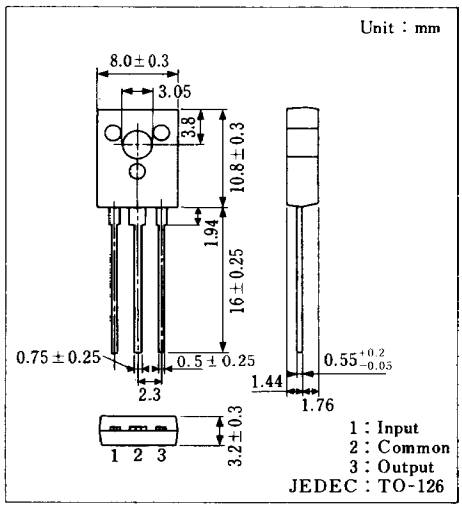
AN78N00 Series

3-Terminal Positive Output Voltage Regulators (300mA Type)

■ Outline

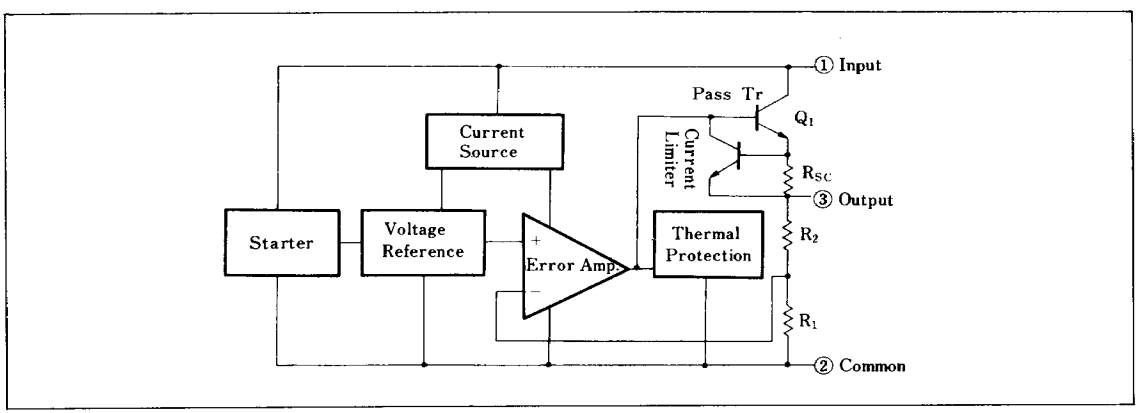
The AN78N00 series is 3-terminal fixed positive output voltage regulators. Stabilized fixed output voltage is obtained from unstable DC input voltage without using any external components. 12 types of fixed output voltage are available, 4V, 5V, 6V, 7V, 8V, 9V, 10V, 12V, 15V, 18V, 20V and 24V. They can be used widely in power circuits with current capacity up to 300mA.



■ Features

- No external components
- Output current in excess of 300mA
- Output voltage : 4V, 5V, 6V, 7V, 8V, 9V, 10V, 12V, 15V, 18V, 20V, 24V
- Short-circuit current limiting built in
- Thermal overload protection built in
- Output transistor safe area compensation

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Item	Symbol	Rating	Unit
Input Voltage	V_I	35*1	V
		40*2	V
Power Dissipation	P_D	8*3	W
Operating Ambient Temperature	T_{opr}	−20～+80	℃
Storage Temperature	T_{stg}	−55～+150	℃

*1 AN78N04, AN78N05, AN78N06, AN78N07, AN78N08, AN78N09, AN78N10, AN78N12, AN78N15, AN78N18
*2 AN78N20, AN78N24
*3 Follow the derating curve. When T_j exceeds 150℃, the internal circuit cuts off the output.

■ Electrical Characteristics (Ta=25℃)

● AN78N04 (4V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	3.84	4	4.16	V
Output Voltage Tolerance	V_O	1	V_I=6.5～20V, I_O=5～200mA	3.8		4.2	V
Line Regulation	REG_{IN}	1	V_I=6.5～25V, T_j=25℃		9	40	mV
			V_I=7～20V, T_j=25℃		4	20	mV
Load Regulation	REG_L	1	I_O=1～300mA, T_j=25℃		20	80	mV
			I_O=5～200mA, T_j=25℃		10	40	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(I)}$	2	V_I=6.5～25V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1～300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz～100kHz		38		μV
Ripple Rejection Ratio	RR	3	V_I=7～17V, I_O=50mA, f=120Hz	62	72		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0～125℃		−0.3		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=9V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0～125℃

● AN78N05 (5V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	4.8	5	5.2	V
Output Voltage Tolerance	V_O	1	V_I=7.5～20V, I_O=5～200mA	4.75		5.25	V
Line Regulation	REG_{IN}	1	V_I=7.5～25V, T_j=25℃		10	50	mV
			V_I=8～20V, T_j=25℃		5	25	mV
Load Regulation	REG_L	1	I_O=1～300mA, T_j=25℃		20	100	mV
			I_O=5～200mA, T_j=25℃		10	50	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(I)}$	2	V_I=7.5～25V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1～300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz～100kHz		40		μV
Ripple Rejection Ratio	RR	3	V_I=8～18V, I_O=50mA, f=120Hz	62	72		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0～125℃		−0.3		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=10V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0～125℃

■ Electrical Characteristics (Ta=25℃)

● AN78N06 (6V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	5.75	6	6.25	V
Output Voltage Tolerance	V_O	1	V_I=8.5~20V, I_O=5~200mA	5.7		6.3	V
Line Regulation	REG_{IN}	1	V_I=8.5~25V, T_j=25℃		11	60	mV
			V_I=9~20V, T_j=25℃		6	30	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		20	120	mV
			I_O=5~200mA, T_j=25℃		10	60	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=8.5~25V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		45		μV
Ripple Rejection Ratio	RR	3	V_I=9~19V, I_O=50mA, f=120Hz	59	70		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−0.4		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=11V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

● AN78N07 (7V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	6.7	7	7.3	V
Output Voltage Tolerance	V_O	1	V_I=9.5~20V, I_O=5~200mA	6.65		7.35	V
Line Regulation	REG_{IN}	1	V_I=9.5~25V, T_j=25℃		12	70	mV
			V_I=10~20V, T_j=25℃		7	35	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		20	140	mV
			I_O=5~200mA, T_j=25℃		10	70	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=9.5~25V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		50		μV
Ripple Rejection Ratio	RR	3	V_I=10~20V, I_O=50mA, f=120Hz	57	69		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−0.4		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=12V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

■ Electrical Characteristics (Ta = 25℃)

● AN78N08 (8V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j = 25℃	7.7	8	8.3	V
Output Voltage Tolerance	V_O	1	V_I = 10.5 ~ 23V, I_O = 5 ~ 200mA	7.6		8.4	V
Line Regulation	REG_{IN}	1	V_I = 10.5 ~ 25V, T_j = 25℃		13	80	mV
			V_I = 12 ~ 23V, T_j = 25℃		8	40	mV
Load Regulation	REG_L	1	I_O = 1 ~ 300mA, T_j = 25℃		25	160	mV
			I_O = 5 ~ 200mA, T_j = 25℃		10	80	mV
Bias Current	I_{Bias}	2	T_j = 25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I = 10.5 ~ 25V, T_j = 25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O = 1 ~ 300mA, T_j = 25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f = 10Hz ~ 100kHz		55		μV
Ripple Rejection Ratio	RR	3	V_I = 11 ~ 21V, I_O = 50mA, f = 120Hz	56	69		dB
Minimum Input-Output Voltage Difference	$V_{DIF(min.)}$		I_O = 300mA, T_j = 25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I = 35V, T_j = 25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j = 25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O = 5mA, T_j = 0 ~ 125℃		−0.4		mV/℃

Note 1: The specified condition T_j = 25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2: When not specified, V_I = 14V, I_O = 100mA, C_i = 0.33μF, C_O = 0.1μF and T_j = 0 ~ 125℃

● AN78N09 (9V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j = 25℃	8.65	9	9.35	V
Output Voltage Tolerance	V_O	1	V_I = 11.5 ~ 24V, I_O = 5 ~ 200mA	8.55		9.45	V
Line Regulation	REG_{IN}	1	V_I = 11.5 ~ 25V, T_j = 25℃		14	90	mV
			V_I = 13 ~ 24V, T_j = 25℃		9	45	mV
Load Regulation	REG_L	1	I_O = 1 ~ 300mA, T_j = 25℃		25	180	mV
			I_O = 5 ~ 200mA, T_j = 25℃		10	90	mV
Bias Current	I_{Bias}	2	T_j = 25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I = 11.5 ~ 25V, T_j = 25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O = 5 ~ 300mA, T_j = 25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f = 10Hz ~ 100kHz		60		μV
Ripple Rejection Ratio	RR	3	V_I = 12 ~ 22V, I_O = 50mA, f = 120Hz	56	68		dB
Minimum Input-Output Voltage Difference	$V_{DIF(min.)}$		I_O = 300mA, T_j = 25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I = 35V, T_j = 25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j = 25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O = 5mA, T_j = 0 ~ 125℃		−0.5		mV/℃

Note 1: The specified condition T_j = 25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2: When not specified, V_I = 15V, I_O = 100mA, C_i = 0.33μF, C_O = 0.1μF and T_j = 0 ~ 125℃

■ Electrical Characteristics (Ta=25℃)

● AN78N10 (10V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	9.6	10	10.4	V
Output Voltage Tolerance	V_O	1	V_I=12.5~25V, I_O=5~200mA	9.5		10.5	V
Line Regulation	REG_{IN}	1	V_I=12.5~30V, T_j=25℃		15	100	mV
			V_I=13~25V, T_j=25℃		10	50	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		25	200	mV
			I_O=5~200mA, T_j=25℃		10	100	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=12.5~30V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		70		μV
Ripple Rejection Ratio	RR	3	V_I=13~23V, I_O=50mA, f=120Hz	56	68		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−0.5		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=16V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

● AN78N12 (12V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	11.5	12	12.5	V
Output Voltage Tolerance	V_O	1	V_I=14.5~27V, I_O=5~200mA	11.4		12.6	V
Line Regulation	REG_{IN}	1	V_I=14.5~30V, T_j=25℃		15	100	mV
			V_I=16~27V, T_j=25℃		10	50	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		25	240	mV
			I_O=5~200mA, T_j=25℃		10	120	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=14.5~30V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		80		μV
Ripple Rejection Ratio	RR	3	V_I=15~25V, I_O=50mA, f=120Hz	55	67		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−0.6		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=19V, I_O=100 mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

■ Electrical Characteristics (Ta=25℃)

● AN78N15 (15V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	14.4	15	15.6	V
Output Voltage Tolerance	V_O	1	V_I=17.5~30V, I_O=5~200mA	14.25		15.75	V
Line Regulation	REG_{IN}	1	V_I=17.5~30V, T_j=25℃		16	100	mV
			V_I=20~30V, T_j=25℃		11	50	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		25	300	mV
			I_O=5~200mA, T_j=25℃		10	150	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=17.5~30V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		80		μV
Ripple Rejection Ratio	RR	3	V_I=18.5~28.5V, I_O=50mA, f=120Hz	54	66		dB
Minimum Input-Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−0.8		mV/℃

Note 1: The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2: When not specified, V_I=23V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

● AN78N18 (18V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	17.3	18	18.7	V
Output Voltage Tolerance	V_O	1	V_I=21~33V, I_O=5~200mA	17.1		18.9	V
Line Regulation	REG_{IN}	1	V_I=21~33V, T_j=25℃		18	100	mV
			V_I=22~33V, T_j=25℃		13	50	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		30	360	mV
			I_O=5~200mA, T_j=25℃		10	180	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=21~33V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		90		μV
Ripple Rejection Ratio	RR	3	V_I=22~32V, I_O=50mA, f=120Hz	53	65		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−1.0		mV/℃

Note 1: The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2: When not specified, V_I=27V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

■ Electrical Characteristics (Ta=25℃)

● AN78N20 (20V Type)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	19.2	20	20.8	V
Output Voltage Tolerance	V_O	1	V_I=23~35V, I_O=5~200mA	19.0		21	V
Line Regulation	REG_{IN}	1	V_I=23~35V, T_j=25℃		19	100	mV
			V_I=24~35V, T_j=25℃		14	50	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		30	400	mV
			I_O=5~200mA, T_j=25℃		10	200	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=23~35V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		100		μV
Ripple Rejection Ratio	RR	3	V_I=24~34V, I_O=50mA, f=120Hz	52	64		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−1.2		mV/℃

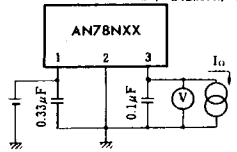
Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=29V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

● AN78N24 (24V Type)

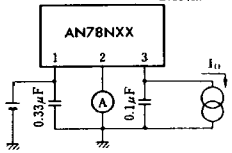
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Output Voltage	V_O	1	T_j=25℃	23	24	25	V
Output Voltage Tolerance	V_O	1	V_I=27~38V, I_O=5~200mA	22.8		25.2	V
Line Regulation	REG_{IN}	1	V_I=27~38V, T_j=25℃		20	100	mV
			V_I=28~38V, T_j=25℃		15	50	mV
Load Regulation	REG_L	1	I_O=1~300mA, T_j=25℃		30	480	mV
			I_O=5~200mA, T_j=25℃		10	240	mV
Bias Current	I_{Bias}	2	T_j=25℃		2.8	5	mA
Input Bias Current Fluctuation	$\Delta I_{Bias(IN)}$	2	V_I=27~38V, T_j=25℃			0.8	mA
Load Bias Current Fluctuation	$\Delta I_{Bias(L)}$	2	I_O=1~300mA, T_j=25℃			0.5	mA
Output Noise Voltage	V_{no}	1	f=10Hz~100kHz		110		μV
Ripple Rejection Ratio	RR	3	V_I=28~38V, I_O=50mA, f=120Hz	50	63		dB
Minimum Input/Output Voltage Difference	$V_{DIF(min.)}$		I_O=300mA, T_j=25℃		2		V
Output Short Circuit Current	$I_{O(Short)}$	1	V_I=35V, T_j=25℃		300		mA
Peak Output Current	$I_{O(Peak)}$	1	T_j=25℃		500		mA
Output Voltage Temperature Coefficient	$\Delta V_O/T_a$		I_O=5mA, T_j=0~125℃		−1.5		mV/℃

Note 1) The specified condition T_j=25℃ means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=33V, I_O=100mA, C_I=0.33μF, C_O=0.1μF and T_j=0~125℃

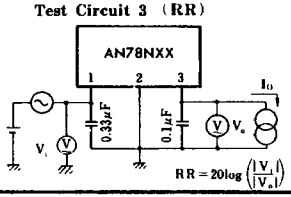
Test Circuit 1 (V_O, REG_{IN}, REG_L, V_{no}, $I_{O(Short)}$, $I_{O(Peak)}$)



Test Circuit 2 (I_{Bias}, $\Delta I_{Bias(IN)}$, $\Delta I_{Bias(L)}$)

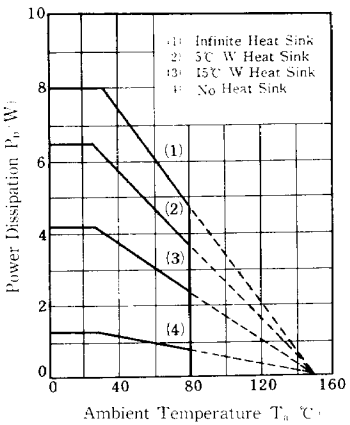


Test Circuit 3 (RR)

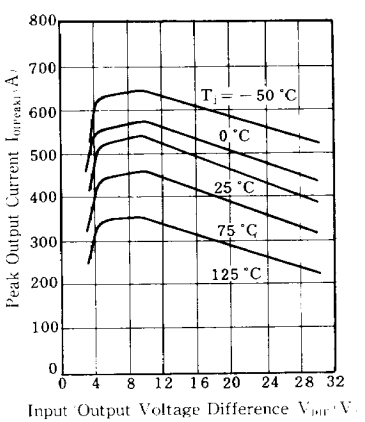


Panasonic

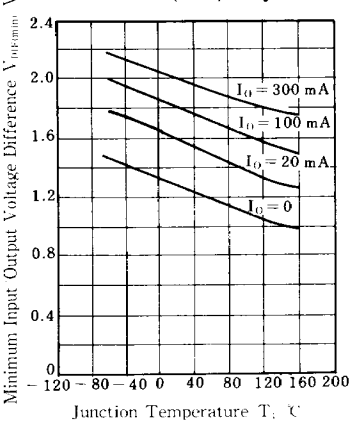
$P_D - Ta$



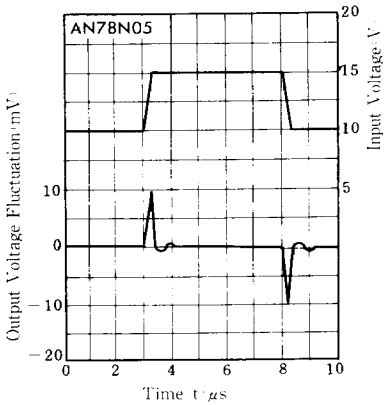
$I_{O(Peak)} - V_{DIF}$



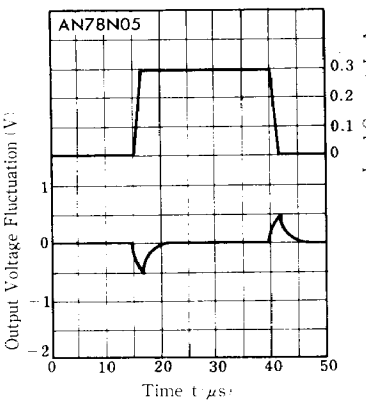
$V_{DIF(min.)} - T_j$



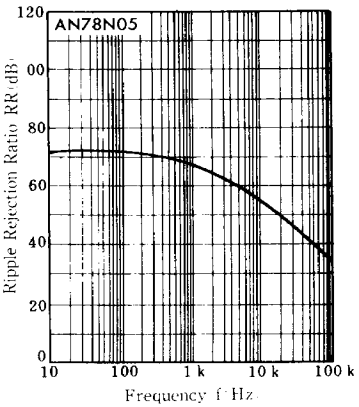
Input Response Characteristic



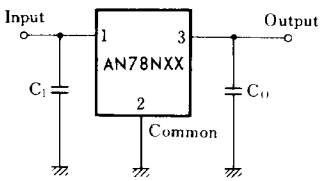
Load Response Characteristic



RR – f

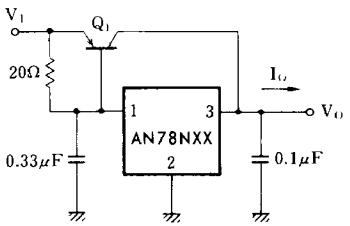


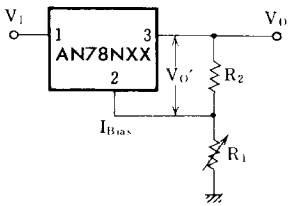
■ Basic Regulator Circuit



C_I is set when the input line is long.
C_O improves the transient response.

■ Application Circuits





$$|V_O| = V_O' + \left(I_{Bias} + \frac{V_O'}{R_2}\right) R_1$$