AN80MxxRSP Series

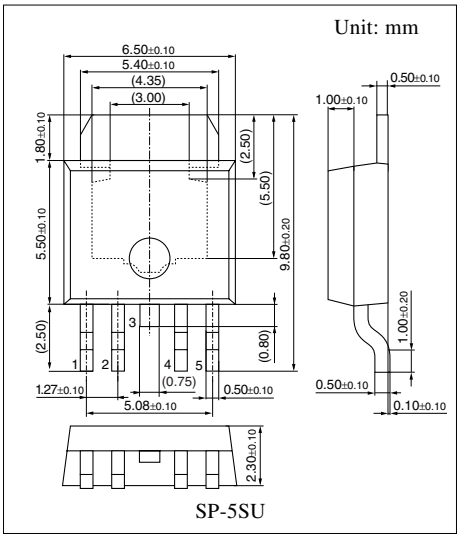
5-pin, low dropout voltage regulator with standby function (500 mA type)

■ Overview

The AN80MxxRSP series is a 0.5 A, low dropout voltage regulator IC with standby function, featuring low current consumption and low noise.

■ Features

- Standby consumption current: max. 3 µA
- Dropout voltage: 0.25 V
- Output voltage accuracy: ±3%
- 5-pin surface mounting package
- Ripple rejection ratio: 30 dB (f = 500 kHz)
- Output voltage: 1.8 V, 1.9 V, 2.0 V, 2.1 V, 2.2 V, 2.5 V, 2.7 V, 2.8 V, 2.9 V, 3.0 V, 3.1 V, 3.2 V, 3.3 V, 3.4 V, 3.5 V, 3.6 V, 4.8 V, 4.9 V, 5.0 V, 5.1 V, 5.2 V, 5.3 V

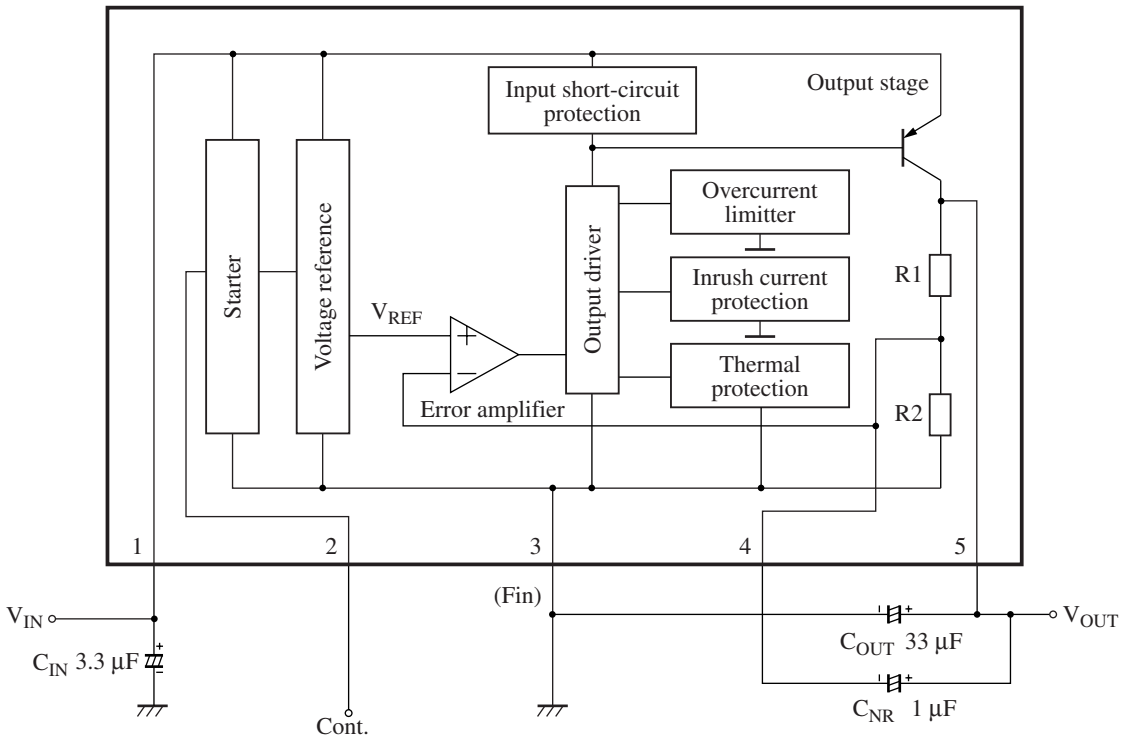


Note) The package of this product will be changed to lead-free type (SP-5SUA). See the new package dimensions section later of this datasheet.

■ Applications

- General use power supply

■ Block Diagram



■ Pin Descriptions

Pin No.	Description
1	Input voltage pin (V_{IN})
2	Control pin (Cont.) High: operation, Low: stop
3	Grounding pin (GND) Electrically in common with radiation fin
4	Noise reduction pin (N.R.) Open when the noise reduction function is not used
5	Output voltage pin (V_{OUT})

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	14.4	V
Supply current	I_{CC}	—	mA
Power dissipation *1	P_D	255	mW
Operating ambient temperature *2	T_{opr}	−30 to +85	°C
Storage temperature *2	T_{stg}	−55 to +150	°C

Note) 1. The output voltage may exceed the rated value if $T_j > 150°C$ in no-load condition. Set to $I_O > 5$ mA if T_j is likely to exceed 150°C.

2. This IC is not suitable for automobile equipment use.

3. ∗1: The above power dissipation shows the value of an independent IC without heat sink at $T_a = 85°C$. For details, refer to "2. Power dissipation of SP-5SU package" in the Application Notes.

∗2: Except for the operating ambient temperature and storage temperature, all ratings are for $T_a = 25°C$.

■ Recommended Operating Conditions

Part No.	Output voltage	Operating supply voltage range (V_{CC})	Unit
AN80M18RSP	1.8	2.3 to 14.0	V
AN80M19RSP	1.9	2.4 to 14.0	V
AN80M20RSP	2.0	2.5 to 14.0	V
AN80M21RSP	2.1	2.6 to 14.0	V
AN80M22RSP	2.2	2.7 to 14.0	V
AN80M25RSP	2.5	3.0 to 14.0	V
AN80M27RSP	2.7	3.2 to 14.0	V
AN80M28RSP	2.8	3.3 to 14.0	V
AN80M29RSP	2.9	3.4 to 14.0	V
AN80M30RSP	3.0	3.5 to 14.0	V
AN80M31RSP	3.1	3.6 to 14.0	V
AN80M32RSP	3.2	3.7 to 14.0	V
AN80M33RSP	3.3	3.8 to 14.0	V
AN80M34RSP	3.4	3.9 to 14.0	V
AN80M35RSP	3.5	4.0 to 14.0	V
AN80M36RSP	3.6	4.1 to 14.0	V
AN80M48RSP	4.8	5.3 to 14.0	V
AN80M49RSP	4.9	5.4 to 14.0	V
AN80M50RSP	5.0	5.5 to 14.0	V
AN80M51RSP	5.1	5.6 to 14.0	V
AN80M52RSP	5.2	5.7 to 14.0	V
AN80M53RSP	5.3	5.8 to 14.0	V

■ Electrical Characteristics at T_a = 25°C

• AN80M18RSP (1.8 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 2.8 V, I_{OUT} = 250 mA	1.746	1.8	1.854	V
Line regulation	REG_{IN}	V_{IN} = 2.8 V → 14.0 V, I_{OUT} = 250 mA	—	—	18	mV
Load regulation	REG_{LOA}	V_{IN} = 2.8 V, I_{OUT} = 0 mA → 500 mA	—	—	36	mV
Peak output current	I_{PEAK}	V_{IN} = 2.8 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 2.8 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 2.8 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 2.8 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 1.71 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 2.8 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 3.8 V±1 V, f = 120 Hz I_{OUT} = 100 mA	58.8	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 1.9 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.0 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 2.8 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 2.8 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 3.8 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 2.8 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 2.8 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 2.8 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M19RSP (1.9 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 2.9 V, I_{OUT} = 250 mA	1.843	1.9	1.957	V
Line regulation	REG_{IN}	V_{IN} = 2.9 V → 14.0 V, I_{OUT} = 250 mA	—	—	19	mV
Load regulation	REG_{LOA}	V_{IN} = 2.9 V, I_{OUT} = 0 mA → 500 mA	—	—	38	mV
Peak output current	I_{PEAK}	V_{IN} = 2.9 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 2.9 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 2.9 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 2.9 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 1.805 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 2.9 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 3.9 V±1 V, f = 120 Hz I_{OUT} = 100 mA	58.4	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.0 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.1 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 2.9 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 2.9 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 3.9 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 2.9 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 2.9 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 2.9 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M20RSP (2.0 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.0 V, I_{OUT} = 250 mA	1.940	2.0	2.060	V
Line regulation	REG_{IN}	V_{IN} = 3.0 V → 14.0 V, I_{OUT} = 250 mA	—	—	20	mV
Load regulation	REG_{LOA}	V_{IN} = 3.0 V, I_{OUT} = 0 mA → 500 mA	—	—	40	mV
Peak output current	I_{PEAK}	V_{IN} = 3.0 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.0 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.0 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.0 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 1.90 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.0 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.0 V±1 V, f = 120 Hz I_{OUT} = 100 mA	57.9	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.1 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.2 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.0 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.0 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.0 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.0 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.0 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.0 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M21RSP (2.1 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.1 V, I_{OUT} = 250 mA	2.037	2.1	2.163	V
Line regulation	REG_{IN}	V_{IN} = 3.1 V → 14.0 V, I_{OUT} = 250 mA	—	—	21	mV
Load regulation	REG_{LOA}	V_{IN} = 3.1 V, I_{OUT} = 0 mA → 500 mA	—	—	42	mV
Peak output current	I_{PEAK}	V_{IN} = 3.1 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.1 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.1 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.1 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 1.995 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.1 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.1 V±1 V, f = 120 Hz I_{OUT} = 100 mA	57.5	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.2 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.3 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.1 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.1 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.1 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.1 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.1 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.1 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M22RSP (2.2 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.2 V, I_{OUT} = 250 mA	2.134	2.2	2.266	V
Line regulation	REG_{IN}	V_{IN} = 3.2 V → 14.0 V, I_{OUT} = 250 mA	—	—	22	mV
Load regulation	REG_{LOA}	V_{IN} = 3.2 V, I_{OUT} = 0 mA → 500 mA	—	—	44	mV
Peak output current	I_{PEAK}	V_{IN} = 3.2 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.2 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.2 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.2 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.090 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.2 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.2 V±1 V, f = 120 Hz I_{OUT} = 100 mA	57.1	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.3 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.4 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.2 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.2 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.2 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.2 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.2 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.2 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M25RSP (2.5 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.5 V, I_{OUT} = 250 mA	2.425	2.5	2.575	V
Line regulation	REG_{IN}	V_{IN} = 3.5 V → 14.0 V, I_{OUT} = 250 mA	—	—	25	mV
Load regulation	REG_{LOA}	V_{IN} = 3.5 V, I_{OUT} = 0 mA → 500 mA	—	—	50	mV
Peak output current	I_{PEAK}	V_{IN} = 3.5 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.5 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.5 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.5 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.375 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.5 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.5 V±1 V, f = 120 Hz I_{OUT} = 100 mA	56.0	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.6 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.7 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.5 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.5 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.5 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.5 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.5 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.5 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M27RSP (2.7 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.7 V, I_{OUT} = 250 mA	2.619	2.7	2.781	V
Line regulation	REG_{IN}	V_{IN} = 3.7 V → 14.0 V, I_{OUT} = 250 mA	—	—	27	mV
Load regulation	REG_{LOA}	V_{IN} = 3.7 V, I_{OUT} = 0 mA → 500 mA	—	—	54	mV
Peak output current	I_{PEAK}	V_{IN} = 3.7 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.7 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.7 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.7 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.565 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.7 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.7 V±1 V, f = 120 Hz I_{OUT} = 100 mA	55.3	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.8 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 2.9 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.7 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.7 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.7 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.7 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.7 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.7 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M28RSP (2.8 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.8 V, I_{OUT} = 250 mA	2.716	2.8	2.884	V
Line regulation	REG_{IN}	V_{IN} = 3.8 V → 14.0 V, I_{OUT} = 250 mA	—	—	28	mV
Load regulation	REG_{LOA}	V_{IN} = 3.8 V, I_{OUT} = 0 mA → 500 mA	—	—	56	mV
Peak output current	I_{PEAK}	V_{IN} = 3.8 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.8 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.8 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.8 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.660 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.8 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.8 V±1 V, f = 120 Hz I_{OUT} = 100 mA	55.0	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 2.9 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.0 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.8 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.8 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.8 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.8 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.8 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.8 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M29RSP (2.9 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 3.9 V, I_{OUT} = 250 mA	2.813	2.9	2.987	V
Line regulation	REG_{IN}	V_{IN} = 3.9 V → 14.0 V, I_{OUT} = 250 mA	—	—	29	mV
Load regulation	REG_{LOA}	V_{IN} = 3.9 V, I_{OUT} = 0 mA → 500 mA	—	—	58	mV
Peak output current	I_{PEAK}	V_{IN} = 3.9 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 3.9 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 3.9 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 3.9 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.755 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 3.9 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 4.9 V±1 V, f = 120 Hz I_{OUT} = 100 mA	54.7	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.0 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.1 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 3.9 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 3.9 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 4.9 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 3.9 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 3.9 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 3.9 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M30RSP (3.0 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.0 V, I_{OUT} = 250 mA	2.910	3.0	3.090	V
Line regulation	REG_{IN}	V_{IN} = 4.0 V → 14.0 V, I_{OUT} = 250 mA	—	—	30	mV
Load regulation	REG_{LOA}	V_{IN} = 4.0 V, I_{OUT} = 0 mA → 500 mA	—	—	60	mV
Peak output current	I_{PEAK}	V_{IN} = 4.0 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.0 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.0 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.0 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.85 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.0 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5 V±1 V, f = 120 Hz I_{OUT} = 100 mA	54.4	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.1 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.2 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.0 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.0 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M31RSP (3.1 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.1 V, I_{OUT} = 250 mA	3.007	3.1	3.139	V
Line regulation	REG_{IN}	V_{IN} = 4.1 V → 14.0 V, I_{OUT} = 250 mA	—	—	31	mV
Load regulation	REG_{LOA}	V_{IN} = 4.1 V, I_{OUT} = 0 mA → 500 mA	—	—	62	mV
Peak output current	I_{PEAK}	V_{IN} = 4.1 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.1 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.1 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.1 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 2.945 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.1 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5 V±1 V, f = 120 Hz I_{OUT} = 100 mA	54.1	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.2 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.3 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.1 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.1 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5.1 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4.1 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4.1 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4.1 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M32RSP (3.2 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.2 V, I_{OUT} = 250 mA	3.104	3.2	3.296	V
Line regulation	REG_{IN}	V_{IN} = 4.2 V → 14.0 V, I_{OUT} = 250 mA	—	—	32	mV
Load regulation	REG_{LOA}	V_{IN} = 4.2 V, I_{OUT} = 0 mA → 500 mA	—	—	64	mV
Peak output current	I_{PEAK}	V_{IN} = 4.2 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.2 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.2 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.2 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 3.040 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.2 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5.2 V±1 V, f = 120 Hz I_{OUT} = 100 mA	53.8	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.3 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.4 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.2 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.2 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5.2 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4.2 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4.2 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4.2 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M33RSP (3.3 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.3 V, I_{OUT} = 250 mA	3.201	3.3	3.399	V
Line regulation	REG_{IN}	V_{IN} = 4.3 V → 14.0 V, I_{OUT} = 250 mA	—	—	33	mV
Load regulation	REG_{LOA}	V_{IN} = 4.3 V, I_{OUT} = 0 mA → 500 mA	—	—	66	mV
Peak output current	I_{PEAK}	V_{IN} = 4.3 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.3 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.3 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.3 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 3.135 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.3 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5.3 V±1 V, f = 120 Hz I_{OUT} = 100 mA	53.6	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.4 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.5 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.3 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.3 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5.3 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4.3 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4.3 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4.3 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M34RSP (3.4 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.4 V, I_{OUT} = 250 mA	3.298	3.4	3.502	V
Line regulation	REG_{IN}	V_{IN} = 4.4 V → 14.0 V, I_{OUT} = 250 mA	—	—	34	mV
Load regulation	REG_{LOA}	V_{IN} = 4.4 V, I_{OUT} = 0 mA → 500 mA	—	—	68	mV
Peak output current	I_{PEAK}	V_{IN} = 4.4 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.4 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.4 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.4 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 3.230 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.4 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5.4 V±1 V, f = 120 Hz I_{OUT} = 100 mA	53.3	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.5 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.6 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.4 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.4 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5.4 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4.4 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4.4 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4.4 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M35RSP (3.5 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.5 V, I_{OUT} = 250 mA	3.395	3.5	3.605	V
Line regulation	REG_{IN}	V_{IN} = 4.5 V → 14.0 V, I_{OUT} = 250 mA	—	—	35	mV
Load regulation	REG_{LOA}	V_{IN} = 4.5 V, I_{OUT} = 0 mA → 500 mA	—	—	70	mV
Peak output current	I_{PEAK}	V_{IN} = 4.5 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.5 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.5 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.5 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 3.325 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.5 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5.5 V±1 V, f = 120 Hz I_{OUT} = 100 mA	53.1	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.6 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.7 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.5 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.5 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5.5 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4.5 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4.5 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4.5 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M36RSP (3.6 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 4.6 V, I_{OUT} = 250 mA	3.492	3.6	3.708	V
Line regulation	REG_{IN}	V_{IN} = 4.6 V → 14.0 V, I_{OUT} = 250 mA	—	—	36	mV
Load regulation	REG_{LOA}	V_{IN} = 4.6 V, I_{OUT} = 0 mA → 500 mA	—	—	72	mV
Peak output current	I_{PEAK}	V_{IN} = 4.6 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 4.6 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 4.6 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 4.6 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 3.420 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 4.6 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 5.6 V±1 V, f = 120 Hz I_{OUT} = 100 mA	52.8	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 3.7 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 3.8 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 4.6 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 4.6 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 5.6 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 4.6 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 4.6 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 4.6 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M48RSP (4.8 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 5.8 V, I_{OUT} = 250 mA	4.656	4.8	4.944	V
Line regulation	REG_{IN}	V_{IN} = 5.8 V → 14.0 V, I_{OUT} = 250 mA	—	—	48	mV
Load regulation	REG_{LOA}	V_{IN} = 5.8 V, I_{OUT} = 0 mA → 500 mA	—	—	96	mV
Peak output current	I_{PEAK}	V_{IN} = 5.8 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 5.8 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 5.8 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 5.8 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 4.560 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 5.8 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 6.8 V±1 V, f = 120 Hz I_{OUT} = 100 mA	50.3	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 4.9 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 5.0 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 5.8 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 5.8 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 6.8 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 5.8 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 5.8 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 5.8 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M49RSP (4.9 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 5.9 V, I_{OUT} = 250 mA	4.753	4.9	5.047	V
Line regulation	REG_{IN}	V_{IN} = 5.9 V → 14.0 V, I_{OUT} = 250 mA	—	—	49	mV
Load regulation	REG_{LOA}	V_{IN} = 5.9 V, I_{OUT} = 0 mA → 500 mA	—	—	98	mV
Peak output current	I_{PEAK}	V_{IN} = 5.9 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 5.9 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 5.9 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 5.9 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 4.655 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 5.9 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 6.9 V±1 V, f = 120 Hz I_{OUT} = 100 mA	50.1	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 5.0 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 5.1 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 5.9 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 5.9 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 6.9 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 5.9 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 5.9 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 5.9 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M50RSP (5.0 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 6.0 V, I_{OUT} = 250 mA	4.850	5.0	5.150	V
Line regulation	REG_{IN}	V_{IN} = 6.0 V → 14.0 V, I_{OUT} = 250 mA	—	—	50	mV
Load regulation	REG_{LOA}	V_{IN} = 6.0 V, I_{OUT} = 0 mA → 500 mA	—	—	100	mV
Peak output current	I_{PEAK}	V_{IN} = 6.0 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 6.0 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 6.0 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 6.0 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 4.75 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 6.0 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 7.0 V±1 V, f = 120 Hz I_{OUT} = 100 mA	49.9	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 5.1 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 5.2 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 6.0 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 6.0 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 7.0 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 6.0 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 6.0 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 6.0 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M51RSP (5.1 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 6.1 V, I_{OUT} = 250 mA	4.947	5.1	5.253	V
Line regulation	REG_{IN}	V_{IN} = 6.1 V → 14.0 V, I_{OUT} = 250 mA	—	—	51	mV
Load regulation	REG_{LOA}	V_{IN} = 6.1 V, I_{OUT} = 0 mA → 500 mA	—	—	102	mV
Peak output current	I_{PEAK}	V_{IN} = 6.1 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 6.1 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 6.1 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 6.1 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 4.845 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 6.1 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 7.1 V±1 V, f = 120 Hz I_{OUT} = 100 mA	49.8	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 5.2 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 5.3 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 6.1 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 6.1 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 7.1 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 6.1 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 6.1 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 6.1 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M52RSP (5.2 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 6.2 V, I_{OUT} = 250 mA	5.044	5.2	5.356	V
Line regulation	REG_{IN}	V_{IN} = 6.2 V → 14.0 V, I_{OUT} = 250 mA	—	—	52	mV
Load regulation	REG_{LOA}	V_{IN} = 6.2 V, I_{OUT} = 0 mA → 500 mA	—	—	104	mV
Peak output current	I_{PEAK}	V_{IN} = 6.2 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 6.2 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 6.2 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 6.2 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 4.940 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 6.2 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 7.2 V±1 V, f = 120 Hz I_{OUT} = 100 mA	49.6	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 5.3 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 5.4 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 6.2 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 6.2 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 7.2 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 6.2 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 6.2 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 6.2 V, I_{OUT} = 5 mA	—	150	—	°C

■ Electrical Characteristics at T_a = 25°C (continued)

• AN80M53RSP (5.3 V type)

Unless otherwise specially provided, shorten each test time (within 10 ms) so that the test is conducted under the condition that the drift due to the temperature increase in the chip junction part can be neglected. C_{IN} = 3.3 µF, CNR = Open, C_{OUT} = 33 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{OUT}	V_{IN} = 6.3 V, I_{OUT} = 250 mA	5.141	5.3	5.459	V
Line regulation	REG_{IN}	V_{IN} = 6.3 V → 14.0 V, I_{OUT} = 250 mA	—	—	53	mV
Load regulation	REG_{LOA}	V_{IN} = 6.3 V, I_{OUT} = 0 mA → 500 mA	—	—	106	mV
Peak output current	I_{PEAK}	V_{IN} = 6.3 V, The output current value when V_{OUT} decreases by 5% from its value at I_{OUT} = 250 mA.	600	900	—	mA
Bias current under no load	I_{BIAS}	V_{IN} = 6.3 V, I_{OUT} = 0 mA	—	1.1	3.0	mA
Bias current fluctuation to input	$\Delta I_{BIAS(IN)}$	V_{IN} = 6.3 V → 14.0 V, I_{OUT} = 250 mA	–5	—	5	mA
Bias current fluctuation to load	$\Delta I_{BIAS(LOA)}$	V_{IN} = 6.3 V, I_{OUT} = 0 mA → 500 mA	—	—	25	mA
Standby consumption current	I_{STB}	V_{IN} = 14.0 V, V_{CONT} = 0 V	—	—	3.0	µA
Bias current before starting regulation	I_{RUSH}	V_{IN} = 5.035 V, I_{OUT} = 0 A	—	—	5	mA
Control terminal current	I_{CONT}	V_{IN} = 6.3 V, I_{OUT} = 250 mA V_{CONT} = 1.8 V	—	—	30	µA
Ripple rejection ratio 1	RR1	V_{IN} = 7.3 V±1 V, f = 120 Hz I_{OUT} = 100 mA	49.5	—	—	dB
Minimum input/ output voltage difference 1	$V_{DIF(min)1}$	V_{IN} = 5.4 V, I_{OUT} = 250 mA	—	0.25	0.45	V
Minimum input/ output voltage difference 2	$V_{DIF(min)2}$	V_{IN} = 5.5 V, I_{OUT} = 500 mA	—	—	0.8	V
Control terminal threshold high voltage	V_{CONTH}	V_{IN} = 6.3 V	—	1.45	1.80	V
Control terminal threshold low voltage	V_{CONTL}	V_{IN} = 6.3 V	0.50	0.70	—	V

• Design reference data

Note) The following values are typical and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Ripple rejection ratio 2	RR2	V_{IN} = 7.3 V±1 V, f = 500 kHz I_{OUT} = 100 mA	—	30	—	dB
Output noise voltage	V_{NO}	10 Hz ≤ f ≤ 100 kHz, I_{OUT} = 100 mA V_{IN} = 6.3 V, CNR = 1 µF	—	40	—	µV[rms]
Output voltage temperature coefficient	$\frac{dV_{OUT}}{dT_a}$	V_{IN} = 6.3 V, I_{OUT} = 5 mA –30°C ≤ T_a ≤ +125°C	—	±40	—	ppm/°C
Output short-circuit current	I_{OSHORT}	V_{IN} = 14.0 V, V_{OUT} = GND	—	300	—	mA
Overheat protection operating temperature	T_{jTH}	V_{IN} = 6.3 V, I_{OUT} = 5 mA	—	150	—	°C

■ Application Notes

1. External compensation capacitor

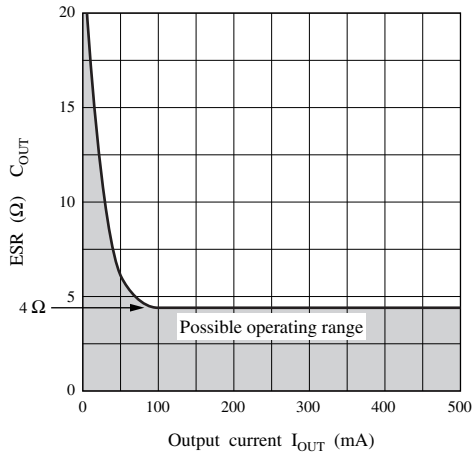
Connect the input pin and ground pin with a 3.3 µF capacitor and the output pin and ground pin with a 33 µF capacitor in order to keep the stability of the IC in operation. Make sure that the 3.3 µF capacitor is as close as possible to the input pin and ground pin while the 33 µF capacitor is as close to the output pin and ground pin as possible.

As the stability is affected by the parasitic capacitance and impedance of the PCB pattern, pay utmost attention to the PCB layout.

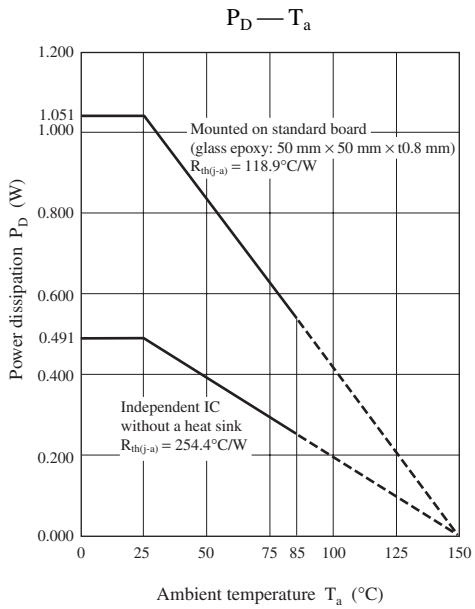
Select each capacitor in consideration of the ESR (equivalent series resistance) of the capacitor for the AN80MxxRSP Series conduct a full evatuation under the right operating conditions.

The ESR of an aluminum or tantalum electrolytic capacitor may increase at low temperatures. Therefore, it is recommended to connect a 0.1 µF to 0.47 µF capacitor with low internal impedance, such as a multi-layer ceramic capacitor, in parallel to each capacitor.

Output current — Output capacitor ESR (equivalent series resistance)



2. P_D — T_a curves of SP-5SU

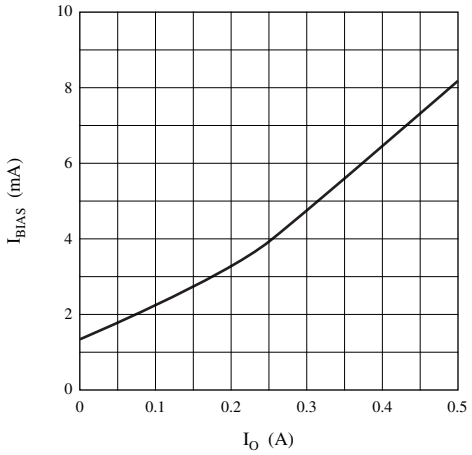


■ Application Notes (continued)

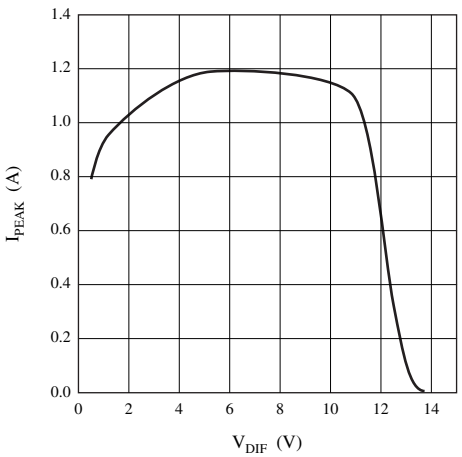
3. Main characteristics

- AN80MxxRSP series

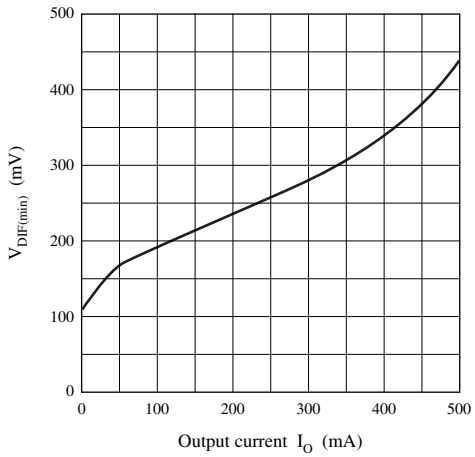
Bias current under no load, bias current fluctuation to load



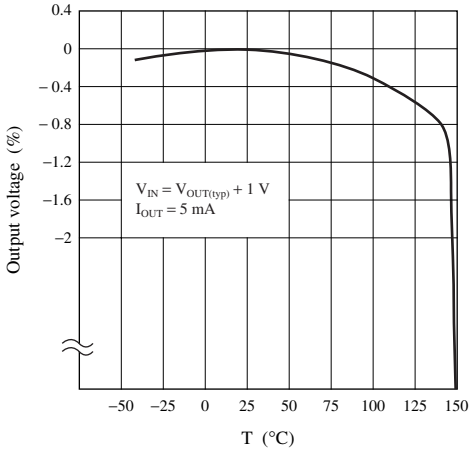
Peak output current



Minimum input/output voltage difference

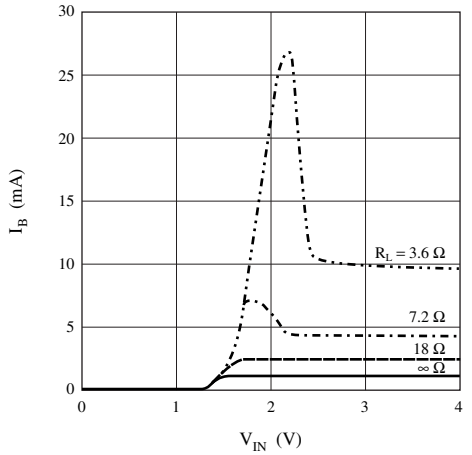


Output voltage temperature characteristic

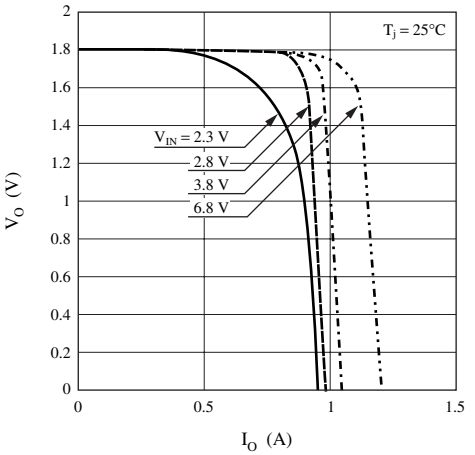


- AN80M18RSP

I_B — V_{IN}

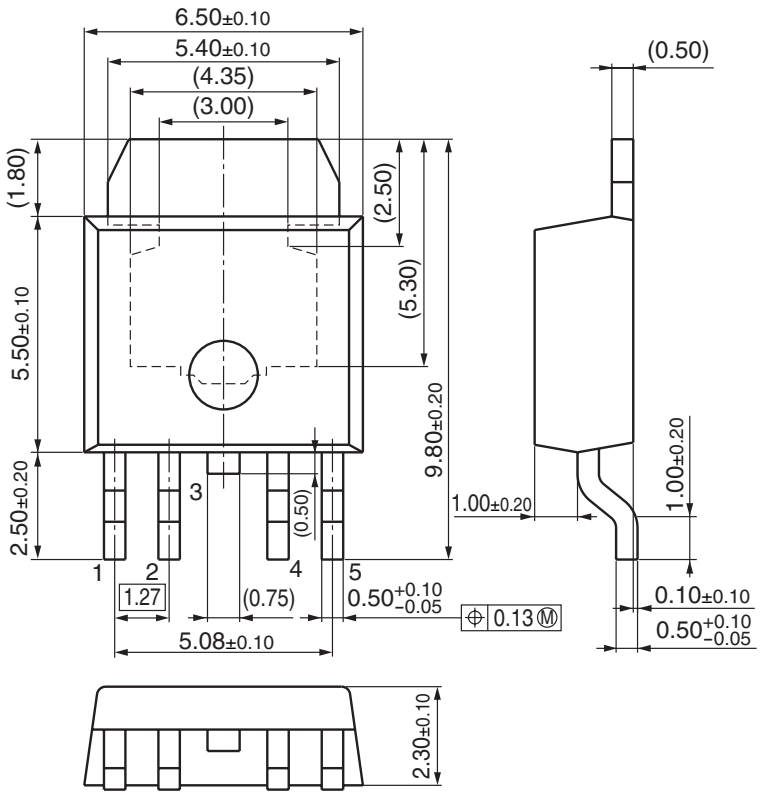


V_O — I_O



■ New Package Dimensions (Unit: mm)

• SP-5SUA (Lead-free package)



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