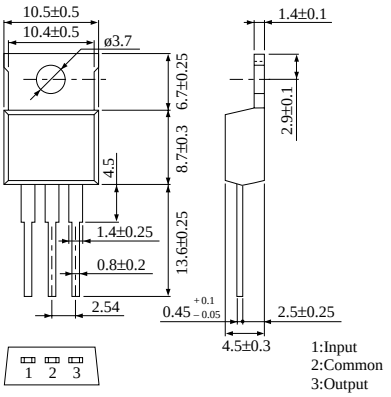
AN7800/AN7800F Series

3-pin Positive Output Voltage Regulator (1A Type)

■ Overview

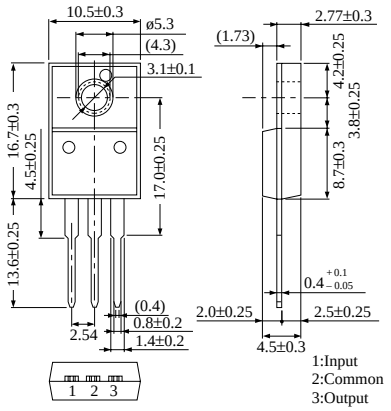
The AN7800 series and the AN7800F series are 3-pin fixed positive output voltage regulators. Stabilized fixed output voltage is obtained from unstable DC input voltage without using external components. 11 types of fixed output voltage are available, 5V, 6V, 7V, 8V, 9V, 10V, 12V, 15V, 18V, 20V and 24V. They can be used widely in power circuits with current capacity up to 1A.

AN7800 Series Unit:mm



JEDEC:TO-220AB (HSIP003-P-0000)

AN7800F Series Unit:mm

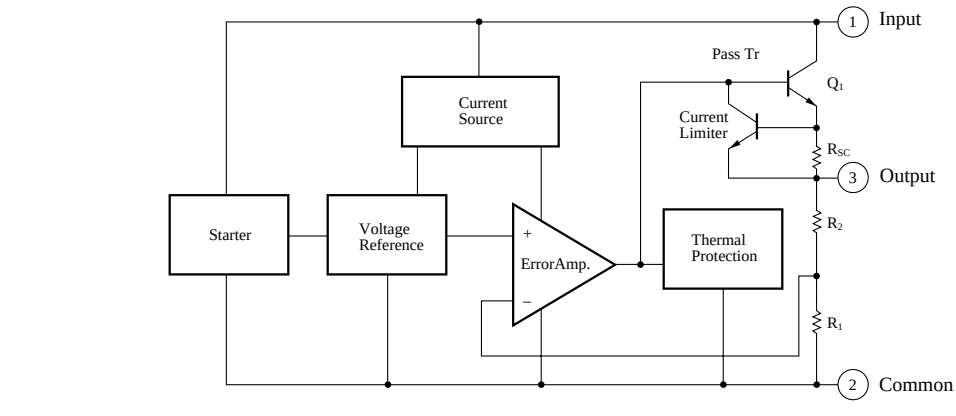


TO-220 Full Pack Package (HSIP003-P-0000A)

■ Features

- No external components
- Output voltage:5V, 6V, 7V, 8V, 9V, 10V, 12V, 15V, 18V, 20V, 24V
- Internal short-circuit current limiting
- Internal thermal overload protection
- Output transistor safe area compensation

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25˚C)

Parameter		Symbol	Rating	Unit
Input voltage		V_I	35 *1	V
			40 *2	V
Power dissipation	AN7800 Series	P_D	15 *3	W
	AN7800F Series		10.25 *3	
Operating ambient temperature		T_{opr}	–30 to+80	˚C
Storage temperature		T_{stg}	–55 to+150	˚C

*1 AN7805/F, AN7806/F, AN7807/F, AN7808/F, AN7809/F, AN7810/F, AN7812/F, AN7815/F, AN7818/F
*2 AN7820/F, AN7824/F
*3 Follow the derating curve. When T_j exceeds 150˚C, the internal circuit cuts off output.

■ Electrical Characteristics (Ta=25˚C)

• AN7805/7805F (5V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	4.8	5	5.2	V
Output voltage tolerance	V_O	V_I=8 to 20V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	4.75	—	5.25	V
Line regulation	REG_{IN}	V_I=7.5 to 25V, T_j=25˚C	—	3	100	mV
		V_I=8 to 12V, T_j=25˚C	—	1	50	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	15	100	mV
		I_O=250 to 750mA, T_j=25˚C	—	5	50	mV
Bias current	I_{bias}	T_j=25˚C	—	3.9	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=7.5 to 25V, T_j=25˚C	—	—	1.3	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	40	—	μV
Ripple rejection ratio	RR	V_I=8 to 18V, I_O=100mA, f=120Hz	62	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	17	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=25V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	$\Delta V_O/Ta$	I_O=5mA, T_j=0 to 125˚C	—	– 0.3	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

■ Electrical Characteristics (Ta=25˚C)

• AN7806/7806F (6V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	5.75	6	6.25	V
Output voltage tolerance	V_O	V_I=9 to 21V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	5.7	—	6.3	V
Line regulation	REG_{IN}	V_I=8.5 to 25V, T_j=25˚C	—	5	120	mV
		V_I=9 to 13V, T_j=25˚C	—	1.5	60	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	14	120	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	60	mV
Bias current	I_{bias}	T_j=25˚C	—	3.9	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=8.5 to 25V, T_j=25˚C	—	—	1.3	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	40	—	μV
Ripple rejection ratio	RR	V_I=9 to 19V, I_O=100mA, f=120Hz	59	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	17	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=25V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	– 0.4	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

• AN7807/7807F (7V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	6.7	7	7.3	V
Output voltage tolerance	V_O	V_I=10 to 22V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	6.6	—	7.4	V
Line regulation	REG_{IN}	V_I=9.5 to 25V, T_j=25˚C	—	5	140	mV
		V_I=10 to 15V, T_j=25˚C	—	1.5	70	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	14	140	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	70	mV
Bias current	I_{bias}	T_j=25˚C	—	3.9	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=9.5 to 25V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	46	—	μV
Ripple rejection ratio	RR	V_I=10 to 20V, I_O=100mA, f=120Hz	57	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	16	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=25V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	– 0.5	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

■ Electrical Characteristics (Ta=25˚C)

• AN7808/7808F (8V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	7.7	8	8.3	V
Output voltage tolerance	V_O	V_I=11 to 23V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	7.6	—	8.4	V
Line regulation	REG_{IN}	V_I=10.5 to 25V, T_j=25˚C	—	6	160	mV
		V_I=11 to 17V, T_j=25˚C	—	2	80	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	160	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	80	mV
Bias current	I_{bias}	T_j=25˚C	—	3.9	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=10.5 to 25V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	52	—	μV
Ripple rejection ratio	RR	V_I=11.5 to 21.5V, I_O=100mA, f=120Hz	56	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	16	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=25V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	– 0.5	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

• AN7809/7809F (9V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	8.65	9	9.35	V
Output voltage tolerance	V_O	V_I=12 to 24V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	8.55	—	9.45	V
Line regulation	REG_{IN}	V_I=11.5 to 26V, T_j=25˚C	—	7	180	mV
		V_I=12 to 18V, T_j=25˚C	—	2	90	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	180	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	90	mV
Bias current	I_{bias}	T_j=25˚C	—	3.9	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=11.5 to 26V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	57	—	μV
Ripple rejection ratio	RR	V_I=12 to 22V, I_O=100mA, f=120Hz	56	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	16	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=26V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	– 0.5	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

■ Electrical Characteristics (Ta=25˚C)

• AN7810/7810F (10V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	9.6	10	10.4	V
Output voltage tolerance	V_O	V_I=13 to 25V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	9.5	—	10.5	V
Line regulation	REG_{IN}	V_I=12.5 to 27V, T_j=25˚C	—	8	200	mV
		V_I=13 to 19V, T_j=25˚C	—	2.5	100	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	200	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	100	mV
Bias current	I_{bias}	T_j=25˚C	—	3.9	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=12.5 to 27V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	63	—	μV
Ripple rejection ratio	RR	V_I=13 to 23V, I_O=100mA, f=120Hz	56	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	16	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=27V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	– 0.6	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

• AN7812/7812F (12V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	11.5	12	12.5	V
Output voltage tolerance	V_O	V_I=15 to 27V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	11.4	—	12.6	V
Line regulation	REG_{IN}	V_I=14.5 to 30V, T_j=25˚C	—	10	240	mV
		V_I=16 to 22V, T_j=25˚C	—	3	120	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	240	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	120	mV
Bias current	I_{bias}	T_j=25˚C	—	4	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=14.5 to 30V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	75	—	μV
Ripple rejection ratio	RR	V_I=15 to 25V, I_O=100mA, f=120Hz	55	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	18	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=30V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	– 0.8	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

■ Electrical Characteristics (Ta=25˚C)

• AN7815/7815F (15V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	14.4	15	15.6	V
Output voltage tolerance	V_O	V_I=18 to 30V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	14.25	—	15.75	V
Line regulation	REG_{IN}	V_I=17.5 to 30V, T_j=25˚C	—	11	300	mV
		V_I=20 to 26V, T_j=25˚C	—	3	150	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	300	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	150	mV
Bias current	I_{bias}	T_j=25˚C	—	4	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=17.5 to 30V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	90	—	μV
Ripple rejection ratio	RR	V_I=18.5 to 28.5V, f=120Hz	54	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	19	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=30V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	–1	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

• AN7818/7818F (18V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	17.3	18	18.7	V
Output voltage tolerance	V_O	V_I=21 to 33V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	17.1	—	18.9	V
Line regulation	REG_{IN}	V_I=21 to 33V, T_j=25˚C	—	14	360	mV
		V_I=24 to 30V, T_j=25˚C	—	4	180	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	360	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	180	mV
Bias current	I_{bias}	T_j=25˚C	—	4.1	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=21 to 33V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	110	—	μV
Ripple rejection ratio	RR	V_I=22 to 32V, I_O=100mA, f=120Hz	53	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	16	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=35V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	–1.1	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

■ Electrical Characteristics (Ta=25˚C)

• AN7820/7820F (20V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	19.2	20	20.8	V
Output voltage Tolerance	V_O	V_I=24 to 35V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	19	—	21	V
Line regulation	REG_{IN}	V_I=23 to 35V, T_j=25˚C	—	15	400	mV
		V_I=26 to 32V, T_j=25˚C	—	5	200	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	400	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	200	mV
Bias current	I_{bias}	T_j=25˚C	—	4.1	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=23 to 35V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	110	—	μV
Ripple rejection ratio	RR	V_I=24 to 34V, I_O=100mA, f=120Hz	53	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	22	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=35V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	–1.2	—	mV/˚C

Note 1) The specified condition T_j=25˚C 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=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

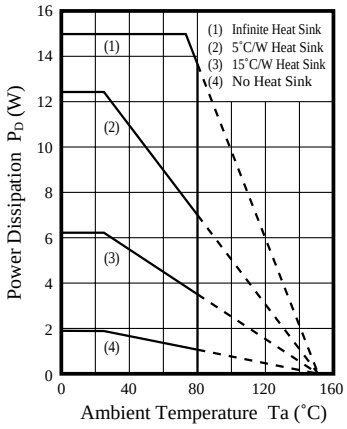
• AN7824/7824F (24V Type)

Parameter	Symbol	Condition	min	typ	max	Unit
Output voltage	V_O	T_j=25˚C	23	24	25	V
Output voltage tolerance	V_O	V_I=28 to 38V, I_O=5mA to 1A, T_j=0 to 125˚C, P_D≦*	22.8	—	25.2	V
Line regulation	REG_{IN}	V_I=27 to 38V, T_j=25˚C	—	18	480	mV
		V_I=30 to 36V, T_j=25˚C	—	6	240	mV
Load regulation	REG_L	I_O=5mA to 1.5A, T_j=25˚C	—	12	480	mV
		I_O=250 to 750mA, T_j=25˚C	—	4	240	mV
Bias current	I_{bias}	T_j=25˚C	—	4.1	8	mA
Input bias current change	$\Delta I_{bias\ (IN)}$	V_I=27 to 38V, T_j=25˚C	—	—	1	mA
Load bias current change	$\Delta I_{bias\ (L)}$	I_O=5mA to 1A, T_j=25˚C	—	—	0.5	mA
Output noise voltage	V_{no}	f=10Hz to 100kHz	—	170	—	μV
Ripple rejection ratio	RR	V_I=28 to 38V, I_O=100mA, f=120Hz	50	—	—	dB
Minimum input/output voltage difference	$V_{DIF\ (min.)}$	I_O=1A, T_j=25˚C	—	2	—	V
Output impedance	Z_O	f=1kHz	—	28	—	mΩ
Output short circuit current	$I_{O\ (Short)}$	V_I=38V, T_j=25˚C	—	700	—	mA
Peak output current	$I_{O\ (Peak)}$	T_j=25˚C	—	2	—	A
Output voltage temperature coefficient	ΔV_O/Ta	I_O=5mA, T_j=0 to 125˚C	—	–1.4	—	mV/˚C

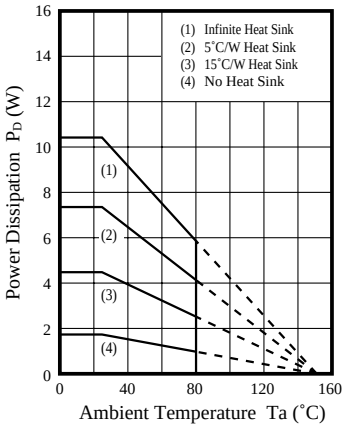
Note 1) The specified condition T_j=25˚C means that the test should be carried out with the test time so short (within 10ms) that the drift in characteristic value due to the rise in chip junction temperature can be ignored.
Note 2) When not specified, V_I=33V, I_O=500mA, C_I=0.33μF and C_O=0.1μF.
* AN7800 Series:15W, AN7800F Series:10.25W

■ Characteristic Curve

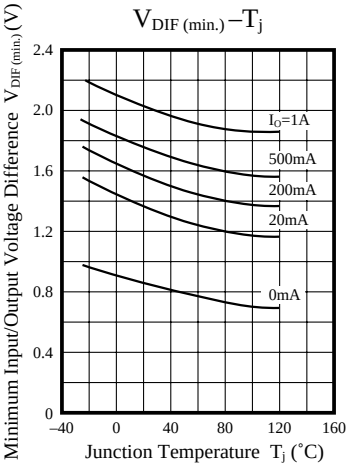
P_D–Ta (AN7800 Series)



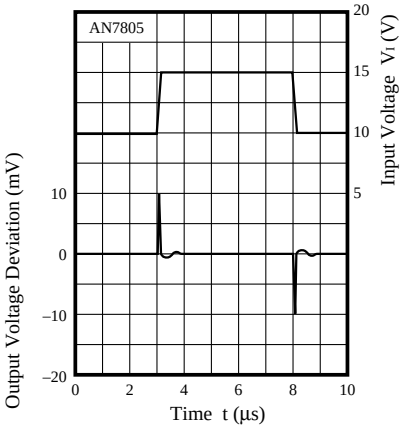
P_D–Ta (AN7800F Series)



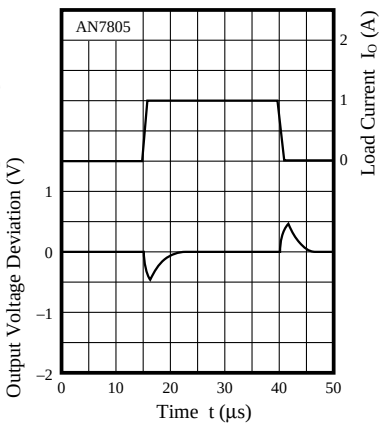
$V_{DIF\ (min.)}$–T_j



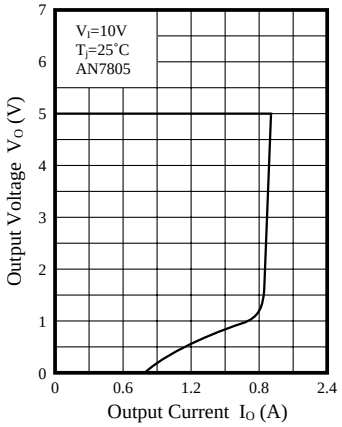
Input Transient Response



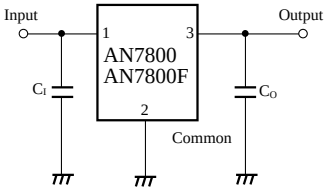
Load Transient Response



Current Limiting Characteristic



■ Basic Regulator Circuit

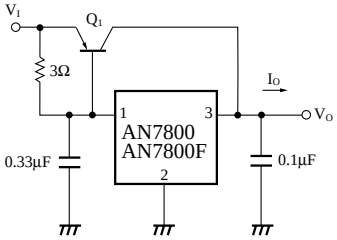


C_I is set when the input line is long.

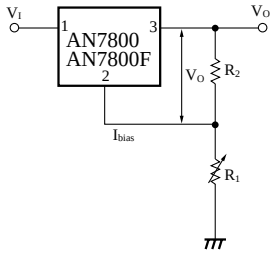
C_O improves the transient response.

■ Application Circuit

1) Current Boost Circuit



2) Adjustable Output Regulator



$$V_O = V_O + \left(I_{bias} + \frac{V_O}{R_2}\right) R_1$$