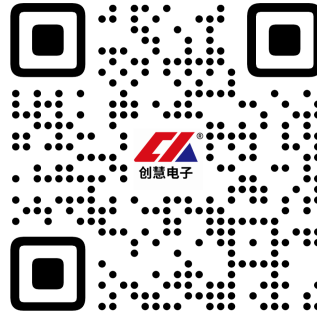


# CD296 Series

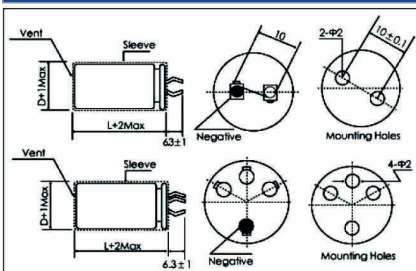
- Long life snap-in series
- Endurance: 5000 hours at 105°C
- Applicable to SMP and frequency converters
- Sleeve color: Gold Print in Black Sleeve



Item	Characteristics	
Operating Temperature Range(°C)	-40~+105	-25~+105
Voltage Range(V)	10~100	160~450
Capacitance Range (µF)	68~56000	
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 0.01 CV or 1.5mA,whichever is smaller. C:Nominal Capacitance (µF) V:Rated Voltage (V)	
Dissipation Factor (20°C,120Hz)	Rated Voltage (V)	10 16 25 35 50 63 80 100 160~250 315~400 450
	Tanδ( max)	0.55 0.50 0.45 0.40 0.35 0.30 0.25 0.20 0.15 0.20 0.25
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	10~100 160~250 350~450
	Z-25°C / Z+20°C	4 3 8
	Z-40°C/Z+20°C	15 - -

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	7000h	>200000h	5000h	5000h	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 ±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 200% of specified value	Not more than 200% of specified value
Condition:					
Applied Voltage	$U_R$	$U_R$	$U_R$	$U_R$	$U_R=0$
Applied Current	$I_R$	$1.6 \times I_R$	$I_R$	$I_R=0$	$I_R=0$
Applied Temperature	105°C	40°C	105°C	105°C	105°C
Failure Rate Level	≤1% Failure Rate	≤1% Failure Rate	guaranteed		After test: $U_R$ to be applied for 30min >24h before measurement

## Dimensions(mm)



## Frequency Coefficient

Voltage(V)	Freq.(HZ)				
	50Hz	120Hz	500Hz	1kHz	≥10kHz
10~100	0.90	1.00	1.05	1.10	1.15
160~250	0.80	1.00	1.20	1.30	1.50
315~450	0.80	1.00	1.20	1.25	1.40

# CD296 Series

Ratings					
V <sub>DC</sub> (Surge Voltage)	Rated Capacitance	Max. ESR 20°C, 120Hz	Typ. ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size φ DxL
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
10 (13)	8200	89	62	1.36	22×25
	1000	73	51	1.65	22×30
	12000	61	43	1.85	22×35
		61	43	1.82	25×25
	15000	49	34	2.12	22×40
		49	34	2.11	25×30
		49	34	2.14	30×25
	18000	41	28	2.4	22×45
		41	28	2.32	25×35
	22000	33	23	2.59	25×40
		33	23	2.73	30×30
	27000	27	19	3.01	25×45
		27	19	3.13	30×35
	33000	22	16	3.43	25×50
		22	16	3.53	30×40
	39000	19	13	3.78	30×45
		19	13	3.96	35×40
	47000	16	11	4.58	30×50
16		11	4.6	35×45	
56000	13	9	5.06	35×50	
16 (20)	5600	119	83	1.44	22×25
	6800	98	68	1.66	22×30
	8200	81	57	1.67	25×25
	10000	66	46	2.08	22×35
		66	46	2.07	25×30
	12000	55	39	2.36	22×40
		55	39	2.37	25×35
	15000	55	39	2.33	30×25
		44	31	2.69	22×45
		44	31	2.72	25×40
	18000	44	31	2.54	30×30
		37	26	3.06	25×45
	22000	37	26	3.02	30×35
		37	26	3.09	35×30
	27000	30	21	3.39	25×50
		30	21	3.46	30×40
	33000	25	17	3.88	30×45
		25	17	3.85	35×35
39000	20	14	4.33	30×50	
	20	14	4.33	35×40	
47000	17	12	4.96	35×45	
47000	14	10	5.49	35×50	
25 (32)	3900	153	107	1.31	22×25
	4700	127	89	1.55	22×30
	5600	107	75	1.77	22×35
		107	75	1.76	25×25
	6800	88	62	2.02	22×40
		88	62	1.88	25×30
	8200	73	51	2.27	22×45
		73	51	2.18	25×35
	10000	73	51	2.19	30×25
		60	42	2.56	22×50
	12000	60	42	2.53	25×40
		60	42	2.38	30×30
	15000	50	35	2.79	25×45
		50	35	2.7	30×35
	18000	50	35	2.76	35×30
		40	28	3.13	30×40
	22000	33	23	3.52	30×45
		33	23	3.5	35×35
27000	27	19	3.92	30×50	
	27	19	3.95	35×40	
27000	22	16	4.72	35×50	

Ratings					
V <sub>DC</sub> (Surge Voltage)	Rated Capacitance	Max. ESR 20°C, 120Hz	Typ. ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size φ DxL
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
35 (44)	2700	197	138	1.29	22×25
	3300	161	113	1.54	22×30
	3900	136	95	1.77	22×35
		136	95	1.75	25×25
	4700	113	79	2.01	22×40
		113	79	1.97	25×30
	5600	95	66	2.25	22×45
		95	66	2.18	25×35
		95	66	2.08	30×25
	6800	78	55	2.49	22×50
		78	55	2.45	25×40
	8200	78	55	2.28	30×30
		65	45	2.8	25×45
	10000	65	45	2.69	30×35
		53	37	3.04	30×40
	12000	53	37	2.78	35×30
		44	31	3.38	30×45
	15000	44	31	3.3	35×35
35		25	3.38	35×40	
18000	30	21	4.4	35×45	
	30	21	4.4	35×45	
50 (63)	1500	310	217	1.21	22×25
	2200	211	148	1.52	22×30
		211	148	1.46	25×25
	2700	172	120	1.77	22×35
		172	120	1.76	25×30
	3300	141	99	1.92	22×40
		141	99	1.92	30×25
	3900	119	83	2.27	22×45
		119	83	2.2	25×35
	4700	119	83	2.19	30×30
		99	69	2.43	25×40
	5600	83	58	2.72	25×45
		83	58	2.58	30×35
	6800	83	58	2.35	35×30
		68	48	3.01	30×40
	8200	68	48	2.91	35×35
		57	40	3.63	30×50
	10000	57	40	3.36	35×40
46		33	3.79	35×45	
12000	39	27	4.06	35×50	
	398	279	1.1	22×25	
1500	265	186	1.41	22×30	
	265	186	1.38	25×25	
1800	221	155	1.62	22×35	
	221	155	1.63	25×30	
2200	181	127	1.85	22×40	
	181	127	1.80	30×25	
2700	147	103	2.1	22×45	
	147	103	2.03	25×35	
3300	147	103	2.01	30×30	
	121	84	2.33	25×40	
3900	102	72	2.58	25×45	
	102	72	2.46	30×35	
4700	102	72	2.31	35×30	
	85	59	2.82	30×40	
5600	85	59	2.77	35×35	
	71	50	3.22	30×45	
6800	71	50	3.2	35×40	
	59	41	3.61	35×45	
8200	49	34	3.94	35×50	
	405	283	1.09	22×25	
1000	332	232	1.29	22×30	
	277	194	1.48	22×35	
1200	277	194	1.38	25×25	
	221	155	1.7	22×40	
1500	221	155	1.74	25×30	
	221	155	1.75	30×25	
1800	184	129	1.91	22×45	
	184	129	1.86	25×35	
2200	151	106	2.22	25×45	
	151	106	2.02	30×30	
2700	123	86	2.38	30×35	
	123	86	2.45	35×30	
3300	101	70	2.69	30×40	
	101	70	2.6	35×35	
3900	85	60	2.94	30×45	
	85	60	3	35×40	
4700	71	49	3.44	35×45	
	59	42	3.72	35×50	



# CD296 Series

Ratings						
V <sub>dc</sub> (Surge Voltage)	Rated Capacitance	Max. ESR 20°C, 120Hz	Typ. ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size φDxL	
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	
100 (125)	560	474	332	1.01	22×25	
	680	390	273	1.19	22×30	
	820	324	227	1.33	22×35	
		324	227	1.26	25×25	
	1000	265	186	1.56	22×40	
		265	186	1.52	25×30	
		265	186	1.47	30×25	
	1200	221	155	1.76	22×45	
		221	155	1.76	25×35	
		221	155	1.76	30×30	
	1500	177	124	2	22×50	
		177	124	2.03	25×40	
	1800	147	103	2.29	25×45	
		147	103	2.19	30×35	
		147	103	2.15	35×30	
	2200	121	84	2.52	30×40	
121		84	2.48	35×35		
2700	98	69	2.86	30×45		
	98	69	2.87	35×40		
3300	80	56	3.25	35×45		
3900	68	48	3.56	35×50		
160 (200)	220	905	633	0.63	22×25	
	270	737	516	0.76	22×30	
	330	603	422	0.9	22×35	
		603	422	0.84	25×25	
	390	510	357	0.97	25×30	
		510	357	1	30×25	
	470	424	296	1.11	22×40	
		424	296	1.14	25×35	
		424	296	1.17	30×30	
	560	355	249	1.26	22×45	
		293	205	1.44	22×50	
	680	293	205	1.43	25×40	
		293	205	1.5	30×35	
	820	243	170	1.63	25×45	
		243	170	1.66	30×40	
		243	170	1.63	35×30	
	1000	199	139	1.89	30×45	
		199	139	1.89	35×35	
	1200	166	116	2.16	30×50	
		166	116	2.23	35×40	
	1500	133	93	2.61	35×45	
	1800	111	77	2.97	35×50	
	180 (225)	220	905	633	0.63	22×25
		270	737	516	0.76	22×30
737			516	0.76	25×25	
330		603	422	0.9	22×35	
		603	422	0.9	25×30	
390		510	357	1.03	22×40	
		510	357	1.06	25×35	
470		510	357	1.02	30×25	
		424	296	1.17	22×45	
		424	296	1.17	30×30	
560		355	249	1.32	22×50	
		355	249	1.32	25×40	
		355	249	1.33	30×35	
680		293	205	1.51	25×45	
		293	205	1.49	35×30	
		243	170	1.71	25×50	
820		243	170	1.74	30×40	
		243	170	1.75	35×35	
1000		199	139	2.01	30×45	
		199	139	2.07	35×40	
1200		166	116	2.25	30×50	
		166	116	2.23	35×45	
1500		133	93	2.76	35×50	

Ratings						
V <sub>dc</sub> (Surge Voltage)	Rated Capacitance	Max. ESR 20°C, 120Hz	Typ. ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size φDxL	
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	
200 (250)	180	1106	774	0.57	22×25	
	220	905	633	0.7	22×30	
		737	516	0.83	22×35	
	270	737	516	0.76	25×25	
		603	422	0.96	22×40	
	330	603	422	0.9	25×30	
		510	357	1.06	25×35	
	390	510	357	1.02	30×25	
		424	296	1.17	22×45	
	470	424	296	1.22	25×40	
		424	296	1.17	30×30	
		355	249	1.39	25×45	
	560	355	249	1.38	30×35	
		293	205	1.58	25×50	
	680	293	205	1.61	30×40	
		293	205	1.49	35×30	
820	243	170	1.85	30×45		
	243	170	1.75	35×35		
1000	199	139	2.11	30×50		
	199	139	2.07	35×40		
1200	166	116	2.38	35×45		
1500	133	93	2.76	35×50		
250 (300)	150	1327	929	0.52	22×25	
	180	1106	774	0.64	22×30	
		1106	774	0.62	25×25	
	220	905	633	0.76	22×35	
		905	633	0.76	25×30	
	270	737	516	0.88	22×40	
		737	516	0.9	25×35	
		737	516	0.85	30×25	
	330	603	422	1.01	22×45	
		603	422	1	30×30	
	390	510	357	1.13	22×50	
		510	357	1.13	25×40	
	470	510	357	1.15	30×35	
		424	296	1.29	25×45	
		424	296	1.24	35×30	
	560	355	249	1.45	25×50	
		355	249	1.48	30×40	
		355	249	1.49	35×35	
	680	293	205	1.71	30×45	
		293	205	1.74	35×40	
	820	243	170	1.94	30×50	
		199	139	2.2	35×45	
	315 (365)	68	3903	2732	0.32	22×25
		82	3237	2266	0.38	22×30
100		2654	1858	0.41	25×25	
120		2212	1548	0.48	22×35	
		2212	1548	0.49	25×30	
150		1769	1239	0.56	22×40	
	1769	1239	0.51	30×25		
180	1474	1032	0.63	22×45		
	1474	1032	0.62	25×35		
	1474	1032	0.63	30×30		
220	1206	844	0.72	22×50		
	1206	844	0.71	25×40		
270	1206	844	0.74	30×35		
	983	688	0.81	25×45		
	983	688	0.85	30×40		
983	688	0.82	35×30			

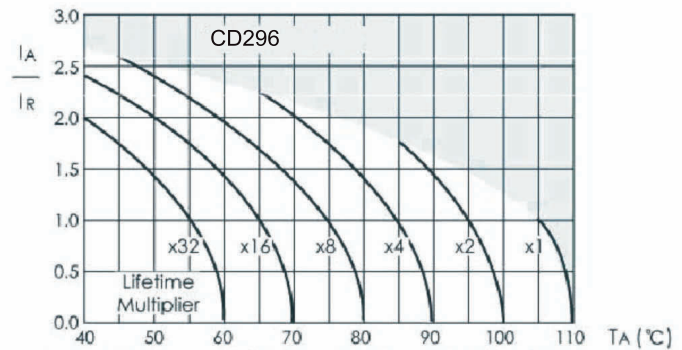
# CD296 Series

Ratings					
V <sub>dc</sub> (Surge Voltage)	Rated Capacitance	Max. ESR 20°C, 120Hz	Typ. ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size φDxL
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
315 (365)	330	804	563	0.92	25×50
		804	563	0.9	35×35
	390	681	476	1.04	30×45
		681	476	1.05	35×40
	470	565	395	1.15	30×50
		565	395	1.18	35×45
560	474	332	1.34	35×50	
350 (400)	68	3903	2732	0.34	22×25
	82	3237	2266	0.4	22×30
	100	2654	1858	0.47	25×25
		2212	1548	0.52	22×35
		2212	1548	0.53	25×30
	120	2212	1548	0.53	30×25
		1769	1239	0.59	22×40
		1769	1239	0.6	25×35
	150	1474	1032	0.68	22×45
		1474	1032	0.7	25×40
		1474	1032	0.71	30×30
	180	1206	844	0.78	22×50
		1206	844	0.82	25×45
		1206	844	0.82	30×35
	220	983	688	0.94	25×50
		983	688	0.93	30×40
		983	688	0.9	35×30
	330	804	563	1.05	30×45
		804	563	1.01	35×35
	390	681	476	1.18	30×50
		681	476	1.13	35×40
	470	565	395	1.26	35×45
	560	474	332	1.39	35×50
	400 (450)	68	3903	2732	0.38
82		3237	2266	0.41	25×25
100		2654	1858	0.46	22×35
		2654	1858	0.48	25×30
		2654	1858	0.48	30×25
120		2212	1548	0.53	22×40
		2212	1548	0.55	25×35
		2212	1548	0.56	30×30
150		1769	1239	0.63	22×50
		1769	1239	0.65	25×40
180		1474	1032	0.72	25×45
		1474	1032	0.74	30×35
220		1206	844	0.79	25×50
		1206	844	0.85	30×40
		1206	844	0.89	35×30
270		983	688	0.98	30×45
		983	688	0.96	35×35
330		804	563	1.12	30×50
		804	563	1.12	35×40
390		681	476	1.27	35×45
470		565	395	1.33	35×50

Ratings					
V <sub>dc</sub> (Surge Voltage)	Rated Capacitance	Max. ESR 20°C, 120Hz	Typ. ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size φDxL
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
450 (500)	68	3903	2732	0.38	22×30
	82	3237	2266	0.44	22×35
		3237	2266	0.45	25×30
	100	3237	2266	0.46	30×25
		2654	1858	0.5	22×40
	120	2654	1858	0.52	25×35
		2212	1548	0.58	22×50
		2212	1548	0.58	25×40
	150	2212	1548	0.58	30×30
		1769	1239	0.66	25×45
		1769	1239	0.68	30×35
	180	1474	1032	0.74	25×50
		1474	1032	0.77	30×40
		1474	1032	0.77	35×30
	220	1206	844	0.88	30×45
		1206	844	0.88	35×35
	270	983	688	0.99	30×50
		983	688	1.01	35×40
	330	804	563	1.15	35×45
	390	681	476	1.28	35×50

Customer products are available on request.

## Lifetime Diagram



I<sub>A</sub>=actual ripple current at 120Hz, I<sub>R</sub>=rated ripple current at 120Hz, 105°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load



# 东莞市创慧电子有限公司 DONGGUAN CHUANGHUI ELECTRONICS CO.,LTD

## 9. 包装说明 Packing instructions:

**9.1 先用塑料袋包装，然后再放置于包装箱中，具体包装数量请参照《创慧包装标准》** Pack with plastic bags, and then placed in a carton, please refer to 《Packing Standard》 for specific packing quantity.

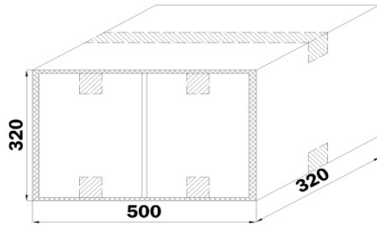
**9.2 包装标识：采用中性标签，注明客户名、订单号、料号、产品系列、规格、尺寸、数量、生产日期和生产批号** Label Marking: indicate customer name, purchase number, part number, product series, specifications, size, quantity, production date and lot number, shown as below.

## 9.3 包装图示 Packing Figure

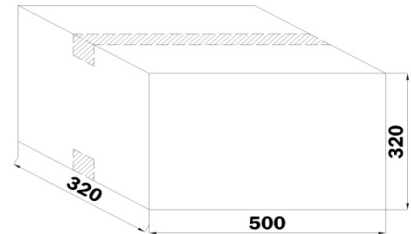
a) 标签 Label

<b>CH</b>		
订单号 P.O	创慧	CH221102053
料号 P/N	CETW-181A-000	
系列 series	CD288H	墨绿底金字   PET
规格 Spec	400V180uF	±20%
尺寸 Size	D18X25L	长脚
数量 Qty	50PCS	

b) 内箱 Inner Carton



c) 外箱 Outer Carton



## 10. 料号编码规则 Material number encoding rules :

<b>CD26LF1</b>	<b>2T</b>	<b>M</b>	<b>181</b>	<b>N45</b>	<b>0</b>	<b>I</b>
①系列 Series	②电压 Voltage	③容差 Capacitance Tolerance	④容量 Capacitance	⑤尺寸 Size	⑥成型 Finishing	⑦胶管 Sleeve

①系列 Series	CD110	CD288H	CD288L	CD26G	CD26M	CD26L	CD110L	NP	LL
	CD288S	CD26K	CD26C	CD293	CD294	CD296	CD133	CD134	CD136

②电压 V	4	6.3	10	16	25	35	50	63	80	100	120	140	160	180	200	250	315	350	400	420	450	460	500	550
代号 Code	OG	OJ	1A	1C	1E	1V	1H	1J	1K	2A	2B	2S	2C	2Z	2D	2E	2F	2V	2G	2J	2W	2T	2H	2L

③容差代码 code	J	K	M	W	T	Q	P
容差 C.T.	±5%	±10%	±20%	-0% ~ +20%	-10% ~ +20%	-20% ~ +30%	-15% ~ +20%

④容量 Cap.	0.1	0.22	0.3	0.47	1	2	3.3	4.7	6.8	10	22	33	47	68	100	220	330	3300	...
编码 Code	R10	R22	R33	R47	10	2R2	3R3	4R7	6R8	100	220	330	470	680	101	221	331	332	...

⑤尺寸														
直径 D	4	5	6	8	10	12.5	13	16	18	20	22	25	30	35
编码 Code	C	D	E	F	G	H	K	L	M	N	O	P	Q	R
高度 H	5	7	11	12	13	16	18	20	27	25	30	35	45	
编码 Code	5	7	11	12	13	16	18	20	27	25	30	35	45	

⑥成型 Finishing	散装 Bulk	编带 Taping P=5.0	编带 Taping P=2.5	剪脚 Cut Lead L=3.5	K脚剪脚 L=4.5	S脚剪脚 L=4.5	卧式 H01=4.0	卧式 H02=4.0	贴片 SMD
编码 Code	0	TP5	TP25	C35	K45	S45	H140	H240	S

⑦胶管 Sleeve	PVC	PET
编码 Code	C	T