

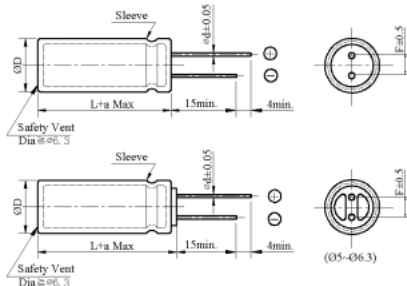
HE Series

- High-temperature 125°C, High reliability.
- Load life 2,000~5,000 hours at 125°C.

SPECIFICATIONS

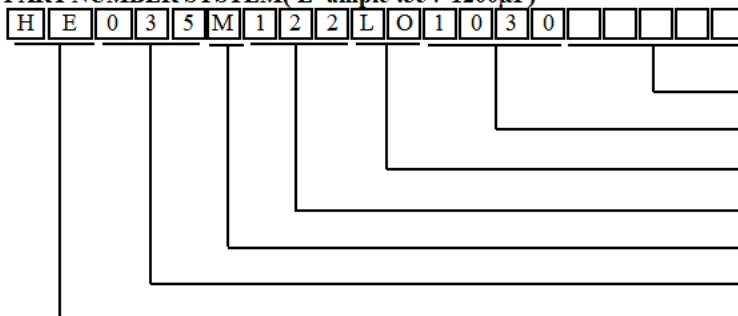
Item	Performance Characteristics										
Category Temperature Range	-40~ +125℃					-25~ +125℃					
Working Voltage Range	10~400Vdc					450Vdc					
Capacitance Range	2.2~4700 μF					1~100 μF					
Capacitance Tolerance	±20% (at 25℃ and 120Hz)										
Dissipation Factor (tanδ) (at 25℃, 120Hz)	Rated Voltage (V)	10	16	25	35	50	63	100	160 ~ 250	350 ~ 450	
	tanδ (Ma×)	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 3μA whichever is greater(10 to 100Vdc) I≦0.02CV+40(160 to 450Vdc) I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Impress the rated voltage for 2 minutes										
Low Temperature Characteristics Impedance Ratio(MA×)	Rated Voltage (V)	10	16	25	35	50	63	100	160 ~ 250	350 ~ 450	(at 120Hz)
	Z(-25℃)/Z(+25℃)	3	3	3	5	5	2	2	6	6	
	Z(-40℃)/Z(+20℃)	6	6	6	6	6	3	3	10	18	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 25℃ after subjected to DC voltage with the rated ripple current is applied for2,000~5,000 hours at 125℃.										
	Capacitance change		≦±25% of the initial value					Size		Life time (hours)	
	Dissipation factor(tanδ)		≦200% of the specified value					≦6.3Φ		2,000	
	Leakage current		≦specified value					8 Φ		3,000	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 25℃ after exposing them for 1,000 hours at 125℃ 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					≧10 Φ		5,000	
	Dissipation factor(tanδ)		≦200% of the specified value								
Others	Leakage current		≦200% of the specified value								
	Conforms to JIS-C-5101-4 (1998) and IEC 60384-4										

DIMENSIONS(mm)



Φ D	5	6.3	8	10	12.5	16	18
Φ D	Φ D +0.5 Max						
Φ d	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(E×ample :35V 1200 μ F)



Special Request
Size code(1030 : 10×30)
Lead length code
Capacitance code(1200 μ F)
Capacitance tolerance code(M: $\pm 20\%$)
Voltage code(35V)
Series code(HE)

HE Series

◆ Case size & Permissible rated ripple current: (mA rms) at 125°C / 120Hz

uF \ Vdc	10		16		25	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
22					6.3×11	100
33			6.3×11	90	8×11.5	115
47	6.3×11	90	6.3×11	100	8×11.5	130
100	6.3×11	130	8×11.5	155	8×11.5	250
220	8×11.5	242	10×12.5	348	10×12.5	472
330	10×12.5	335	10×16	405	10×16	690
470	10×16	440	10×20	550	10×20	875
1000	10×20	800	12.5×20	900	13×20	1050
1500	13×20	1021	13×20	861	16×25	1333
2200	13×25	1152	13×25	1240	16×31.5	1603
3300	16×25	1620	16×31.5	1998	16×35.5	2106
4700	16×31.5	2012	16×31.5	2112		

uF \ Vdc	35		50		63	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
22	8×11.5	130	8×11.5	185		
33	8×11.5	155	8×11.5	210	8×11.5	120
47	8×11.5	170	8×15	245	10×12.5	190
100	10×12.5	272	10×16	480	10×16	270
220	10×16	565	10×20	810	13×20	572
330	10×20	733	10×25	1085	13×25	772
470	12.5×20	895	12.5×25	1210	16×25	1031
1000	16×25	1137	16×30	1470	16×31.5	1309
1500	16×31.5	1711			18×40	2000
1500	16×35.5	1849				
2200	18×35.5	2100	18×40	2255		

uF \ Vdc	100		160		200	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
3.3			6.3×11	26	6.3×11	28
4.7			8×11.5	34	8×11.5	34
5.6			8×11.5	40	8×16	48
6.8	8×11.5	48	8×11.5	44	8×16	54
10	8×11.5	72	8×16	58	8×20	72
22	8×11.5	105	10×16	124	8×20	124
33	10×12.5	151	10×20	162	10×20	162
47	10×16	200	13×20	207	13×20	207
68			13×25	263	16×20	263
100	10×20	383	16×25	369		
220	12.5×20	695	16×31.5	723		
330	16×31.5	923				
470	18×31.5	1111				

HE Series

◆ Case size & Permissible rated ripple current: (mA rms) at 125°C / 120Hz

uF \ Vdc	250		350		400	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
2.2			6.3×11	24	8×16	40
3.3	6.3×11	30	8×11.5	34	8×20	50
4.7	8×11.5	44	8×11.5	44	10×16	50
5.6	8×11.5	44	8×16	50	10×20	60
6.8	8×16	54	8×20	60	10×20	66
8.2	8×16	66	8×20	68	10×20	76
10	8×16	72	10×20	78	10×25	86
15	8×20	88	10×20	100	13×20	104
22	10×16	120	13×20	124	13×25	138
33	13×20	203	16×20	203	16×25	207
47	13×20	214	16×20	243	18×25	261
68	13×30	288	18×25	290	18×31.5	297
100	13×35	320	18×31.5	383	18×40	396
150	16×35.5	461				

uF \ Vdc	450	
	ΦD × L	RC
1	8×11.5	26
2.2	8×16	38
3.3	8×16	40
4.7	8×20	50
5.6	10×16	54
6.8	10×20	66
8.2	10×20	76
10	10×25	86
10	13×20	86
15	13×20	104
22	10×40	140
22	16×20	138
22	16×25	154
33	10×50	203
33	16×25	218
33	16×31.5	245
47	13×45	254
47	16×35.5	270
68	18×31.5	297
100	18×40	396

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Cap(uF)	Frequency (Hz)			
		50/60	120	1K	≥10K
10 ~ 100	<100	0.65	1.00	1.57	2.00
	100 ~ 470	0.60	1.00	1.34	1.50
	>470	0.55	1.00	1.10	1.15
16 ~ 450	<33	0.60	1.00	1.15	1.30
	>33	0.55	1.00	1.10	1.15