

HV Series

Features

- ◆ Long life of 2000 hrs at 105°C
- ◆ Reflow soldering is available
- ◆ Available for high density mounting
- ◆ RoHS Compliant
- ◆ AEC-Q200 qualified



Specifications

Item	Performance Characteristics												
Operating Temperature Range	-55~ +105°C						-40~ +105°C						
Rated Voltage Range	6.3~100 VDC						160~450 VDC						
Capacitance Range	0.1 to 6800 μF						2.2 to 68 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)	Rated voltage(VDC)	6.3	10	16	25	35	50	63	80	100	160~250	> 250	
	φ 4~6.3	30	24	20	16	14	14	12	10	10	-	-	
	φ 8~10	35	26	24	18	14	14	12	10	10	15	20	
	≥ φ 12.5	37	34	24	18	14	14	12	10	10	15	20	
Low Temperature Characteristics (at 120Hz)	Impedance ratio max												
	Rated voltage(VDC)	6.3	10	16	25	35	50	63	80	100	160~250	400	450
	Z-25°C / Z+20°C	6	4	4	3	2	2	2	3	3	3	6	6
	Z-40°C / Z+20°C	12	10	8	6	4	4	4	4	4	6	10	15
Endurance	Test conditions	:2000 Hrs											
	Duration time	:+105°C											
	Ambient temperature	:Rated DC working voltage											
	Applied voltage	:Rated DC working voltage											
	After test requirement at +20°C:	:Within ±30% of the initial value											
	Capacitance change	:Not more than 300% of specified value											
	Dissipation factor	:Not more than the specified value											
	Leakage current	value											
Shelf Life	Test conditions	:1000 Hrs											
	Duration time	:+105°C											
	Ambient temperature	:None											
	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.												
	Leakage current	Less than specified value											
	Capacitance change	Within ±10% of initial value											
	tan δ	Less than specified value											

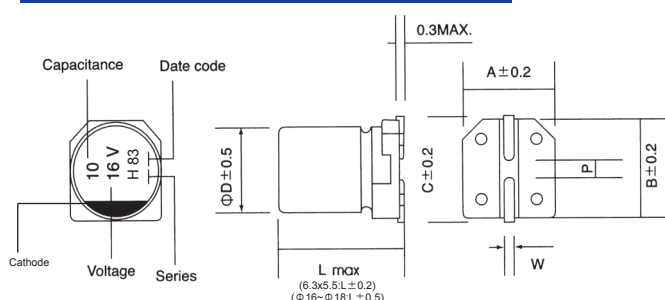
SMD

Multiplier for Ripple Current vs. Frequency

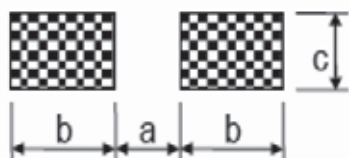
CAP(μF)\Frequency(Hz)	60(50)	120	500	1K	≥10K
0.1 ≤ CAP ≤ 100 μF	0.8	1.0	1.20	1.30	1.50
100 < CAP	0.8	1.0	1.10	1.15	1.20

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 (μF)	Size (mm)	Rated Ripple current (mArms/105°C /120Hz)
6.3	22	4x5.5	23
6.3	33	4x5.5	28
6.3	47	4x5.5	37
6.3	47	5x5.5	40
6.3	100	5x5.5	46
6.3	100	6.3x5.5	57
6.3	150	6.3x5.5	70
6.3	150	8x6.5	90
6.3	220	6.3x7.7	90
6.3	220	8x6.5	130
6.3	330	6.3x7.7	140
6.3	330	8x10.5	170
6.3	470	8x10.5	210
6.3	560	8x10.5	310
6.3	680	8x10.5	330
6.3	680	10x10.5	370
6.3	1000	8x10.5	420
6.3	1000	10x10.5	480
6.3	1200	10x10.5	500
6.3	1500	10x10.5	520
6.3	1800	12.5x14	600
6.3	2200	12.5x14	650
6.3	3300	12.5x14	700
6.3	6800	16x17	930
10	22	4x5.5	25
10	33	4x5.5	34
10	47	5x5.5	42
10	100	6.3x5.5	55
10	100	8x6.5	60
10	150	6.3x5.5	90
10	150	8x6.5	110
10	220	6.3x7.7	140
10	220	8x6.5	160
10	330	8x10.5	195
10	470	8x10.5	350
10	470	10x10.5	420
10	560	10x10.5	450
10	680	10x10.5	480
10	1000	10x10.5	530
10	1200	12.5x14	570
10	1500	12.5x14	750
10	4700	16x17	880
16	10	4x5.5	20
16	22	4x5.5	31
16	22	5x5.5	35
16	33	5x5.5	36
16	33	6.3x5.5	40
16	47	5x5.5	45
16	47	6.3x5.5	56

WV (Vdc)	Cap (μF)	Size (mm)	Rated Ripple current (mArms/105°C /120Hz)
16	100	6.3x7.7	58
16	100	8x6.5	62
16	150	6.3x7.7	125
16	150	8x6.5	140
16	220	6.3x7.7	170
16	220	8x10.5	185
16	330	8x10.5	250
16	470	8x10.5	370
16	470	10x10.5	420
16	560	10x10.5	480
16	680	10x10.5	540
16	1000	12.5x14	580
16	1200	12.5x14	590
16	1500	12.5x14	620
16	3300	16x17	850
25	4.7	4x5.5	12
25	10	4x5.5	22
25	22	5x5.5	38
25	33	6.3x5.5	48
25	47	6.3x7.7	56
25	47	8x6.5	60
25	100	6.3x7.7	110
25	100	8x10.5	160
25	150	8x10.5	175
25	220	8x10.5	180
25	220	10x10.5	190
25	330	8x10.5	290
25	470	10x10.5	440
25	560	12.5x14	490
25	680	12.5x14	510
25	1000	12.5x14	600
25	2200	16x17	805
35	4.7	4x5.5	14
35	10	4x5.5	24
35	22	5x5.5	40
35	22	6.3x5.5	46
35	33	6.3x7.7	47
35	33	8x6.5	50
35	47	6.3x7.7	60
35	47	8x6.5	65
35	100	6.3x7.7	130
35	100	8x10.5	180
35	150	8x10.5	190
35	220	8x10.5	250
35	220	10x10.5	280
35	330	10x10.5	360
35	470	12.5x14	460
35	560	12.5x14	500
35	1500	16x17	740

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (mA _{rms} /105°C /120Hz)
50	0.1	4x5.5	1
50	0.22	4x5.5	2
50	0.33	4x5.5	3
50	0.47	4x5.5	4
50	1	4x5.5	8
50	2.2	4x5.5	11
50	3.3	4x5.5	13
50	4.7	4x5.5	18
50	10	6.3x5.5	28
50	22	6.3x7.7	50
50	22	8x6.5	55
50	33	6.3x7.7	95
50	33	8x10.5	135
50	47	6.3x7.7	115
50	47	8x10.5	155
50	100	10x10.5	315
50	150	10x10.5	330
50	220	10x10.5	350
50	330	12.5x14	400
50	470	16x17	570
50	1000	16x17	655
63	0.1	4x5.5	0.7
63	0.22	4x5.5	1.6
63	0.33	4x5.5	2.5
63	0.47	4x5.5	3.5
63	1	4x5.5	7
63	2.2	4x5.5	11
63	3.3	5x5.5	14
63	4.7	5x5.5	22
63	10	6.3x5.5	40
63	22	6.3x7.7	58
63	33	8x10.5	112
63	47	8x10.5	119
63	100	10x10.5	280
63	220	12.5x14	300
63	470	16x17	630
80	1	4x5.5	7
80	2.2	5x5.5	12
80	3.3	6.3x5.5	17
80	4.7	6.3x5.5	25
80	10	6.3x7.7	35
80	22	6.3x7.7	58
80	33	8x10.5	112
80	47	10x10.5	160
80	100	12.5x14	380
80	150	16x17	500
80	220	16x17	600
100	1	4x5.5	7
100	2.2	6.3x6.1	15
100	2.2	6.3x5.5	13
100	3.3	6.3x6.1	20
100	4.7	6.3x7.7	28

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (mA _{rms} /105°C /120Hz)
100	10	6.3x7.7	35
100	22	8x10.5	85
100	33	10x10.5	135
100	47	12.5x14	240
100	150	16x17	500
160	10	8x10.5	57
160	12	8x10.5	60
160	18	10x10.5	65
160	22	10x10.5	70
160	27	12.5x14	85
160	33	12.5x14	95
160	39	12.5x14	105
160	47	16x17	260
160	68	16x17	300
200	10	10x10.5	64
200	10	12.5x14	80
200	22	12.5x14	105
200	27	12.5x14	115
200	33	12.5x14	170
200	33	16x17	220
200	47	16x17	260
250	4.7	8x10.5	50
250	6.8	10x10.5	60
250	10	10x10.5	75
250	15	12.5x14	120
250	22	16x17	180
250	27	16x17	200
250	33	16x17	230
250	39	16x17	260
250	47	16x17	285
400	2.2	8x10.5	27
400	3.3	8x10.5	34
400	3.9	10x10.5	40
400	4.7	10x10.5	40
400	4.7	12.5x14	50
400	6.8	12.5x14	60
400	8.2	12.5x14	65
400	10	12.5x14	70
400	10	16x17	85
400	12	16x17	95
400	22	16x17	120
450	3.3	10x10.5	40
450	3.9	10x10.5	40
450	4.7	12.5x14	50
450	6.8	12.5x14	60
450	8.2	12.5x14	65
450	10	12.5x14	70
450	10	16x17	85
450	12	16x17	95
450	15	16x17	100
450	22	16x17	120