



# ND&ND-H Series

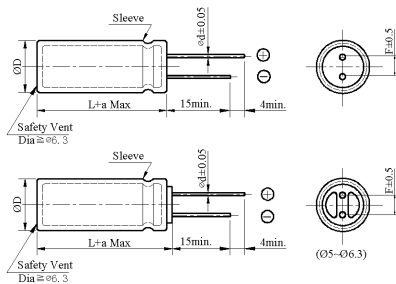
- Standard non-polarized type
- Suitable for conditions where polarity reverses or where polarity is not constant
- ND series 85°C 2,000Hrs, ND-H series 105°C 1,000Hrs



◆ SPECIFICATIONS

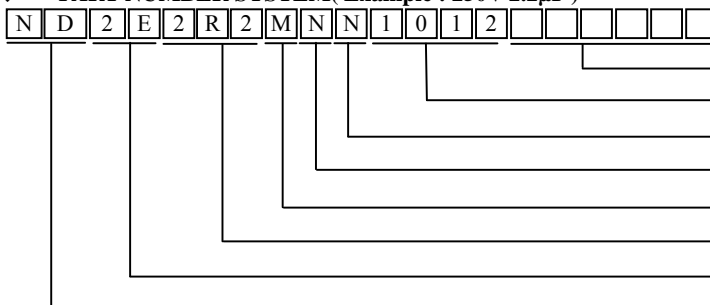
Item	Performance Characteristics																		
	ND		ND-H																
Series	ND		ND-H																
Category Temperature Range	-40 ~ +85°C	-25 ~ +85°C	-40 ~ +105°C	-25 ~ +105°C															
Working Voltage Range	6.3 ~ 100 Vdc		160 ~ 250 Vdc																
Capacitance Range	0.47 ~ 2,200 μF		0.47 ~ 2,200 μF																
Capacitance Tolerance	±20% (at 25°C and 120Hz)																		
Dissipation Factor (tanδ) (at 25°C, 120Hz)	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160 ~ 250									
	tanδ(Max)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10	0.20									
The above values should be increased by 0.02 for every additional 1000μF																			
Leakage Current	I=0.03CV or 3μA whichever is greater 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)	6.3	10	16	25	35	50	63	100	160 ~ 250									
	Z(-40°C)/Z(+20°C)	10	8	6	4	3	3	3	3	—									
										Z(-25°C)/Z(+20°C)	—	—	—	—	—	—	—	—	3
(at 120Hz)																			
Endurance	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 2,000 hours at 85°C (ND), or 1,000 hours at 105°C (ND-H). During this test rated DC voltage shall be reversed on the capacitor for every 250 hours.																		
	Capacitance change	≒ ±20% of the initial value																	
Dissipation factor(tanδ)	≒ 200% of the specified value																		
Leakage current	≒ specified value																		
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 1,000 hours at 85°C (ND), or 500 hours at 105°C (ND-H) without voltage applied.																		
	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), characteristic W																		

◆ DIMENSIONS (mm)



ΦD	5	6.3	8	10	12.5 L<35	12.5 L≥35	16	18
ΦD	ΦD + 0.5 Max							ΦD + 0.5 Max
Φd	0.5	0.5	0.6	0.6	0.6	0.8	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+2.0 Max		L + 1.5 Max	

◆ PART NUMBER SYSTEM (Example : 250V 2.2μF)





# ND-H Series

◆ Case size & Permissible rated ripple current: (mA rms) at 105°C / 120Hz

uF \ Vdc	6.3		10		16		25	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
0.47								
1.0								
2.2								
3.3								
4.7								
10					5×11	30	5×11	30
22			5×11	35	5×11	35	5×11	38
33	5×11	46	5×11	46	5×11	50	5×11	50
47	5×11	50	5×11	50	5×11	54	6.3×11	68
100	6.3×11	65	6.3×11	68	6.3×11	84	8×11.5	115
220	6.3×11	70	8×11.5	135	8×11.5	140	10×12.5	182
330	8×11.5	135	8×11.5	150	10×12.5	202	10×16	247
470	8×11.5	161	10×12.5	215	10×16	265	10×20	333
1000	10×16	360	10×20	380	12.5×20	475	12.5×25	510
2200	12.5×20	480	12.5×25	500	16×25	625	16×31.5	660

uF \ Vdc	35		50		63		100	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
0.47			5×11	5			5×11	10
1.0			5×11	12			5×11	15
2.2			5×11	18			6.3×11	24
3.3			5×11	19	5×11	20	6.3×11	28
4.7	5×11	24	5×11	24	6.3×11	24	6.3×11	34
10	5×11	30	5×11	30	6.3×11	41	8×11.5	51
22	6.3×11	44	6.3×11	45	8×11.5	68	10×12.5	70
33	6.3×11	56	8×11.5	65	10×12.5	69	10×16	95
47	8×11.5	86	8×11.5	80	10×16	130	12.5×20	173
100	10×12.5	142	10×16	150	10×20	165	12.5×25	205
220	10×20	256	12.5×20	280	12.5×25	310	16×31.5	365
330	12.5×20	364	12.5×25	365	16×25	410		
470	12.5×25	472	16×25	450	16×35.5	455		
1000	16×25	560	16×35.5	615				

uF \ Vdc	160		200		250	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
0.47	5×11	6	6.3×11	6	6.3×11	6
1.0	5×11	8	6.3×11	8	6.3×11	9
2.2	6.3×11	12	8×11.5	14	10×12.5	17
3.3	8×11.5	17	10×12.5	21	10×12.5	21
4.7	10×12.5	25	10×16	27	10×16	29
10	10×16	40	12.5×20	50	12.5×20	50
22	12.5×20	76	12.5×25	86	16×25	97
33	12.5×25	95	16×25	119	16×31.5	130
47	16×25	144	16×31.5	158	16×35.5	166
100	18×31.5	210				

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Cap(uF)	Frequency (Hz)				
	50/60	120	1K	10K	100K
0.47 ~ 47	0.75	1.00	1.57	1.75	2.00
100 ~ 470	0.80	1.00	1.34	1.40	1.50
1000 ~ 2200	0.85	1.00	1.13	1.13	1.13