AN8079

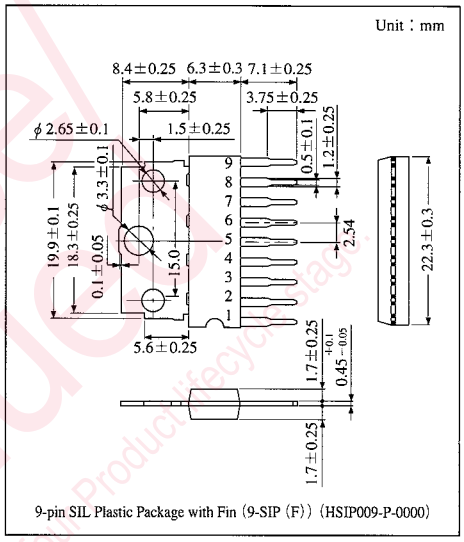
Dual Output Voltage Regulator for 5V Fixed Multipower

■ Overview

The AN8079 is a gentral-purpose contant voltage power IC. It is a multipower IC which has a power supply capable of adjusting an output voltage with a PNP transistor and a resistor, and 2-channel 5V fixed output. It can realize a small-sized high-density power circuit.

■ Features

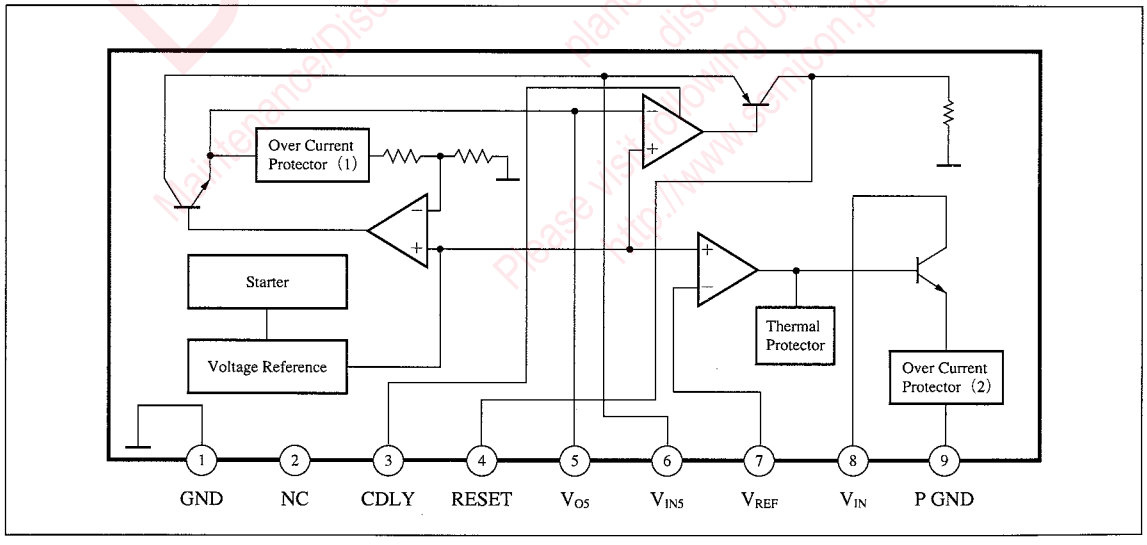
- Built-in 5V output constant voltage power supply (I_{O5} = 100mA)
- Built-in adjustable output constant voltage power supply via an external resisitor
- Adjutable output power supply capable of operation with small I/O voltage difference by using an external PNP transistor
- Built-in reset output circuit
- Built-in over-current protective circuit
- Built-in thermal protective circuit



9-pin SIL Plastic Package with Fin (9-SIP (F)) (HSIP009-P-0000)

Voltage Regulators

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{IN}, V_{IN5}	35	V
Power dissipation (Ta=75℃)	P_D	1130	mW
Operating ambient temperature	T_{opr}	−30 to +85	℃
Storage temperature	T_{stg}	−55 to +150	℃

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Rating
Operating supply voltage range	V_{IN}	3.5 to 35V
	V_{IN5}	7.5 to 35V

■ Electrical Characteristics (Ta=25℃)

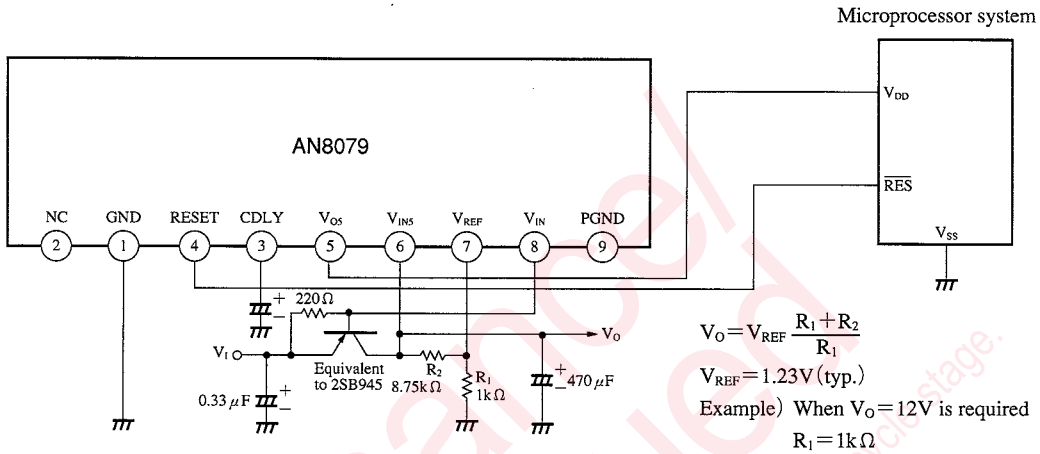
Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage 1 (V_O)	V_O	$V_I \geqq V_O+0.5V$	3.5	—	30	V
Line regulation	REG_I	V_I=15 to 20V	—	0.08	0.2	%/V
Load regulation	REG_L	I_O=10 to 200mA	—	0.02	0.1	%
Bias current	I_B	I_O=0A, I_{O5}=0A	—	2	3	mA
Reference voltage	V_{REF}		1.18	1.23	1.28	V
Ripple rejection ratio	RR	$V_I=2V_{PP}$, f=120Hz	—	60	—	dB
Output voltage 2 (V_{O5})	V_{O5}		4.75	5	5.25	V
Line regulation	REG_{I5}	V_{I5}=8 to 20V	—	45	100	mV
Laod regulation	REG_{L5}	I_{O5}=1 to 100mA	—	10	60	mV
Minimum input/output voltage difference	V_{DIF5}		—	1.7	—	V
Bias current	I_{bias}	I_{O5}=0A, I_O=0A	—	1.5	2.5	mA
Ripple rejection ratio	RR_5	$V_{I5}=2V_{PP}$, f=120Hz	—	60	—	dB
Output noise voltage	V_{no5}	f=10Hz to 100kHz	—	200	—	μV
Reset-on threshold voltage	$V_{RT(on)}$		4.35	4.5	4.7	V
Reset threshold hysteresis width	ΔV_{RT}		75	150	250	mV
Reset output delay time	t_d	Cd=0.1μF	—	10	—	ms
H reset output voltage	V_{ORH}	I_{RESET}=1mA	$V_{O5}-0.4$	$V_{O5}-0.1$	V_{O5}	V
L reset output voltage	V_{ORL}	V_{I5}=4V, I_{RESET}=0mA	—	0	0.5	V

Note 1) Unless otherwise specified, V_I=20V, V_{I5}=12V, I_O=200mA, and I_{O5}=100mA

■ Pin Descriptions

Pin No.	Description
1	GND
2	NC
3	Reset output control pin
4	Reset signal output pin
5	5V output pin
6	5V input pin
7	Reference voltage pin
8	Adjustable output pin
9	PGND

■ Application Circuit



$$V_O = V_{REF} \frac{R_1 + R_2}{R_1}$$

V_{REF} = 1.23V (typ.)

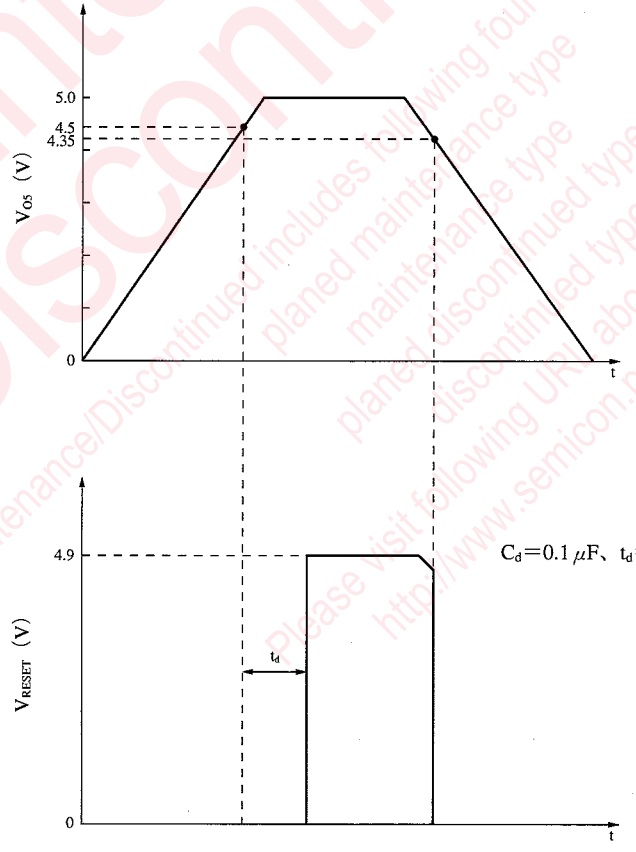
Example) When V_O = 12V is required

R_1 = 1kΩ

R_2 = 8.75kΩ

■ Supplementaly Descriptions

● Timing Chart



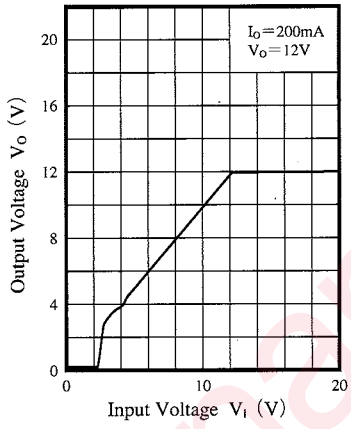
C_d = 0.1μF、 t_d = 10ms (typ)

Voltage Regulators

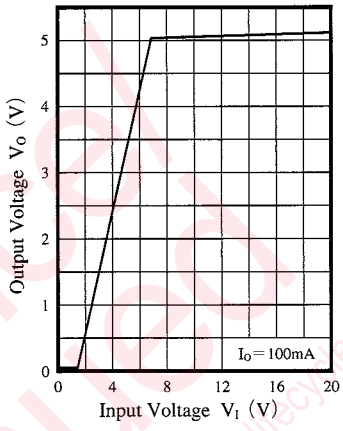
■ Supplementary Descriptions (cont.)

● Characteristic Charts

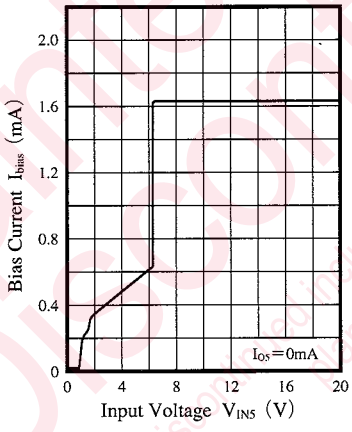
$V_O - V_I$ (Adjustable Output)



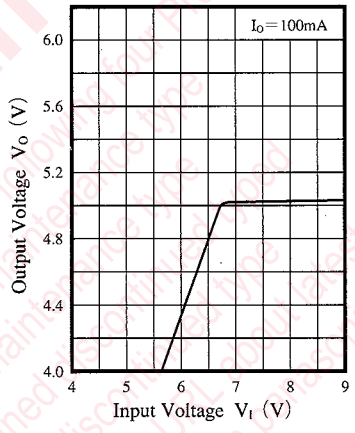
$V_O - V_I$ (5V Output)



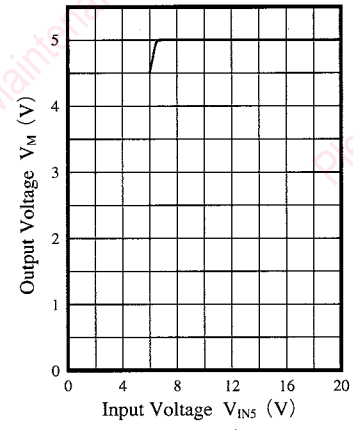
$I_{bias} - V_{IN5}$



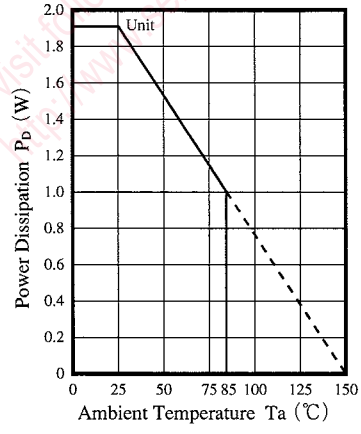
$V_O - V_I$ (5V Output, Min. I/O Voltage Difference)



$V_M - V_{IN5}$ (Reset Output Voltage)



$P_D - Ta$



Request for your special attention and precautions in using the technical information and semiconductors described in this book

(1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.

(2) The technical information described in this book is intended only to show the main characteristics and application circuit examples of the products. No license is granted in and to any intellectual property right or other right owned by Panasonic Corporation or any other company. Therefore, no responsibility is assumed by our company as to the infringement upon any such right owned by any other company which may arise as a result of the use of technical information described in this book.

(3) The products described in this book are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
- Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
- Any applications other than the standard applications intended.

(4) The products and product specifications described in this book are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.

(5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. Otherwise, we will not be liable for any defect which may arise later in your equipment.
 Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.

(6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.

20080805

littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.