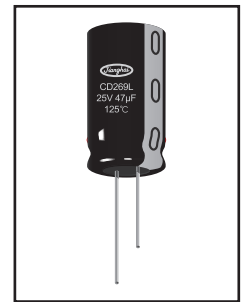
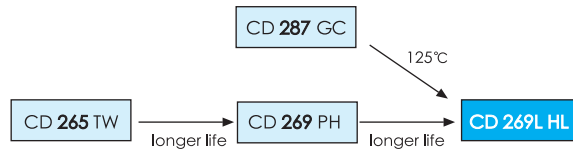


2000~5000h at 125°C

- Load life of 2000~5000 hours at 125°C
- High Reliability at High Temperature
- Automotive
- Professional Long-Life Applications

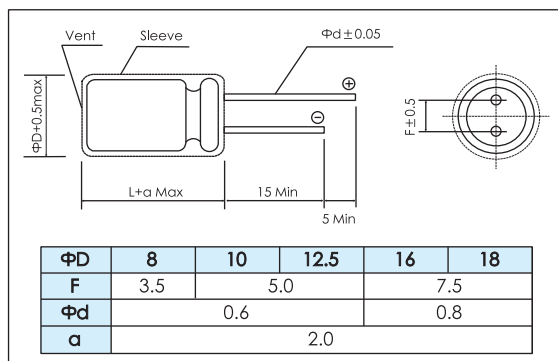


Items	Characteristics																
Operating Temperature Range (°C)	-40 ~ +125																
Voltage Range (V)	10 ~ 100																
Capacitance Range (μF)	1 ~ 4700																
Capacitance Tolerance (20°C, 120Hz)	± 20%																
Leakage Current (μA)	After 1 minute at 20°C application of rated voltage, leakage current is not more than 0.03CV or 4, whichever is greater. C: Nominal Capacitance (μF) V: Rated Voltage (V)																
Dissipation Factor (20°C, 120Hz)	<table border="1"> <thead> <tr> <th>WV (V)</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)</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table>	WV (V)	10	16	25	35	50	63	100	Tan δ (max)	0.20	0.16	0.14	0.12	0.10	0.09	0.08
	WV (V)	10	16	25	35	50	63	100									
Tan δ (max)	0.20	0.16	0.14	0.12	0.10	0.09	0.08										
For Capacitances >1000μF add 0.02 to every 1000μF																	
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	10	16	25	35	50	63	100									
	$Z_{-25°C} / Z_{+20°C}$	3	2														
	$Z_{-40°C} / Z_{+20°C}$	6	4														

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	Φ 8 : 4000h Φ 10 : 6000h Φ ≥ 12.5 : 10000h	≥ 180000h	Φ 8 : 2000h Φ 10 : 3000h Φ ≥ 12.5 : 5000h	Φ 8 : 3000h Φ 10 : 5000h Φ ≥ 12.5 : 7000h	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 ± 30% of initial value	Within ± 30% of initial value	Within ± 30% of initial value
Dissipation Factor	Not more than 500% of specified value		Not more than 300% of specified value	Not more than 300% of specified value	Not more than 300% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	U_R I_R 125°C	U_R $1.4 \times I_R$ 60°C	U_R I_R 125°C	U_R $I_R = 0$ 125°C	$U_R = 0$ $I_R = 0$ 125°C After test: U_R to be applied for 30min >24h before measurement

Dimensions

mm



Frequency Coefficient

Frequency		50/60Hz	120Hz	1kHz	10kHz	100kHz
Coefficient	1 ~ 4.7	0.35	0.42	0.60	0.80	1.00
	10 ~ 33	0.45	0.55	0.75	0.90	1.00
	47 ~ 330	0.60	0.70	0.85	0.95	1.00
	470 ~ 1500	0.65	0.75	0.90	0.98	1.00
	2200 ~ 4700	0.75	0.80	0.95	1.00	1.00

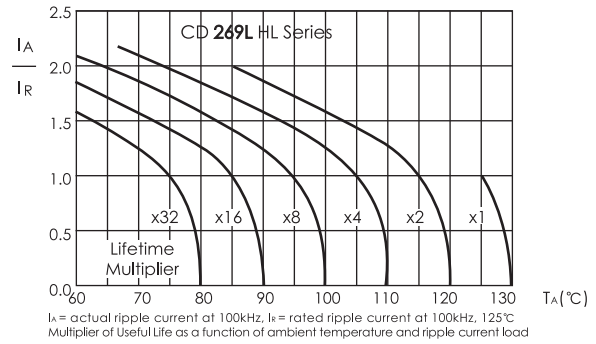
Temperature Coefficient

Temperature(°C)	+65	+85	+105	+125
Coefficient	2.2	2.0	1.7	1.0

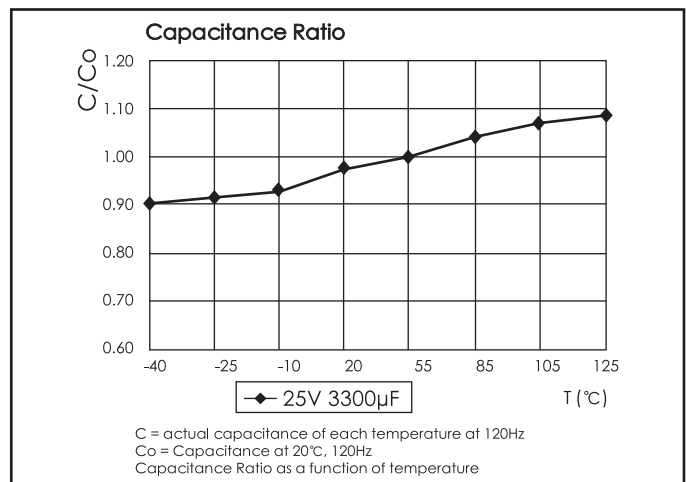
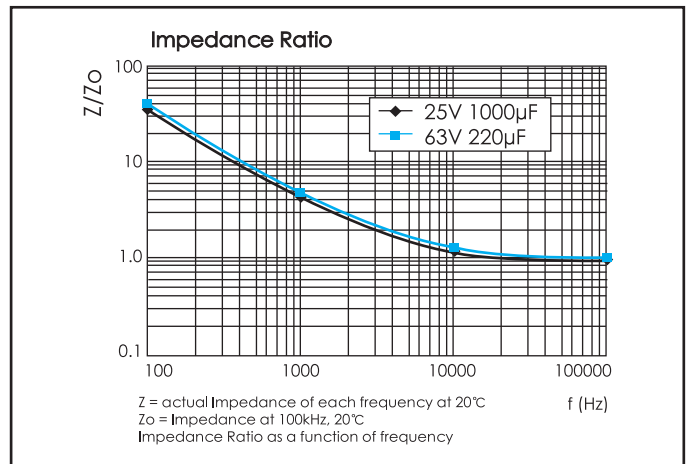
Ratings for CD 269L HL Series

U _R (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Max Impedance 20°C, 100kHz	Rated Ripple Current 125°C, 100kHz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(Ω)	(mA _{rms})	(mm)	-
10 (13) 1A	330	0.804	0.22	360	8×11.5	ECR1AHL331M□□080011
	470	0.565	0.15	620	10×12.5	ECR1AHL471M□□100012
	1000	0.265	0.073	960	10×20	ECR1AHL102M□□100020
	2200	0.133	0.040	1430	12.5×25	ECR1AHL222M□□125025
	3300	0.097	0.038	1900	16×25	ECR1AHL332M□□160025
	4700	0.073	0.034	2300	16×31.5	ECR1AHL472M□□160031
16 (20) 1C	330	0.643	0.22	360	8×11.5	ECR1CHL331M□□080011
	470	0.452	0.15	620	10×12.5	ECR1CHL471M□□100012
	1000	0.212	0.073	960	10×20	ECR1CHL102M□□100020
	2200	0.109	0.040	1430	12.5×25	ECR1CHL222M□□125025
	3300	0.080	0.034	2300	16×31.5	ECR1CHL332M□□160031
	4700	0.062	0.031	2550	16×35.5	ECR1CHL472M□□160035
25 (32) 1E	220	0.844	0.22	360	8×11.5	ECR1EHL221M□□080011
	330	0.563	0.15	620	10×12.5	ECR1EHL331M□□100012
	470	0.395	0.10	800	10×16	ECR1EHL471M□□100016
	1000	0.186	0.055	1100	12.5×20	ECR1EHL102M□□125020
	2200	0.097	0.034	2300	16×31.5	ECR1EHL222M□□160031
	3300	0.072	0.031	2550	16×35.5	ECR1EHL332M□□160035
35 (44) 1V	100	1.592	0.22	360	8×11.5	ECR1VHL101M□□080011
	220	0.724	0.15	620	10×12.5	ECR1VHL221M□□100012
	330	0.483	0.10	800	10×16	ECR1VHL331M□□100016
	470	0.339	0.073	960	10×20	ECR1VHL471M□□100020
	1000	0.159	0.040	1430	12.5×25	ECR1VHL102M□□125025
	2200	0.084	0.031	2550	16×35.5	ECR1VHL222M□□160035
	3300	0.064	0.028	2800	18×36	ECR1VHL332M□□180036
	4700	0.048	0.022	3300	20×40	ECR1VHL472M□□200040
50 (63) 1H	1	132.6	2.5	35	8×11.5	ECR1HHL010M□□080011
	2.2	60.31	1.8	50	8×11.5	ECR1HHL2R2M□□080011
	3.3	40.21	1.3	70	8×11.5	ECR1HHL3R3M□□080011
	4.7	28.23	0.85	100	8×11.5	ECR1HHL4R7M□□080011
	10	13.27	0.60	200	8×11.5	ECR1HHL100M□□080011
	22	6.032	0.35	260	8×11.5	ECR1HHL220M□□080011
	33	4.021	0.28	300	8×11.5	ECR1HHL330M□□080011
	47	2.823	0.28	300	8×11.5	ECR1HHL470M□□080011
	100	1.327	0.18	520	10×12.5	ECR1HHL101M□□100012
	220	0.603	0.082	890	10×20	ECR1HHL221M□□100020
	330	0.402	0.065	1000	12.5×20	ECR1HHL331M□□125020
	470	0.282	0.051	1200	12.5×25	ECR1HHL471M□□125025
63 (79) 1J	1000	0.133	0.037	2180	16×31.5	ECR1HHL102M□□160031
	2200	0.072	0.029	2800	18×40	ECR1HHL222M□□180040
	33	3.619	0.40	250	8×11.5	ECR1JHL330M□□080011
	47	2.541	0.27	400	10×12.5	ECR1JHL470M□□100012
	100	1.194	0.20	450	10×16	ECR1JHL101M□□100016
	220	0.543	0.10	820	12.5×20	ECR1JHL221M□□125020
100 (125) 2A	330	0.362	0.072	1000	12.5×25	ECR1JHL331M□□125025
	470	0.254	0.069	1500	16×25	ECR1JHL471M□□160025
	1000	0.119	0.056	1850	16×31.5	ECR1JHL102M□□160031
	1500	0.080	0.043	2350	18×40	ECR1JHL152M□□180040
	4.7	22.58	1.3	100	8×11.5	ECR2AHL4R7M□□080011
	10	10.61	1.0	200	8×11.5	ECR2AHL100M□□080011
	22	4.825	0.67	220	8×11.5	ECR2AHL220M□□080011
	33	3.217	0.45	260	10×12.5	ECR2AHL330M□□100012
	47	2.259	0.33	330	10×16	ECR2AHL470M□□100016
	100	1.062	0.17	670	12.5×20	ECR2AHL101M□□125020
220	0.483	0.13	1100	16×25	ECR2AHL221M□□160025	
330	0.322	0.10	1300	16×31.5	ECR2AHL331M□□160031	
470	0.226	0.092	1600	18×31.5	ECR2AHL471M□□180031	

Lifetime Diagram



Typical Curves



Customer products are available on request.