Notice to selecting AC/DC converter and DC/DC converter

AC/DC converter has overcurrent characteristics . Refer fig 2.
DC/DC converter has input current characteristics. Refer fig3.

Select the converter that is able to handle the startup current .

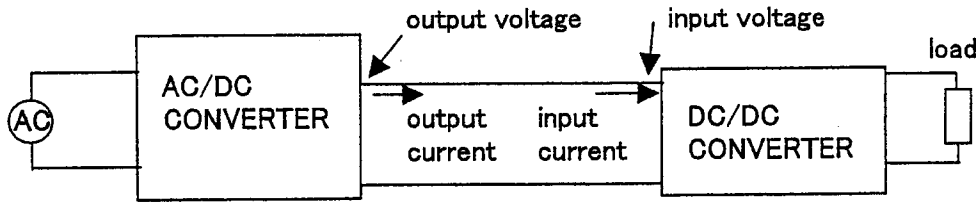


fig 1

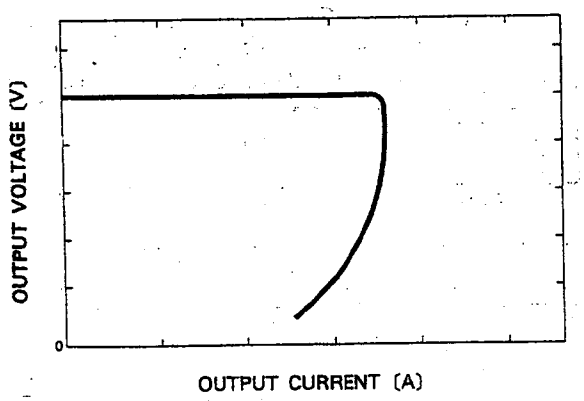


fig 2 overcurrent characteristics

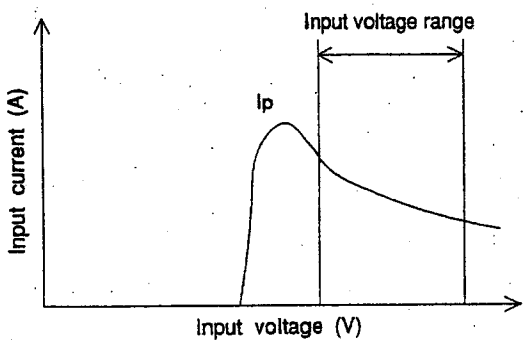


fig3 input current characteristics

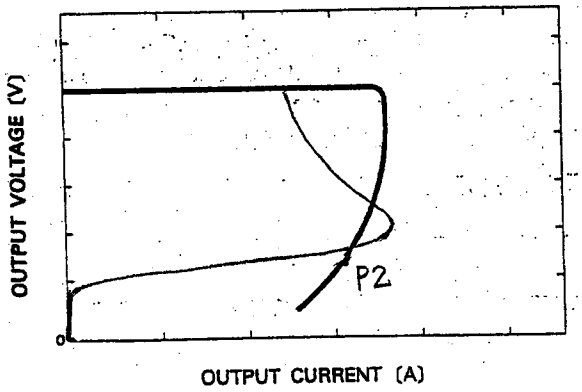


fig 4 overcurrent characteristics and input current characteristics

Since P2 is a stable point ,lockout is maintained , and DC/DC converter would never fully turned on(low output voltage).
example

AC/DC converter : LCA15S-24,LCA30S-24
DC/DC converter : ZUW62412 , n=2

No

AC/DC converter : LCA15S-24
DC/DC converter : ZUW62412 , n=2

Yes

AC/DC converter : LCA30S-24
DC/DC converter : ZUW62412 , n=2

7) "Lockout" in foldback current limited supplies

A power supply output protection circuit whereby the output current decreases with increasing overload, reaching a minimum at short circuit. This minimizes internal power dissipation under overload conditions. Foldback current limiting is normally used with linear regulators and is unnecessary with switching regulators.

With the resistive load (the straight-line loads depicted in Fig.4.5), there can only be one stable point of operation, defined by the intersection of the load line for a range of given loads with the power supply characteristic (for example, all points P1). Therefore, the reentrant characteristic shown would be swept out as the load resistance is varied from maximum to zero. This characteristic is swept out without instability or "lockout"; however, this smooth shutdown may not occur with non-linear loads.

Fig. 4.5 shows a very non-linear load line R3 (such as may be encountered with tungsten filament lamps) impressed on the power supply reentrant current limit characteristic. DC / DC CONVERTER

It should be understood that a tungsten filament lamp has a very low resistance when it is first switched ON (because of the low temperature of the filament wire). Consequently, a relative large current flows at low applied voltages. As the voltage and current increase, the temperature and resistance of the filament increase, and the working point changes to a higher resistance. A non-linear characteristic is often found in active semiconductor circuits. It should be noticed that this non-linear load line crosses the power supply reentrant current characteristic at three points. Points P2 and P3 are both stable operating points for the power supply. When such a supply-load combination is first switched ON, the output voltage is only partially established to point P2, and lockout occurs. (It is interesting to note that if the supply is switched ON before the load is applied, it may be expected that the correct working point P3 will be established.) However, point P3 is a stable operating point only for a lamp that was previously working. When the lamp is first switched on, lockout will still occur at point P2, during the lamp power-up phase. This is caused because the slope resistance of the lamp load line at point P2 is less than the slope of the power supply reentrant characteristic at the same point. Since P2 is a stable point, lockout is maintained, and in this example the lamp would never be fully turned ON.

Reentrant lockout may be cured in several ways. The reentrant characteristic of the power supply may be modified to bring it outside the non-linear load line of the lamp, as shown in plots B and C in Fig.4.6. This characteristic now provides only one stable mode of operation at point P1.

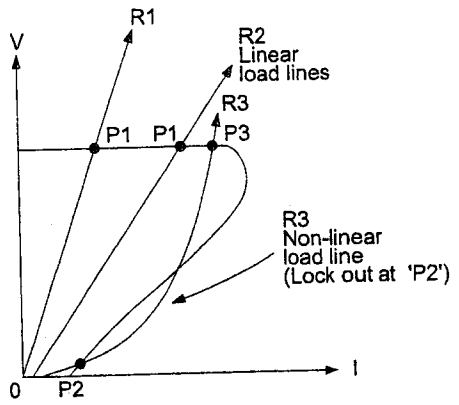


Fig.4.5 Overload and start-up characteristics of a foldback, current-limited supply, showing performance for linear and non-linear load lines.

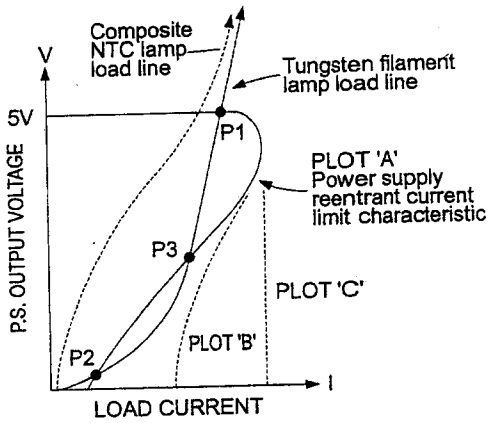


Fig.4.6 Non-linear load line, showing "lockout" and modified characteristics to prevent lockout.

8) Peak loading

a. Peak current in excess of rated current from several hundreds micro seconds to several tenths seconds

Peak current flows until the current limit value. If peak current flows beyond the prescribed duration, power supply may heat up and result in damage, so this must be avoided.

When more peak current is required, it is possible by modification.

Please contact us for the modification.

b. Peak current in excess of rated current from a few micro seconds to several hundreds micro seconds

Peak current flows by adding the capacitor externally to the output.

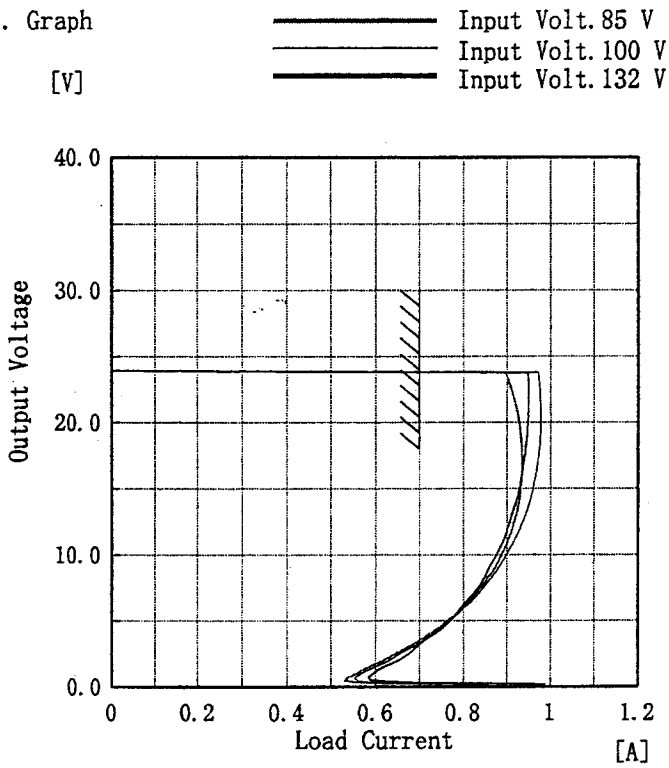
The formula for calculating the capacitance is as follows.

Please make sure that the ripple current is within the specified value when selecting the capacitor.

COSEL

Model	LCA15S-24	Temperature 25℃
Item	Overcurrent Protection 過電流保護	Testing Circuitry Figure A
Object	+24.0V0.7A	

1. Graph



Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

2. Values

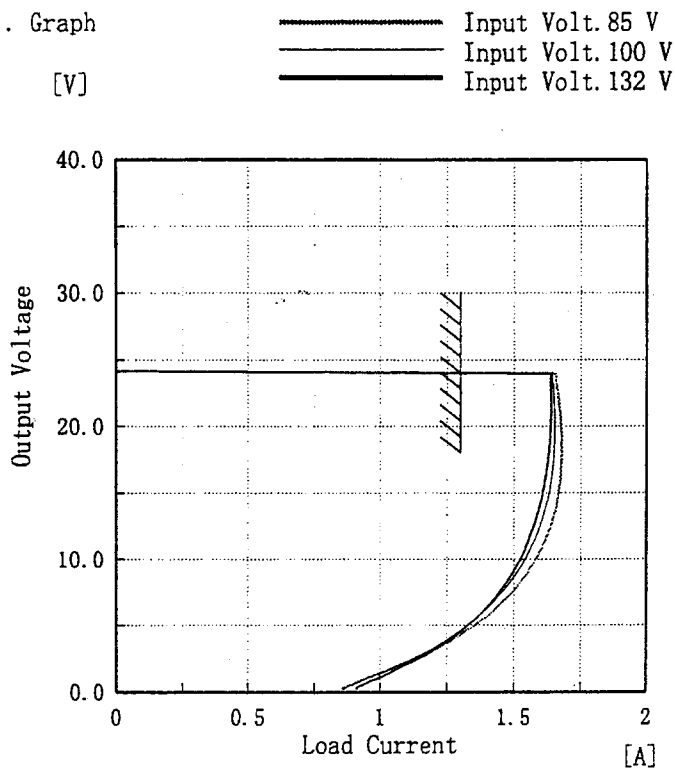
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	0.90	0.97	0.95
22.80	0.91	0.97	0.95
21.60	0.92	0.98	0.95
19.20	0.93	0.98	0.95
16.80	0.93	0.97	0.94
14.40	0.93	0.95	0.92
12.00	0.91	0.93	0.90
9.60	0.88	0.89	0.87
7.20	0.83	0.84	0.83
4.80	0.76	0.76	0.77
2.40	0.64	0.65	0.67
0.00	0.75	0.86	0.99

COSEL

Model	LCA30S-24
Item	Overcurrent Protection 過電流保護
Object	+24.0V1.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

2. Values

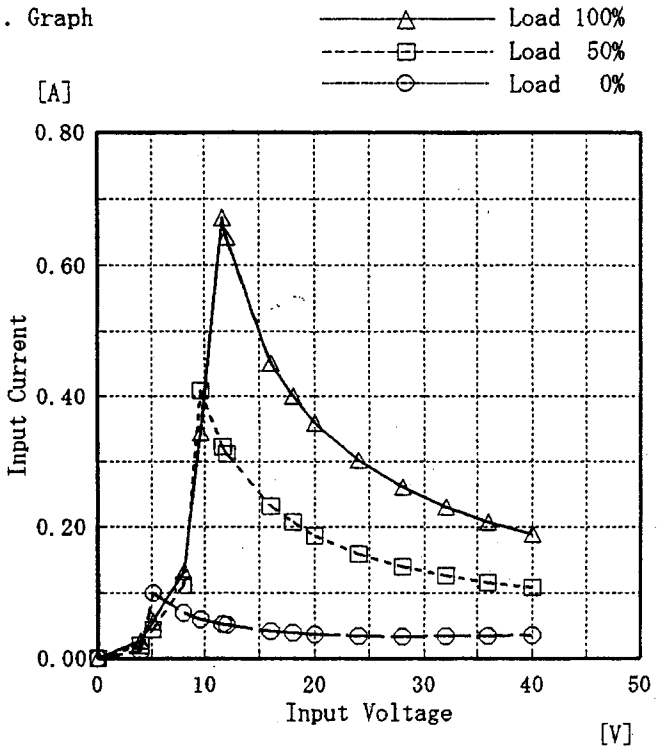
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	1.66	1.64	1.63
22.80	1.66	1.65	1.64
21.60	1.67	1.65	1.64
19.20	1.68	1.65	1.63
16.80	1.68	1.64	1.62
14.40	1.66	1.63	1.60
12.00	1.63	1.59	1.57
9.60	1.58	1.53	1.52
7.20	1.48	1.45	1.44
4.80	1.35	1.32	1.33
2.40	1.13	1.12	1.14
0.00	0.85	0.86	0.91

COSEL

Model	ZUW62412
Item	Input Current-Input Voltage Charactristic 入力電流－入力電圧特性
Object	————

Temperature 25℃
Humidity 40%RH

1. Graph



2. Values

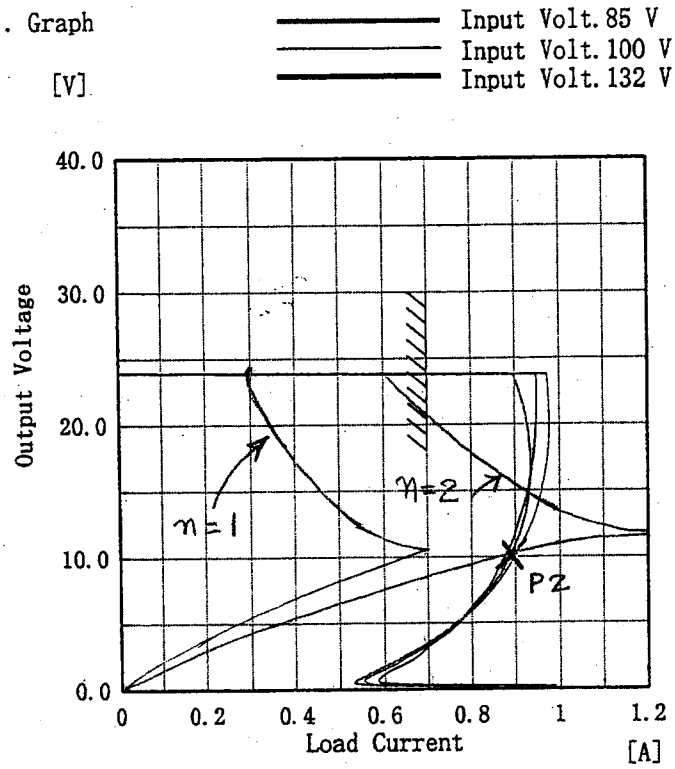
Input Volt. [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.00	0.000	0.000	0.000
4.00	0.011	0.020	0.027
5.20	0.100	0.043	0.056
8.00	0.069	0.112	0.133
9.60	0.060	0.409	0.344
11.60	0.052	0.323	0.672
12.00	0.051	0.311	0.643
16.00	0.042	0.232	0.452
18.00	0.039	0.207	0.401
20.00	0.037	0.187	0.360
24.00	0.034	0.159	0.302
28.00	0.034	0.140	0.261
32.00	0.034	0.126	0.231
36.00	0.034	0.116	0.208
40.00	0.036	0.108	0.190
—	—	—	—

COSEL

Model	LCA15S-24
Item	Overcurrent Protection 過電流保護
Object	+24.0V 0.7A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

2. Values

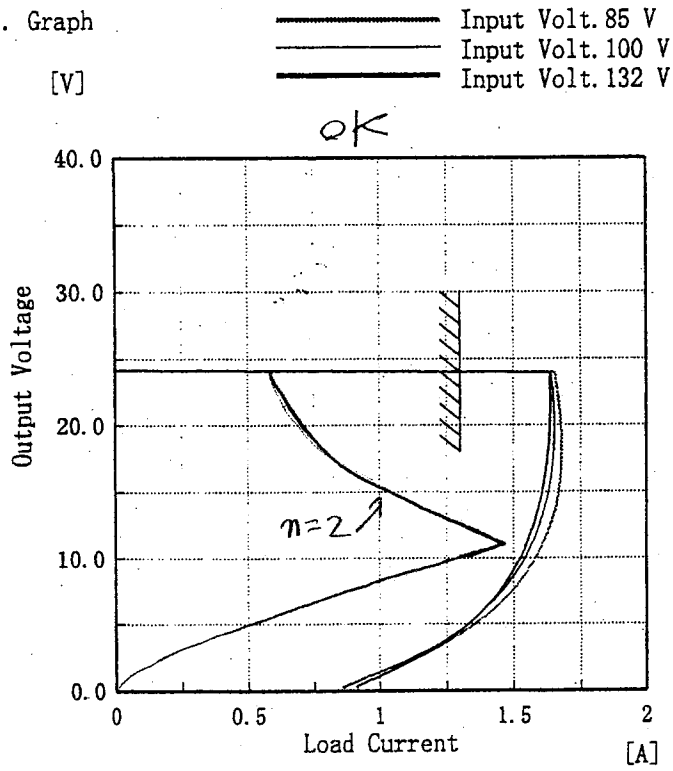
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	0.90	0.97	0.95
22.80	0.91	0.97	0.95
21.60	0.92	0.98	0.95
19.20	0.93	0.98	0.95
16.80	0.93	0.97	0.94
14.40	0.93	0.95	0.92
12.00	0.91	0.93	0.90
9.60	0.88	0.89	0.87
7.20	0.83	0.84	0.83
4.80	0.76	0.76	0.77
2.40	0.64	0.65	0.67
0.00	0.75	0.86	0.99

COSEL

Model	LCA30S-24
Item	Overcurrent Protection 過電流保護
Object	+24.0V1.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	1.66	1.64	1.63
22.80	1.66	1.65	1.64
21.60	1.67	1.65	1.64
19.20	1.68	1.65	1.63
16.80	1.68	1.64	1.62
14.40	1.66	1.63	1.60
12.00	1.63	1.59	1.57
9.60	1.58	1.53	1.52
7.20	1.48	1.45	1.44
4.80	1.35	1.32	1.33
2.40	1.13	1.12	1.14
0.00	0.85	0.86	0.91