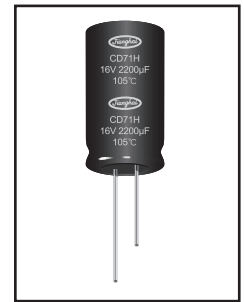
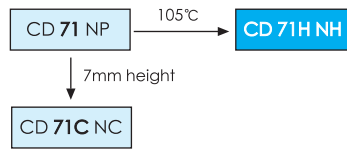


2000h at 105°C

- Load life of 2000 hours at 105°C
- Bi-polar



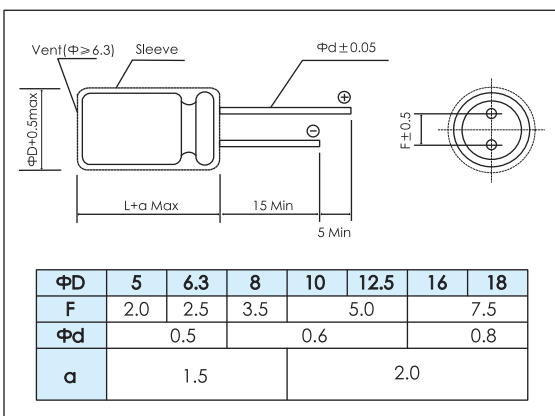
Items	Characteristics																															
Operating Temperature Range (°C)	-55 ~ +105																															
Rated Voltage Range (V)	6.3 ~ 160																															
Capacitance Tolerance (20°C, 120Hz)	± 20%																															
Leakage Current (µA)	After 2 minutes at 20°C application of rated voltage, leakage current is not more than 0.06CV or 10, whichever is greater. C: Nominal Capacitance (µF) V: Rated Voltage (V)																															
Dissipation Factor (20°C, 120Hz)	<table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160</th> </tr> </thead> <tbody> <tr> <td>Tan δ (max)</td> <td>0.24</td> <td>0.24</td> <td>0.20</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.15</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	80	100	160	Tan δ (max)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10	0.10	0.15									
	Rated Voltage (V)	6.3	10	16	25	35	50	63	80	100	160																					
Tan δ (max)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10	0.10	0.15																						
When nominal capacitance is over 1000µF, tanδ shall be added 0.02 to the listed value with increase of every 1000µF																																
Stability at Low Temperature (Impedance Ratio at 120Hz)	<table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160</th> </tr> </thead> <tbody> <tr> <td>Z<sub>-25°C</sub> / Z<sub>+20°C</sub></td> <td>4</td> <td>3</td> <td colspan="6">2</td> <td>4</td> </tr> <tr> <td>Z<sub>-40°C</sub> / Z<sub>+20°C</sub></td> <td>10</td> <td>8</td> <td>6</td> <td colspan="6">4</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	80	100	160	Z <sub>-25°C</sub> / Z <sub>+20°C</sub>	4	3	2						4	Z <sub>-40°C</sub> / Z <sub>+20°C</sub>	10	8	6	4					
	Rated Voltage (V)	6.3	10	16	25	35	50	63	80	100	160																					
	Z <sub>-25°C</sub> / Z <sub>+20°C</sub>	4	3	2						4																						
Z <sub>-40°C</sub> / Z <sub>+20°C</sub>	10	8	6	4																												

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	4000h	180000h	2000h	2000h	1000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ± 50% of initial value		Within ± 20% of initial value	Within ± 20% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 150% of specified value	Not more than 150% of specified value	Not more than 150% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	U <sub>R</sub> I <sub>R</sub> 105°C	U <sub>R</sub> 1.4 × I <sub>R</sub> 40°C	U <sub>R</sub> I <sub>R</sub> 105°C	U <sub>R</sub> I <sub>R</sub> = 0 105°C	U <sub>R</sub> = 0 I <sub>R</sub> = 0 105°C After test: U <sub>R</sub> to be applied for 30min >24h before measurement

Note: The life test excluding shelf life should be conducted with the polarity inverted every 250hrs.

## Dimensions

mm



## Frequency Coefficient

Frequency Capacitance (µF)	Frequency				
	50~60Hz	120Hz	1kHz	10kHz	100kHz
0.47 ~ 4.7	0.65	1.00	1.35	2.30	2.50
10 ~ 47	0.75	1.00	1.25	1.75	1.80
100 ~ 1000	0.80	1.00	1.15	1.40	1.50
2200 ~ 6800	0.85	1.00	1.03	1.08	1.08

## Temperature Coefficient

Temperature (°C)	+85	+105
Coefficient	1.35	1

# CD 71H NH SERIES



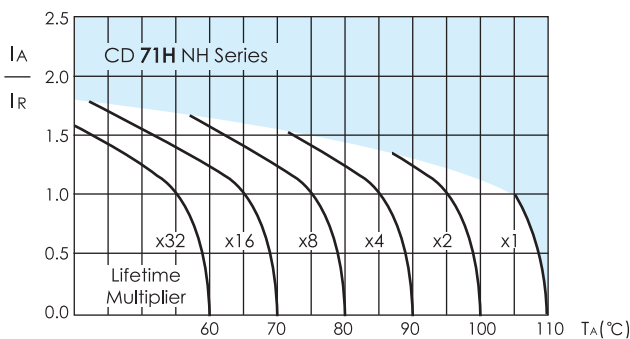
## Ratings for CD 71H NH Series

$U_R$ (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mA <sub>rms</sub> )	(mm)	-
6.3 (7.2) 0J	33	9.7	45	5×11.5	ECR0JNH330M□□050011
	47	6.8	54	5×11.5	ECR0JNH470M□□050011
	100	3.2	90	6.3×11.5	ECR0JNH101M□□063011
	220	1.5	150	8×11.5	ECR0JNH221M□□080011
	330	0.97	185	8×11.5	ECR0JNH331M□□080011
	470	0.68	260	10×12.5	ECR0JNH471M□□100012
	1000	0.32	460	10×20	ECR0JNH102M□□100020
	2200	0.16	820	12.5×25	ECR0JNH222M□□125025
	3300	0.11	1110	16×25	ECR0JNH332M□□160025
	4700	0.09	1430	16×31.5	ECR0JNH472M□□160031
10 (13) 1A	6800	0.07	1830	18×35.5	ECR0JNH682M□□180035
	22	15	37	5×11.5	ECR1ANH220M□□050011
	33	9.7	45	5×11.5	ECR1ANH330M□□050011
	47	6.8	54	5×11.5	ECR1ANH471M□□050011
	100	3.2	90	6.3×11.5	ECR1ANH101M□□063011
	220	1.5	150	8×11.5	ECR1ANH221M□□080011
	330	0.97	240	10×16	ECR1ANH331M□□100016
	470	0.68	290	10×16	ECR1ANH471M□□100016
	1000	0.32	510	12.5×20	ECR1ANH102M□□125020
	2200	0.16	910	16×25	ECR1ANH222M□□160025
16 (20) 1C	3300	0.11	1200	16×31.5	ECR1ANH332M□□160031
	4700	0.09	1520	18×35.5	ECR1ANH472M□□180035
	10	27	27	5×11.5	ECR1CNH100M□□050011
	22	12	40	5×11.5	ECR1CNH220M□□050011
	33	8.0	49	5×11.5	ECR1CNH330M□□050011
	47	5.7	67	6.3×11.5	ECR1CNH470M□□063011
	100	2.7	110	8×11.5	ECR1CNH101M□□080011
	220	1.2	195	10×12.5	ECR1CNH221M□□100012
	330	0.80	265	10×16	ECR1CNH331M□□100016
	470	0.57	345	10×20	ECR1CNH471M□□100020
25 (32) 1E	1000	0.27	605	12.5×25	ECR1CNH102M□□125025
	2200	0.13	1070	16×31.5	ECR1CNH222M□□160031
	3300	0.10	1400	18×35.5	ECR1CNH332M□□180035
	10	27	27	5×11.5	ECR1ENH100M□□050011
	22	12	46	6.3×11.5	ECR1ENH220M□□063011
	33	8.0	56	6.3×11.5	ECR1ENH330M□□063011
	47	5.7	67	6.3×11.5	ECR1ENH470M□□063011
	100	2.7	110	8×11.5	ECR1ENH101M□□080011
	220	1.2	215	10×16	ECR1ENH221M□□100016
	330	0.80	320	12.5×20	ECR1ENH331M□□125020
35 (44) 1V	470	0.57	380	12.5×20	ECR1ENH471M□□125020
	1000	0.27	670	16×25	ECR1ENH102M□□160025
	2200	0.13	1140	18×35.5	ECR1ENH222M□□180035
	4.7	45	21	5×11.5	ECR1VNH47M□□050011
	10	21	30	5×11.5	ECR1VNH100M□□050011
	22	9.7	51	6.3×11.5	ECR1VNH220M□□063011
	33	6.4	72	8×11.5	ECR1VNH330M□□080011
	47	4.5	86	8×11.5	ECR1VNH470M□□080011
	100	2.1	160	10×12.5	ECR1VNH101M□□100012
	220	0.97	290	10×20	ECR1VNH221M□□100020
100 (125) 2A	330	0.64	350	12.5×25	ECR1VNH331M□□125025
	470	0.45	465	16×25	ECR1VNH471M□□160025
	1000	0.21	805	16×31.5	ECR1VNH102M□□160031
	100	2.0	403	18×35.5	ECR2CNH101M□□180035

$U_R$ (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mA <sub>rms</sub> )	(mm)	-
50 (63) 1H	0.47	395	7	5×11.5	ECR1HNHR47M□□050011
	1	186	10	5×11.5	ECR1HNH010M□□050011
	2.2	84	15	5×11.5	ECR1HNH2R2M□□050011
	3.3	56	18	5×11.5	ECR1HNH3R3M□□050011
	4.7	40	22	5×11.5	ECR1HNH4R7M□□050011
	10	19	37	6.3×11.5	ECR1HNH100M□□063011
	22	8.4	63	8×11.5	ECR1HNH220M□□080011
	33	5.6	77	8×11.5	ECR1HNH330M□□080011
	47	4.0	105	10×12.5	ECR1HNH470M□□100012
	100	1.9	190	10×20	ECR1HNH101M□□100020
63 (79) 1J	220	0.84	340	12.5×25	ECR1HNH221M□□125025
	330	0.56	460	16×25	ECR1HNH331M□□160025
	470	0.40	590	16×31.5	ECR1HNH471M□□160031
	3.3	48	20	5×11.5	ECR1JNH3R3M□□050011
	4.7	34	24	6.3×11.5	ECR1JNH4R7M□□063011
	10	16	40	8×11.5	ECR1JNH100M□□063011
	22	7.2	68	8×11.5	ECR1JNH220M□□080011
	33	4.8	98	10×12.5	ECR1JNH330M□□100012
	47	3.4	130	10×16	ECR1JNH470M□□100016
	100	1.6	225	12.5×20	ECR1JNH101M□□125020
80 (100) 1K	220	0.72	405	16×25	ECR1JNH221M□□160025
	330	0.48	535	16×31.5	ECR1JNH331M□□160031
	470	0.34	680	18×35.5	ECR1JNH471M□□180035
	2.2	72	16	5×11.5	ECR1KNH2R2M□□050011
	3.3	48	23	6.3×11.5	ECR1KNH3R3M□□063011
	4.7	34	27	6.3×11.5	ECR1KNH4R7M□□063011
	10	16	46	8×11.5	ECR1KNH100M□□080011
	22	7.2	89	10×16	ECR1KNH220M□□100016
	33	4.8	105	10×16	ECR1KNH330M□□100016
	47	3.4	140	10×20	ECR1KNH470M□□100020
100 (125) 2A	100	1.6	245	12.5×25	ECR1KNH101M□□125025
	220	0.72	435	16×31.5	ECR1KNH221M□□160031
	330	0.48	570	18×35.5	ECR1KNH331M□□180035
	0.47	282	8	5×11.5	ECR2ANHR47M□□050011
	1	133	12	5×11.5	ECR2ANH010M□□050011
	2.2	60	20	6.3×11.5	ECR2ANH2R2M□□063011
	3.3	40	25	6.3×11.5	ECR2ANH3R3M□□063011
	4.7	28	30	6.3×11.5	ECR2ANH4R7M□□063011
	10	13	50	8×11.5	ECR2ANH100M□□080011
	22	6.0	97	10×16	ECR2ANH220M□□100016
160 (200) 2C	33	4.0	140	12.5×20	ECR2ANH330M□□125020
	47	2.8	170	12.5×20	ECR2ANH470M□□125020
	100	1.3	300	16×25	ECR2ANH101M□□160025
	220	0.60	510	18×35.5	ECR2ANH221M□□180035
	3.3	60	45	10×16	ECR2CNH3R3M□□100016
	4.7	42	55	10×16	ECR2CNH4R7M□□100016
	10	20	103	12.5×20	ECR2CNH100M□□125020
	22	9.1	168	12.5×25	ECR2CNH220M□□125025
	33	6.01	228	16×25	ECR2CNH330M□□160025
	47	4.21	312	16×35.5	ECR2CNH470M□□160035

Customer products are available on request.

## Lifetime Diagram



$I_A$  = actual ripple current at 120Hz,  $I_R$  = rated ripple current at 120Hz, 105°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load