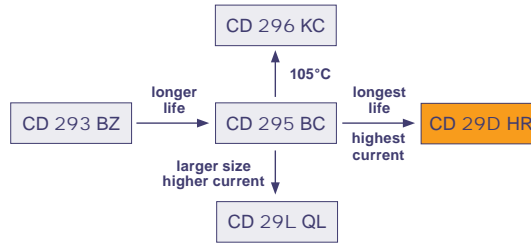


# CD 29D HR Series



7000h at 85°C

- Small Size
- Long Useful Life
- High Ripple Current
- Industrial Power Supplies and Inverters



Item	Characteristics						
Operating Temperature Range (°C)	-40 ~ +85						
Voltage Range (V)	160 ~ 450						
Capacitance Range (µF)	47 ~ 2200						
Capacitance Tolerance (20°C, 120Hz)	± 20%						
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0,01CV or 1,5mA, whichever is smaller C: Nominal Capacitance (µF) V: Rated Voltage (V)						
Dissipation Factor (20°C, 120Hz)	Rated Voltage (V)	160	200	250	350	400	450
	Tan δ (max)	0,15				0,12	
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	160 ~ 450					
	Z <sub>-40°C</sub> / Z <sub>+20°C</sub>	4					

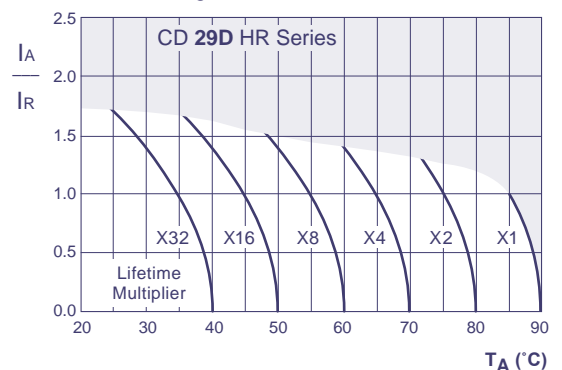
	Useful Life		Load Life	Endurance Test	Shelf Life
	Lifetime	7000h	>100000h	5000h	5000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacity Change	Within ± 30% of initial value		Within ± 20% of initial value	Within ± 20% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 130% of specified value	Not more than 200% of specified value
Condition:					
Applied Voltage	U <sub>R</sub>	U <sub>R</sub>	U <sub>R</sub>	U <sub>R</sub>	U <sub>R</sub> = 0
Applied Current	I <sub>R</sub>	1,2 x I <sub>R</sub>	I <sub>R</sub>	I <sub>R</sub> = 0	I <sub>R</sub> = 0
Applied Temperature	85°C	40°C	85°C	85°C	85°C
Failure Rate Level	≤ 1% Failure Rate		guaranteed		After test: U <sub>R</sub> to be applied for 30min >24h before measurement

## Multiplier for Ripple Current

Frequency Coefficient

Frequency	50Hz	120Hz	1kHz	10kHz	100kHz
Coefficient	0,87	1,00	1,20	1,35	1,40

Lifetime Diagram



I<sub>A</sub> = actual ripple current at 120Hz, I<sub>R</sub> = rated ripple current at 120Hz, 85°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load

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## Ratings for CD 29D HR Series

V <sub>DC</sub> (Surge Voltage) Code	Rated Capa- cance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Max Ripple Current 85°C, 120Hz	Size Ø D x L
(V)	(µF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>160 (200) 2C</b>	330	603	355	1,5	22 x 25
	390	511	300	1,6	25 x 25
	470	424	245	1,8	22 x 35
	560	356	215	2,1	22 x 35
		356	215	2,2	25 x 30
	680	356	215	2,1	30 x 25
		293	178	2,6	22 x 40
	820	293	178	2,5	25 x 35
		243	145	2,8	22 x 50
		243	145	2,7	25 x 40
		243	145	2,9	30 x 30
	1000	243	145	2,8	35 x 25
		199	115	3,3	25 x 45
		199	115	3,4	30 x 35
	1200	199	115	3,3	35 x 30
		166	95	3,7	25 x 50
		166	95	3,8	30 x 40
	1500	166	95	3,6	35 x 35
		133	75	4,4	30 x 45
	1800	133	75	4,3	35 x 40
111		70	4,4	35 x 45	
2200	91	58	5,9	35 x 50	
<b>200 (200) 2D</b>	220	905	375	1,2	22 x 25
	330	603	258	1,5	22 x 30
	390	603	258	1,6	25 x 25
		511	221	1,8	22 x 35
	470	511	221	1,8	25 x 30
		424	175	2,0	22 x 40
	560	424	175	2,1	30 x 25
		356	150	2,2	22 x 45
		356	150	2,2	25 x 35
		356	150	2,3	30 x 30
	680	356	150	2,2	35 x 25
		293	128	2,6	25 x 40
	820	293	128	2,4	30 x 30
		243	105	2,7	25 x 50
		243	105	2,8	30 x 40
	1000	243	105	2,6	35 x 30
		199	80	3,4	30 x 40
		199	80	3,6	35 x 35
	1200	166	70	3,8	30 x 50
		166	70	3,7	35 x 40
1500	133	55	4,7	35 x 50	
<b>250 (300) 2E</b>	150	1327	550	0,92	22 x 25
	180	1106	470	0,98	22 x 25
	220	905	370	1,25	22 x 30
		905	370	1,25	25 x 25
	270	737	370	1,25	22 x 35
		603	250	1,64	22 x 40
	330	603	250	1,64	25 x 30
		603	250	1,64	30 x 25
	390	511	220	1,9	22 x 45
		511	220	1,9	25 x 35
	470	424	175	2,2	22 x 50
		424	175	2,2	25 x 40
		424	175	2,2	30 x 30
	560	424	175	2,2	35 x 25
		356	150	2,4	25 x 45
	680	356	150	2,4	30 x 35
		293	123	2,8	30 x 40
	820	293	123	2,8	35 x 30
		243	105	3,2	30 x 45
	1000	243	105	3,2	35 x 35
199		80	3,7	35 x 40	
1200	166	70	4,1	35 x 45	
1500	133	60	4,6	35 x 50	

V <sub>DC</sub> (Surge Voltage) Code	Rated Capa- cance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Max Ripple Current 85°C, 120Hz	Size Ø D x L
(V)	(µF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>400 (450) 2G</b>	68	2341	960	0,62	22 x 25
	100	1592	660	0,81	22 x 30
		1592	660	0,83	25 x 25
	120	1327	550	0,93	22 x 35
		1062	440	1,2	22 x 40
	150	1062	440	1,2	25 x 30
		1062	440	1,2	30 x 25
	180	885	360	1,3	22 x 45
		885	360	1,3	25 x 35
		885	360	1,3	30 x 30
		885	360	1,3	35 x 25
	220	724	300	1,5	22 x 50
		724	300	1,5	25 x 40
		724	300	1,5	30 x 35
	270	590	240	1,7	25 x 45
		590	240	1,7	30 x 40
		590	240	1,7	35 x 30
	330	483	200	2,1	30 x 45
		483	200	2,1	35 x 35
	390	409	170	2,3	30 x 50
409		170	2,3	35 x 40	
470	339	140	2,7	35 x 45	
	560	285	110	3,0	35 x 50
<b>450 (500) 2W</b>	47	3387	2800	0,52	22 x 25
	68	2341	1940	0,66	22 x 30
		2341	1940	0,66	25 x 25
	100	1592	1310	0,9	22 x 35
		1592	1310	0,9	25 x 30
	120	1592	1310	0,9	30 x 25
		1327	910	1,1	22 x 40
	150	1327	910	1,1	25 x 35
		1062	880	1,3	22 x 50
		1062	880	1,3	25 x 40
	180	1062	880	1,3	30 x 30
		885	740	1,4	25 x 45
		885	740	1,4	30 x 35
	220	885	740	1,4	35 x 25
		724	590	1,6	25 x 50
		724	590	1,6	30 x 40
	270	724	590	1,6	35 x 30
		590	490	1,9	30 x 45
	330	590	490	1,9	35 x 35
		483	395	2,2	35 x 40
390	409	300	2,4	35 x 45	
470	339	280	2,8	35 x 50	

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Custom products are available on request.