Preliminary

LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2872/A is low dropout voltage regulator designed for cellular phone application.
Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

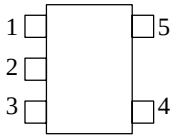
■ PACKAGE OUTLINE

NJM2872F/AF

■ FEATURES

- ●High Ripple Rejection 70dB typ. (f=1kHz)
- ●Output Noise Voltage Vno=30μVrms (Cp=0.01μF)
- ●Output capacitor with 1.0uF ceramic capacitor (Vo≥2.7V)
- ●Output Current Io(max.)=150mA
- ●High Precision Output Vo±2%
  Vo±1%:A Version
- ●Low Dropout Voltage 0.10V typ. (Io=60mA)
- ●ON/OFF Control (Active High)
- ●Internal Short Circuit Current Limit
- ●Internal Thermal Overload Protection
- ●Bipolar Technology
- ●Package Outline MTP5 (MTP5:2.8×2.9×1.1)

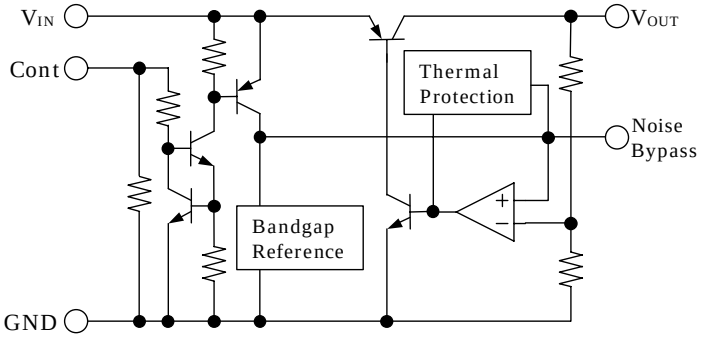
■ PIN CONFIGURATION



NJM2872F/AF

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}
NJM2872×21	2.1V
NJM2872×27	2.7V
NJM2872×28	2.8V
NJM2872×285	2.85V
NJM2872×03	3.0V
NJM2872×33	3.3V
NJM2872×05	5.0V

■ 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.

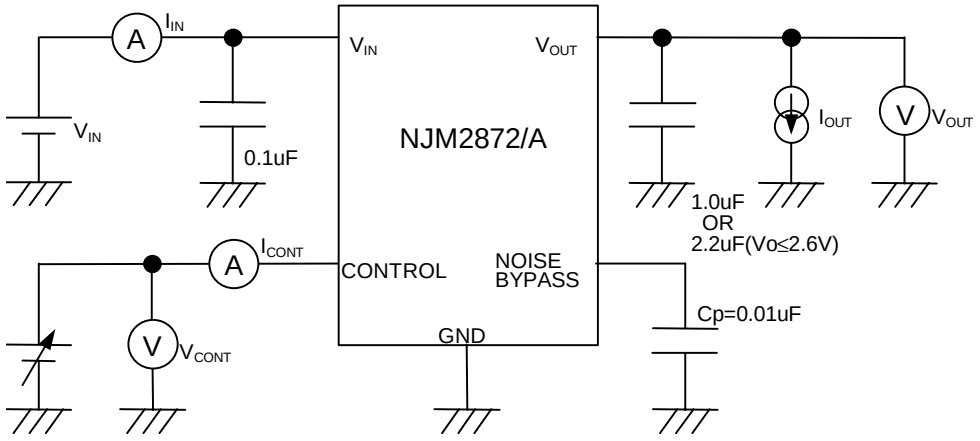
■ ELECTRICAL CHARACTERISTICS

(V_{IN}=Vo+1V, C_{IN}=0.1uF, Co=1.0uF: Vo≥2.7V (Co=2.2uF: Vo≤2.6V), Cp=0.01uF, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Io=30mA	-2%	–	+2%	V
		Io=30mA, A Version	-1%	–	+1%	V
Quiescent Current	I_Q	Io=0mA, expect Icont	–	120	180	μA
Quiescent Current at Control OFF	$I_{Q(OFF)}$	V_{CONT}=0V	–	–	100	nA
Output Current	Io	Vo–0.3V	150	200	-	mA
Line Regulation	$\Delta Vo/\Delta V_{IN}$	V_{IN}=Vo+1V ~ Vo+6V, Io=30mA	–	–	0.10	%/V
Load Regulation	$\Delta Vo/\Delta Io$	Io=0 ~ 100mA	–	–	0.03	%/mA
Dropout Voltage	ΔV_{I-O}	Io=60mA	–	0.10	0.18	V
Ripple Rejection	RR	ein=200mVrms,f=1kHz, Io=10mA V_{IN}=Vo+1V , Vo=3V Version	–	70	–	dB
Average Temperature Coefficient of Output Voltage	$\Delta Vo/\Delta Ta$	Ta=0~85°C, Io=10mA	–	0.2	–	mV/°C
Output Noise Voltage	V_{NO}	f=10Hz~80kHz, Io=10mA, Vo=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

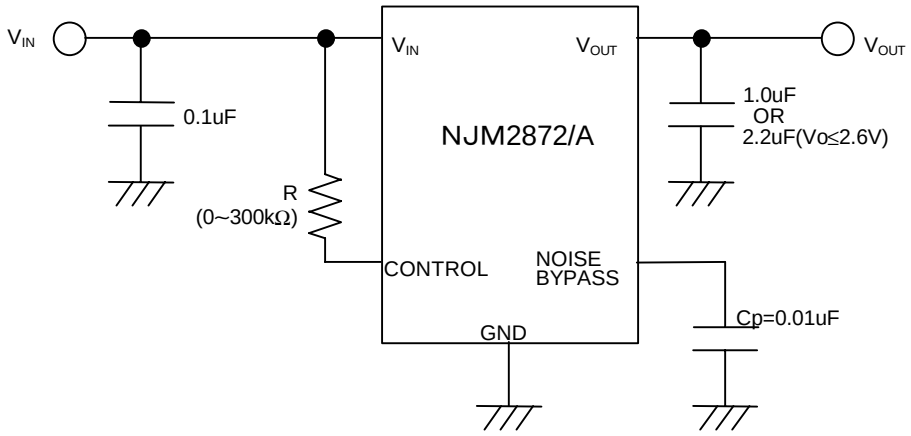
(note 2)Please confirm the specification separately because some parameters depend on output voltage.

■ TEST CIRCUIT



■ TYPICAL APPLICATION

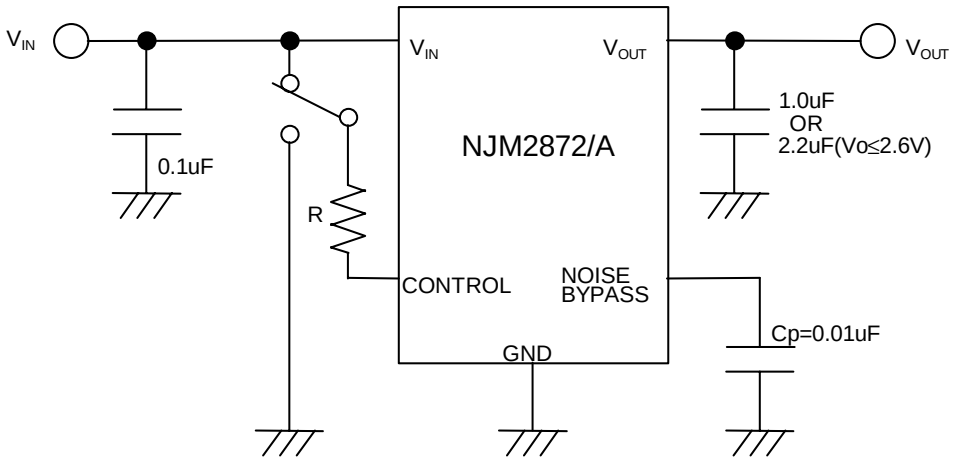
① In the case where ON/OFF Control is not required:



Connect control terminal(1Pin) to V_{IN} terminal(5Pin)

In case a resistance “R” is used, the quiescent current will be decreased. However, the but minimum operating voltage will be increase as well. Please refer to a figure of Output Voltage vs. Control Voltage.

② In use of ON/OFF CONTROL:



In case the control terminal is “H”, the output is enabled.

The control terminal is “L” or “open”, the output is disabled.

✶Noise bypass Capacitance Cp

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

Noise level and ripple rejection will be improved when larger Cp is used. Please refer to the typical characteristics to determine the value.

Use of smaller Cp value may induce oscillation.

Please make sure to use Cp value of greater than 0.01uF to avoid the problem.

Preliminary

[CAUTION]
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