X5.5	40 46	5X5.5	52	5X5.5 6.3X5.5	50 60	6.3X5.5 6.3x6.3	60 68	6.3X5.5 6.3x6.3 8X6.5	65 70 115	6.3X7.7 8X6.5	225 240
100	5x5.5	34	5X5.5 6.3x6.3	70 85	6.3X5.5	76	6.3X5.5 6.3x6.3	100 108	6.3X7.7 8X6.5	150 160	6.3X7.7 8X10.5	250 280	8X10.5	300
150	6.3x6.3	50	6.3x6.3	100	6.3x6.3	88	6.3x7.7	135	8x10.5	200	8x10.5	300	10x10.5	320
220	6.3X5.5	61	6.3x6.3 6.3X7.7 8X6.5	130 141 150	6.3X7.7 8X6.5	170 190	6.3X7.7 8X10.5	185 290	8X10.5	300	10X10.5	400	10X10.5	450
330	6.3X7.7 8X6.5	135 145	6.3X7.7 8X6.5	197 210	8X10.5	330	8X10.5	330	10X10.5	450	10X10.5	460	12.5x14	520
470	8X6.5 8X10.5	220 220	8X10.5	380	8X10.5	420	10X10.5	480	10X10.5	460	12.5x14	590		
560	8X10.5	242	8X10.5	410	10X10.5	450	10X10.5	500	12.5x14	520	12.5x14	600		
680	8X10.5	285	8X10.5	460	10X10.5	480	10x10.5	550	12.5x14	580	12.5x14	610		
1000	10X10.5	370	10X10.5	500	10X10.5	510	12.5x14	600	12.5x14	660				
1200	10X10.5	410	10X10.5	510			12.5x14	660						
1500	10X10.5	470	10X10.5	530			12.5x14	710						
2200					12.5x14	730								
3300			12.5x14	750										

Ripple Current ( mA, rms ) at 85°C 120Hz