

LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2861/62 is a low dropout voltage regulator. Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

■ PACKAGE OUTLINE

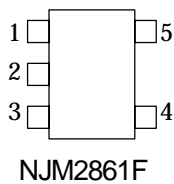


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NJM2862F

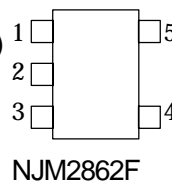
■ FEATURES

- High Ripple Rejection 70dB typ. (f=1kHz)
- Output Noise Voltage $V_{no}=30\mu V_{rms}$ ($C_p=0.01\mu F$)
- Output capacitor with 1.0 μF ceramic capacitor ($V_o \geq 2.7V$)
- Output Current $I_o(max.)=100mA$
- High Precision Output $V_o \pm 1\%$
- Low Dropout Voltage 0.10V typ. ($I_o=60mA$)
- ON/OFF Control (Active High)
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline MTP5 (MTP5:2.8x2.9x1.1mm)

■ PIN CONFIGURATION

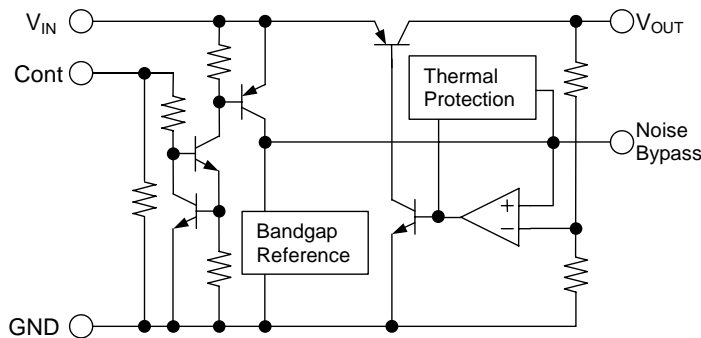


PIN FUNCTION
1. CONTROL (Active High)
2. GND
3. NOISE BYPASS
4. V_{OUT}
5. V_{IN}



PIN FUNCTION
1. V_{IN}
2. GND
3. CONTROL (Active High)
4. NOISE BYPASS
5. V_{OUT}

■ EQUIVALENT CIRCUIT



■ OUTPUT VOLTAGE RANK LIST

Device Name	V_{OUT}	Device Name	V_{OUT}
NJM286xF21	2.1V	NJM286xF33	3.3V
NJM286xF25	2.5V	NJM286xF38	3.8V
NJM286xF26	2.6V	NJM286xF05	5.0V
NJM286xF27	2.7V		
NJM286xF28	2.8V		
NJM286xF285	2.85V		
NJM286xF03	3.0V		

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■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V _{IN}	+14	V
Control Voltage	V _{CONT}	+14(note 1)	V
Power Dissipation	P _D	200	mW
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

(note 1) When input voltage is less than +14V, the absolute maximum control voltage is equal to the input voltage.

■ ELECTRICAL CHARACTERISTICS

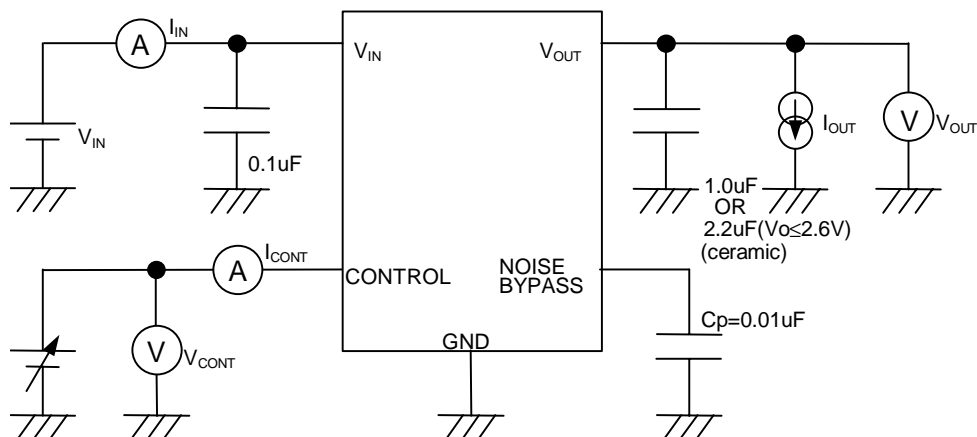
(V_{IN}=V_O+1V, C_{IN}=0.1μF, C_O=1.0μF: V_O≥2.7V (C_O=2.2μF: V_O≤2.6V), C_p=0.01μF, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _O	I _O =30mA	-1%	-	+1%	V
Quiescent Current	I _Q	I _O =0mA, expect I _{cont}	-	120	180	μA
Quiescent Current at Control OFF	I _{Q(OFF)}	V _{CONT} =0V	-	-	100	nA
Output Current	I _O	V _O -0.3V	100	130	-	mA
Line Regulation	ΔV _O /ΔV _{IN}	V _{IN} =V _O +1V ~ V _O +6V, I _O =30mA	-	-	0.10	%/V
Load Regulation	ΔV _O /ΔI _O	I _O =0 ~ 60mA	-	-	0.03	%/mA
Dropout Voltage	ΔV _{I-O}	I _O =60mA	-	0.10	0.18	V
Ripple Rejection	RR	e _{in} =200mVrms, f=1kHz, I _O =10mA V _{IN} =V _O +1V, V _O =3V Version	-	70	-	dB
Average Temperature Coefficient of Output Voltage	ΔV _O /ΔTa	Ta=0-85°C, I _O =10mA	-	±50	-	ppm/°C
Output Noise Voltage	V _{NO}	f=10Hz-80kHz, I _O =10mA, V _O =3V Version	-	30	-	μVrms
Control Voltage for ON-state	V _{CONT(ON)}		1.6	-	-	V
Control Voltage for OFF-state	V _{CONT(OFF)}		-	-	0.6	V

(note 2) The above specification is a common specification for all output voltages.

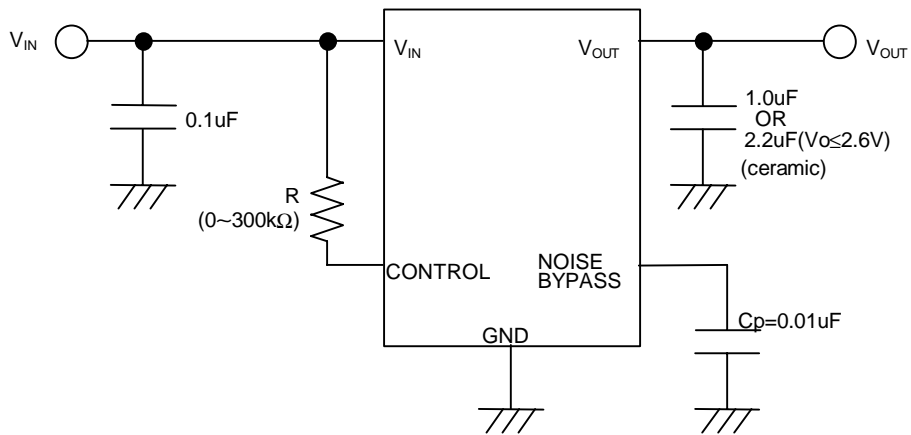
Therefore, it may be different from the individual specification for a specific output voltage.

■ TEST CIRCUIT



■ TYPICAL APPLICATION

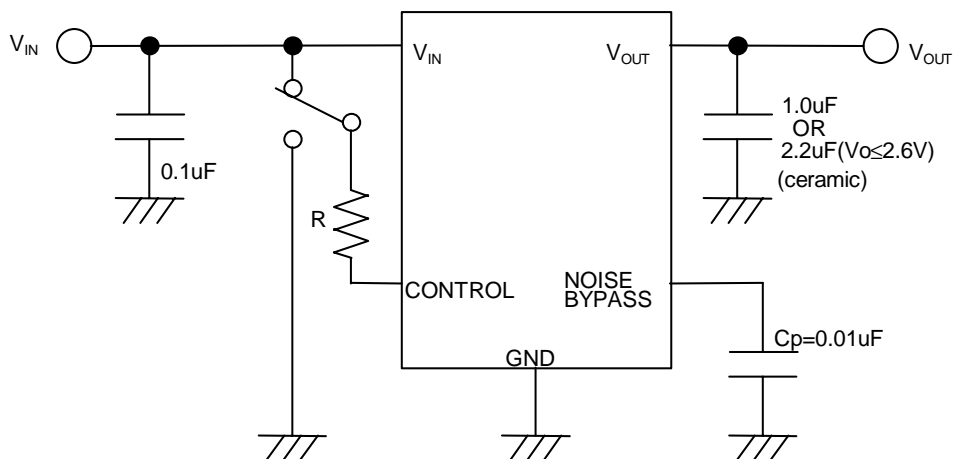
① In case that ON/OFF Control is not required:



Connect control terminal to V_{IN} terminal

The quiescent current can be reduced by using a resistance "R". Instead, it increases the minimum operating voltage. For further information, please refer to Figure "Output Voltage vs. Control Voltage".

② In use of ON/OFF CONTROL:



State of control terminal:

- "H" → output is enabled.
- "L" or "open" → output is disabled.

★ Noise bypass Capacitance C_p

Noise bypass capacitance C_p reduces noise generated by band-gap reference circuit.

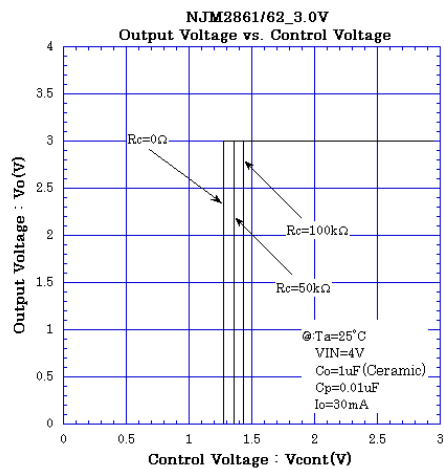
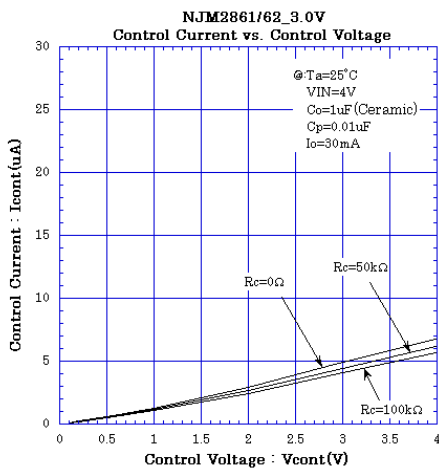
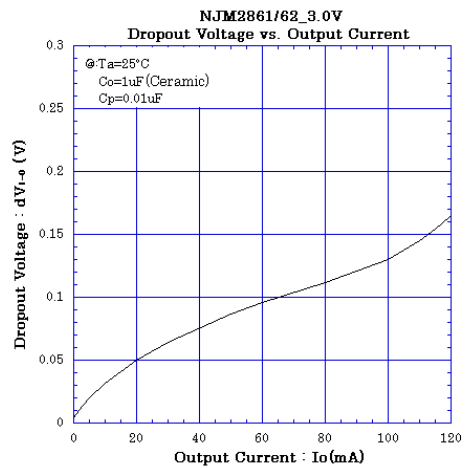
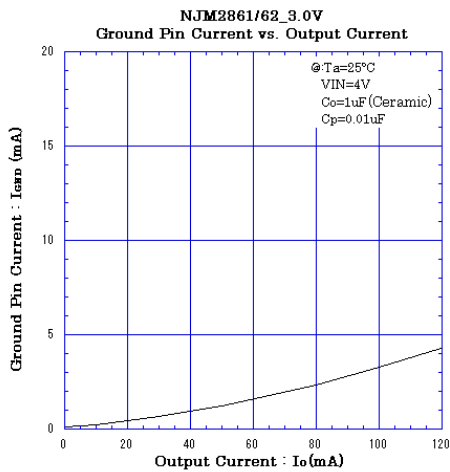
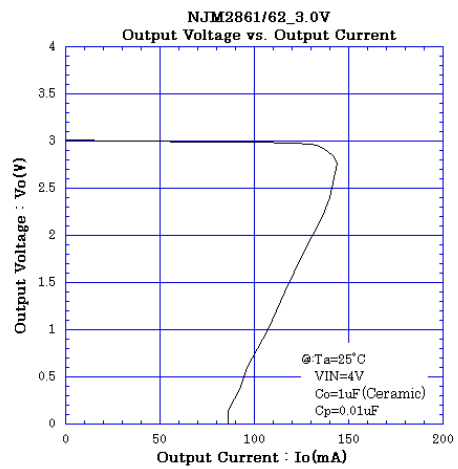
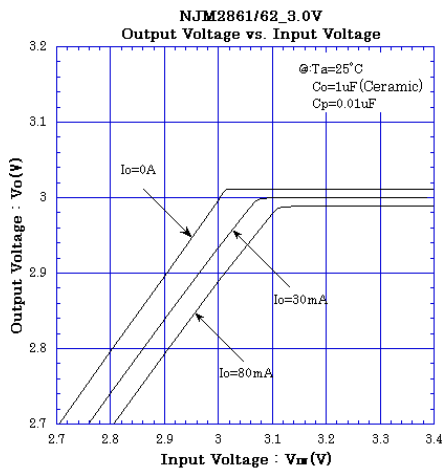
Noise level and ripple rejection will be improved when larger C_p is used.

Use of smaller C_p value may cause oscillation.

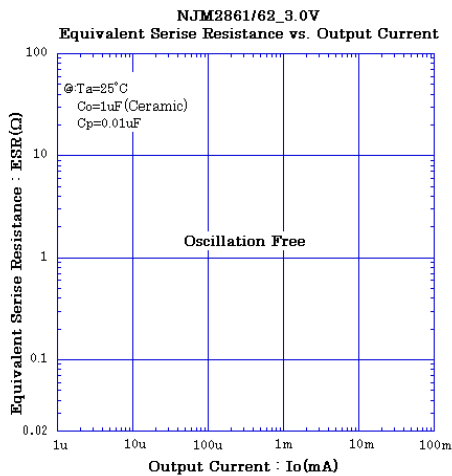
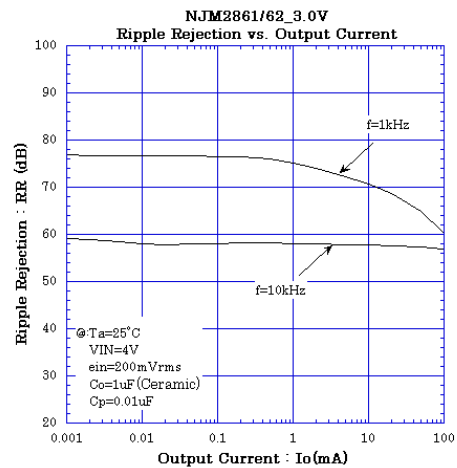
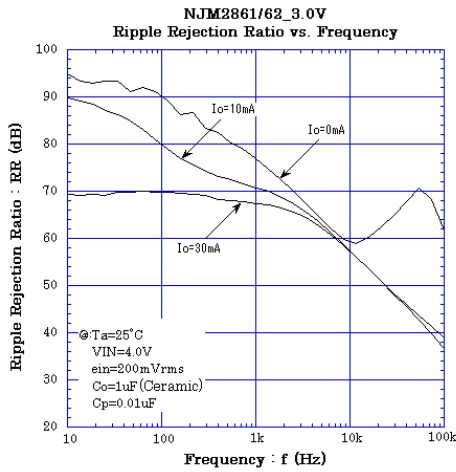
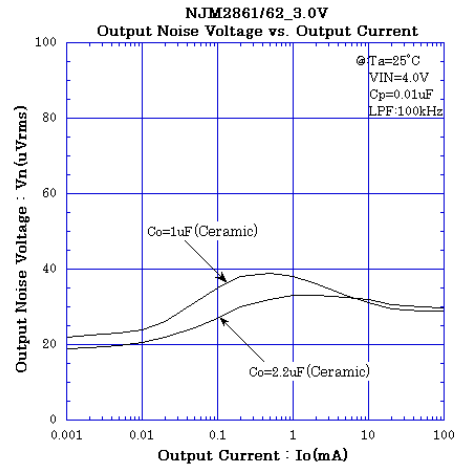
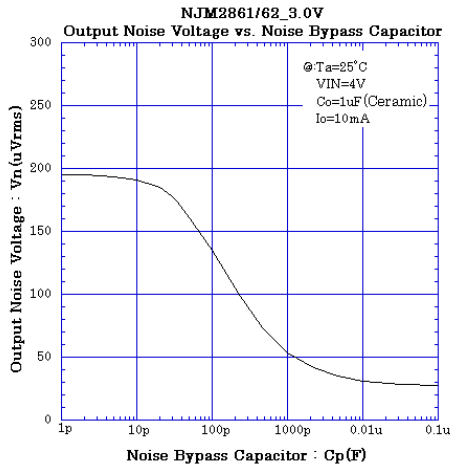
Use the C_p value of 0.01uF greater to avoid the problem.

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■ ELECTRICAL CHARACTERISTICS

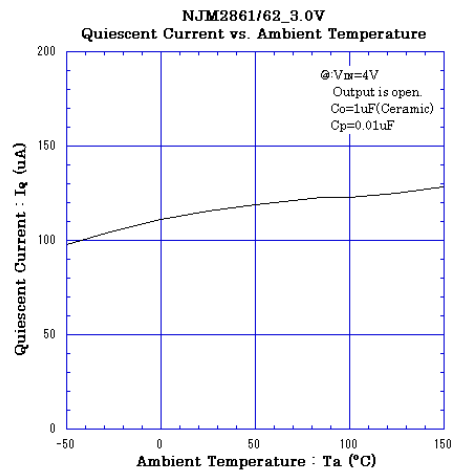
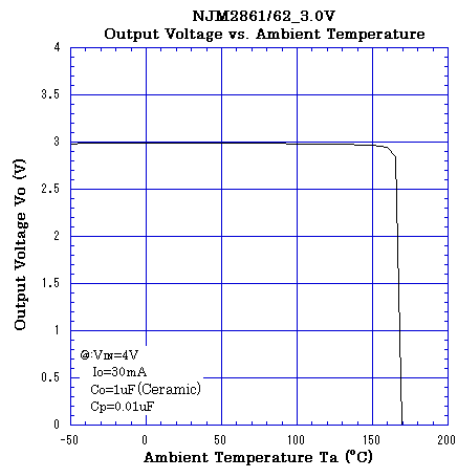
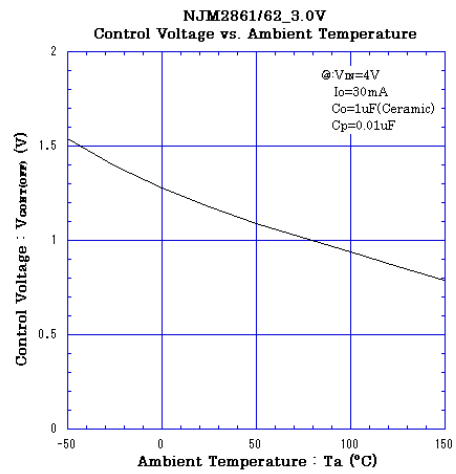
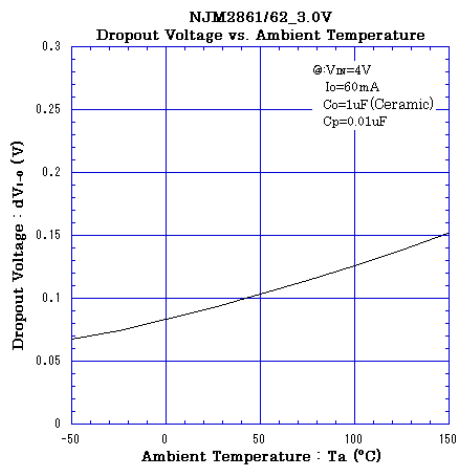


■ ELECTRICAL CHARACTERISTICS



NJM2861/62

■ ELECTRICAL CHARACTERISTICS



[CAUTION]

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