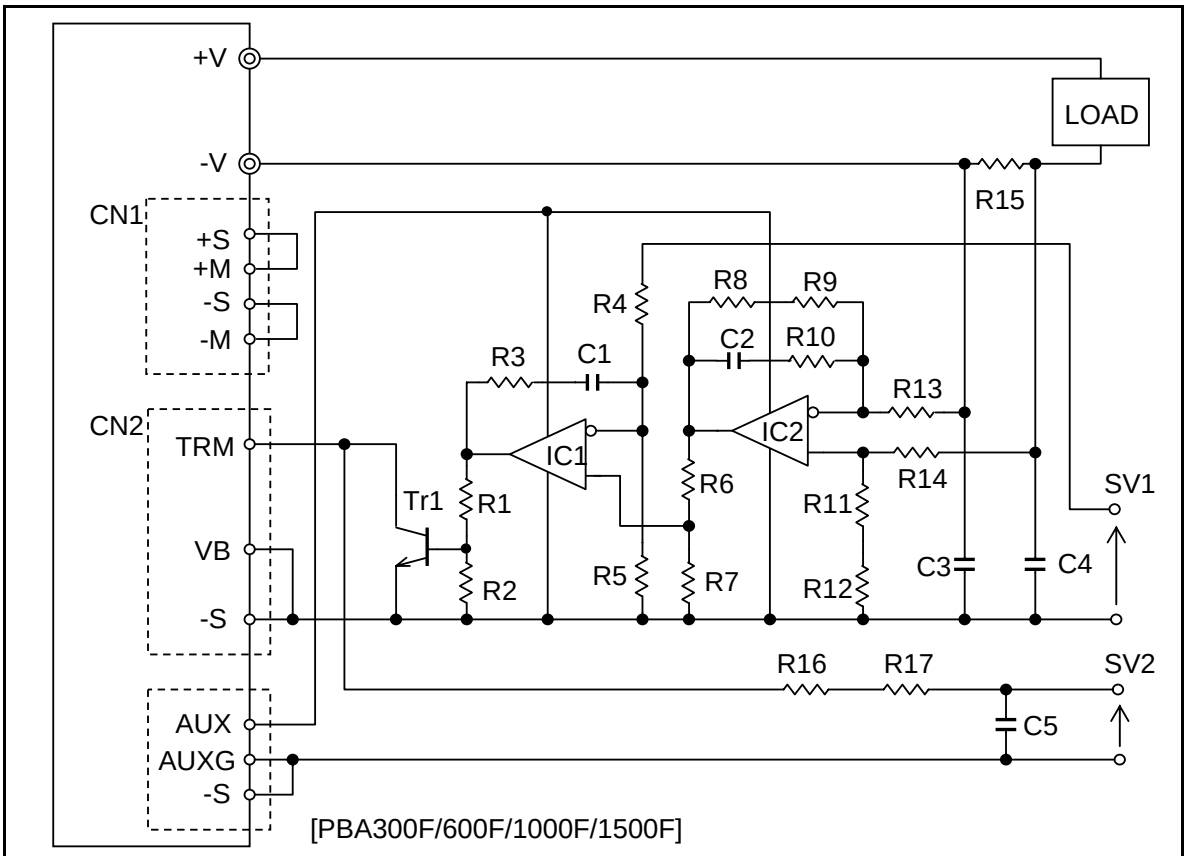
- Constant voltage, constant current circuit for PBA series -

■ Circuit

PBA300F ~ 1500F and 1500T, example circuit for Constant voltage constant current circuit is shown below.



R1	= 10kΩ	1/10W	R9	= 3.6kΩ	1/10W	R17	= 220Ω	1/10W
R2	= 4.7kΩ	1/10W	R10	= 10kΩ	1/10W	C1	= 0.047uF	10V
R3	= 10kΩ	1/10W	R11	= 62kΩ	1/10W	C2	= 0.047uF	10V
R4	= 10kΩ	1/10W	R12	= 3.6kΩ	1/10W	C3	= 0.01uF	10V
R5	= 10kΩ	1/10W	R13	= 820Ω	1/10W	C4	= 0.01uF	10V
R6	= 10kΩ	1/10W	R14	= 820Ω	1/10W	C5	= 0.01uF	10V
R7	= 10kΩ	1/10W	R15	= 5mΩ		TR1	= 2SD1302	
R8	= 62kΩ	1/10W	R16	= 1.5kΩ	1/10W	IC1 / IC2	= OP777	

Fig1. Constant voltage constant current circuit

■ Explanation of Operation

SV1 and SV2 are terminals to control output current and output voltage. In the circuit shown in Fig1, output current and output voltage can be adjusted simply by signal voltage (SV1 and SV2). If signal voltage/SV1 is 4V, output current would be 10A. And, if signal voltage/SV2 is 5V, output voltage would be rated output voltage.

To use as constant current source, TRM terminal is utilized for output voltage adjustment. If the output current increases, the voltage of the TRM terminal shall be decreased. Once output voltage decreases, the output current also decreases. Therefore, the output current will be kept constant.

R15 is shunt resistor, and the output current is converted into the voltage. After this voltage is amplified with differential amplifier circuit with IC2, and is controlled as the negative feedback.

■ Note

1. Use shunt resistor for R1, and power raring should be considered.
2. Make sure CN1 and CN2 are connected correctly.
3. If CN2 is unconnected, output voltage will generate rated voltage.
4. Do not remove any wiring during operation.
5. PG alarm will output, if output voltage reaches around 10% of rated voltage or less.
6. Evaluate under end-use condition sufficiently before using.

■ Characteristic

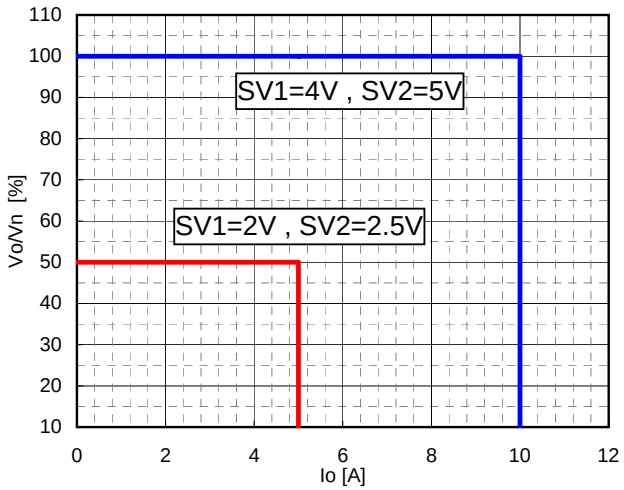


Fig2.1 Vo - Io

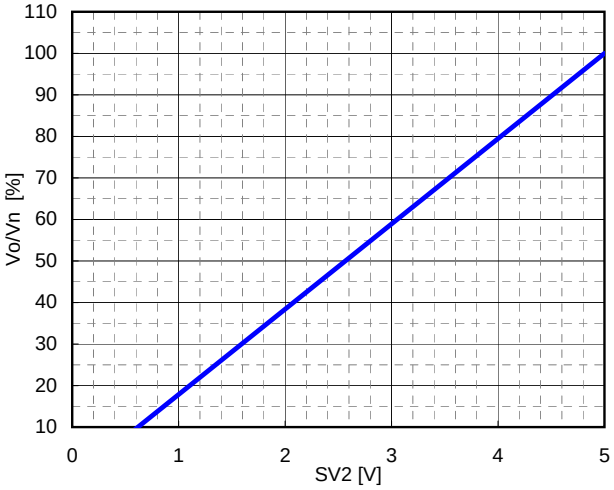


Fig2.2 Vo - SV2

*Vn : Rated output voltage
*Vo : Adjusted output voltage
*Io : output current