

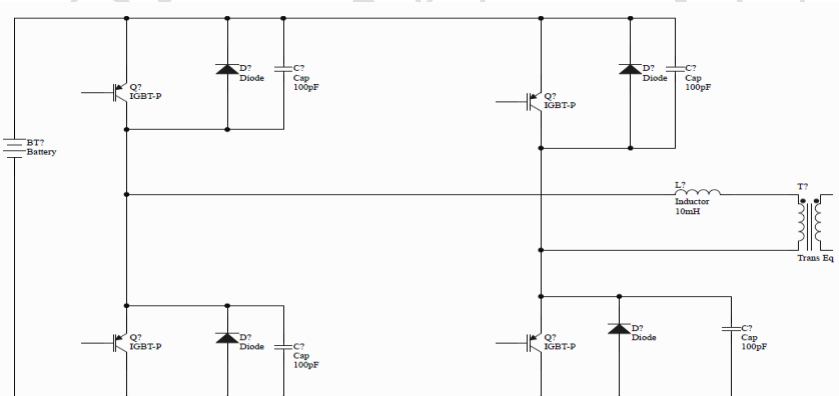
Understand DC LINK capacitor selection

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Due to current world trends and electronic products gradually to energy conservation, new energy and frequency conversion industry, the development of more and more prevalent, application of capacitor technology and new product development is a subject of capacitor manufacturer, especially in the capacitor in energy car, whether it is a car battery, inverter control capacitor in which accounts for an important task of reliability and life.

In frequency conversion and Inverter technology, DC TO DC bus and Inverter connection are supported by the DC Link capacitor. Because the Inverter cannot receive such a high pulse charge at the peak value and effective value of the pulse charging current. DC link capacitors bear the effect of preventing voltage overcharge and leading wave voltage.

The application mode is shown in the following picture :



The typical D/D Converter

In product design, capacitor plays two important roles respectively, jumper on the IGBT absorbing capacity, its design and large current high frequency impedance tolerance effect the efficacy and the temperature rise of the machine, the DC LINK capacitor, however, took the entire bridge circuits to communicate with the outside world, once the failure cause ripple widening will lose even with the recipient. Therefore, the reliability and service life of DC Link products have always been a topic of discussion.

Mainstream DC LINK Capacitor Comparison

Characteristics	E/C	Film
Capacity	Large	Small
Medium	Formed Foil	Metallized Film
ESR	Hight	Low
Voltage	450VDC	1500VDC
Phenomenon and Status	Liquid chemical phenomenon	Solid-state physics phenomenon
Life	10000~20000 Hrs	60000~100000 Hrs
Withstand current capability (Irms)	20mA/uF	120mA/uF
dv/dt	Hight	Low

From the above electrolytic and thin film each has its own advantages and disadvantages, the selection of the circuit in accordance with the need, life, space, cost to consider, to the current market considerations mainly based on the life as the premise, although the electrolytic life in 10000~20000 hours of series available for selection, but the temperature and reverse voltage will cause the reasons for life attenuation.

If because of cost consideration then capacity is one of the evaluation indicators

The following is the film selection calculation:

$$C_{Film} = \frac{I_{rms}}{V_{ripple} * 2 * \pi * F}$$

Back to the tolerance value of each uF to calculate the film is 120mA/uF, electrolysis is 20mA/uF as many times. That is, the capacity of the choice of $C_{Film} * 6 = C_{EC}$, and how to use the most economical still rely on the hard designer calculation.

Chiefcon is committed to the use of frequency conversion and new energy for the development of more efficient products to help customers reduce costs and make better design, if you want to know more technical details, we will sincerely go to explain. Chiefcon provides a complete DC Link solution for customers to choose.

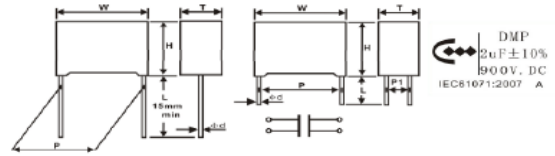
DC-LINK Film Capacitor

Capacitor Range : 8.0uF~100uF

Rated Voltages : 500/800/1100/1300VDC

Temperature range : -40 ℃ to +85 ℃

Withstanding DC Voltage : Apply 150% of Ur for 10 +/-5sec.



500VDC at 70°C					
容量範圍 Cap uF	尺寸 Size mm			腳距	
	寬 W	高 H	厚 T	P1	P2
10~25	42.0	40.0	20.0	37.5	-
30	42.0	38.0	28.0	37.5	10.2
35~40	42.0	45.0	30.0	37.5	10.2
45	47.0	55.0	34.0	37.5	10.2
50~60	47.0	55.0	34.0	37.5	20.3
65~70	57.5	50.0	35.0	52.5	10.2
75~80	57.5	50.0	35.0	52.5	20.3
85~100	58.0	56.0	43.0	52.5	20.3

1100VDC at 70°C					
容量範圍 Cap uF	尺寸 Size mm			腳距	
	寬 W	高 H	厚 T	P1	P2
10	42.0	38.0	24.0	37.5	10.2
15	42.0	45.0	30.0	37.5	10.2
20	42.0	45.0	30.0	37.5	20.3
25	57.5	50.0	35.0	52.5	10.2
30.0	57.5	50.0	35.0	52.5	20.3
35~40	58.0	55.0	45.0	52.5	20.3

800VDC at 70°C					
容量範圍 Cap uF	尺寸 Size mm			腳距	
	寬 W	高 H	厚 T	P1	P2
10	41.5	40.0	20.0	37.5	-
15	42.0	38.0	24.0	37.5	10.2
20~25	47.0	55.0	34.0	37.5	10.2
30	47.0	55.0	34.0	37.5	20.3
35~40	57.5	50.0	35.0	52.5	10.2
45	58.0	55.0	45.0	52.5	20.3
50~60	58.0	55.0	45.0	52.5	20.3

1300VDC at 70°C					
容量範圍 Cap uF	尺寸 Size mm			腳距	
	寬 W	高 H	厚 T	P1	P2
10	42.0	45.0	30.0	37.5	10.2
15	57.5	45.0	30.0	52.5	10.2
20	57.5	50.0	35.0	52.5	20.3
25	57.0	55.0	40.0	52.5	20.3