AN78xxNSP Series

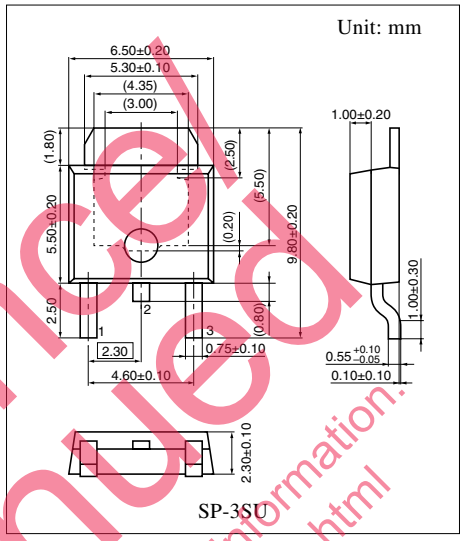
3-pin positive output voltage regulator (1 A type)

■ Overview

The AN78xxNSP series is a 3-pin fixed positive output type monolithic voltage regulator housed in surface mounting package. Stabilized fixed output voltage is obtained from unstable DC input voltage with using minimum external components. 9 types of fixed output voltage are available; 5 V, 6 V, 7 V, 8 V, 9 V, 10 V, 12 V, 15 V and 18 V. They can be used widely in power circuits with current capacity up to 1 A.

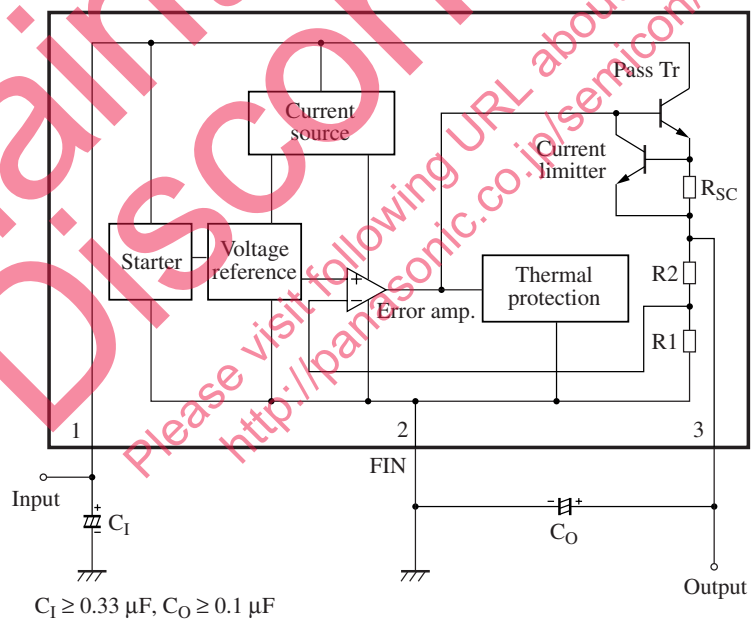
■ Features

- Output voltage: 5 V, 6 V, 7 V, 8 V, 9 V, 10 V, 12 V, 15 V, 18 V
- Built-in overcurrent limit circuit
- Built-in thermal overload protection circuit
- Built-in ASO (area of safe operation) protection circuit



Note) The package of this product will be changed to lead-free type (SP-3SUA). See the new package dimensions section later of this datasheet.

■ Block Diagram



$C_I \geq 0.33\ \mu F$, $C_O \geq 0.1\ \mu F$

■ Pin Descriptions

Pin No.	Description	
1	Input	Input voltage pin
2	GND	Ground pin (FIN)
3	Output	Output voltage pin

■ Absolute Maximum Ratings

Parameter	Symbol	Range	Unit
Supply voltage	V_{CC}	35	V
Supply current	I_{CC}	—	mA
Power dissipation *2	P_D	364	mW
Operating ambient temperature *1	T_{opr}	−30 to +85	°C
Storage temperature *1	T_{stg}	−55 to +150	°C

Note) 1. *1: Except for the operating ambient temperature and storage temperature, all ratings are for T_a = 25°C.
*2: The power dissipation shown is the value for the independent IC without a heat sink at T_a = 85°C.
When Tj exceeds 150°C (designed value), the internal circuit cuts off the output.
2. This IC is not suitable for car electronics equipment.

■ Electrical Characteristics at T_a = 25°C

• AN7805NSP (5 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.
Unless otherwise specified, V_I = 10 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	4.8	5	5.2	V
Output voltage tolerance	V_{O2}	V_I = 8 V to 20 V, I_O = 5 mA to 1 A T_j = 25°C, P_D < 5 W	4.75	—	5.25	V
Line regulation 1	REG_{IN1}	V_I = 7.5 V to 25 V, T_j = 25°C	—	3	100	mV
Line regulation 2	REG_{IN2}	V_I = 8 V to 12 V, T_j = 25°C	—	1	50	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	15	100	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	5.0	50	mV
Bias current	I_{Bias}	T_j = 25°C	—	3.9	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 7.5 V to 25 V, T_j = 25°C	—	—	1.3	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 8 V to 18 V, I_O = 100 mA, f = 120 Hz	62	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	40	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	− 0.3	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7806NSP (6 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 11 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	5.75	6	6.25	V
Output voltage tolerance	V_{O2}	V_I = 9 V to 21 V, I_O = 5 mA to 1 A T_j = 25°C, P_D < 5 W	5.7	—	6.3	V
Line regulation 1	REG_{IN1}	V_I = 8.5 V to 25 V, T_j = 25°C	—	5	120	mV
Line regulation 2	REG_{IN2}	V_I = 9 V to 13 V, T_j = 25°C	—	1.5	60	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	14	120	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	60	mV
Bias current	I_{Bias}	T_j = 25°C	—	3.9	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 8.5 V to 25 V, T_j = 25°C	—	—	1.3	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 9 V to 19 V, I_O = 100 mA, f = 120 Hz	59	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	40	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	– 0.4	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7807NSP (7 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 12 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	6.7	7	7.3	V
Output voltage tolerance	V_{O2}	V_I = 10 V to 22 V, I_O = 5 mA to 1 A, T_j = 25°C, P_D < 5 W	6.6	—	7.4	V
Line regulation 1	REG_{IN1}	V_I = 9.5 V to 25 V, T_j = 25°C	—	5	140	mV
Line regulation 2	REG_{IN2}	V_I = 10 V to 15 V, T_j = 25°C	—	1.5	70	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	14	140	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	70	mV
Bias current	I_{Bias}	T_j = 25°C	—	3.9	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 9.5 V to 25 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 10 V to 20 V, I_O = 100 mA, f = 120 Hz	57	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	46	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	– 0.5	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7808NSP (8 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 14 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	7.7	8	8.3	V
Output voltage tolerance	V_{O2}	V_I = 11 V to 23 V, I_O = 5 mA to 1 A T_j = 25°C, P_D < 5 W	7.6	—	8.4	V
Line regulation 1	REG_{IN1}	V_I = 10.5 V to 25 V, T_j = 25°C	—	6	160	mV
Line regulation 2	REG_{IN2}	V_I = 11 V to 17 V, T_j = 25°C	—	2	80	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	12	160	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	80	mV
Bias current	I_{Bias}	T_j = 25°C	—	3.9	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 10.5 V to 25 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 11.5 V to 21.5 V, I_O = 100 mA, f = 120 Hz	56	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	52	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	– 0.5	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7809NSP (9 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 15 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	8.65	9	9.35	V
Output voltage tolerance	V_{O2}	V_I = 12 V to 24 V, I_O = 5 mA to 1 A T_j = 25°C, P_D < 5 W	8.55	—	9.45	V
Line regulation 1	REG_{IN1}	V_I = 11.5 V to 26 V, T_j = 25°C	—	7	180	mV
Line regulation 2	REG_{IN2}	V_I = 12 V to 18 V, T_j = 25°C	—	2	90	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	12	180	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	90	mV
Bias current	I_{Bias}	T_j = 25°C	—	3.9	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 11.5 V to 26 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 11.5 V to 21.5 V, I_O = 100 mA, f = 120 Hz	56	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	57	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	– 0.5	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7810NSP (10 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 16 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	9.6	10	10.4	V
Output voltage tolerance	V_{O2}	V_I = 13 V to 25 V, I_O = 5 mA to 1 A, T_j = 25°C, P_D < 5 W	9.5	—	10.5	V
Line regulation 1	REG_{IN1}	V_I = 12.5 V to 27 V, T_j = 25°C	—	8	200	mV
Line regulation 2	REG_{IN2}	V_I = 13 V to 19 V, T_j = 25°C	—	2.5	100	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	12	200	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	100	mV
Bias current	I_{Bias}	T_j = 25°C	—	3.9	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 12.5 V to 27 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 13 V to 23 V, I_O = 100 mA, f = 120 Hz	56	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	56	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	– 0.6	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7812NSP (12 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 19 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	11.5	12	12.5	V
Output voltage tolerance	V_{O2}	V_I = 15 V to 27 V, I_O = 5 mA to 1 A, T_j = 25°C, P_D < 5 W	11.4	—	12.6	V
Line regulation 1	REG_{IN1}	V_I = 14.5 V to 30 V, T_j = 25°C	—	10	240	mV
Line regulation 2	REG_{IN2}	V_I = 16 V to 22 V, T_j = 25°C	—	2	120	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	12	240	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	120	mV
Bias current	I_{Bias}	T_j = 25°C	—	4.0	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 14.5 V to 30 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 15 V to 25 V, I_O = 100 mA, f = 120 Hz	55	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	75	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	– 0.8	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7815NSP (15 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 23 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	14.4	15	15.6	V
Output voltage tolerance	V_{O2}	V_I = 18 V to 30 V, I_O = 5 mA to 1 A, T_j = 25°C, P_D < 5 W	14.25	—	15.75	V
Line regulation 1	REG_{IN1}	V_I = 17.5 V to 30 V, T_j = 25°C	—	11	300	mV
Line regulation 2	REG_{IN2}	V_I = 20 V to 26 V, T_j = 25°C	—	3	150	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	12	300	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	150	mV
Bias current	I_{Bias}	T_j = 25°C	—	4.0	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 17.5 V to 30 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 18.5 V to 28.5 V, I_O = 100 mA, f = 120 Hz	54	—	—	dB

• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	90	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	−1.0	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

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

• AN7818NSP (18 V type)

The specified condition T_j = 25°C means that the test should be carried out within so short a test time (within 10 ms) that the characteristic value drift due to the chip junction temperature rise can be ignored.

Unless otherwise specified, V_I = 27 V, I_O = 500 mA, C_I = 0.33 µF and C_O = 0.1 µF

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_{O1}	T_j = 25°C	17.3	18	18.7	V
Output voltage tolerance	V_{O2}	V_I = 21 V to 33 V, I_O = 5 mA to 1 A, T_j = 25°C, P_D < 5 W	17.1	—	18.9	V
Line regulation 1	REG_{IN1}	V_I = 21 V to 33 V, T_j = 25°C	—	14	360	mV
Line regulation 2	REG_{IN2}	V_I = 24 V to 30 V, T_j = 25°C	—	4	180	mV
Load regulation 1	REG_{L1}	I_O = 5 mA to 1.5 A, T_j = 25°C	—	14	360	mV
Load regulation 2	REG_{L2}	I_O = 250 mA to 750 mA, T_j = 25°C	—	4.0	180	mV
Bias current	I_{Bias}	T_j = 25°C	—	4.1	8	mA
Bias current fluctuation to input	$\Delta I_{Bias(IN)}$	V_I = 21 V to 33 V, T_j = 25°C	—	—	1.0	mA
Bias current fluctuation to load	$\Delta I_{Bias(L)}$	I_O = 5 mA to 1 A, T_j = 25°C	—	—	0.5	mA
Ripple rejection ratio	RR	V_I = 22 V to 32 V, I_O = 100 mA, f = 120 Hz	53	—	—	dB

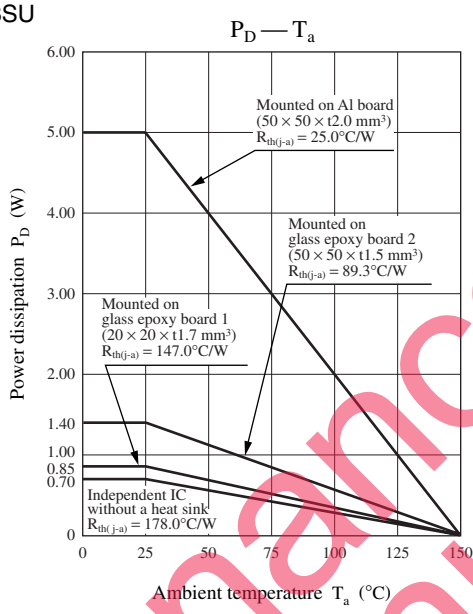
• Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output noise voltage	V_{NO}	f = 10 Hz to 100 kHz	—	110	—	µV
Minimum input/output voltage difference	$V_{DIF(min)}$	I_O = 1 A, T_j = 25°C	—	2	—	V
Output short-circuit current	$I_{O(Short)}$	V_I = 35 V, T_j = 25°C	—	700	—	mA
Peak output current	$I_{O(Peak)}$	T_j = 25°C	—	2.0	—	A
Output voltage temperature coefficient	$\Delta V_O / T_a$	I_O = 5 mA, T_j = 0°C to 125°C	—	−1.1	—	mV/°C
Thermal protection operating temperature	$T_{j(TH)}$	I_O = 5 mA	—	150	—	°C

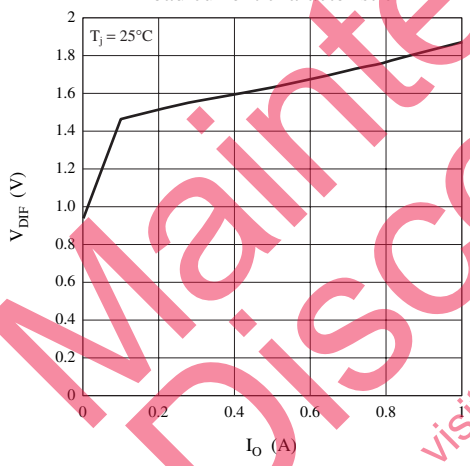
■ Application Notes

1. P_D — T_a curves of SP-3SU

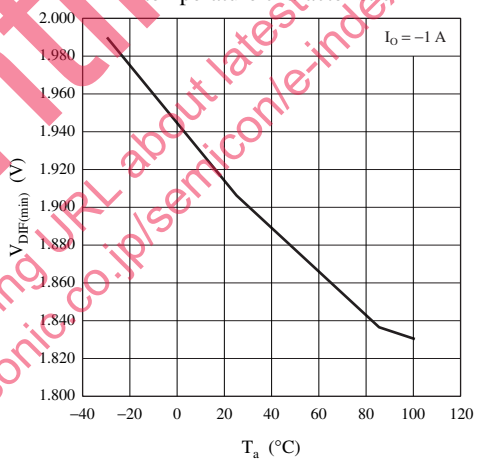


2. Main Characteristics

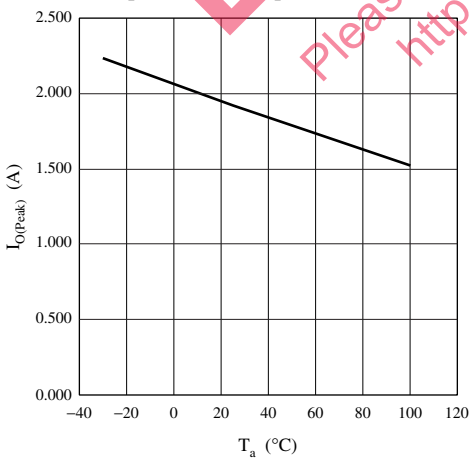
Minimum input/output voltage difference vs. load current characteristic



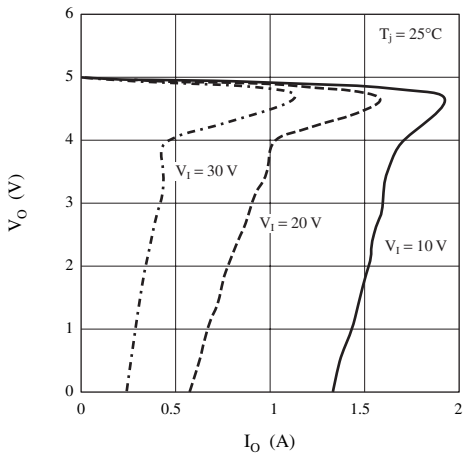
Minimum input/output voltage difference temperature characteristic



Peak output current temperature characteristic

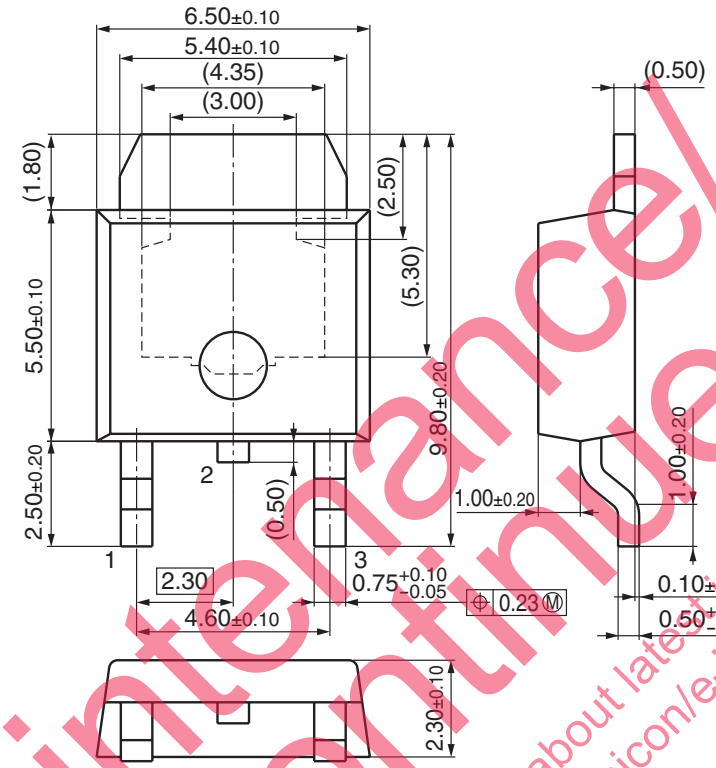


Current limit characteristics



■ New Package Dimensions (Unit: mm)

• SP-3SUA (Lead-free package)



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