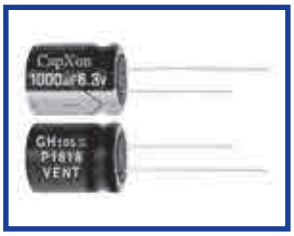
GH Series



Features

- ◆ Low impedance
- ◆ High temperature, Long life 3,000 to 10,000 hours at 105℃
- ◆ AEC-Q200 qualified

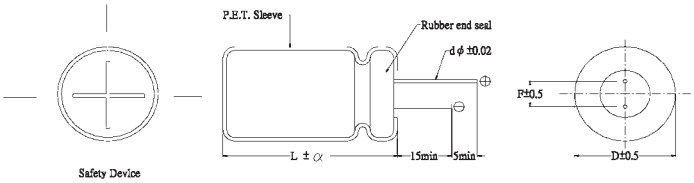
Specifications

Item	Performance Characteristics
Operating Temperature Range	-55 to +105℃
Rated Voltage Range	6.3 to 100 VDC
Capacitance Range	0.47 to 12000 μF
Capacitance Tolerance	±20%(120Hz,+20℃)
Leakage Current (+20℃,max.)	I≦0.01 CV or 3 (μA) (After 2 minute with rated working voltage applied.)
Dissipation Factor (tan δ，at 20℃，120Hz)	Working Voltage(VDC): 6.3, 10, 16, 25, 35, 50, 63, 80, 100 D.F.(%)max.: 22, 19, 16, 14, 12, 10, 9, 9, 8 For capacitance＞1000 μF,add 2% per another 1000 μF.
Low Temperature Characteristics (at 120Hz)	Impedance ratio max Rated voltage(VDC): 6.3, 10, 16, 25, 35, 50, 63, 80, 100 Z-25℃ / Z+20℃: 4, 3, 2, 2, 1.5, 1.5, 1.5, 1.5, 1.5 Z-40℃ / Z+20℃: 6, 4, 3, 3, 2, 2, 2, 2, 2 Z-55℃ / Z+20℃: 8, 6, 5, 5, 4, 4, 4, 4, 4 For Capacitance ＞1000 μF, add 0.5 per another 1000 μF for -25℃／+20℃ add 1 per another 1000 μF for -40℃／+20℃ add 1.5 per another 1000 μF for -55℃／+20℃
Endurance	Test condition Duration time: Dφ: 5-6.3φ / 8-12φ / ≧13φ +105℃Life hours: 5000 hours / 7000 hours / 10000 hours Ambient temperature :+105℃ Applied voltage :Rated DC working voltage After test requirement at +20℃ Capacitance change :≦±25% of the initial measured value Dissipation factor :≦200% of the initial specified value Leakage current :≦The initial specified value
Shelf Life	Test condition Duration time :1000 Hrs Ambient temperature :+105℃ Applied voltage :None After test requirement at +20℃:Same limits as Endurance. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.

Multiplier for Ripple Current vs. Frequency

CAP(μF)＼Frequency(Hz)	120	400	1K	10K	100K
CAP≦10	0.40	0.52	0.60	0.92	1
10＜CAP≦100	0.67	0.80	0.83	0.94	1
100＜CAP≦1000	0.75	0.84	0.88	0.95	1
1000＜CAP	0.82	0.87	0.92	0.95	1

Diagram of Dimensions:(unit:mm)



Dφ	5	6.3	8		10	13	16	18
F	2.0	2.5	3.5		5.0	5.0	7.5	7.5
dφ	0.5		L＜20: 0.5	L≧20: 0.6	0.6		0.8	

α	D＜16	D=16		D=18		D＞18
		L:25~35.5	L＜25 and L≧40	L:25~31.5	L＜25 and L≧35.5	
	1.5	1.5	2.0	1.5	2.0	2.0

Radial

Case Size

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
6.3	82	5x11	198	1.63
6.3	100	5x11	210	1.45
6.3	120	5x11	222	1.28
6.3	150	6.3x11	240	1.16
6.3	180	6.3x11	282	1.04
6.3	220	6.3x11	378	0.89
6.3	270	6.3x11	396	0.77
6.3	330	6.3x11	396	0.77
6.3	330	6.3x15	426	0.68
6.3	330	8x11.5	444	0.68
6.3	390	6.3x15	462	0.58
6.3	390	8x11.5	480	0.52
6.3	470	6.3x15	504	0.41
6.3	470	8x11.5	534	0.38
6.3	470	10x12.5	564	0.38
6.3	560	8x11.5	570	0.36
6.3	560	8x16	600	0.36
6.3	560	10x12.5	612	0.36
6.3	680	8x11.5	582	0.33
6.3	680	8x16	618	0.33
6.3	680	10x12.5	642	0.33
6.3	820	8x11.5	666	0.25
6.3	820	10x12.5	720	0.25
6.3	1000	8x16	690	0.22
6.3	1000	8x20	756	0.22
6.3	1000	10x12.5	708	0.22
6.3	1200	8x20	840	0.18
6.3	1200	10x16	888	0.18
6.3	1500	8x20	1056	0.15
6.3	1500	10x16	1128	0.12
6.3	1500	10x20	1176	0.12
6.3	1800	8x25	1230	0.11
6.3	1800	10x20	1308	0.11
6.3	2200	10x20	1350	0.10
6.3	2200	10x25	1362	0.10
6.3	2700	10x25	1488	0.09
6.3	2700	10x30	1560	0.09
6.3	2700	13x20	1512	0.09
6.3	3300	10x30	1620	0.085
6.3	3300	13x20	1584	0.085
6.3	3900	13x25	1860	0.080
6.3	4700	13x25	1938	0.075
6.3	4700	13x30	1992	0.070
6.3	5600	13x30	1992	0.068
6.3	5600	16x25	2196	0.068
6.3	6800	13x30	2520	0.063
6.3	6800	16x25	2718	0.063
10	22	5x11	66	3.08
10	27	5x11	72	2.67
10	33	5x11	72	2.33
10	39	5x11	120	2.02
10	47	5x11	132	1.71
10	56	5x11	144	1.47
10	68	5x11	162	1.30
10	82	5x11	192	1.15
10	100	5x11	222	1.02
10	100	6.3x11	240	1.02
10	120	5x11	246	1.02
10	120	6.3x11	258	1.02

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
10	150	6.3x11	282	0.95
10	180	6.3x11	318	0.68
10	220	6.3x11	366	0.60
10	220	6.3x15	390	0.58
10	270	6.3x15	414	0.56
10	270	8x11.5	420	0.53
10	330	6.3x11	402	0.50
10	330	6.3x15	462	0.47
10	330	8x11.5	492	0.45
10	390	6.3x15	456	0.42
10	390	8x11.5	516	0.42
10	470	6.3x15	480	0.37
10	470	8x11.5	552	0.30
10	560	8x11.5	588	0.28
10	560	8x16	636	0.25
10	560	10x12.5	636	0.25
10	680	8x16	660	0.21
10	680	8x20	684	0.20
10	680	10x12.5	684	0.20
10	820	8x16	732	0.20
10	820	8x20	828	0.18
10	820	10x12.5	876	0.16
10	820	10x16	936	0.16
10	1000	8x16	1020	0.16
10	1000	8x20	1122	0.14
10	1000	10x12.5	1032	0.14
10	1000	10x16	1140	0.13
10	1200	8x20	1248	0.13
10	1200	10x16	1272	0.13
10	1200	10x20	1368	0.12
10	1500	10x20	1536	0.106
10	1500	13x16	1620	0.110
10	1800	10x25	1650	0.102
10	1800	13x20	1704	0.098
10	2200	10x25	1776	0.095
10	2200	10x30	1860	0.093
10	2200	13x20	1872	0.093
10	2200	16x16	1926	0.093
10	2700	10x30	2076	0.084
10	2700	13x20	2028	0.084
10	2700	13x25	2124	0.084
10	2700	18x16	2241	0.084
10	3300	10x30	2232	0.070
10	3300	13x25	2268	0.070
10	3300	16x25	2316	0.070
10	3900	13x25	2304	0.065
10	3900	13x30	2376	0.065
10	3900	16x20	2362	0.070
10	3900	16x25	2544	0.065
10	4700	13x30	2484	0.065
10	4700	13x35	2568	0.060
10	4700	16x25	2634	0.057
10	5600	13x35	2640	0.054
10	5600	16x25	2473	0.054
10	5600	16x31.5	2736	0.050
10	5600	18x20	2460	0.057
10	6800	16x31.5	2964	0.046
10	6800	18x25	2866	0.052
10	8200	16x35.5	3350	0.043

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
10	8200	18x31.5	3392	0.044
10	10000	16x40	3850	0.040
10	10000	18x35.5	3850	0.041
10	12000	18x40	4150	0.037
16	10	5x11	36	3.90
16	15	5x11	72	3.32
16	22	5x11	72	2.64
16	27	5x11	132	2.37
16	33	5x11	144	2.00
16	39	5x11	168	1.61
16	47	5x11	186	1.35
16	56	5x11	210	1.24
16	68	5x11	228	1.18
16	82	6.3x11	264	1.03
16	100	5x11	228	1.10
16	100	6.3x11	264	0.86
16	120	6.3x11	312	0.66
16	150	6.3x11	336	0.58
16	150	6.3x15	396	0.58
16	180	6.3x15	420	0.56
16	180	8x11.5	426	0.54
16	220	6.3x15	504	0.52
16	220	8x11.5	540	0.46
16	270	6.3x15	540	0.42
16	270	8x11.5	582	0.38
16	330	6.3x15	588	0.34
16	330	8x11.5	588	0.37
16	330	8x16	618	0.35
16	390	8x11.5	612	0.33
16	390	8x16	654	0.33
16	390	10x12.5	648	0.33
16	470	8x16	846	0.29
16	470	8x20	900	0.28
16	470	10x12.5	882	0.28
16	560	8x16	864	0.26
16	560	8x20	936	0.24
16	560	10x12.5	882	0.24
16	560	10x16	960	0.20
16	680	8x20	960	0.20
16	680	10x16	1044	0.18
16	820	8x20	1104	0.17
16	820	10x16	1254	0.15
16	820	10x20	1320	0.15
16	1000	10x16	1404	0.14
16	1000	10x20	1476	0.12
16	1200	10x20	1500	0.13
16	1200	10x25	1578	0.11
16	1500	10x25	1620	0.096
16	1500	13x20	1728	0.095
16	1500	16x16	1778	0.095
16	1800	10x30	1776	0.097
16	1800	13x20	1854	0.094
16	1800	13x25	1956	0.090
16	2200	13x20	2082	0.090
16	2200	13x25	2340	0.085
16	2200	18x16	2300	0.090
16	2700	13x25	2436	0.076
16	2700	13x30	2496	0.072
16	2700	16x20	2362	0.074
16	2700	16x25	2544	0.072
16	3300	13x30	2562	0.068

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
16	3300	13x35	2628	0.066
16	3300	16x25	2700	0.064
16	3900	13x35	2664	0.050
16	3900	16x25	2736	0.060
16	3900	16x31.5	2856	0.058
16	3900	18x20	2721	0.060
16	4700	16x31.5	2886	0.050
16	4700	18x25	2844	0.055
16	5600	16x35.5	2968	0.046
16	5600	18x31.5	3084	0.048
16	5600	18x35.5	3168	0.045
16	6800	16x40	3252	0.040
16	6800	18x35.5	3252	0.040
16	8200	18x35.5	3750	0.038
16	10000	18x40	4150	0.036
25	10	5x11	66	3.01
25	15	5x11	120	2.64
25	22	5x11	144	2.30
25	27	5x11	156	2.03
25	33	5x11	174	1.72
25	39	5x11	174	1.50
25	47	5x11	222	1.37
25	47	6.3x11	240	1.28
25	56	5x11	264	1.25
25	68	6.3x11	300	0.97
25	82	6.3x11	312	0.79
25	100	6.3x11	360	0.68
25	100	8x11.5	516	0.54
25	120	6.3x11	402	0.58
25	120	6.3x15	462	0.56
25	150	6.3x15	510	0.54
25	150	8x11.5	528	0.52
25	180	6.3x15	546	0.51
25	180	8x11.5	552	0.46
25	220	8x11.5	618	0.42
25	220	8x16	642	0.40
25	270	8x11.5	750	0.34
25	270	8x16	756	0.32
25	270	10x12.5	816	0.32
25	330	8x16	960	0.25
25	330	10x12.5	924	0.24
25	470	8x20	1056	0.23
25	470	10x12.5	1020	0.21
25	470	10x16	1080	0.21
25	560	8x20	1224	0.17
25	560	10x16	1260	0.15
25	680	10x20	1470	0.11
25	680	13x16	1550	0.10
25	820	10x20	1668	0.11
25	820	10x25	1704	0.10
25	1000	10x25	1812	0.093
25	1000	13x20	1872	0.090
25	1000	16x16	1926	0.088
25	1200	13x20	2028	0.082
25	1200	18x16	2241	0.080
25	1500	13x20	2124	0.067
25	1500	13x25	2190	0.065
25	1800	13x30	2310	0.058
25	1800	16x20	2173	0.056
25	1800	16x25	2340	0.058
25	2200	13x30	2592	0.052

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
25	2200	16x25	2712	0.050
25	2200	18x20	2697	0.052
25	2700	13x35	2850	0.050
25	2700	16x25	2674	0.048
25	2700	16x31.5	2958	0.046
25	3300	16x31.5	3204	0.038
25	3300	16x35.5	3288	0.036
25	3300	18x25	3156	0.041
25	3900	16x35.5	3500	0.036
25	3900	18x31.5	3544	0.036
25	4700	16x40	3800	0.034
25	4700	18x35.5	3800	0.034
25	5600	18x40	4100	0.030
35	10	5x11	84	2.65
35	15	5x11	144	2.29
35	22	5x11	162	1.90
35	27	5x11	174	1.58
35	27	6.3x11	198	1.42
35	33	5x11	222	1.25
35	33	6.3x11	240	1.25
35	39	6.3x11	252	1.10
35	47	5x11	232	0.10
35	47	6.3x11	264	0.92
35	56	6.3x11	282	0.75
35	56	6.3x15	306	0.68
35	68	6.3x11	312	0.62
35	68	6.3x15	348	0.55
35	82	6.3x15	354	0.51
35	82	8x11.5	384	0.47
35	100	6.3x11	329	0.49
35	100	6.3x15	378	0.47
35	100	8x11.5	414	0.45
35	120	8x11.5	546	0.42
35	120	8x16	612	0.38
35	150	8x11.5	618	0.38
35	150	8x16	714	0.35
35	150	10x12.5	720	0.35
35	180	8x16	792	0.32
35	180	10x12.5	804	0.32
35	220	8x16	864	0.26
35	220	8x20	936	0.24
35	220	10x12.5	888	0.24
35	270	8x20	1056	0.22
35	270	10x12.5	984	0.24
35	270	10x16	1068	0.21
35	330	8x20	1140	0.16
35	330	10x16	1176	0.15
35	470	10x20	1302	0.11
35	470	10x25	1398	0.10
35	470	13x16	1272	0.11
35	470	13x20	1398	0.10
35	560	10x25	1572	0.096
35	560	13x20	1584	0.096
35	680	10x25	1680	0.084
35	680	13x20	1692	0.082
35	680	16x16	1741	0.080
35	820	13x20	1818	0.068
35	820	13x25	1944	0.062
35	1000	10x30	2136	0.060
35	1000	13x25	2184	0.060
35	1000	13x30	2280	0.058

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
35	1000	18x16	2189	0.056
35	1200	13x25	2292	0.052
35	1200	16x20	2384	0.052
35	1200	16x25	2568	0.050
35	1500	13x35	2820	0.048
35	1500	16x31.5	2928	0.048
35	1800	13x35	2976	0.045
35	1800	16x25	2722	0.048
35	1800	16x31.5	3012	0.045
35	1800	18x20	2708	0.048
35	2200	16x31.5	3228	0.036
35	2200	18x25	3132	0.036
35	2700	16x35.5	3295	0.032
35	2700	18x31.5	3336	0.032
35	3300	16x40	3800	0.029
35	3300	18x35.5	3800	0.029
35	3900	18x40	4100	0.026
50	0.47	5x11	12	7.23
50	1	5x11	24	4.31
50	2.2	5x11	36	3.60
50	3.3	5x11	48	3.50
50	4.7	5x11	66	3.30
50	5.6	5x11	96	3.20
50	6.8	5x11	96	3.00
50	8.2	5x11	108	2.80
50	10	5x11	120	2.60
50	15	5x11	150	1.87
50	22	5x11	162	1.60
50	22	6.3x11	168	1.27
50	27	6.3x11	192	1.02
50	33	6.3x11	282	0.87
50	33	6.3x15	296	0.85
50	39	6.3x11	306	0.72
50	39	6.3x15	330	0.70
50	47	6.3x11	303	0.58
50	47	6.3x15	348	0.55
50	47	8x11.5	366	0.55
50	56	6.3x11	324	0.49
50	56	8x11.5	378	0.47
50	68	8x11.5	420	0.47
50	82	6.3x15	462	0.46
50	82	8x11.5	492	0.46
50	82	8x16	528	0.45
50	100	8x11.5	540	0.45
50	100	8x16	576	0.25
50	120	8x16	630	0.25
50	150	8x16	696	0.24
50	150	8x20	756	0.24
50	150	10x12.5	702	0.25
50	150	10x16	780	0.24
50	180	8x20	864	0.24
50	180	10x16	912	0.24
50	220	10x16	1056	0.24
50	220	10x20	1122	0.20
50	270	10x20	1212	0.10
50	270	10x25	1284	0.10
50	270	13x16	1278	0.10
50	330	10x25	1404	0.095
50	330	13x20	1500	0.082
50	470	10x30	1750	0.078
50	470	13x20	1776	0.078

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
50	470	13x25	1860	0.078
50	470	16x16	1827	0.078
50	560	13x20	2094	0.075
50	560	13x25	2172	0.070
50	560	18x16	2314	0.073
50	680	13x25	2304	0.057
50	680	16x25	2376	0.057
50	820	13x30	2412	0.052
50	820	16x20	2085	0.054
50	820	16x31.5	2484	0.052
50	1000	13x40	2750	0.048
50	1000	16x25	2676	0.050
50	1000	16x31.5	2736	0.048
50	1000	18x20	2662	0.050
50	1200	16x31.5	2952	0.045
50	1200	16x35.5	3048	0.042
50	1200	18x25	2854	0.047
50	1500	16x35.5	3216	0.038
50	1800	16x40	3550	0.035
50	1800	18x31.5	3368	0.035
50	2200	18x35.5	3550	0.032
50	2700	18x40	3790	0.030
50	3300	18x40	3810	0.028
63	10	5x11	116	3.02
63	15	5x11	131	2.37
63	22	5x11	151	1.77
63	22	6.3x11	194	1.39
63	27	6.3x11	202	1.29
63	33	6.3x11	228	1.01
63	39	6.3x11	243	0.89
63	47	6.3x11	264	0.75
63	47	8x11.5	313	0.73
63	56	8x11.5	320	0.70
63	68	8x11.5	378	0.50
63	68	8x16	477	0.42
63	82	8x11.5	390	0.47
63	82	8x16	477	0.42
63	82	10x12.5	481	0.43
63	100	8x16	515	0.36
63	100	10x12.5	515	0.38
63	120	8x16	512	0.36
63	120	8x20	604	0.32
63	120	10x12.5	528	0.36
63	120	10x16	639	0.30
63	150	8x20	604	0.32
63	150	10x16	666	0.28
63	180	8x25	742	0.26
63	180	10x16	662	0.28
63	180	10x20	757	0.26
63	220	8x25	789	0.23
63	220	10x16	730	0.23
63	220	10x20	892	0.20
63	220	13x16	911	0.20
63	270	10x20	986	0.16
63	270	13x20	1241	0.13
63	330	10x25	1242	0.13
63	330	13x16	1086	0.15
63	330	13x20	1282	0.13
63	330	13x25	1611	0.100
63	390	13x25	1618	0.093
63	470	13x20	1516	0.093

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
63	470	13x25	1698	0.090
63	470	13x30	1863	0.088
63	470	16x20	1857	0.082
63	560	13x25	1727	0.087
63	560	13x30	1942	0.081
63	560	16x20	1857	0.082
63	680	13x30	2082	0.071
63	680	13x35	2273	0.068
63	680	16x20	1835	0.084
63	820	13x40	2454	0.066
63	820	16x25	2229	0.066
63	820	18x20	2108	0.073
63	1000	13x45	2653	0.063
63	1000	16x31.5	2690	0.056
63	1000	18x25	2307	0.071
63	1200	16x31.5	2727	0.054
63	1200	18x25	2470	0.062
63	1500	18x31.5	2997	0.051
63	1500	18x35.5	3256	0.048
63	1800	16x40	3760	0.036
63	1800	18x35.5	3481	0.042
63	2200	18x40	3938	0.035
80	10	5x11	100	4.07
80	15	5x11	113	3.20
80	22	6.3x11	167	1.88
80	27	6.3x11	174	1.74
80	33	6.3x11	196	1.37
80	39	8x11.5	244	1.20
80	47	8x11.5	265	1.02
80	56	8x11.5	275	0.95
80	56	8x16	326	0.90
80	68	8x16	380	0.66
80	68	10x12.5	388	0.66
80	82	8x16	389	0.63
80	82	10x12.5	388	0.66
80	100	8x20	509	0.45
80	100	10x16	522	0.45
80	100	13x16	634	0.44
80	120	10x16	534	0.43
80	150	10x20	657	0.35
80	150	13x16	665	0.40
80	180	10x20	677	0.33
80	180	10x25	755	0.32
80	180	13x16	721	0.34
80	220	10x25	767	0.31
80	220	13x20	830	0.31
80	270	13x20	890	0.27
80	270	13x25	1019	0.25
80	330	13x20	1060	0.19
80	330	16x20	1253	0.18
80	390	13x30	1427	0.15
80	470	13x30	1533	0.13
80	470	13x35	1711	0.12
80	470	16x25	1432	0.16
80	470	18x20	1471	0.15
80	560	13x40	1685	0.14
80	560	16x25	1479	0.15
80	560	18x20	1471	0.15
80	680	16x31.5	1757	0.13
80	680	18x25	1582	0.15
80	820	16x35.5	1929	0.12

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
80	820	18x25	1699	0.13
80	1000	16x35.5	1929	0.12
80	1000	16x40	2151	0.11
80	1000	18x31.5	2041	0.11
80	1200	16x40	2378	0.09
80	1200	18x35.5	2315	0.095
80	1500	16x40	2461	0.084
80	1500	18x40	2641	0.083
80	1800	18x40	2657	0.082
100	4.7	5x11	84	5.75
100	5.6	5x11	90	5.00
100	6.8	5x11	96	4.36
100	8.2	5x11	105	3.68
100	10	6.3x11	141	2.63
100	10	8x11.5	180	2.20
100	15	6.3x11	151	2.31
100	22	6.3x11	168	1.85
100	22	8x11.5	228	1.38
100	27	8x11.5	234	1.31
100	33	8x11.5	240	1.24
100	39	8x16	282	1.20
100	47	8x16	335	0.85
100	47	10x12.5	350	0.81
100	47	10x16	357	0.78
100	56	8x16	354	0.76
100	56	8x20	414	0.68
100	56	10x12.5	364	0.75
100	68	8x20	424	0.65
100	68	10x16	425	0.68
100	82	8x20	474	0.52
100	82	10x16	486	0.52
100	100	8x30	636	0.42
100	100	10x16	522	0.45
100	100	10x20	596	0.42

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max Imp.(Ω) at 20℃/100KHz
100	100	13x16	641	0.43
100	100	13x20	750	0.38
100	120	8x35	738	0.36
100	120	10x20	611	0.40
100	120	10x25	702	0.37
100	120	13x16	665	0.40
100	150	10x25	743	0.33
100	150	10x30	834	0.31
100	150	13x20	805	0.33
100	180	13x20	858	0.29
100	180	13x25	963	0.28
100	220	13x20	890	0.27
100	220	13x25	1019	0.25
100	220	16x16	915	0.27
100	220	16x20	1063	0.25
100	270	10x40	1107	0.23
100	270	13x30	1236	0.20
100	270	16x25	1281	0.20
100	330	13x30	1382	0.16
100	330	13x35	1584	0.14
100	330	16x25	1531	0.14
100	390	13x40	1748	0.13
100	390	18x25	1582	0.15
100	470	16x25	1479	0.15
100	470	16x31.5	1910	0.11
100	470	18x25	1637	0.14
100	560	16x35.5	1854	0.13
100	560	18x31.5	1877	0.13
100	680	16x35.5	1929	0.12
100	680	18x35.5	2151	0.11
100	820	18x35.5	2202	0.105
100	820	18x40	2406	0.100
100	1000	18x40	2469	0.095