

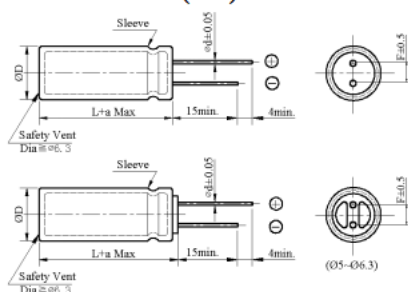
HH Series

- High-temperature 130°C, high reliability.
- Load life 1,000~4,000 hours at 130°C.
- For automotive electronics and lighting equipment and other high temperature applications.

SPECIFICATIONS

Item	Performance Characteristics										
Category Temperature Range	-40~+130℃							-25~+130℃			
Working Voltage Range	10~100Vdc							200 ~450Vdc			
Capacitance Range	4.7~4,700 μF							3.3~100 μF			
Capacitance Tolerance	±20% (at 25°C and 120Hz)										
Dissipation Factor (tanδ) (at 25°C, 120Hz)	Rated Voltage (V)	10	16	25	35	50	63	100	160 ~ 250	350 ~ 450	
	tanδ (Max)	0.20	0.16	0.14	0.12	0.10	0.10	0.09	0.20	0.24	
	The above values should be increased by 0.02 for every additional 1000μF										
Leakage Current	I≤0.01CV or 2μA whichever is greater (10 ~ 100V) I≤0.03CV+10μA (160 ~ 450V) I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Impress the rated voltage for 2 minutes										
Low Temperature Characteristics Impedance Ratio(MAX)	Rated Voltage (V)	10	16	25	35	50	63	100	160 ~ 250	350 ~ 450	(at 120Hz)
	Z(-25°C)/Z(+25°C)	—	—	—	—	—	—	—	3	6	
	Z(-40°C)/Z(+20°C)	6	4	4	4	4	4	4	—	—	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to DC voltage with the rated ripple current is applied for 1,000~4,000 hours at 130°C.										
	Capacitance change	≦±25% of the initial value						Case Size	Life time (hours)		
	Dissipation factor(tanδ)	≦200% of the specified value							10~100V	200~450V	
	Leakage current	≦specified value							ΦD=6.3	1,000	
							ΦD=8,10		2,000		
							ΦD≥12.5	4,000	3,000		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 25°C after exposing them for 1,000 hours at 130°C without voltage applied. After test : UR to be applied for 30 minutes, 24 to 48 hours before measurement.										
	Capacitance change	≦ ±25% of the initial value									
	Dissipation factor(tanδ)	≦200% of the specified value									
	Leakage current	≦200% of the specified value									
Others	Conforms to JIS-C-5101-4 (1998) and IEC 60384-4										

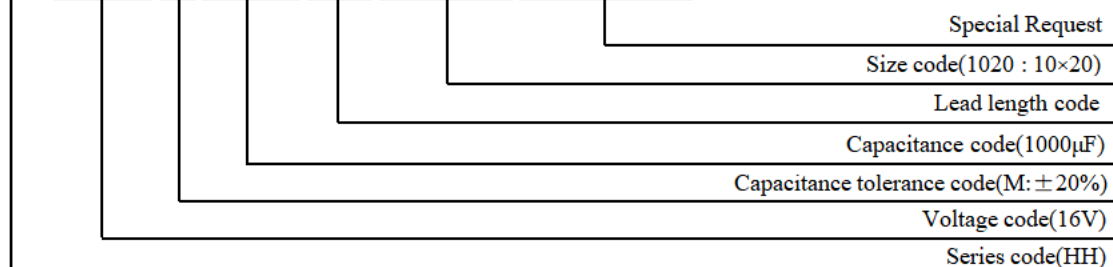
DIMENSIONS(mm)



ΦD	5	6.3	8	10	12.5	16	18
ΦD	$\Phi D + 0.5$ Max						
Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
a	L+1.5 Max				≤ 35 L+1.5Max ≥ 40 L+2.0Max	L+1.5 Max	

PART NUMBER SYSTEM(Example : 16V 1000 μ F)

HH 035 M 102 L 01020



HH Series

◆ Case size & Permissible rated ripple current: (mA rms) at 130°C / 100KHz

uF \ Vdc	10		16		25	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
220					8×11.5	360
330	8×11.5	360	8×11.5	360	10×12.5	620
470	10×12.5	620	10×12.5	620	10×16	800
1000	10×20	960	10×20	960	12.5×20	1100
2200	12.5×25	1430	12.5×25	1430	16×31.5	2300
3300	16×25	1900	16×31.5	2300	16×35.5	2550
4700	16×31.5	2300	16×35.5	2550		

uF \ Vdc	35		50		63	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
4.7			8×11.5	100		
10			8×11.5	200		
22			8×11.5	260		
33			8×11.5	300	8×11.5	250
47			8×11.5	300	10×12.5	400
100	8×11.5	360	10×12.5	520	10×16	450
220	10×12.5	620	10×20	890	12.5×25	820
330	10×16	800	12.5×20	1000	12.5×30	1000
470	10×25	960	12.5×25	1200	16×25	1500
1000	12.5×30	1430	16×31.5	2180	18×35.5	1850
1500	16×31.5	1800	18×35.5	2450	18×40	2350
2200	16×35.5	2550	18×40	2800		
3300	18×35.5	2800				

uF \ Vdc	100		200		250	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
4.7			6.3×11	100	8×11.5	115
5.6			8×11.5	130	8×11.5	140
6.8			8×11.5	130	8×11.5	140
10	8×16	200	8×16	200	8×16	220
15	8×16	210	8×16	220	8×20	245
22	8×16	220	8×20	300	10×16	320
33	10×12.5	260	10×20	320	10×25	350
47	10×16	330	10×25	345	12.5×20	375
56	10×20	350	10×30	370	12.5×25	400
68	10×25	400	12.5×25	450	16×20	480
82	10×30	435	12.5×30	485	16×25	505
100	12.5×25	670	16×25	600		
220	16×25	1100				
330	16×31.5	1300				
470	18×30	1650				

HH Series

◆ Case size & Permissible rated ripple current: (mA rms) at 130°C / 100KHz.

uF \ Vdc	400		420		450	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
3.3	8×16	110	8×16	120	8×20	135
4.7	8×20	120	8×20	130	10×12.5	150
5.6	10×16	130	10×16	140	10×16	160
6.8	10×20	150	10×20	155	10×20	170
10	10×25	220	10×25	240	12.5×20	260
15	10×30	240	10×30	255	12.5×25	300
22	12.5×20	270	12.5×25	300	16×20	345
33	12.5×25	305	12.5×30	340		
47	16×25	400	16×31.5	445		
56	16×31.5	435				
68	16×35.5	480				

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Cap(uF)	Frequency (Hz)				
		50/60	120	1K	10K	100K
10 ~ 100	<100	0.40	0.60	0.85	0.95	1.00
	100 ~ 470	0.50	0.65	0.90	0.98	1.00
	>470	0.60	0.70	0.95	1.0	1.00
160 ~ 450	3.3~15	/	0.30	0.60	0.90	1.00
	22~100	/	0.50	0.80	0.90	1.00