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DATA SHEET

Part No.	AN8025M
Package Code No.	HSIP003-P-0000Q

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AN8025M

3-pin, positive output, low dropout voltage regulator (50 mA type)

■ Overview

The AN80xxM series are 3-pin, low dropout, fixed positive output type monolithic voltage regulators.
Since their power consumption can be minimized, they are suitable for battery-used power supply and reference voltage.
12 types of output voltage are available; 2 V, 2.5 V, 3 V, 4 V, 4.5 V, 5 V, 6 V, 7 V, 8 V, 8.5 V, 9 V, and 10 V.

■ Features

- Input /output voltage difference: 0.3 V max.
- Output current of up to 50 mA
- Low bias current: 0.6 mA typ.
- Output voltage: 2.5 V
- Built-in over current protection circuit

■ Applications

- 3-pin positive output voltage regulator (low drop 50 mA type)

■ Package

- 3-pin plastic single inline package with heat sink (SIP type)

■ Type

- Silicon monolithic bipolar IC

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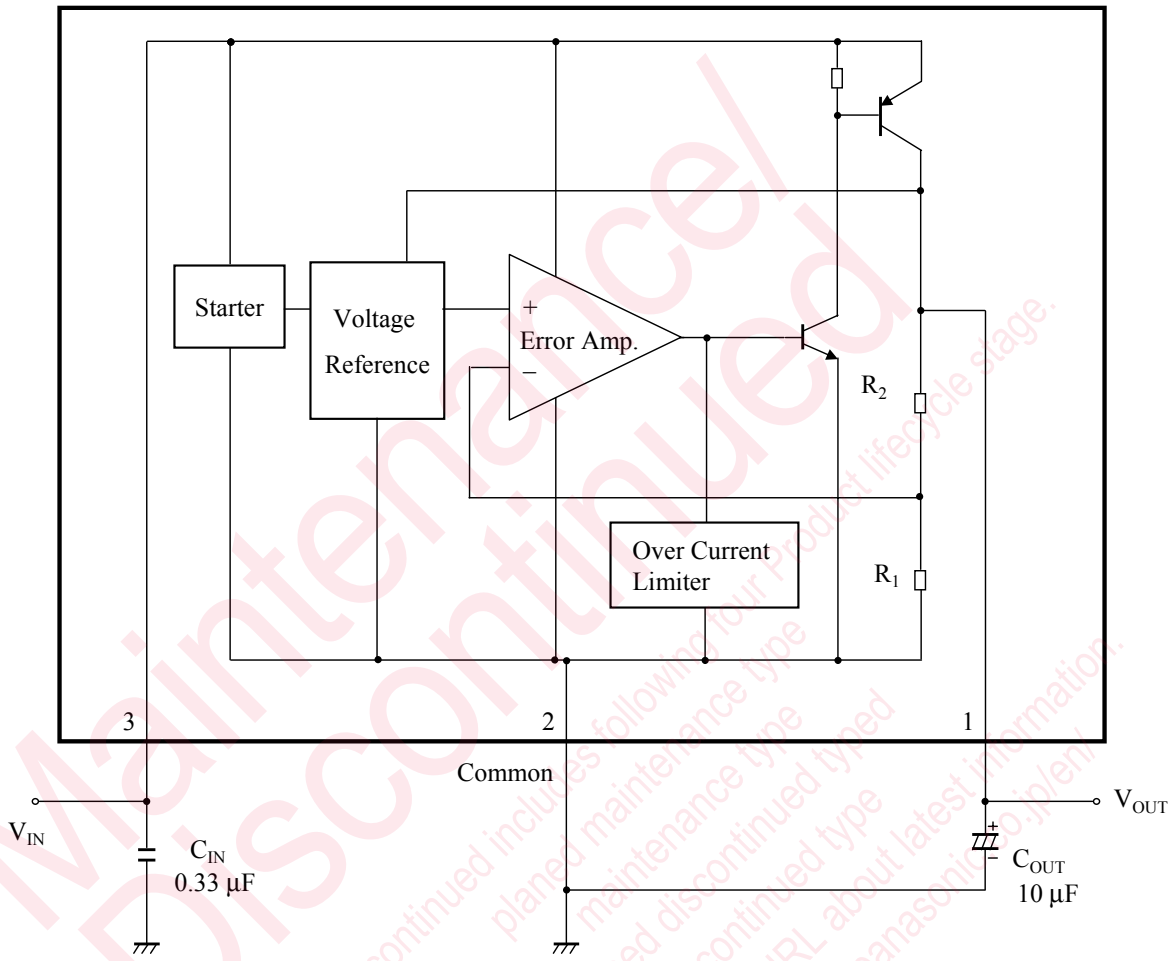
■ Block Diagram



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C_{OUT} : AN80xxM series have their internal gain in order to improve performance. When the power line on the output side is long, use a capacitor of 10 µF.
Also, the capacitor on the output side should be attached as close to the IC as possible.
When using at a low temperature, it is recommended to use the capacitors with low internal impedance (for example, tantalum capacitor) for output capacitors.

R_1 : 5 kΩ

R_2 : 5 kΩ

■ Pin Descriptions

Pin No.	Pin name	Type	Description
1	Output	Output	Regulated power output
2	Common	Ground	Ground
3	Input	Input	Input supplies power to the internal circuit

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■ Absolute Maximum Ratings

A No.	Parameter	Symbol	Rating	Unit	Note
1	Supply voltage	V_{CC}	20	V	*1
2	Supply current	I_{CC}	100	mA	*4
3	Power dissipation	P_D	270	mW	*2
4	Operating ambient temperature	T_{opr}	−30 to +80	°C	*3
5	Storage temperature	T_{stg}	−55 to +150	°C	*3

Note) *1: The values under the condition not exceeding the above absolute maximum ratings and the power dissipation.

*2: The power dissipation shown is the value at T_a = 80°C for independent (unmounted) IC packaged.
When using this IC, refer to the • $P_D - T_a$ diagram in the ■ Technical Data and use under the condition not exceeding the allowable value.

*3: Except for the power dissipation, operating ambient temperature, and storage temperature, all ratings are for T_a = 25°C.

*4: Built-in over current limit circuit, and the current will not go over the limit.

■ Operating supply voltage range

Parameter	Symbol	Range	Unit	Note
Supply voltage range	V_{CC}	3.0 to 8.5	V	—

Note) The values under the condition not exceeding the above absolute maximum ratings and the power dissipation.

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■ Electrical Characteristics

Note) Unless otherwise specified, T_a = 25°C±2°C, V_{IN} = 3.5 V, I_{OUT} = 20 mA, C_{IN} = 0.33 µF and C_{OUT} = 10 µF (ESR less than 5 Ω).

B No.	Parameter	Symbol	Conditions	Limits			Unit	Note
				Min	Typ	Max		
1	Output voltage	V_{OUT}	T_j = 25°C	2.4	2.5	2.6	V	—
2	Line regulation	REG_{LIN}	T_j = 25°C 3.0 V ≤ V_{IN} ≤ 8.5 V	—	2.5	50	mV	—
3	Load regulation	REG_{LOA}	T_j = 25°C 1 mA ≤ I_{OUT} ≤ 40 mA	—	8.0	20	mV	—
			T_j = 25°C 1 mA ≤ I_{OUT} ≤ 50 mA	—	12.5	25		
4	Minimum input/output voltage difference	VD	T_j = 25°C V_{IN} = 2.4 V, I_{OUT} = 20 mA	—	0.07	0.2	V	—
			T_j = 25°C V_{IN} = 2.4 V, I_{OUT} = 50 mA	—	0.12	0.3		
5	Bias current	I_Q	T_j = 25°C I_{OUT} = 0 mA	—	0.6	1.0	mA	—

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■ Electrical Characteristics (Reference values for design)

Note) Unless otherwise specified, T_a = 25°C±2°C, V_{IN} = 3.5 V, I_{OUT} = 20 mA, C_{IN} = 0.33 µF and C_{OUT} = 10 µF (ESR less than 5 Ω).
The characteristics listed below are reference values for design of the IC and are not guaranteed by inspection.
If a problem does occur related to these characteristics, Panasonic will respond in good faith to user concerns.

B No.	Parameter	Symbol	Conditions	Reference values			Unit	Note
				Min	Typ	Max		
6	Ripple rejection ratio	RR	3.5 V ≤ V_{IN} ≤ 5.5 V f = 120 Hz	60	72	—	dB	—
7	Output noise voltage	Vno	10 Hz ≤ f ≤ 100 kHz	—	65	—	µV	—
8	Output voltage temperature coefficient	$\frac{\Delta V_{OUT}}{T_a}$	–30°C ≤ T_j ≤ 125°C	—	0.13	—	mV/°C	—

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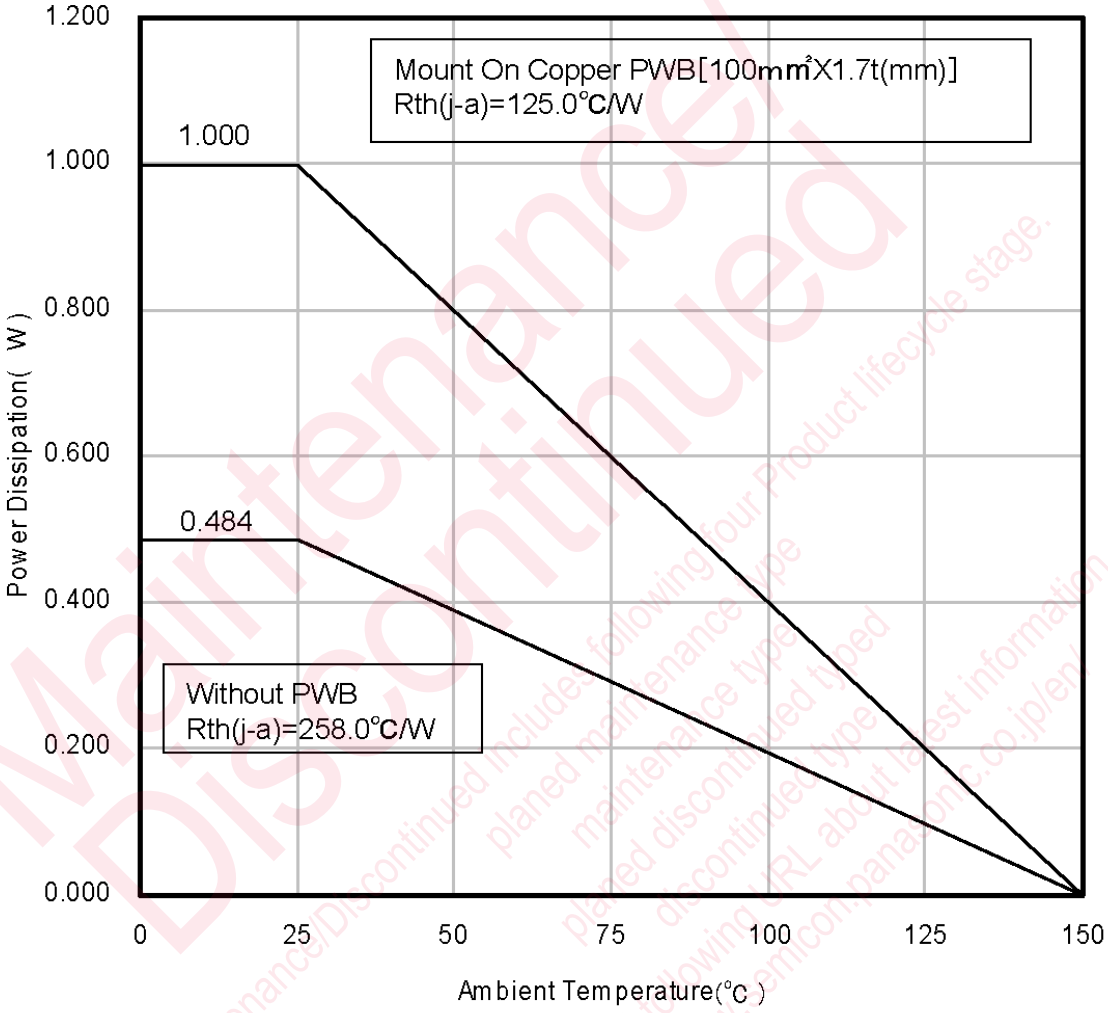
■ Technical Data

• P_D — T_a diagram



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