

## HP Series 105°C 2000H

### Features

#### Standard capacitors

#### Applications

- Switch-mode power supplies in industrial and entertainment electronics
- Uninterruptible power supplies

#### Features

- High reliability
- Long useful life
- High ripple current capability
- Aluminum case designed explosion-proof vent
- RoHS-compatible

#### Construction

- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Aluminum case designed explosion-proof vent
- Snap-in solder pins to hold component in place on PC-board

### Specifications

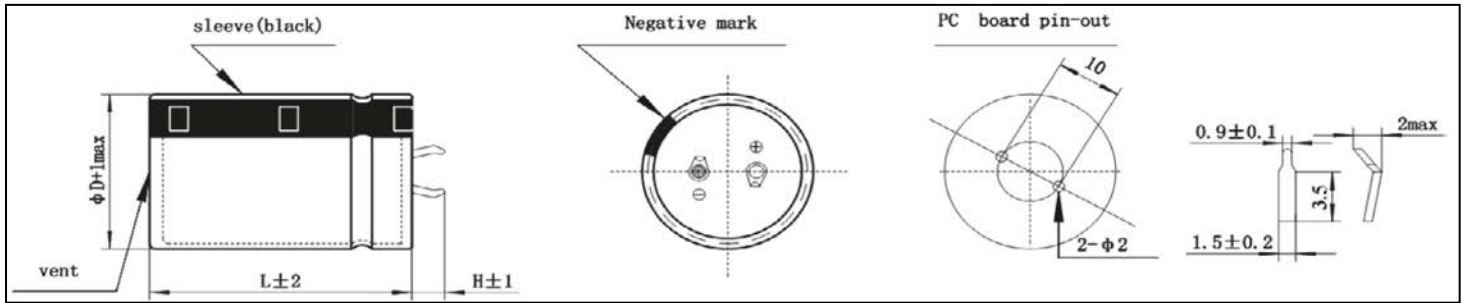
Item	Performance Characteristics												
Operating Temperature Range	-40 to +105°C	-25 to +105°C											
Rated voltage $V_R$	6.3 to 450 V DC	500 to 550 V DC											
Surge voltage $V_S$	$V_R \leq 315V$ 1.15 $V_R$ $V_R > 315V$ 1.10 $V_R$												
Rated capacitance $C_R$	<b>56 to 100000 <math>\mu F</math></b>	<b>47 to 1000 <math>\mu F</math></b>											
Capacitance tolerance	$\pm 20\%$ (120Hz, +20°C)												
Leakage Current $I_{leak}$ (+20°C .max.)	$I \leq 3\sqrt{CV}$ ( $\mu A$ ) After 5 minutes with rated working voltage applied												
Dissipation Factor ( $\tan\delta$ , at 20°C, 120Hz)	Less than the value under table(%)												
	$\mu F/Vdc$	6.3	10	16	25	35	50	63	80	100	160~420	450~600	
	$\leq 8200$	-	35	35	30	25	20	20	15	15	15	20	
	10000 to 22000	55	40	40	35	30	30	25	15	-	-	-	
$\geq 27000$	60	50	40	35	35	30	25	-	-	-	-		
Self-inductance ESL	approx. 20 nH												
Useful life 105 °C; $V_R, I_{AC,R}$	$V_R \leq 100V$ :	Requirements:											
	>3000 h	$V_R \leq 100V$	$V_R \leq 100V$ DC/C $\leq \pm 30\%$ of initial value ESR $\leq 3$ times initial specified limit $I_{leak} \leq$ initial specified limit								$V_R > 100V$ DC/C $\leq \pm 20\%$ of initial value ESR $\leq 2$ times initial specified limit $I_{leak} \leq$ initial specified limit		
$V_R > 100V$ :	>5000 h	Failure rate : $\leq 1\%/1000$ hour											
Voltage Endurance test 105 °C; $V_R$	2000 h		Post test requirements:										
	$V_R \leq 100V$	$V_R \leq 100V$ DC/C $\leq \pm 15\%$ of initial value ESR $\leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit								$V_R > 100V$ DC/C $\leq \pm 10\%$ of initial value ESR $\leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit			
Shelf Life 105 °C	1000 h		Post test requirements:										
	$V_R \leq 100V$	$V_R \leq 100V$ DC/C $\leq \pm 15\%$ of initial value ESR $\leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit								$V_R > 100V$ DC/C $\leq \pm 10\%$ of initial value ESR $\leq 1.3$ times initial specified limit $I_{leak} \leq$ initial specified limit			
Vibration Resistance test	To IEC 60068-2-6, test Fc:												
	Displacement amplitude 0.75 mm, frequency range 10 ... 55 Hz, acceleration max. 10 g, duration 3 ´ 2 h. Capacitor mounted by its body which is rigidly clamped to the work surface.												
Characteristics at low temperature	Max. impedance ratio at 120 Hz □												
	$V_R(V)$	6.3~16	25	35	50~100	160~250	315~450	500~600					
	$Z_{-25^\circ C} / Z_{20^\circ C}$	4	3	3	3	3	8	8					
$Z_{-40^\circ C} / Z_{20^\circ C}$	15	10	8	6	7	10	-						
Sectional specification	IEC 60384-4 and JIS-C-5101												

### Multiplier for Ripple Current vs. Frequency

$V_R(V)/$ Frequency(Hz)	50(60)	120	300	1K	10K	50K-100K
$10 \leq V_R \leq 100$	0.88	1	1.07	1.15	1.15	1.15
$160 \leq V_R \leq 250$	0.81	1	1.17	1.32	1.45	1.5
$315 \leq V_R \leq 600$	0.77	1	1.16	1.30	1.41	1.43

## Dimensional drawings

Standard 2 terminals



Standard snap-in terminals: length  $(6.0+1)$ mm  
 Also available with length of  $(4.0+1)$ mm

## Packing

Capacitor diameter D(mm)	Length L(mm)	Terminal length H(mm)	Each carton packing Qty units(pcs.)	Box/carton units(pcs.)	Each box packing Qty units(pcs.)
20	all	/	720	6	120
22	<55	/	600	6	100
22	$\geq 55$	/	400	4	100
25	<65	/	500	5	100
25	$\geq 65$	/	400	4	100
30	$\leq 36$	< 6(L=35、36)	400	8	50
30	$35 \leq L \leq 65$	$\geq 6$ (L=35、36)	300	6	50
30	> 65	/	200	4	50
35	$\leq 25$	/	400	8	50
35	$25 < L < 45$	/	300	6	50
35	$45 \leq L \leq 85$	/	200	4	50
35	> 85	/	100	2	50
40	35	< 6	200	5	40
40	35	$\geq 6$	160	4	40
40	$40 \leq L \leq 45$	/	160	4	40
40	$45 < L \leq 75$	/	120	3	40
40	> 75	/	80	2	40
45	$40 \leq L \leq 65$	/	140	4	35
45	$65 < L \leq 105$	/	70	2	35

Packing of snap-in





## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
6.3	12000	22x25	1.54	47	61
6.3	15000	22x25	1.72	37	49
6.3	18000	22x30	1.95	31	41
6.3	18000	25x25	1.96	31	41
6.3	22000	22x35	2.23	26	33
6.3	22000	25x30	2.25	26	33
6.3	22000	30x25	2.28	26	33
6.3	27000	22x40	2.54	23	29
6.3	27000	25x35	2.57	23	29
6.3	27000	30x25	2.59	23	29
6.3	33000	22x45	2.88	19	24
6.3	33000	25x40	2.93	19	24
6.3	33000	30x30	2.89	19	24
6.3	33000	35x25	2.93	19	24
6.3	39000	25x40	3.18	16	20
6.3	39000	30x35	3.26	16	20
6.3	39000	35x30	3.4	16	20
6.3	47000	25x50	3.69	13	17
6.3	47000	30x40	3.69	13	17
6.3	47000	35x30	3.73	13	17
6.3	56000	30x45	4.16	11	14
6.3	56000	35x35	4.17	11	14
6.3	68000	30x50	4.71	9	12
6.3	68000	35x40	4.71	9	12
6.3	82000	35x45	5.32	8	10
10	4700	22x25	1.24	76	99
10	6800	22x25	1.4	53	68
10	8200	22x25	1.65	44	57
10	10000	22x25	1.9	36	46
10	12000	22x30	2.48	34	44
10	12000	25x25	2.48	34	44
10	15000	22x35	2.71	27	35
10	15000	25x25	2.6	27	35
10	18000	22x35	2.89	23	29
10	18000	25x30	2.94	23	29
10	18000	30x25	2.94	23	29
10	22000	22x40	2.96	19	24
10	22000	25x30	2.96	19	24
10	22000	30x25	3.08	19	24
10	27000	22x50	3.12	19	25
10	27000	25x40	3.12	19	25
10	27000	30x30	3.13	19	25
10	27000	35x25	3.21	19	25
10	33000	25x45	3.32	15	20
10	33000	35x30	3.85	15	20
10	39000	30x40	3.85	13	17
10	47000	30x45	3.98	11	14
10	47000	35x35	4.05	11	14
10	56000	30x50	4.21	9	12
10	56000	35x40	4.32	9	12
10	68000	35x45	5.12	8	10
10	100000	35x50	6.14	5	7
16	4700	22x25	1.55	76	99
16	6800	22x25	1.78	53	68
16	8200	22x25	2.14	44	57
16	10000	22x30	2.48	36	46
16	10000	25x25	2.56	36	46
16	12000	22x35	2.8	34	44
16	12000	25x30	2.9	34	44
16	12000	30x25	2.97	34	44

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
16	15000	22x40	3.17	27	35
16	15000	25x35	3.29	27	35
16	15000	30x30	3.38	27	35
16	18000	22x45	3.5	23	29
16	18000	25x40	3.65	23	29
16	18000	30x30	3.65	23	29
16	22000	22x45	3.65	19	24
16	22000	25x40	3.71	19	24
16	22000	30x35	3.83	19	24
16	27000	25x40	3.95	15	20
16	27000	30x35	3.96	15	20
16	33000	25x45	4.32	12	16
16	33000	30x35	4.41	12	16
16	33000	35x30	4.43	12	16
16	39000	30x40	4.9	10	14
16	39000	35x35	5.1	10	14
16	47000	30x45	5.3	9	11
16	47000	35x40	5.52	9	11
16	56000	30x50	6	7	10
16	56000	35x40	6.05	7	10
16	68000	35x50	6.4	6	8
25	2200	22x25	1.03	140	180
25	3300	22x25	1.48	92	120
25	4700	22x25	1.73	65	85
25	5600	22x25	1.85	55	71
25	6800	22x30	2.05	45	59
25	6800	25x25	2.1	45	59
25	8200	22x30	2.31	37	49
25	8200	25x25	2.31	37	49
25	10000	22x35	2.65	31	40
25	10000	25x30	2.68	31	40
25	12000	22x40	2.92	30	39
25	12000	25x30	2.91	30	39
25	12000	30x25	2.93	30	39
25	15000	22x45	3.18	24	31
25	15000	25x35	3.1	24	31
25	15000	30x30	3.32	24	31
25	18000	22x45	3.51	20	26
25	18000	25x40	3.6	20	26
25	18000	30x30	3.8	20	26
25	22000	25x45	4.04	16	21
25	22000	30x35	4.04	16	21
25	22000	35x30	4.04	16	21
25	27000	30x40	4.74	13	17
25	27000	35x35	4.76	13	17
25	33000	30x45	5.5	11	14
25	33000	35x40	5.7	11	14
25	39000	35x45	5.8	9	12
25	47000	35x50	6.3	8	10
35	1500	22x25	1.26	170	220
35	2200	22x25	1.35	120	150
35	2700	22x25	1.36	92	120
35	3300	22x25	1.49	77	100
35	3900	22x30	1.82	65	85
35	4700	22x30	2.02	54	71
35	4700	25x25	2.12	54	71
35	5600	22x30	2.25	46	59
35	5600	25x25	2.35	46	59
35	6800	22x35	2.36	38	49
35	6800	25x30	2.41	38	49

## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
35	6800	30x25	2.5	38	49
35	8200	22x40	2.55	31	40
35	8200	25x35	2.61	31	40
35	8200	30x25	2.65	31	40
35	10000	22x40	3	26	33
35	10000	25x35	3.15	26	33
35	10000	30x30	3.35	26	33
35	12000	22x45	3.47	26	33
35	12000	25x40	3.5	26	33
35	12000	30x35	3.52	26	33
35	12000	35x30	3.58	26	33
35	15000	25x45	3.65	20	27
35	15000	30x40	3.69	20	27
35	15000	35x35	3.75	20	27
35	18000	25x50	3.82	17	22
35	18000	30x40	3.95	17	22
35	18000	35x35	4.12	17	22
35	22000	30x45	4.38	14	18
35	22000	35x40	4.78	14	18
35	27000	30x50	4.86	13	17
35	27000	35x45	5.12	13	17
35	33000	35x50	5.9	11	14
50	1000	22x25	0.84	210	270
50	1500	22x25	1.27	140	180
50	1800	22x25	1.35	120	150
50	2200	22x25	1.48	92	120
50	2700	22x25	1.68	76	98
50	3300	22x30	1.75	62	80
50	3300	25x25	1.87	62	80
50	3900	22x30	2.12	52	68
50	3900	25x25	2.21	52	68
50	4700	22x35	2.25	43	56
50	4700	25x30	2.31	43	56
50	4700	30x25	2.33	43	56
50	5600	22x40	2.49	36	47
50	5600	25x35	2.76	36	47
50	5600	30x30	2.85	36	47
50	6800	22x50	3.1	30	39
50	6800	25x40	3.05	30	39
50	6800	30x35	3.34	30	39
50	6800	35x30	3.42	30	39
50	8200	25x45	3.48	25	32
50	8200	30x35	3.51	25	32
50	8200	35x30	3.6	25	32
50	10000	25x50	3.91	20	27
50	10000	30x40	3.98	20	27
50	10000	35x30	4.05	20	27
50	12000	30x45	4.31	26	33
50	12000	35x35	4.38	26	33
50	15000	35x50	4.8	20	27
50	18000	35x50	5.3	17	22
50	22000	35x60	5.5	14	18
63	680	22x25	0.7	300	390
63	1000	22x25	1	210	270
63	1200	22x25	1.21	170	220
63	1500	22x25	1.36	140	180
63	1800	22x30	1.41	120	150
63	1800	25x25	1.46	120	150
63	2200	22x30	1.54	92	120
63	2200	25x25	1.61	92	120

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
63	2700	22x35	2.02	76	98
63	2700	25x30	2.05	76	98
63	2700	30x25	2.1	76	98
63	3300	22x40	2.12	62	80
63	3300	25x35	2.2	62	80
63	3300	30x25	2.25	62	80
63	3300	35x25	2.32	62	80
63	3900	22x40	2.34	52	68
63	3900	25x35	2.42	52	68
63	3900	30x25	2.43	52	68
63	4700	22x45	2.59	43	56
63	4700	25x40	2.65	43	56
63	4700	30x30	2.71	43	56
63	5600	25x45	2.93	36	47
63	5600	30x35	3.05	36	47
63	5600	35x30	3.09	36	47
63	6800	30x40	3.72	30	39
63	6800	35x35	3.78	30	39
63	8200	30x40	3.82	25	32
63	8200	35x35	3.92	25	32
63	10000	30x45	4.05	20	27
63	10000	35x40	4.1	20	27
63	12000	35x45	4.76	21	28
63	15000	35x50	5.4	17	22
80	680	22x25	0.75	220	290
80	820	22x25	1.11	180	240
80	1000	22x25	1.22	150	200
80	1200	22x30	1.32	130	170
80	1200	25x25	1.39	130	170
80	1500	22x30	1.59	100	130
80	1500	25x25	1.6	100	130
80	1800	22x35	1.71	85	110
80	1800	25x30	1.75	85	110
80	1800	30x25	1.95	85	110
80	2200	22x40	2.12	70	90
80	2200	25x30	2.05	70	90
80	2700	22x45	2.41	57	74
80	2700	25x40	2.45	57	74
80	2700	30x30	2.49	57	74
80	3300	25x45	2.6	46	60
80	3300	30x35	2.64	46	60
80	3300	35x25	2.62	46	60
80	3900	30x35	2.95	39	51
80	3900	35x30	3.05	39	51
80	4700	30x45	3.21	33	42
80	4700	35x30	3.45	33	42
80	4700	35x35	3.51	33	42
80	5600	30x45	3.55	27	36
80	5600	35x35	3.65	27	36
80	6800	30x50	3.72	23	29
80	6800	35x45	3.9	23	29
80	8200	35x50	4.3	19	24
80	10000	35x50	4.4	15	20
100	330	22x25	0.55	460	600
100	470	22x25	0.79	320	420
100	560	22x25	1.06	280	360
100	680	22x25	1.16	220	290
100	680	22x30	1.18	220	290
100	680	25x25	1.2	220	290
100	680	30x25	1.25	220	290

## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
100	820	22x25	1.41	180	240
100	820	22x30	1.46	180	240
100	820	25x25	1.51	180	240
100	820	30x25	1.55	180	240
100	1000	22x30	1.71	150	200
100	1000	25x30	1.77	150	200
100	1000	25x35	1.8	150	200
100	1000	30x25	1.81	150	200
100	1200	22x30	1.83	130	170
100	1200	25x25	1.85	130	170
100	1200	25x35	1.94	130	170
100	1200	30x25	1.95	130	170
100	1500	22x35	2.11	100	130
100	1500	25x30	2.15	100	130
100	1500	25x35	2.19	100	130
100	1500	30x25	2.2	100	130
100	1500	35x25	2.26	100	130
100	1800	22x40	2.31	85	110
100	1800	25x35	2.32	85	110
100	1800	25x40	2.38	85	110
100	1800	30x25	2.33	85	110
100	1800	30x30	2.36	85	110
100	1800	35x25	2.4	85	110
100	2200	22x45	2.62	70	90
100	2200	25x40	2.65	70	90
100	2200	30x35	2.75	70	90
100	2200	35x25	2.7	70	90
100	2700	25x45	2.91	57	74
100	2700	30x35	2.93	57	74
100	2700	35x35	3.25	57	74
100	3300	25x50	3.31	46	60
100	3300	30x40	3.37	46	60
100	3300	35x35	3.45	46	60
100	3300	35x40	3.56	46	60
100	3900	30x45	3.68	39	51
100	3900	35x35	3.7	39	51
100	4700	30x50	3.82	33	42
100	4700	35x40	3.84	33	42
100	4700	35x50	3.97	33	42
100	5600	35x45	4.11	27	36
100	6800	35x50	4.51	23	29
100	8200	40x60	4.95	19	24
100	10000	40x60	5.24	15	20
160	220	22x25	0.42	500	900
160	270	22x25	0.95	410	740
160	330	22x25	1.11	330	600
160	330	22x30	1.12	330	600
160	330	25x25	1.13	330	600
160	390	22x25	1.15	280	510
160	390	22x30	1.22	280	510
160	390	25x25	1.25	280	510
160	470	22x25	1.41	230	420
160	470	22x30	1.45	230	420
160	470	25x25	1.5	230	420
160	560	22x25	1.62	200	360
160	560	25x30	1.75	200	360
160	680	22x30	1.84	160	290
160	680	25x25	1.86	160	290
160	680	30x25	2.01	160	290
160	820	22x35	2	130	240

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
160	820	25x30	2.01	130	240
160	820	25x45	2.2	130	240
160	820	30x25	2.05	130	240
160	820	30x30	2.1	130	240
160	1000	22x40	2.34	110	200
160	1000	22x50	2.41	110	200
160	1000	25x35	2.36	110	200
160	1000	25x45	2.47	110	200
160	1000	30x25	2.06	110	200
160	1000	30x35	2.47	110	200
160	1200	22x45	2.62	94	170
160	1200	25x35	2.61	94	170
160	1200	30x30	2.66	94	170
160	1200	35x25	2.7	94	170
160	1500	25x40	2.83	72	130
160	1500	30x35	2.89	72	130
160	1500	35x25	2.88	72	130
160	1500	35x30	2.96	72	130
160	1800	25x50	3.25	61	110
160	1800	30x35	3.2	61	110
160	1800	35x30	3.25	61	110
160	2200	30x45	3.26	50	90
160	2200	35x35	3.32	50	90
160	2700	30x50	3.67	41	74
160	2700	35x40	3.68	41	74
160	3300	35x45	3.71	33	60
180	270	22x25	0.98	410	740
180	330	22x25	1.14	330	600
180	390	22x25	1.31	280	510
180	470	22x25	1.46	230	420
180	470	22x30	1.5	230	420
180	560	22x30	1.67	200	360
180	560	25x25	1.69	200	360
180	680	22x35	1.88	160	290
180	680	25x30	1.9	160	290
180	820	22x40	2.12	130	240
180	820	25x30	2.12	130	240
180	820	30x25	2.15	130	240
180	1000	22x45	2.39	110	200
180	1000	25x35	2.39	110	200
180	1000	30x25	2.36	110	200
180	1000	35x25	2.47	110	200
180	1200	22x50	2.7	94	170
180	1200	25x40	2.7	94	170
180	1200	30x35	2.75	94	170
180	1500	25x50	3	72	130
180	1500	30x40	3.05	72	130
180	1500	35x30	3.07	72	130
180	1800	30x45	3.2	61	110
180	1800	35x35	3.25	61	110
180	2200	30x50	3.33	50	90
180	2200	35x40	3.35	50	90
180	2700	35x45	3.69	41	74
180	3300	35x50	3.72	33	60
200	100	22x20	0.52	1110	1990
200	120	22x20	0.53	920	1660
200	150	22x20	0.7	740	1330
200	150	22x25	0.72	740	1330
200	150	25x20	0.72	740	1330
200	150	25x25	0.73	740	1330

## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
200	180	22x25	0.84	620	1110
200	180	25x20	0.85	620	1110
200	180	30x20	0.87	620	1110
200	220	22x25	0.96	500	900
200	220	25x20	0.96	500	900
200	220	25x25	1.14	500	900
200	220	30x20	1.14	500	900
200	270	22x25	1.1	410	740
200	270	22x30	1.2	410	740
200	270	25x25	1.2	410	740
200	270	30x20	1.2	410	740
200	270	30x25	1.25	410	740
200	330	22x25	1.15	330	600
200	330	22x30	1.22	330	600
200	330	25x25	1.23	330	600
200	330	25x30	1.3	330	600
200	330	30x25	1.3	330	600
200	330	35x20	1.27	330	600
200	390	22x25	1.31	280	510
200	390	22x30	1.37	280	510
200	390	25x25	1.37	280	510
200	390	25x30	1.45	280	510
200	390	30x25	1.45	280	510
200	470	22x30	1.51	230	420
200	470	22x35	1.6	230	420
200	470	25x30	1.6	230	420
200	470	25x35	1.65	230	420
200	470	30x25	1.65	230	420
200	560	22x30	1.67	200	360
200	560	22x35	1.71	200	360
200	560	25x30	1.71	200	360
200	560	25x35	1.8	200	360
200	560	30x25	1.75	200	360
200	560	30x30	1.8	200	360
200	560	35x25	1.76	200	360
200	680	22x35	1.89	160	290
200	680	22x40	2	160	290
200	680	25x30	2	160	290
200	680	25x35	2.15	160	290
200	680	30x30	2.15	160	290
200	680	35x25	2.15	160	290
200	820	22x40	2.13	130	240
200	820	22x45	2.25	130	240
200	820	25x35	2.25	130	240
200	820	25x40	2.4	130	240
200	820	30x30	2.4	130	240
200	820	35x25	2.4	130	240
200	820	35x30	2.49	130	240
200	1000	22x50	2.45	110	200
200	1000	25x40	2.43	110	200
200	1000	25x45	2.56	110	200
200	1000	30x30	2.45	110	200
200	1000	30x35	2.58	110	200
200	1000	35x25	2.47	110	200
200	1000	35x30	2.58	110	200
200	1200	25x45	2.66	94	170
200	1200	25x50	2.78	94	170
200	1200	30x35	2.66	94	170
200	1200	30x40	2.8	94	170
200	1200	35x25	2.7	94	170

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
200	1200	35x30	2.83	94	170
200	1500	25x50	2.97	72	130
200	1500	30x40	3.06	72	130
200	1500	35x30	3.08	72	130
200	1500	35x45	3.2	72	130
200	1800	30x45	3.26	61	110
200	1800	35x35	3.26	61	110
200	1800	35x40	3.37	61	110
200	2200	30x50	3.51	50	90
200	2200	35x40	3.51	50	90
200	2200	35x45	3.63	50	90
200	2700	35x45	3.7	41	74
200	2700	35x50	3.83	41	74
220	150	22x25	0.73	740	1330
220	180	22x25	0.85	620	1110
220	180	25x25	0.9	620	1110
220	220	22x25	0.97	500	900
220	220	25x25	1.05	500	900
220	220	30x20	1.14	500	900
220	270	22x25	1.11	410	740
220	270	25x25	1.23	410	740
220	330	22x35	1.36	330	600
220	330	25x25	1.36	330	600
220	330	30x25	1.47	330	600
220	390	22x35	1.48	280	510
220	390	25x30	1.48	280	510
220	390	30x25	1.45	280	510
220	470	22x35	1.53	230	420
220	470	25x30	1.54	230	420
220	470	30x25	1.56	230	420
220	560	22x40	1.69	200	360
220	560	25x35	1.73	200	360
220	560	30x30	1.73	200	360
220	560	35x25	1.73	200	360
220	680	22x45	1.91	160	290
220	680	25x40	1.93	160	290
220	680	30x35	2.05	160	290
220	680	35x30	2.06	160	290
220	820	22x50	2.17	130	240
220	820	25x40	2.17	130	240
220	820	30x35	2.18	130	240
220	820	35x30	2.2	130	240
220	1000	25x45	2.46	110	200
220	1000	30x35	2.49	110	200
220	1000	35x30	2.51	110	200
220	1200	25x50	2.79	94	170
220	1200	30x40	2.8	94	170
220	1200	35x35	2.84	94	170
220	1500	30x45	3.07	72	130
220	1500	35x40	3.09	72	130
220	1800	30x50	3.27	61	110
220	1800	35x45	3.27	61	110
220	2200	35x50	3.54	50	90
250	68	22x25	0.38	1630	2930
250	82	22x25	0.48	1350	2430
250	100	22x25	0.53	1110	1990
250	100	25x25	0.65	1110	1990
250	120	22x25	0.75	920	1660
250	150	22x25	0.78	740	1330
250	150	25x25	0.85	740	1330



## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
250	150	30x25	0.89	740	1330
250	180	22x25	0.89	620	1110
250	180	30x25	0.95	620	1110
250	220	22x25	1.01	500	900
250	220	22x30	1.07	500	900
250	220	25x25	1.07	500	900
250	220	30x25	1.15	500	900
250	270	22x25	1.15	410	740
250	270	22x30	1.2	410	740
250	270	25x25	1.2	410	740
250	270	25x30	1.25	410	740
250	270	30x25	1.25	410	740
250	270	30x30	1.32	410	740
250	330	22x35	1.26	330	600
250	330	25x25	1.27	330	600
250	330	25x30	1.38	330	600
250	330	30x25	1.38	330	600
250	330	35x25	1.45	330	600
250	390	22x35	1.42	280	510
250	390	25x30	1.45	280	510
250	390	30x25	1.45	280	510
250	390	30x30	1.54	280	510
250	390	35x25	1.56	280	510
250	470	22x35	1.57	230	420
250	470	22x40	1.7	230	420
250	470	25x30	1.67	230	420
250	470	25x35	1.72	230	420
250	470	30x25	1.72	230	420
250	470	30x30	1.79	230	420
250	470	35x25	1.79	230	420
250	560	22x40	1.87	200	360
250	560	22x45	1.97	200	360
250	560	25x35	1.88	200	360
250	560	25x40	1.97	200	360
250	560	30x25	1.88	200	360
250	560	30x30	1.97	200	360
250	560	35x25	1.98	200	360
250	560	35x30	2.1	200	360
250	680	22x45	2.15	160	290
250	680	25x40	2.2	160	290
250	680	30x35	2.24	160	290
250	680	35x30	2.25	160	290
250	820	25x45	2.56	130	240
250	820	30x35	2.56	130	240
250	820	35x30	2.57	130	240
250	1000	25x50	2.85	110	200
250	1000	30x40	2.85	110	200
250	1000	35x30	2.86	110	200
250	1200	30x45	3.2	94	170
250	1200	35x35	2.25	94	170
250	1500	30x50	3.83	72	130
250	1500	35x40	3.91	72	130
250	1800	35x45	4.3	61	110
250	1800	35x50	4.56	61	110
250	1800	35x55	4.88	61	110
250	2200	35x50	5	50	90
250	2200	35x55	5.19	50	90
315	120	22x25	0.76	920	1660
315	150	22x25	0.83	740	1330
315	180	22x30	0.92	620	1110

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
315	220	22x30	1.07	500	900
315	270	22x35	1.21	410	740
315	270	25x30	1.25	410	740
315	330	22x45	1.28	330	600
315	330	25x35	1.31	330	600
315	330	30x25	1.28	330	600
315	390	22x45	1.53	280	510
315	390	25x40	1.55	280	510
315	390	30x30	1.56	280	510
315	390	35x25	1.57	280	510
315	470	25x45	1.73	230	420
315	470	30x35	1.8	230	420
315	470	35x25	1.83	230	420
315	560	25x50	1.94	200	360
315	560	30x40	1.95	200	360
315	560	35x30	2.03	200	360
315	680	30x45	2.25	160	290
315	680	35x35	2.26	160	290
315	820	30x50	2.58	130	240
315	820	35x40	2.58	130	240
315	1000	35x45	2.87	110	200
315	1000	35x50	2.88	110	200
315	1200	35x45	2.92	94	170
315	1200	35x50	2.95	94	170
350	82	22x25	0.52	1350	2430
350	100	22x25	0.55	1110	1990
350	120	22x30	0.77	920	1660
350	150	22x30	0.82	740	1330
350	180	22x30	0.9	620	1110
350	180	25x30	0.97	620	1110
350	220	22x35	1.08	500	900
350	220	25x30	1.09	500	900
350	270	22x40	1.22	410	740
350	270	25x35	1.26	410	740
350	270	30x30	1.27	410	740
350	330	22x45	1.29	330	600
350	330	25x40	1.32	330	600
350	330	30x30	1.32	330	600
350	390	25x45	1.56	280	510
350	390	30x35	1.57	280	510
350	390	35x30	1.56	280	510
350	470	25x45	1.74	230	420
350	470	30x40	1.81	230	420
350	470	35x35	1.84	230	420
350	560	30x45	1.96	200	360
350	560	35x40	2.04	200	360
350	680	30x45	2.26	160	290
350	680	35x40	2.27	160	290
350	680	40x35	2.28	160	290
350	820	30x50	2.27	130	240
350	820	35x45	2.59	130	240
350	1000	35x50	2.89	110	200
350	1000	40x45	2.9	110	200
350	1200	35x50	2.87	94	170
350	1200	40x45	2.87	94	170
400	56	22x20	0.46	1970	3550
400	68	22x20	0.51	1630	2930
400	82	22x25	0.64	1350	2430
400	82	25x25	0.69	1350	2430
400	100	22x25	0.69	1110	1990

## Case Size

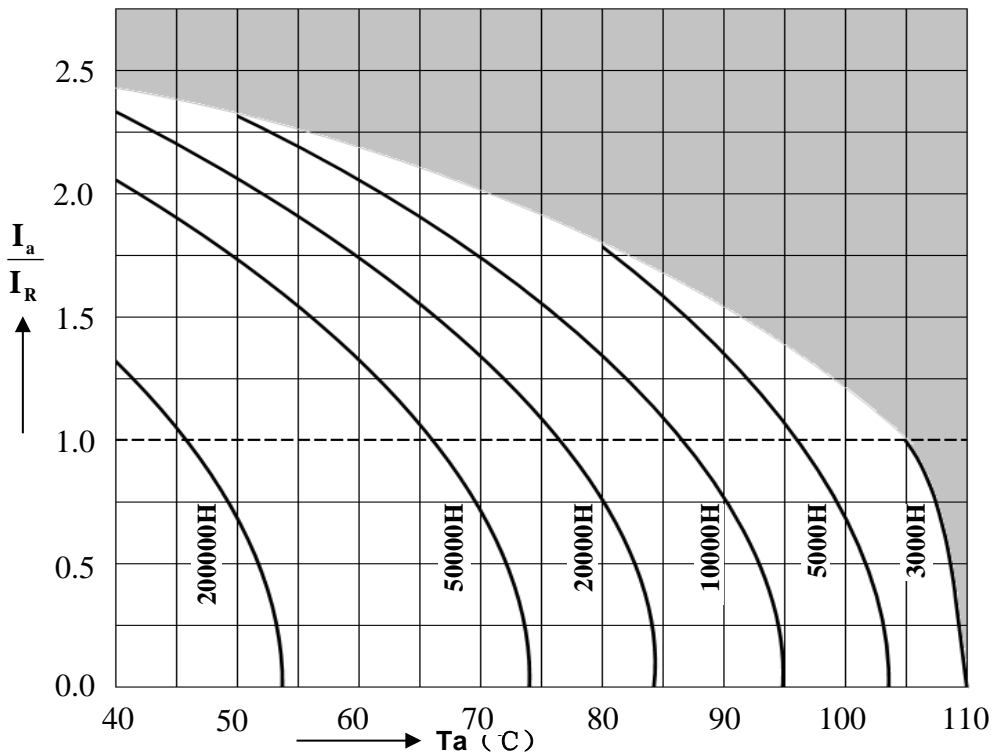
WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
400	100	25x25	0.75	1110	1990
400	120	22x25	0.78	920	1660
400	120	22x30	0.83	920	1660
400	120	25x25	0.83	920	1660
400	150	22x30	0.86	740	1330
400	150	25x25	0.86	740	1330
400	150	25x30	0.9	740	1330
400	150	30x25	0.89	740	1330
400	180	22x35	1	620	1110
400	180	25x30	1.05	620	1110
400	180	30x25	1.07	620	1110
400	220	22x40	1.09	500	900
400	220	25x30	1.1	500	900
400	220	30x25	1.1	500	900
400	220	30x30	1.16	500	900
400	270	25x35	1.26	410	740
400	270	30x30	1.28	410	740
400	330	22x45	1.46	330	600
400	330	25x40	1.48	330	600
400	330	30x35	1.52	330	600
400	330	35x30	1.52	330	600
400	390	25x45	1.69	280	510
400	390	30x40	1.72	280	510
400	390	35x35	1.74	280	510
400	470	25x50	1.84	230	420
400	470	30x40	1.92	230	420
400	470	35x35	1.95	230	420
400	560	30x45	2.32	200	360
400	560	35x40	2.33	200	360
400	680	30x50	2.68	160	290
400	680	35x45	2.75	160	290
400	820	35x45	2.92	130	240
400	820	35x50	2.97	130	240
400	1000	35x50	3.15	110	200
400	1200	35x60	3.29	94	170
400	1200	40x50	3.29	94	170
420	68	22x25	0.53	2170	3900
420	82	22x25	0.65	1790	3230
420	82	25x25	0.7	1790	3230
420	100	22x25	0.71	1470	2650
420	100	22x30	0.75	1470	2650
420	100	25x25	0.75	1470	2650
420	120	22x25	0.79	1230	2210
420	120	22x30	0.83	1230	2210
420	120	25x25	0.84	1230	2210
420	120	25x30	0.89	1230	2210
420	150	22x30	0.87	980	1770
420	150	22x35	0.93	980	1770
420	150	25x30	0.93	980	1770
420	150	30x25	0.93	980	1770
420	180	22x35	0.96	820	1470
420	180	22x40	1.02	820	1470
420	180	25x30	1.02	820	1470
420	180	30x25	1	820	1470
420	220	22x40	1.13	670	1210
420	220	22x45	1.19	670	1210
420	220	25x35	1.15	670	1210
420	220	30x25	1.16	670	1210
420	220	30x30	1.21	670	1210
420	220	35x25	1.23	670	1210

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (Arms/105 °C /120Hz)	Typ. ESR 20°C 120Hz mΩ	MAX ESR 20°C 120Hz mΩ
420	270	22x50	1.27	540	980
420	270	25x40	1.26	540	980
420	270	30x30	1.28	540	980
420	270	35x25	1.3	540	980
420	330	22x50	1.41	440	800
420	330	25x45	1.49	440	800
420	330	30x35	1.49	440	800
420	330	30x40	1.54	440	800
420	330	35x30	1.54	440	800
420	330	35x35	1.67	440	800
420	390	22x55	1.62	380	680
420	390	25x50	1.7	380	680
420	390	30x40	1.72	380	680
420	390	35x35	1.75	380	680
420	470	25x50	1.85	310	560
420	470	30x45	1.9	310	560
420	470	35x35	1.9	310	560
420	470	35x40	1.97	310	560
420	560	30x50	2.23	260	470
420	560	35x40	2.24	260	470
420	560	35x45	2.32	260	470
420	680	35x45	2.76	220	390
420	680	35x50	2.77	220	390
420	820	35x55	2.98	180	320
420	1000	35x60	3.15	150	270
420	1000	40x50	3.25	150	270
450	68	22x25	0.53	2170	3900
450	82	22x25	0.66	1790	3230
450	82	22x30	0.71	1790	3230
450	82	25x25	0.71	1790	3230
450	100	22x25	0.72	1470	2650
450	100	22x30	0.75	1470	2650
450	100	25x25	0.75	1470	2650
450	100	25x30	0.82	1470	2650
450	100	30x25	0.83	1470	2650
450	120	22x30	0.82	1230	2210
450	120	22x35	0.86	1230	2210
450	120	25x25	0.82	1230	2210
450	120	25x30	0.86	1230	2210
450	120	30x25	0.86	1230	2210
450	120	35x25	0.95	1230	2210
450	150	22x30	0.91	980	1770
450	150	22x35	0.93	980	1770
450	150	22x40	0.95	980	1770
450	150	25x30	0.94	980	1770
450	150	25x35	0.97	980	1770
450	150	30x25	0.98	980	1770
450	150	30x30	1.06	980	1770
450	150	35x25	1.08	980	1770
450	180	22x35	1.02	820	1470
450	180	22x40	1.05	820	1470
450	180	25x30	1.05	820	1470
450	180	25x35	1.1	820	1470
450	180	30x25	1.1	820	1470
450	180	30x30	1.19	820	1470
450	180	35x25	1.2	820	1470
450	180	35x30	1.28	820	1470
450	220	22x40	1.12	670	1210
450	220	22x45	1.2	670	1210
450	220	25x35	1.2	670	1210



## Useful life

depending on ambient temperature  $T_a$  versus under ripple current operating conditions  $V_R \leq 100V$



depending on ambient temperature  $T_a$  versus under ripple current operating conditions  $V_R \geq 160V$

