



LOW DROPOUT VOLTAGE REGULATOR WITH ON/OFF CONTROL

■ GENERALE DESCRIPTION

The NJM2370 is a low dropout voltage regulator with ON/OFF control.

Its dropout voltage is 0.1V at $I_o=30mA$, also it actualizes low output noise and high ripple rejection in connecting an external capacitor to noise bypass terminal.

It's suitable for portable items such as cellular phone, video camera and others.

■ PACKAGE OUTLINE



NJM2370U

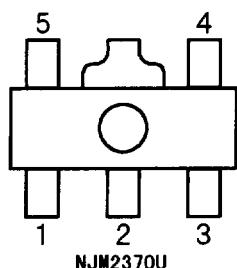


NJM2370R

■ FEATURES

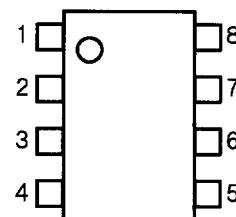
- Output Current (150mA min. ($V_o=0.3V$))
- Low Dropout Voltage (0.1V typ. ($I_o=30mA$)))
- External Capacitor for Noise Bypass
- ON/OFF Control Function
- High Ripple Rejection
- Over Current Protection
- Thermal Shutdown
- Bipolar Technology
- Package Outline SOT-89(5Pin), VSP8

■ PIN CONFIGURATION



NJM2370U

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

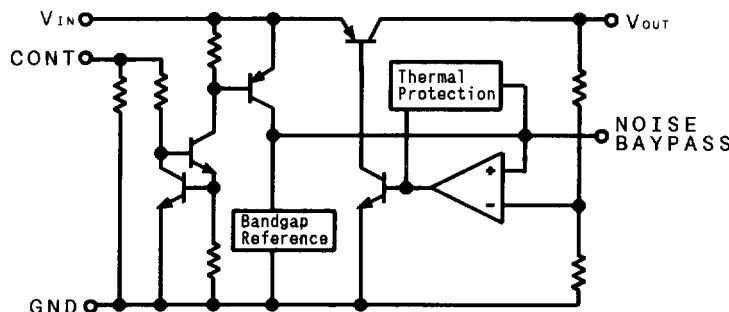


NJM2370R

PIN FUNCTION	
1.	CONTROL
2.	GND
3.	NC
4.	NOISE BYPASS
5.	V_{OUT}
6.	NC
7.	NC
8.	V_{IN}

6

■ EQUIVALENT CIRCUIT





■ ABSOLUTE MAXIMUM RATINGS

(T_a = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V _{IN}	20	V
Control Voltage	V _{CONT}	20*	V
Power Dissipation	P _D	(SOT-89) 350 (VSP8) 320	mW
Operating Temperature Range	T _{OPR}	-40 ~ +85	°C
Storage Temperature Range	T _{STG}	-50 ~ +125	°C

*When input voltage is less than +20V, the absolute maximum control voltage is equal to the input voltage.

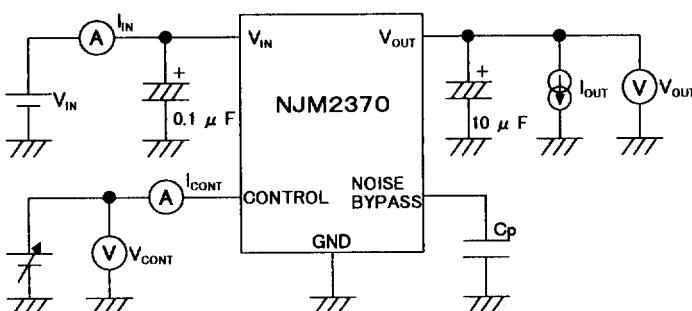
■ RECOMMENDED OPERATING CONDITION

(T_a = 25°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _O	V _{IN} =V _O +1V, I _O =30mA	-3	—	+3	%
Quiescent Current 1	I _{Q1}	I _O =0mA, expect I _{CONT}	—	180	—	μA
Quiescent Current 2	I _{Q2}	CONTROL-GND short	—	—	100	nA
Output Current	I _O	V _O =0.3V	150	180	—	mA
Line Regulation	ΔV _O /ΔV _{IN}	V _{IN} =(V _O +1V) ~ (V _O +6V) V _O =2V ~ 14V	—	—	0.12	%/V
		V _{IN} =(V _O +1V) ~ (V _O +5V) V _O =15V	—	—	0.12	%/V
Load Regulation	ΔV _O /ΔI _O	I _O =0 ~ 60mA	—	—	0.03	%/mA
Dropout Voltage	ΔV _{1-O}	I _O =30mA	—	0.1	0.3	V
Ripple Rejection	R · R	f=400Hz, e _{IN} =100mV _{P-P} V _{IN} =V _O +1.5V, I _O =10mA	—	60	—	dB
Average Temperature Coefficient of Output Voltage	ΔV _O /ΔT _a	T _a =-20 ~ 75°C, I _O =10mA V _{IN} =V _O +1.5V	—	0.2	—	mV/C
Output Noise Voltage	V _{NO}	10Hz < f < 80kHz, I _O =10mA V _O =3V	—	30	—	μV _{rms}

*Please confirm the specification separately because some parameters depend on output voltage.

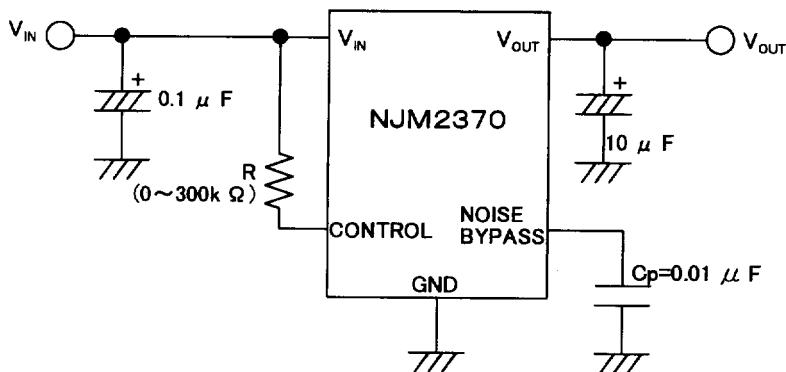
■ TEST CIRCUIT





■ TYPICAL APPLICATION

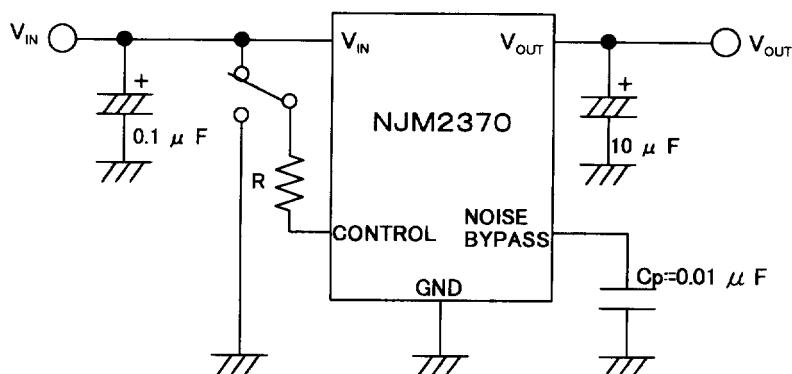
① In Nonuse of ON/OFF Control



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

When a resistance "R" is connected, the quiescent current decreases, but minimum operating voltage increases. Please refer to a figure of Output Voltage vs. Control Voltage.

② In Use of ON/OFF Control

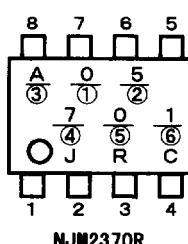
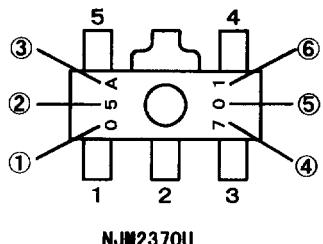


When the control terminal is "H", it is on .

When the control terminal "L" or "open", it is OFF.



■ PACKAGE MAKING



①、② Output voltage

*Please refer to output voltage rank list.

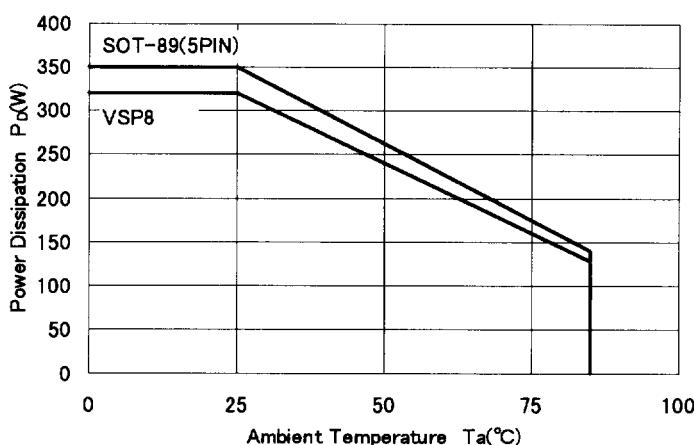
- ③ Product number. (NJM2370 is "A")
- ④ Western calendar Sueso.
- ⑤、⑥ Lot number.

■ OUTPUT VOLTAGE RANK LIST

Output Voltage	Order Number	Package Marking	
		①	②
2.0V	NJM2370X02	0	2
2.1V	NJM2370X21	2	1
2.2V	NJM2370X22	2	2
2.3V	NJM2370X23	2	3
2.4V	NJM2370X24	2	4
2.5V	NJM2370X25	2	5
2.6V	NJM2370X26	2	6
2.7V	NJM2370X27	2	7
2.8V	NJM2370X28	2	8
2.9V	NJM2370X29	2	9
3.0V	NJM2370X03	0	3
3.1V	NJM2370X31	3	1
3.2V	NJM2370X32	3	2

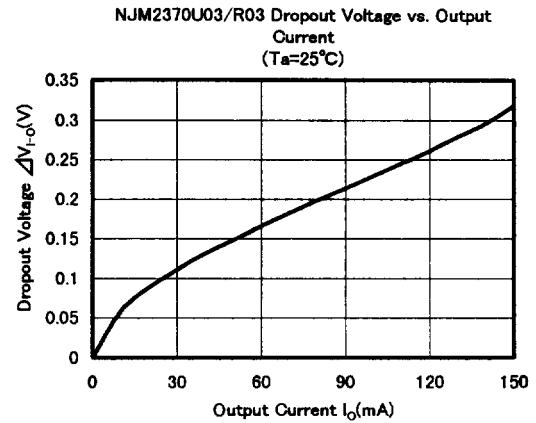
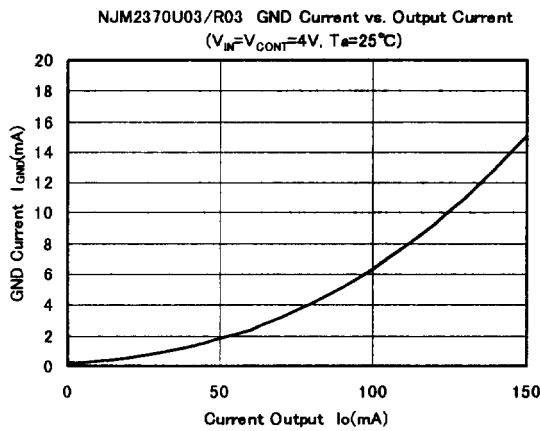
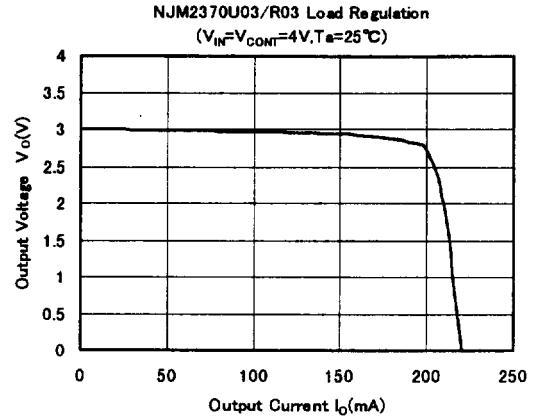
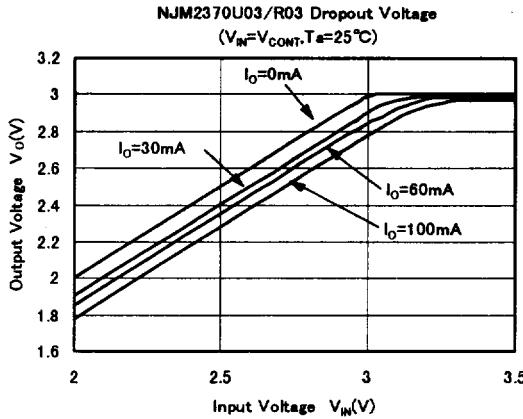
Output Voltage	Order Number	Package Marking	
		①	②
3.3V	NJM2370X33	3	3
3.5V	NJM2370X35	3	5
3.6V	NJM2370X36	3	6
3.7V	NJM2370X37	3	7
4.0V	NJM2370X04	0	4
5.0V	NJM2370X05	0	5
6.0V	NJM2370X06	0	6
8.0V	NJM2370X08	0	8
9.0V	NJM2370X09	0	9
10.0V	NJM2370X10	1	0
12.0V	NJM2370X12	1	2
15.0V	NJM2370X15	1	5

■ POWER DISSIPATION VS. AMBIENT TEMPERATURE



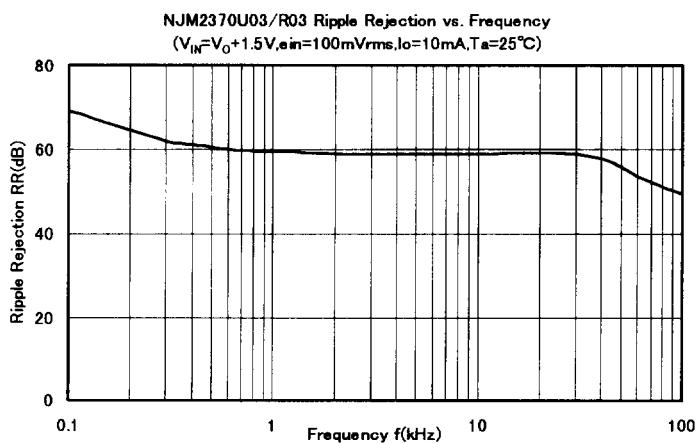
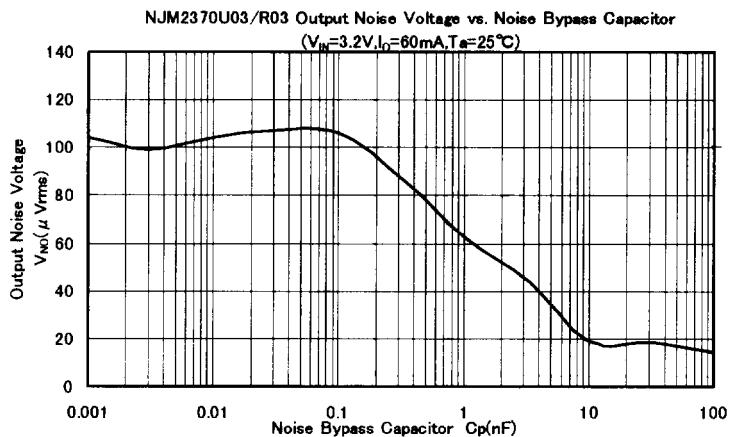
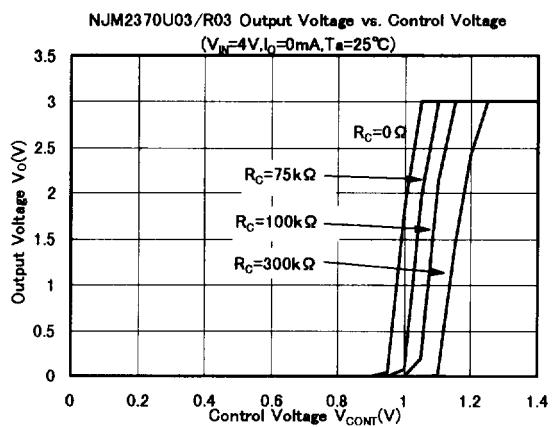
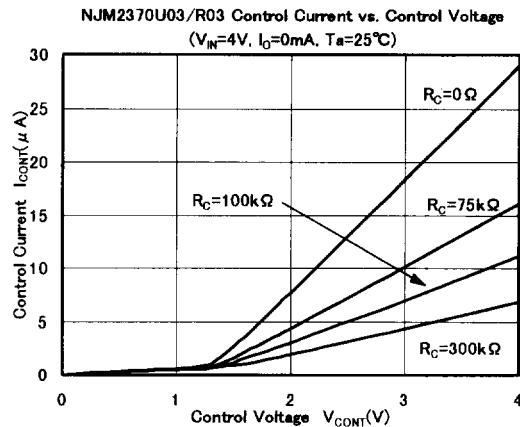


■ TYPICAL CHARACTERISTICS





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