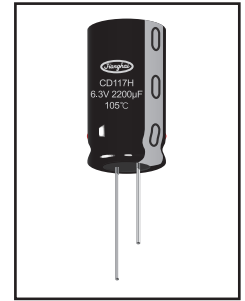


CD 117H DH SERIES



2000h at 105°C

- Load life of 2000 hours at 105°C
- Low Leakage Current
- Close Tolerance

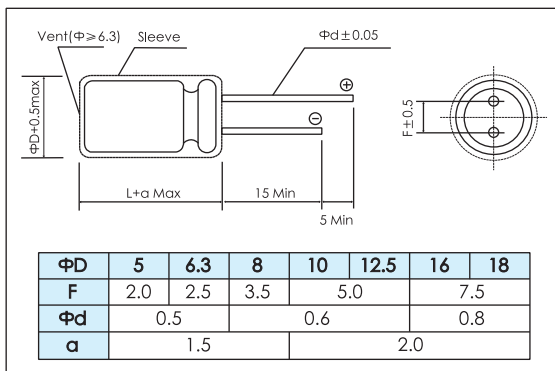


Items	Characteristics																											
Operating Temperature Range (°C)	-40 ~ +105																											
Capacitance Tolerance (20°C, 120Hz)	± 20% or ± 10%																											
Leakage Current (µA)	After 1 minute at 20°C application of rated voltage, leakage current is not more than 0.008CV or 1.0µA, 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>100</th> </tr> </thead> <tbody> <tr> <td>Tan δ (max) Φ10×12.5</td> <td>0.18</td> <td>0.15</td> <td>0.12</td> <td>0.08</td> <td>0.08</td> <td>0.08</td> <td>0.07</td> <td>0.07</td> </tr> <tr> <td>Tan δ (max) Φ10×16</td> <td>0.21</td> <td>0.17</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> <td>0.1</td> <td>0.08</td> <td>0.08</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	Tan δ (max) Φ10×12.5	0.18	0.15	0.12	0.08	0.08	0.08	0.07	0.07	Tan δ (max) Φ10×16	0.21	0.17	0.14	0.12	0.12	0.1	0.08	0.08
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100																			
Tan δ (max) Φ10×12.5	0.18	0.15	0.12	0.08	0.08	0.08	0.07	0.07																				
Tan δ (max) Φ10×16	0.21	0.17	0.14	0.12	0.12	0.1	0.08	0.08																				
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>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance ratio</td> <td>Z_{-25°C} / Z_{+20°C}</td> <td>4</td> <td>3</td> <td>2</td> <td colspan="3">1.5</td> <td></td> </tr> <tr> <td>Z_{-40°C} / Z_{+20°C}</td> <td>8</td> <td>6</td> <td colspan="2">4</td> <td colspan="3">3</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	Impedance ratio	Z _{-25°C} / Z _{+20°C}	4	3	2	1.5				Z _{-40°C} / Z _{+20°C}	8	6	4		3			
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100																			
Impedance ratio	Z _{-25°C} / Z _{+20°C}	4	3	2	1.5																							
	Z _{-40°C} / Z _{+20°C}	8	6	4		3																						

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	3000h	200000h	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 ± 30% of initial value		Within ± 15% of initial value	Within ± 15% of initial value	Within ± 15% 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 _R I _R 105°C	U _R 1.2 × I _R 40°C	U _R I _R 105°C	U _R I _R = 0 105°C	U _R = 0 I _R = 0 105°C After test: U _R to be applied for 30min >24h before measurement

Dimensions

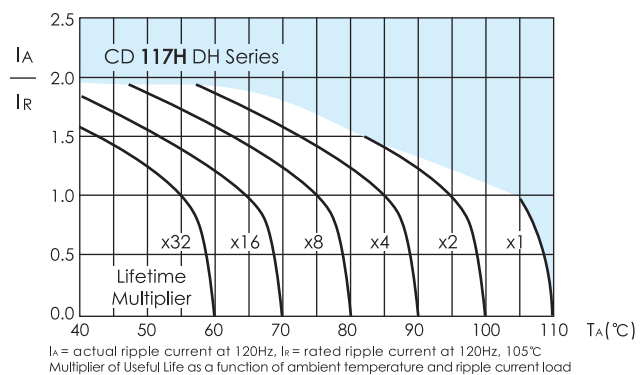
mm



Frequency Coefficient

Cap (µF)	Frequency	50~60Hz	120Hz	1kHz	≥10kHz
10 ~ 68		0.75	1.00	1.57	2.10
100 ~ 680		0.80	1.00	1.34	1.50
1000 ~ 10000		0.85	1.00	1.13	1.15

Lifetime Diagram



Temperature Coefficient

Temperature(°C)	+70	+85	+105
Coefficient	1.80	1.40	1.00

MINIATURE

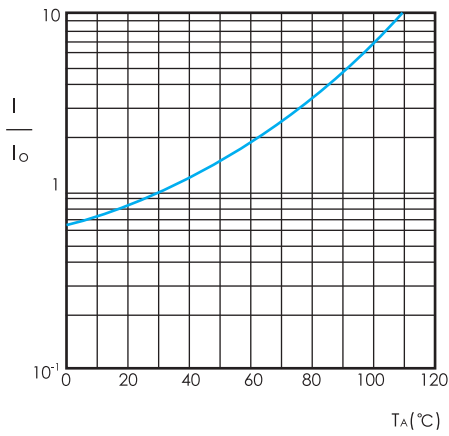
Ratings for CD 117H DH Series

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 rms)	(mm)	-	
6.3 (7.2) 0J	470	0.51	390	10×12.5	ECR0JDH471M□□100012	
	680	0.41	480	10×16	ECR0JDH681M□□100016	
	1000	0.28	650	10×20	ECR0JDH102M□□100020	
	1500	0.19	910	12.5×25	ECR0JDH152M□□125025	
	2200	0.13	1060	12.5×25	ECR0JDH222M□□125025	
	3300	0.08	1270	16×25	ECR0JDH332M□□160025	
	4700	0.06	1500	16×31.5	ECR0JDH472M□□160031	
	6800	0.04	1760	18×35.5	ECR0JDH682M□□180035	
	10000	0.03	1900	18×40	ECR0JDH103M□□180040	
10 (13) 1A	47	4.23	110	5×11.5	ECR1ADH470M□□050011	
	68	2.93	150	6.3×11.5	ECR1ADH680M□□063011	
	100	1.99	180	6.3×11.5	ECR1ADH101M□□063011	
	150	1.33	250	8×11.5	ECR1ADH151M□□080011	
	220	0.90	310	8×11.5	ECR1ADH221M□□080011	
	330	0.60	400	10×12.5	ECR1ADH331M□□100012	
	470	0.48	530	10×16	ECR1ADH471M□□100016	
	680	0.33	600	10×20	ECR1ADH681M□□100020	
	1000	0.23	810	12.5×25	ECR1ADH102M□□125020	
	1500	0.15	1020	12.5×25	ECR1ADH152M□□125025	
	2200	0.10	1200	16×25	ECR1ADH222M□□160025	
	3300	0.07	1420	16×31.5	ECR1ADH332M□□160031	
	4700	0.05	1650	16×35.5	ECR1ADH472M□□160035	
	6800	0.03	1890	18×35.5	ECR1ADH682M□□180035	
	16 (20) 1C	10	15.92	55	5×11.5	ECR1CDH100M□□050011
15		10.62	70	5×11.5	ECR1CDH150M□□050011	
22		7.24	85	5×11.5	ECR1CDH220M□□050011	
33		4.83	100	5×11.5	ECR1CDH330M□□050011	
47		3.39	140	6.3×11.5	ECR1CDH470M□□063011	
68		2.34	160	6.3×11.5	ECR1CDH680M□□063011	
100		1.59	230	8×11.5	ECR1CDH101M□□080011	
150		1.06	280	8×11.5	ECR1CDH151M□□080011	
220		0.72	370	10×12.5	ECR1CDH221M□□100012	
330		0.56	420	10×16	ECR1CDH331M□□100016	
470		0.40	550	10×20	ECR1CDH471M□□100020	
680		0.27	730	12.5×20	ECR1CDH681M□□125020	
1000		0.19	910	12.5×25	ECR1CDH102M□□125025	
1500		0.12	1150	16×25	ECR1CDH152M□□160025	
2200		0.08	1300	16×25	ECR1CDH222M□□160025	
3300		0.06	1550	16×35.5	ECR1CDH332M□□160035	
4700		0.04	1820	16×35.5	ECR1CDH472M□□160035	
25 (32) 1E		4.7	22.59	45	5×11.5	ECR1EDH47M□□050011
		6.8	15.61	55	5×11.5	ECR1EDH68M□□050011
		10	10.62	70	5×11.5	ECR1EDH100M□□050011
	15	7.08	85	5×11.5	ECR1EDH150M□□050011	
	22	4.83	100	5×11.5	ECR1EDH220M□□050011	
	33	3.22	140	6.3×11.5	ECR1EDH330M□□063011	
	47	2.26	170	6.3×11.5	ECR1EDH470M□□063011	
	68	1.56	230	8×11.5	ECR1EDH680M□□080011	
	100	1.06	280	8×11.5	ECR1EDH101M□□080011	
	150	0.71	370	10×12.5	ECR1EDH151M□□100012	
	220	0.72	400	10×16	ECR1EDH221M□□100016	
	330	0.48	490	10×20	ECR1EDH331M□□100020	
	470	0.34	600	12.5×20	ECR1EDH471M□□125020	
	680	0.23	810	12.5×25	ECR1EDH681M□□125025	
	1000	0.16	1010	16×25	ECR1EDH102M□□160025	
	1500	0.11	1270	16×31.5	ECR1EDH152M□□160031	
	2200	0.07	1440	16×35.5	ECR1EDH222M□□160035	
	3300	0.05	1720	18×40	ECR1EDH332M□□180040	
35 (44) 1V	15	7.08	85	5×11.5	ECR1VDH150M□□050011	
	22	4.83	110	6.3×11.5	ECR1VDH220M□□063011	
	33	3.22	140	6.3×11.5	ECR1VDH330M□□063011	
	47	2.26	190	8×11.5	ECR1VDH470M□□080011	
	68	1.56	230	8×11.5	ECR1VDH680M□□080011	
	100	1.06	300	10×12.5	ECR1VDH101M□□100012	
	150	1.06	400	10×16	ECR1VDH151M□□100016	
	220	0.72	440	10×20	ECR1VDH221M□□100020	
	330	0.48	550	12.5×20	ECR1VDH331M□□125020	
	470	0.34	680	12.5×25	ECR1VDH471M□□125025	
	680	0.23	840	16×25	ECR1VDH681M□□160025	
	1000	0.16	1100	16×25	ECR1VDH102M□□160025	
	1500	0.11	1390	16×35.5	ECR1VDH152M□□160035	
	2200	0.07	1580	16×35.5	ECR1VDH222M□□160035	

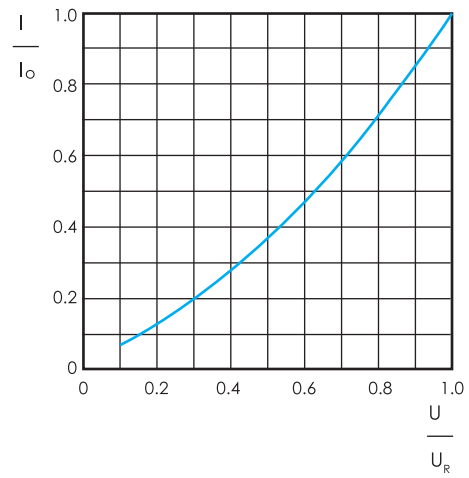
U _r (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mA rms)	(mm)	-
50 (63) 1H	0.1	1061.57	1.1	5×11.5	ECR1HDH0R1M□□050011
	0.15	707.71	1.6	5×11.5	ECR1HDH15M□□050011
	0.22	482.53	2.3	5×11.5	ECR1HDH22M□□050011
	0.33	321.69	3.5	5×11.5	ECR1HDH33M□□050011
	0.47	225.87	5.0	5×11.5	ECR1HDH47M□□050011
	0.68	156.11	7.3	5×11.5	ECR1HDH68M□□050011
	1	106.16	10.7	5×11.5	ECR1HDH101M□□050011
	1.5	70.77	16	5×11.5	ECR1HDH15M□□050011
	2.2	48.25	23	5×11.5	ECR1HDH22M□□050011
	3.3	32.17	40	5×11.5	ECR1HDH33M□□050011
	4.7	22.59	45	5×11.5	ECR1HDH47M□□050011
	6.8	15.61	55	5×11.5	ECR1HDH68M□□050011
	10	10.62	70	5×11.5	ECR1HDH100M□□050011
	15	7.08	95	6.3×11.5	ECR1HDH150M□□063011
	22	4.83	110	6.3×11.5	ECR1HDH220M□□063011
	33	3.22	165	8×11.5	ECR1HDH330M□□100012
	47	2.26	190	8×11.5	ECR1HDH470M□□080011
	68	1.56	250	10×12.5	ECR1HDH680M□□100012
	100	1.33	320	10×16	ECR1HDH101M□□100016
	150	0.88	420	10×20	ECR1HDH151M□□100020
220	0.60	490	12.5×20	ECR1HDH221M□□125020	
330	0.40	600	12.5×20	ECR1HDH331M□□125020	
470	0.28	760	16×25	ECR1HDH471M□□160025	
680	0.20	910	16×25	ECR1HDH681M□□160025	
1000	0.13	1140	16×31.5	ECR1HDH102M□□160031	
1500	0.09	1480	18×40	ECR1HDH152M□□180040	
63 (79) 1J	6.8	13.66	59	5×11.5	ECR1JDH68M□□050011
	10	9.29	75	6.3×11.5	ECR1JDH100M□□063011
	15	6.19	100	6.3×11.5	ECR1JDH150M□□063011
	22	4.22	115	8×11.5	ECR1JDH220M□□080011
	33	2.81	170	8×11.5	ECR1JDH330M□□080011
	47	1.98	200	10×12.5	ECR1JDH470M□□100012
	68	1.56	270	10×16	ECR1JDH680M□□100016
	100	1.06	330	10×20	ECR1JDH101M□□100020
	150	0.71	450	12.5×20	ECR1JDH151M□□125020
	220	0.48	550	12.5×20	ECR1JDH221M□□125020
	330	0.32	710	12.5×25	ECR1JDH331M□□125025
	470	0.23	850	16×25	ECR1JDH471M□□160025
	680	0.16	1050	16×31.5	ECR1JDH681M□□160031
	1000	0.11	1330	18×35.5	ECR1JDH102M□□180035
	100 (125) 2A	0.1	928.87	2.1	5×11.5
0.15		619.25	3.2	5×11.5	ECR2ADH15M□□050011
0.22		422.22	4.7	5×11.5	ECR2ADH22M□□050011
0.33		281.48	7.0	5×11.5	ECR2ADH33M□□050011
0.47		197.63	10.1	5×11.5	ECR2ADH47M□□050011
0.68		136.60	14.5	5×11.5	ECR2ADH68M□□050011
1		92.89	19	5×11.5	ECR2ADH101M□□050011
1.5		61.92	23	5×11.5	ECR2ADH15M□□050011
2.2		42.22	28	5×11.5	ECR2ADH22M□□050011
3.3		28.15	45	5×11.5	ECR2ADH33M□□050011
4.7		19.76	50	5×11.5	ECR2ADH47M□□050011
6.8		13.66	65	6.3×11.5	ECR2ADH68M□□063011
10		9.29	90	8×11.5	ECR2ADH100M□□080011
15		6.19	110	8×11.5	ECR2ADH150M□□080011
22		4.22	136	10×12.5	ECR2ADH220M□□100012
33		3.22	180	10×16	ECR2ADH330M□□100016
47		2.26	220	10×20	ECR2ADH470M□□100020
68		1.56	290	10×20	ECR2ADH680M□□100020
100		1.06	370	12.5×20	ECR2ADH101M□□125020
150		0.71	470	12.5×25	ECR2ADH151M□□125025
220	0.48	580	16×25	ECR2ADH221M□□160025	
330	0.32	730	16×31.5	ECR2ADH331M□□160031	
470	0.23	910	16×35.5	ECR2ADH471M□□160035	

Customer products are available on request.

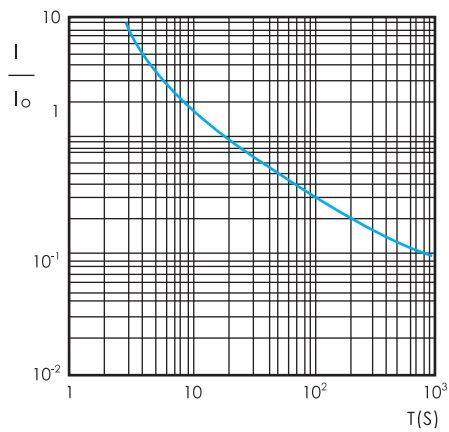
Typical Curves



I_0 = leakage current during continuous operation at 20°C and U_r .
Fig.1 Typical multiplier of leakage current as a function of ambient temperature.



I_0 =leakage current during continuous operation at 20°C and U_r .
Fig.2 Typical multiplier of leakage current as a function of U/U_r .



I_0 =leakage current.
Leakage current after 2 minutes (L2) is specified in Tables 2 and 4.
Fig.3 Typical multiplier of leakage current as a function of time.

MINIATURE