

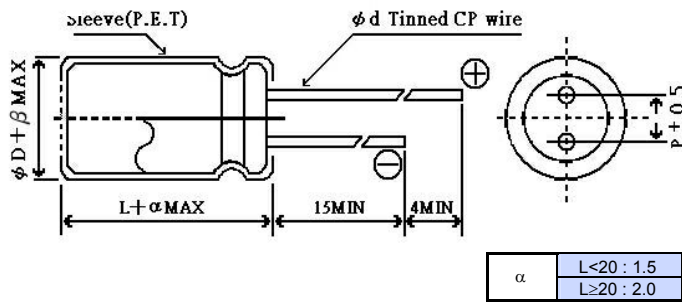
HW series

- Miniatured Sized, Low Impedance, High Reliability
- Low impedance and high reliability withstanding 4000 hours to 10000 hours.
- First choice for Switching Power Supply, Adapter & Ballast.

SPECIFICATIONS

Item	Performance Characteristics								
Operating Temperature Range	-40~+105°C								
Voltage Range	6.3~100V								
Capacitance Range	6.8~18000 μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Tan δ	For capacitance of more than 1000 μF, add 0.02 for every increase of 1000 μF Measurement frequency: 120Hz, Temperature: 20°C								
	Rated voltage (V)	6.3	10	16	25	35	50	63	100
	Tan δ (MAX.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08
Leakage Current	Rated voltage (V)	6.3~100							
	Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.							
Stability at Low Temperature	Rated Voltage (V)	6.3	10	16	25	35~100			
	Impedance Ratio Z-25°C/Z+20°C	4	3	2	2	2			
	ZT/Z 20 (MAX.)	Z-40°C/Z+20°C	8	6	4	3	3		
	at 120 Hz								
Load Life	After an application of D.C. bias voltage plus the rated ripple current for stated in the below at 105°C the peak voltage shall not exceed the rated D.C. voltage, capacitors shall meet the following requirements.								
	Case size	φD ≤ 6.3	φD = 8, 10	φD ≥ 12.5	Capacitance Change	Within ±25% of initial value			
	Rated voltage (V)	6.3~10WV	4000 hours	6000 hours	8000 hours	Tan δ	Not exceeding 200% of initial specified value		
		16~100WV	5000 hours	7000 hours	10000 hours	Leakage Current	Not exceeding Initial specified value		
Shelf Life	After storing capacitors under no load at 85°C for 1000 hours. they will meet the specified value for endurance characteristics listed above.								

RADIAL LEAD TYPE



φD	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	*0.6	0.8	0.8
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Allowable Ripple Current VS. Ambient Temperature

Ambient temp. (°C)	~+70	+85	+105
Coefficient	1.78	1.4	1.0

Frequency Coefficient of Allowable Ripple Current

V	Cap. (μF)	Frequency				
		50Hz	120Hz	300Hz	1KHz	10KHz~
6.3~100	6.8~33	0.45	0.55	0.70	0.90	1.00
	39~330	0.60	0.70	0.85	0.95	1.00
	390~1000	0.65	0.75	0.90	0.98	1.00
	1200~18000	0.75	0.80	0.95	1.00	1.00

STANDARD RATINGS

D×L (mm)

Cap(μF)	Item Code	W.V. S.V. size φD×L (mm)	6.3V(0J)				10V(1A)				
			8		13		8		13		
			Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.) 20°C, 100KHz	Impedance (ΩMAX.) -10°C, 100KHz	size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.) 20°C, 100KHz	Impedance (ΩMAX.) -10°C, 100KHz		
100	101										
150	151	5×11	210	0.58	2.3						
220	221					6.3×11	340			0.22	0.87
330	331	6.3×11	340	0.22	0.87						
470	471					8×11.5	640			0.13	0.52
680	681	8×11.5	640	0.13	0.52	8×15	840			0.087	0.35
820	821	10×12.5	865	0.080	0.32	10×12.5	865			0.080	0.32
1000	102	8×15	840	0.087	0.35	8×20	1050			0.069	0.27
1200	122	8×20	1050	0.069	0.27	10×16	1210			0.060	0.24
1500	152	10×20	1400	0.046	0.18	10×20	1400			0.046	0.18
1800	182	12.5×16	1450	0.049	0.16	10×25	1650			0.042	0.17
2200	222	10×25	1650	0.042	0.17	12.5×16	1450			0.049	0.16
2700	272	10×31.5	1910	0.031	0.12						
3300	332	12.5×20	1900	0.035	0.12	10×31.5	1910			0.031	0.12
3900	392	12.5×25	2230	0.027	0.089	12.5×20	2230			0.027	0.089
4700	472	12.5×31.5	2650	0.024	0.078	16×20	2530			0.027	0.078
5600	562	16×20	2530	0.027	0.078						
6800	682	16×25	2930	0.021	0.060	16×25	2930			0.021	0.060
8200	822	16×31.5	3450	0.017	0.050	16×31.5	3450			0.017	0.050
10000	103	16×35.5	3610	0.015	0.044	18×25	3140			0.019	0.052
12000	123	18×31.5	4170	0.015	0.040	18×35.5	4220			0.014	0.038
15000	153	18×35.5	4220	0.014	0.038	18×40	4280			0.012	0.032
18000	183	18×40	4280	0.012	0.032						

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STANDARD RATINGS

D×L (mm)

Cap(μF)	Item Code	16V(1C)				25V(1E)			
		size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.)		size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.)	
				20°C, 100KHz	-10°C, 100KHz			20°C, 100KHz	-10°C, 100KHz
47	470					5×11	210	0.58	2.3
56	560	5×11	210	0.58	2.3				
100	101					6.3×11	340	0.22	0.87
120	121	6.3×11	340	0.22	0.87				
220	221					8×11.5	640	0.13	0.52
330	331	8×11.5	640	0.13	0.52	8×15	840	0.087	0.35
						10×12.5	865	0.080	0.32
470	471	8×15	840	0.087	0.35	8×20	1050	0.069	0.27
		10×12.5	865	0.080	0.32	10×16	1210	0.060	0.24
680	681	8×20	1050	0.069	0.27	10×20	1400	0.046	0.18
		10×16	1210	0.060	0.24	12.5×16	1450	0.049	0.16
820	821					10×25	1650	0.042	0.17
1000	102	10×20	1400	0.046	0.18	10×31.5	1910	0.031	0.12
		12.5×16	1450	0.049	0.16	12.5×20	1900	0.035	0.12
1200	122	10×25	1650	0.042	0.17				
		10×31.5	1910	0.031	0.12				
1500	152	12.5×20	1900	0.035	0.12	12.5×25	2230	0.027	0.089
1800	182					12.5×31.5	2650	0.024	0.078
2200	222	12.5×25	2230	0.027	0.089	16×20	2530	0.027	0.078
		12.5×31.5	2650	0.024	0.078	12.5×31.5	2650	0.024	0.078
2700	272	16×20	2530	0.027	0.078	16×25	2930	0.021	0.060
		16×25	2930	0.021	0.060	16×31.5	3450	0.017	0.050
3300	332	12.5×31.5	2650	0.024	0.078	18×25	3140	0.019	0.052
						16×35.5	3610	0.015	0.044
3900	392	16×25	2930	0.021	0.060	18×31.5	4170	0.015	0.040
4700	472	16×31.5	3450	0.017	0.050	18×35.5	4220	0.014	0.038
		18×25	3140	0.019	0.052				
5600	562	16×35.5	3610	0.015	0.044				
		18×31.5	4170	0.015	0.040	18×40	4280	0.012	0.032
8200	822	18×35.5	4220	0.014	0.038				
10000	103	18×40	4280	0.012	0.032				

STANDARD RATINGS

D×L (mm)

Cap(μF)	Item Code	35V(1V)				50V(1H)			
		size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.)		size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.)	
				20°C, 100KHz	-10°C, 100KHz			20°C, 100KHz	-10°C, 100KHz
10	100					5×11	100	1.50	5.8
22	220					5×11	180	0.70	2.8
33	330	5×11	210	0.58	2.3	6.3×11	295	0.30	1.2
56	560	6.3×11	340	0.22	0.87	6.3×11	295	0.30	1.2
100	101	8×11.5	640	0.13	0.52	8×11.5	555	0.17	0.68
120	121					8×15	730	0.12	0.48
150	151	8×11.5	640	0.13	0.52	10×12.5	760	0.12	0.48
180	181					8×20	910	0.091	0.36
220	221	8×15	840	0.087	0.35	10×16	1050	0.084	0.34
		10×12.5	865	0.080	0.32				
270	271	8×20	1050	0.069	0.27	10×20	1220	0.060	0.24
330	331	10×16	1210	0.060	0.24	12.5×16	1260	0.061	0.20
		10×20	1400	0.046	0.18	10×25	1440	0.055	0.22
470	471	12.5×16	1450	0.049	0.16	10×31.5	1690	0.043	0.17
		10×25	1650	0.042	0.17	12.5×20	1660	0.045	0.15
560	561	10×31.5	1910	0.031	0.12	12.5×25	1950	0.034	0.11
		12.5×20	1900	0.035	0.12	12.5×31.5	2310	0.030	0.10
820	821					16×20	2210	0.034	0.10
1000	102	12.5×25	2230	0.027	0.089	16×25	2555	0.025	0.075
		12.5×31.5	2650	0.024	0.078	16×31.5	3010	0.022	0.066
1200	122	16×20	2530	0.027	0.078	18×25	2740	0.026	0.078
1500	152					16×35.5	3150	0.019	0.057
1800	182	16×25	2930	0.021	0.060	18×31.5	3635	0.021	0.057
2200	222	16×31.5	3450	0.017	0.050	18×35.5	3580	0.017	0.046
		18×25	3140	0.019	0.052				
2700	272	16×35.5	3610	0.015	0.044	18×40	3800	0.014	0.038
		18×31.5	4170	0.015	0.040				
3300	332	18×35.5	4220	0.014	0.038				
3900	392	18×40	4280	0.012	0.032				

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STANDARD RATINGS

D×L (mm)

Cap(μF)	Item Code	63V(1J)				100V(2A)			
		79				125			
		size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.)		size φD×L (mm)	Allowable Ripple (mA. rms) 105°C/100KHz	Impedance (ΩMAX.)	
				20°C, 100KHz	-10°C, 100KHz			20°C, 100KHz	-10°C, 100KHz
6.8	6R8					5×11	55	2.30	9.3
15	150	5×11	55	2.30	9.3	6.3×11	115	1.20	5.0
27	270					8×11.5	232	0.63	2.8
33	330	6.3×11	115	1.20	5.0				
39	390					8×15	300	0.45	2.1
47	470					10×12.5	288	0.43	1.8
56	560	8×11.5	232	0.63	2.8	8×20	362	0.33	1.6
68	680					10×16	357	0.31	1.5
82	820	8×15	300	0.45	2.1	10×20	466	0.21	0.94
		10×12.5	288	0.43	1.8	12.5×16	466	0.23	1.1
100	101					10×25	531	0.20	0.84
120	121	8×20	362	0.33	1.6	10×31.5	663	0.15	0.71
		10×16	357	0.31	1.5	12.5×20	690	0.16	0.64
180	181	10×20	466	0.21	0.94	12.5×25	784	0.12	0.45
		12.5×16	466	0.23	1.1				
220	221	10×25	531	0.20	0.84	12.5×31.5	905	0.10	0.42
						16×20	1040	0.091	0.38
270	271	10×31.5	663	0.15	0.71	16×25	1250	0.073	0.27
		12.5×20	690	0.16	0.64				
330	331	12.5×25	784	0.12	0.45				
390	391					16×31.5	1570	0.054	0.20
						18×25	1490	0.057	0.22
470	471	12.5×31.5	905	0.10	0.42	16×35.5	1790	0.045	0.17
		16×20	1040	0.091	0.38	18×31.5	1630	0.047	0.17
560	561	16×25	1250	0.073	0.27				
680	681	16×25	1250	0.073	0.27	18×35.5	1790	0.040	0.15
820	821	16×31.5	1570	0.054	0.20	18×40	2330	0.036	0.13
		18×25	1490	0.057	0.22				
1000	102	16×35.5	1790	0.045	0.17				
		18×31.5	1630	0.047	0.17				
1200	122	18×35.5	1790	0.040	0.15				
1500	152	18×40	2330	0.036	0.13				