

# WH Series



Low impedance 105°C 4000Hrs to 6000Hrs  
低 阻 抗 105°C 4000小時到6000小時

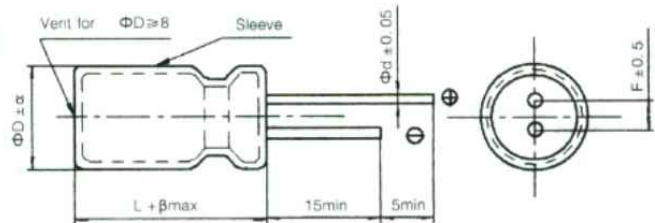
Suit for use in high quality switching power supplies and high frequency circuit  
適用於高品質開關電源及高頻電路

## Specifications

Items 項目	Characteristics 特性														
Operating Temperature Range 使用溫度範圍	-40°C ~ +105°C														
Rated Voltage Range 額定電壓範圍	6.3V ~ 100V VDC														
Capacitance Tolerance 靜電容量偏差	±20% (M) (at 20°C, 120Hz)														
Leakage Current 漏電流	I=0.01CV or 3μA whichever is greater (at 20°C, after 2 minutes) Where, I: Leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V)														
Dissipation Factor (tan δ) 損失角正切(tan δ)	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50 ~ 100</td> </tr> <tr> <td>DF (tan δ)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> <p>When the capacitance exceeds 1000 μF, 0.02 shall be added every 1000 μF increase. (at 20°C, 120Hz)</p>	Rated voltage (V)	6.3	10	16	25	35	50 ~ 100	DF (tan δ)	0.22	0.19	0.16	0.14	0.12	0.10
Rated voltage (V)	6.3	10	16	25	35	50 ~ 100									
DF (tan δ)	0.22	0.19	0.16	0.14	0.12	0.10									
Low Temperature Characteristics 低溫特性	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50 ~ 100</td> </tr> <tr> <td>Z(-40°C)/(20°C)</td> <td>10</td> <td>8</td> <td>5</td> <td>5</td> <td>4</td> <td>3</td> </tr> </table> <p>Impedance ratio max at 20°C, 120Hz</p>	Rated voltage (V)	6.3	10	16	25	35	50 ~ 100	Z(-40°C)/(20°C)	10	8	5	5	4	3
Rated voltage (V)	6.3	10	16	25	35	50 ~ 100									
Z(-40°C)/(20°C)	10	8	5	5	4	3									
Load Life 高溫負荷特性	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with the rated ripple current at 105°C for the specified period of time.</p> <p>Capacitance change ≤+20% of the initial measured value (Φ≥13 ±30%) DF (tan δ) ≤200% of the initial specified value Leakage current ≤The initial specified value</p> <table border="1"> <tr> <td>Case size . Life time (hrs)</td> <td></td> </tr> <tr> <td>Φ6.3~Φ8*16</td> <td>3000hours</td> </tr> <tr> <td>Φ8*16~Φ10</td> <td>4000hours</td> </tr> <tr> <td>Φ13及以上</td> <td>6000hours</td> </tr> </table>	Case size . Life time (hrs)		Φ6.3~Φ8*16	3000hours	Φ8*16~Φ10	4000hours	Φ13及以上	6000hours						
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Φ6.3~Φ8*16	3000hours														
Φ8*16~Φ10	4000hours														
Φ13及以上	6000hours														
Shelf Life 高溫貯存特性	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours 105°C without voltage applied. the rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.</p> <p>Capacitance change ≤+20% of the initial measured value DF (tan δ) ≤200% of the initial specified value Leakage current ≤The initial specified value</p>														

## Pitch Dimension (mm)

D Φ	6	8	10	13	16	18
F	2.5	3.5	5	5	7.5	7.5   10
d	0.5	0.6	0.6	0.6	0.8	
α	0.5					
β	+1.5-0.5					



## Ripple Current Multipliers

Frequency Coefficient 頻率修正系數

Freq 頻率 (Hz)	120	1K	10K-30K	60K-100K
Factor 修正因子	0.5	0.7	0.8	1.0

Temperature Coefficient 溫度修正系數

Ambient temp 環境溫度 (°C)	65	85	105
Factor 修正因子	2.0	1.7	1.0



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## Standard Ratings

VDC (V)	6.3			10			16		
Item Cap(μF)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)
100							6.3*12	0.15	290
120							6.3*12	0.15	300
220				8*12	0.14	466	8*12	0.12	530
330				8*12	0.12	480	8*12	0.10	612
470	8*14	0.10	644	8*14	0.07	690	8*14 8*16 10*15	0.06 0.06 0.06	789 843 913
680	8*16	0.10	826	8*16	0.06	930	8*20 10*15	0.05 0.05	1030 1026
1000	10*17	0.05	1072	8*25 10*17 10*20	0.04 0.04 0.04	1206 1268 1375	8*30 10*17 10*20	0.04 0.04 0.04	1340 1406 1510
1500	10*20	0.04	1675	10*25	0.04	1873	10*25	0.03	1913
2200	10*25	0.03	2252	10*25 13*26	0.03 0.03	2252 2330	10*30 13*21 13*26	0.03 0.03 0.03	2705 2338 2724
3300	10*30	0.03	2759	10*36 13*26	0.03 0.03	3003 2984	13*30 13*35	0.03 0.03	3182 3413
3900	13*26	0.03	3093	13*30	0.03	3298	16*26	0.03	3645
4700	13*30	0.025	3360	13*30 13*35	0.025 0.025	3370 3400	13*35 16*32	0.025 0.025	4126 4383
6800	13*35	0.025	4320	16*35	0.025	5230	16*41	0.025	5540

VDC (V)	25			35			50		
Item Cap(μF)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)
22							6.3*12	0.45	158
33							6.3*12	0.45	193
47	6.3*12	0.26	191	6.3*12	0.24	201	8*12	0.40	231
68	6.3*12	0.26	236	8*12	0.20	259	8*12	0.40	320
100	8*12	0.12	280	8*12	0.12	337	8*14 10*15	0.25 0.25	350 394
120	8*12	0.12	390	8*12	0.12	426	8*16	0.15	489
220	8*14	0.10	534	8*20 10*15	0.08 0.08	617 610	10*17	0.10	624
330	8*20	0.08	810	10*17	0.06	850	10*25	0.08	1036
470	8*25 10*20	0.05 0.05	949 968	10*25	0.05	1164	10*30 13*21	0.06 0.06	1246 1220
680	10*20 10*25	0.05 0.05	1268 1418	10*30 13*26	0.05 0.05	1660 1762	13*30	0.05	1771
1000	10*30 13*21	0.04 0.04	1698 1694	13*30	0.04	2093	16*30	0.05	2131
1500	13*26	0.03	2190	16*32	0.04	2260	18*36	0.04	2461
2200	13*35 16*30	0.03 0.03	2809 2886	16*41	0.035	3373	18*41	0.04	3576
3300	16*35	0.03	3306	18*41	0.035	4300	22*45	0.04	4657
3900	16*41	0.03	4060						
4700	18*41	0.03	5027						



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## Standard Ratings

VDC (V)		63			100		
Cap (μF)	Item	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)	Case Size D*L (mm)	Imp 20°C100KHz (Ω)	Ripple Current 105°C100KHz (mA)
	33		8*12	1	161		
47		8*12	0.68	192	10*15	0.65	271
68		10*13	0.52	226	10*17	0.50	306
82		10*13	0.52	274	10*20	0.46	404
100		8*20	0.45	320	10*20	0.38	446
120		10*17	0.32	362	10*25	0.32	510
220		10*25	0.20	600	13*26	0.18	812
330		10*30 13*21	0.16	960	16*26	0.12	1100
470		13*26	0.09	1346	16*30	0.08	1303
680		16*26	0.08	1604			
820		13*45	0.06	1868			