

EV Series

Features

- ◆ Chip type long life capacitance in large case sizes
- ◆ Chip type with Endurance of 1000 hours at +105°C
- ◆ Designed for surface mounting on high density PC board
- ◆ Applicable to automatic insertion machine using carrier tape
- ◆ RoHS Compliant
- ◆ AEC-Q200 qualified



Specifications

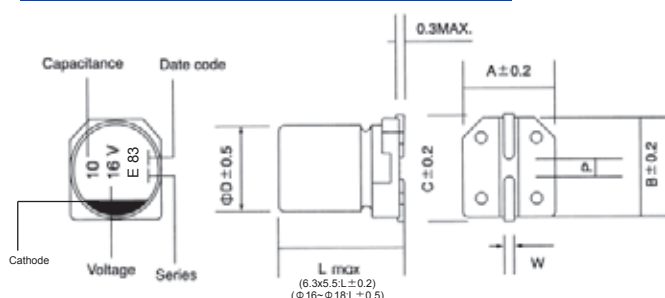
Item	Performance Characteristics																						
Operating Temperature Range	-55~ +105°C																						
Rated Voltage Range	6.3~50 VDC																						
Capacitance Range	0.1 to 1500 μF																						
Capacitance Tolerance	±20%(120Hz,+20°C)																						
Leakage Current (+20°C,max.)	I ≤ 0.01 CV or 3 (μA) After 2 minutes whichever is greater measured with rated working voltage applied.																						
Dissipation Factor (tan δ , at 20°C , 120Hz)	<table border="1"> <tr> <td>Working voltage(VDC)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td rowspan="2">D.F.(%)max</td> <td>φ 4~6.3</td> <td>30</td> <td>24</td> <td>20</td> <td>18</td> <td>16</td> <td>14</td> </tr> <tr> <td>φ 8~10</td> <td>35</td> <td>28</td> <td>24</td> <td>18</td> <td>16</td> <td>14</td> </tr> </table>	Working voltage(VDC)	6.3	10	16	25	35	50	D.F.(%)max	φ 4~6.3	30	24	20	18	16	14	φ 8~10	35	28	24	18	16	14
	Working voltage(VDC)	6.3	10	16	25	35	50																
D.F.(%)max	φ 4~6.3	30	24	20	18	16	14																
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Low Temperature Characteristics (at 120Hz)	Impedance ratio max																						
	<table border="1"> <tr> <td>Working voltage(VDC)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>8</td> <td>8</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </table>	Working voltage(VDC)	6.3	10	16	25	35	50	Z-25°C / Z+20°C	4	3	2	2	2	2	Z-40°C / Z+20°C	8	8	4	4	3	3	
	Working voltage(VDC)	6.3	10	16	25	35	50																
Z-25°C / Z+20°C	4	3	2	2	2	2																	
Z-40°C / Z+20°C	8	8	4	4	3	3																	
Endurance	Test condition Duration time :1000 Hrs Ambient temperature :+105°C Applied voltage :Rated DC working voltage After test requirement at +20°C Capacitance change :Within ±25% of initial value for capacitance of 16V or less :Within ±20% of initial value for capacitance of 25V or more Dissipation factor :Less than 200% of specified value Leakage current :Less than specified value																						
Shelf Life	Test condition Duration time :1000 Hrs Ambient temperature :+105°C Applied voltage :None After test requirement at +20°C :Same limits as Endurance. 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 ±10% of initial value</td> </tr> <tr> <td>tan δ</td> <td>Less than specified value</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within ±10% of initial value	tan δ	Less than specified value																
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Multiplier for Ripple Current vs. Frequency

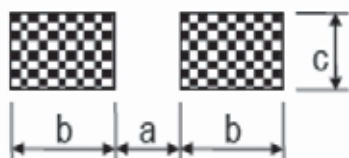
CAP(μF)\Frequency(Hz)	60(50)	120	500	1K	≥10K
0.1 ≤ CAP ≤ 100 μF	0.8	1.0	1.20	1.30	1.50
100 < CAP ≤ 1500 μF	0.8	1.0	1.10	1.15	1.20

φ 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	6.1	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	13.0	13.0	13.9	1.0~1.4	4.5
16	17	17.0	17.0	18.0	1.0~1.4	6.6
16	21.5	17.0	17.0	18.0	1.0~1.4	6.6
18	16.5	19.0	19.0	20.0	1.0~1.4	6.6
18	21.5	19.0	19.0	20.0	1.0~1.4	6.6

Diagram of Dimensions:(unit:mm)



Recommended land pattern:(unit:mm)



Φ DxL	a	b	c
4xall	1	2.6	1.6
5xall	1.4	3	1.6
6.3xall	2.1	3.5	1.6
8xL(height ≤6.5)	2.1	4.5	1.6
8xL(height >6.5)	2.8	4.2	1.9
10xall	4.3	4.4	1.9
12.5xall	4.3	5.8	2.5
16xall	6	6.5	3.5
18xall	6	7.5	3.5

Case Size

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (mArms/105°C /120Hz)
6.3	22	4x5.5	22
6.3	33	4x5.5	30
6.3	47	4x5.5	36
6.3	100	5x5.5	60
6.3	150	6.3x5.5	86
6.3	220	6.3x5.5	89
6.3	220	6.3x7.7	102
6.3	220	8x6.5	102
6.3	330	6.3x7.7	105
6.3	330	8x6.5	105
6.3	470	8x10.5	210
6.3	1000	8x10.5	202
6.3	1000	10x10.5	230
6.3	1500	10x10.5	310
10	22	4x5.5	27
10	33	4x5.5	25
10	33	5x5.5	40
10	47	5x5.5	46
10	100	5x5.5	52
10	100	6.3x5.5	60
10	150	6.3x5.5	86
10	220	6.3x7.7	105
10	220	8x6.5	105
10	330	8x10.5	195
10	470	8x10.5	210
10	1000	10x10.5	310
16	10	4x5.5	18
16	22	4x5.5	30
16	33	5x5.5	40
16	47	5x5.5	51
16	100	6.3x5.5	60
16	150	6.3x7.7	95
16	150	8x6.5	95
16	220	6.3x7.7	105
16	330	8x10.5	195
16	470	8x10.5	210
25	4.7	4x5.5	16
25	10	4x5.5	26
25	22	5x5.5	38
25	33	5x5.5	48
25	47	6.3x5.5	63

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (mArms/105°C /120Hz)
25	100	6.3x7.7	91
25	100	8x6.5	91
25	150	8x10.5	140
25	220	8x10.5	155
25	330	8x10.5	175
25	330	10x10.5	198
25	470	10x10.5	300
35	4.7	4x5.5	16
35	10	4x5.5	27
35	22	5x5.5	37
35	22	6.3x5.5	42
35	33	6.3x5.5	50
35	33	6.3x7.7	58
35	47	6.3x5.5	58
35	47	6.3x7.7	66
35	100	6.3x7.7	84
35	100	8x6.5	84
35	150	8x10.5	155
35	220	8x10.5	167
35	220	10x10.5	190
35	330	10x10.5	300
50	0.1	4x5.5	1
50	0.22	4x5.5	2.6
50	0.33	4x5.5	3.2
50	0.47	4x5.5	3.8
50	1	4x5.5	6.3
50	2.2	4x5.5	11
50	3.3	4x5.5	14
50	4.7	4x5.5	19
50	4.7	5x5.5	22
50	10	5x5.5	29
50	10	6.3x5.5	33
50	22	6.3x5.5	51
50	33	6.3x7.7	60
50	33	8x6.5	60
50	47	6.3x7.7	66
50	47	8x6.5	66
50	100	8x10.5	140
50	150	10x10.5	180
50	220	10x10.5	220