DC/DC Diode Drive Module SYL-YLN78V8KW80D

80V input 0-25A output

Linear constant current step-down module power supply

Function description:

- Size (length × wide × Height: 280mm× 120mm × 30mm
- Typical input: 70-90V
- Constant current output: 60-78V/0-25A
- Output overcurrent, over temperature, and current over tolerance protection
- Input overvoltage and undervoltage protection
- Modular design with high power density and high reliability
- Current rise/fall time: 15us (25A)

Product Description:

- The module is a linear constant current step-down power supply, and the constant current source consists of 4 outputs. The typical input voltage is 70-90V, the output voltage is 60-78V, and the output current is 0-25A.
- The power supply has internal functions such as output overcurrent protection, over temperature protection, input undervoltage protection, input overvoltage protection, and ERR alarm. The power supply has complete monitoring functions, remote on/off control functions, and modules have CAN communication functions.

Electrical characteristics:

Typical conditions: TA=25 ℃, water-cooled 0-35 ℃

parameter	condition	Min.	typical	Max.	unit
Absolute rated value:					
Working temperature*		-10		50	° C
Backboard temperature*				95	° C
Storage temperature*		-25	25	60	° C
Input characteristics:					
Input voltage range	continuity	70	80	90	Vdc
No load input current*	Vin=80V, Iout=0A		100		mA
Output characteristics:					
Maximum loss of single output	* Load work at constant current: P=（V_{in} -V_{out}）*I_{out}			75	W
Output voltage range*	V_{in} =80V，0.6A≤I_{out} ≤25A	60		78	V
Output current range	V_{in}=80V	0		25	A
Working frequency*	V_{in}=80V			5	kHz
Output constant current accuracy	I_{out}=25A	-0.1		+0.1	A
Output current ripple	(20MHz bandwidth)		0.5	1.2	A
DA signal and current response time delay*	I_{out}=25A			5	us
Standby current	DA signal is 0V			400	mA
Pre value current	DA signal is 50mV			600	mA
Output current rise time	Output current increased from 10% to 90%		10	15	us
Output current drop time	Output current increases from 90% to 10%		10	15	us
Output capacitor load*	Full load range			0	μF
Power on logic level ON/OFF	Power on (low level)	0		0.8	Vdc
	Pull current*		1	5	aA
	Shutdown (high level)	3		5	Vdc
	Charging current*	0	1		mA
ERR fault signal	Normal (high level)	4.5	5	5.5	Vdc
	Charging current*			1	mA
	Fault (low level)	0		0.7	Vdc

	Pull current*			6	MA
Output current analog signal D/A1*	Corresponding output current range 0-25A	0		2.5	Vdc
Output current analog signal D/A*	Corresponding output current range 0-25A	0		2.5	Vdc
Protection characteristics:					
Output overcurrent protection	Output overcurrent protection locked	29.5	30	30.5	A
Input undervoltage	Protection point	45	47.5	50	Vdc
	Recovery point*	50	52.5	55	Vdc
	Hysteresis loop*		5		Vdc
Input overvoltage	Protection point	110	112.5	115	Vdc
	Recovery point*	95	95.5	100	Vdc
	Hysteresis loop*		5		Vdc
Over temperature protection*	Shutdown temperature (hottest point)		110		℃
	Retracement		15		℃

Environmental and reliability testing:

parameter	condition	Min.	typical	Max.	unit
insulation resistance	Input applies to the casing, output applies to the casing separately Add 500Vdc	50			M Ω
Insulation strength	Input applies to the casing, output applies to the casing separately Add 710Vdc, leakage current less than 10mA				
Vibration & shock*	GB/T 4798.2				G
MTBF*	Calculated value	40000			H
weight			1.2	3	kg

*To ensure the design of the project, detailed testing will be conducted during the design verification phase, and no separate testing will be conducted when the finished products are shipped.

On/off control

The on/off of the constant current source is jointly controlled by the ON/OFF signal and CAN communication instructions (software enabled);The on/off logic is detailed in the table

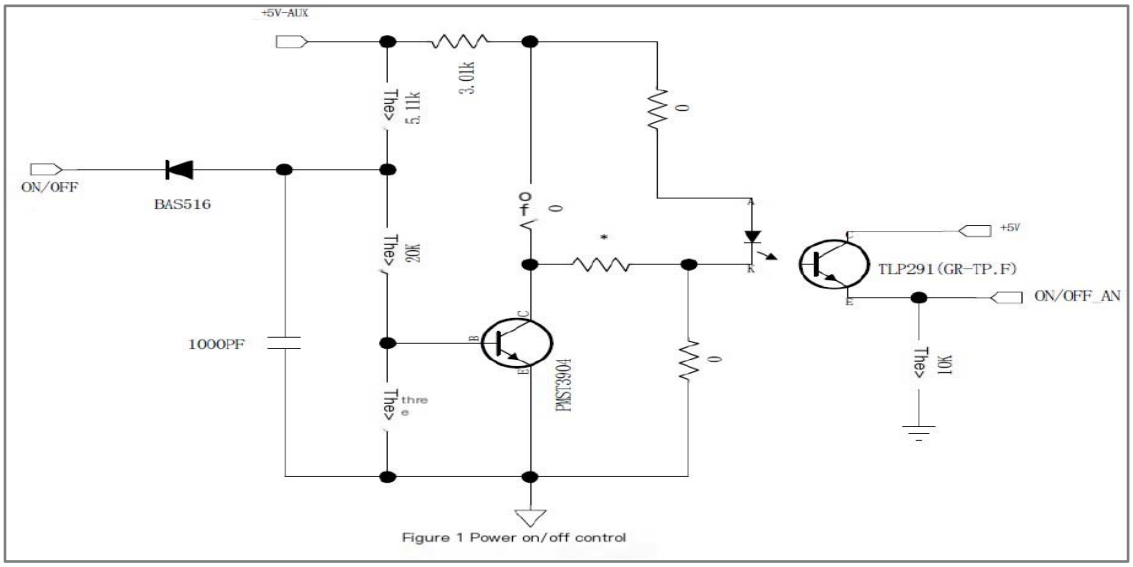


Figure 1 Power on/off control

The ON/OFF control signal circuit is shown in Figure 1.
The switch logic control is detailed in Table 1.

Table 1 Power on/off Logic Control

No.	ON/OFF signal status	Module software enable	Working status of constant current source
1	Set low	Power on default enable	Power on
2	Set low	Module software enable	Power on
3	Set low	Module software prohibited	Shutdown
4	Elevated or suspended	Power on default enable	Shutdown
5	Elevated or suspended	Module software enable	Shutdown
6	Elevated or suspended	Module software prohibited	Shutdown

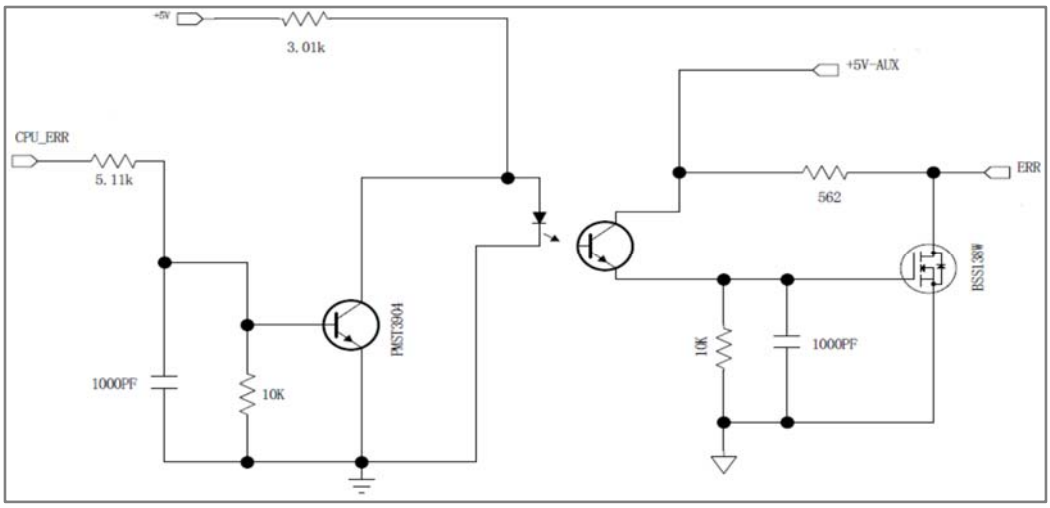
Output current control

Control the outputs of two channels of constant current source modules through D/A control signals:

- D/A1 controls 1, 2, and 3 outputs, and the corresponding module output current for D/A1 voltage is 0-2.5V.
- D/A controls the 4th output, and the corresponding module output current is 0-25A for D/A voltage ranging from 0V to 2.5V.

Fault reporting

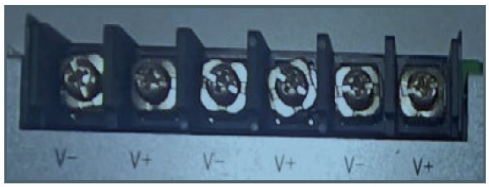
The module reports the fault status to the upper computer through the ERR pin. The high level is normal, while the low level is faulty.The circuit is shown in Figure 2



Pin function definition:

The module input and output pin names and function definitions are as follows:

1. Input terminals:



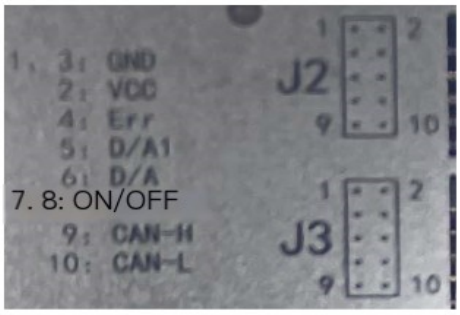
Foot position	function	describe
1	negative electrode	Power input negative pole
2	positive electrode	Power input positive pole
3	negative electrode	Power input negative pole
4	positive electrode	Power input positive pole
5	negative electrode	Power input negative pole
6	positive electrode	Power input positive pole

2. Output terminals:

Foot position	function	describe
1	negative electrode	Vol output negative pole
2	positive electrode	Vol output positive pole
3	negative electrode	Vo2 output negative pole
4	positive electrode	Vo2 output positive pole

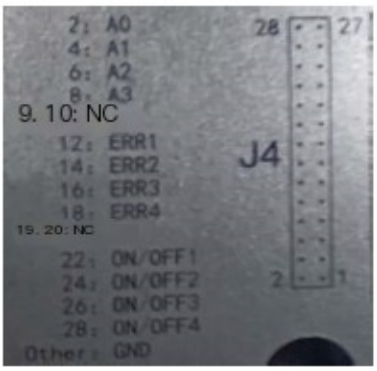
Foot position	function	describe
1	negative electrode	Vo3 output negative pole
2	positive electrode	Vo3 output positive pole
3	negative electrode	Vo4 output negative pole
4	positive electrode	Vo4 output positive pole

3. Signal control terminal J2, J3 double row straight needle,. 54mm, 2 * 5P



Foot position	function	describe
1. 3	GND	Signal ground
2	VCC	External supply of 5V voltage, maximum 100mA
4	ERR	Normal high level, abnormal low level
5	D/AI	0~3. 3V
6	D/A	0~3. 3V
7. 8	ON/OFF	Low startup, suspended or high shutdown
9	CAN-H	communication interface
10	CAN-L	communication interface

4. Signal terminal J4 double row straight needle 2.54mm, 2 * 28P



Foot position	功能	describe
2	A0	short circuit to ground BIT=0
4	A1	Short circuit to ground BIT=1
6	A2	short circuit to ground BIT=2
8	A3	short circuit to ground BIT=3
9, 10	NC	NC
12	ERR1	1st protection shielding control
14	ERR2	2nd protection shielding control
16	ERR3	3rd protection shielding control
18	ERR4	4th protection shielding control
19, 20	NC	NC
22	ON/OFF1	1st On/Off Control
24	ON/OFF2	2nd circuit on/off control
26	ON/OFF3	Third circuit on/off control
28	ON/OFF4	4th circuit on/off control
Other	GND	Signal ground

Mechanical specifications

Module view pin positions and sizes (actual products are divided into packaging with plastic casing and packaging without plastic casing, and the two packaging sizes are the same.),
Shipping according to customer needs:
Unit: mm, ± 0.5mm for unmarked tolerances.

Package size with plastic shell: