

LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2873 is low dropout voltage regulator designed for cellular phone application. Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

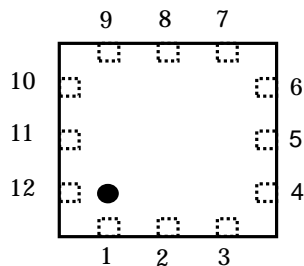
■ PACKAGE OUTLINE



■ 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 1.0uF ceramic capacitor ($V_o\geq 2.7V$)
- Output Current $I_o(max.)=150mA$
- 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 FFP12-B1 (2.0x2.0x0.85mm)

■ PIN CONFIGURATION

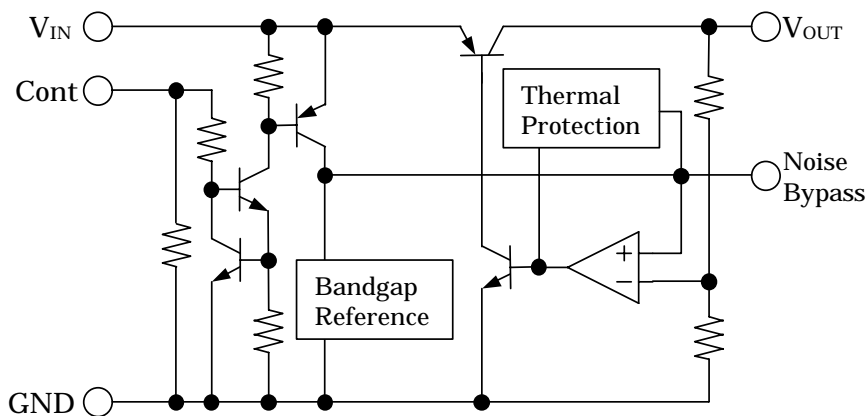


PIN FUNCTION

- | | |
|-------------|-----------------|
| 1. V_{IN} | 7. GND |
| 2. V_{IN} | 8. NOISE BYPASS |
| 3. V_{IN} | 9. NC |
| 4. CONTROL | 10. V_{OUT} |
| 5. GND | 11. V_{OUT} |
| 6. GND | 12. V_{OUT} |

NJM2873PB1

■ EQUIVALENT CIRCUIT



■ 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	300(note 2)	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.

(note 2)On board.

■ ELECTRICAL CHARACTERISTICS

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

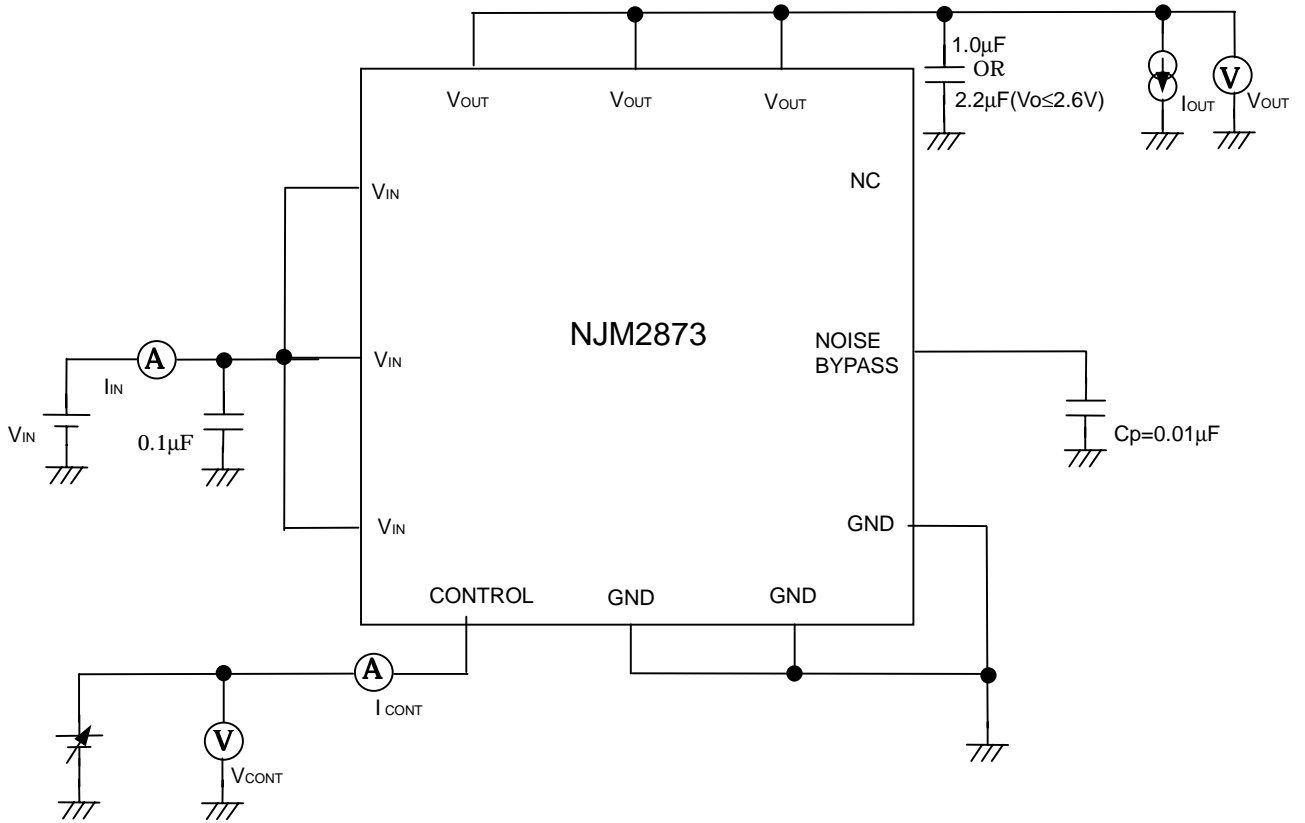
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _o	I _o =30mA	-1%	-	+1%	V
Quiescent Current	I _Q	I _o =0mA, expect I _{cont}	-	120	180	μA
Quiescent Current at Control OFF	I _{Q(OFF)}	V _{CONT} =0V	-	-	100	nA
Output Current	I _o	V _o -0.3V	150	200	-	mA
Line Regulation	ΔV _o /ΔV _{IN}	V _{IN} =V _o +1V ~ V _o +6V, I _o =30mA	-	-	0.10	%/V
Load Regulation	ΔV _o /ΔI _o	I _o =0 ~ 100mA	-	-	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 3)Please confirm the specification separately because some parameters depend on output voltage.

■ OUTPUT VOLTAGE RANK LIST

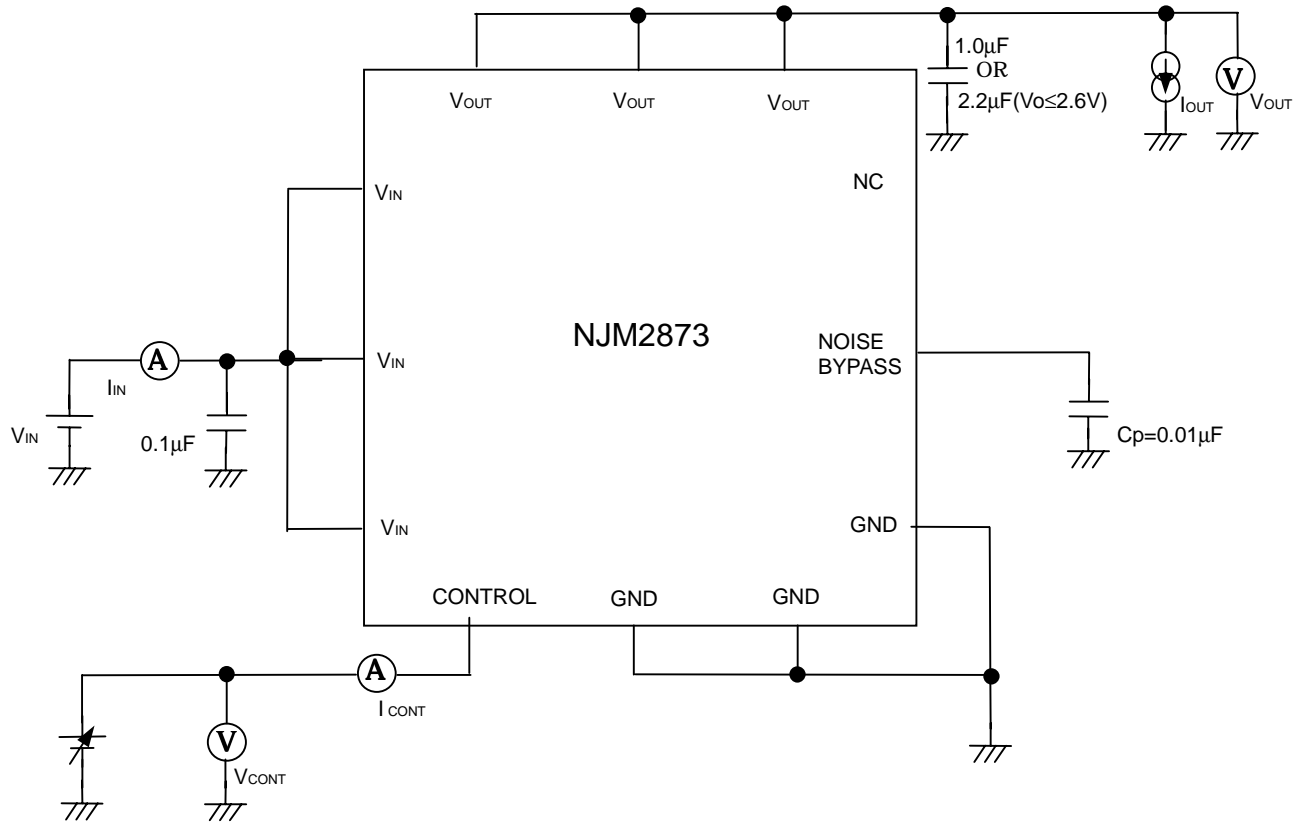
Device Name	V _{OUT}
NJM2873PB1-21	2.1V
NJM2873PB1-25	2.5V
NJM2873PB1-26	2.6V
NJM2873PB1-27	2.7V
NJM2873PB1-28	2.8V
NJM2873PB1-285	2.85V
NJM2873PB1-03	3.0V
NJM2873PB1-33	3.3V
NJM2873PB1-38	3.8V
NJM2873PB1-05	5.0V

■ TEST CIRCUIT



■ TYPICAL APPLICATION

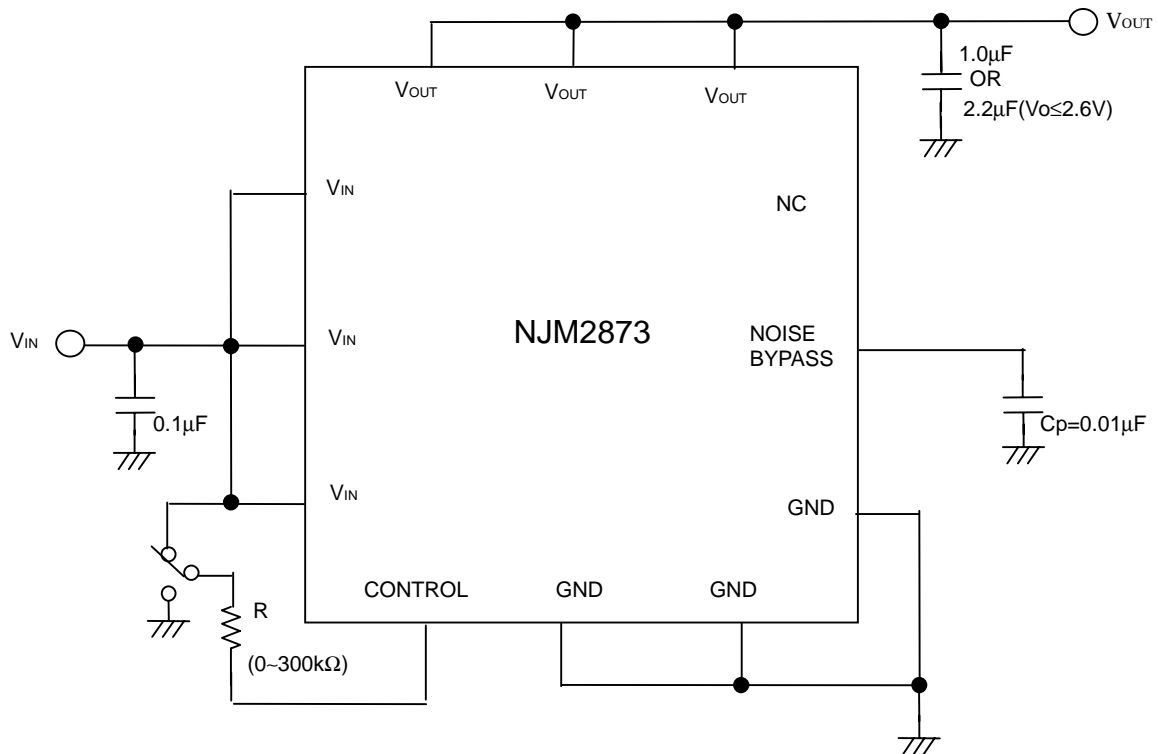
① In the case where ON/OFF Control is not required:



Connect control terminal to V_{IN} terminal

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

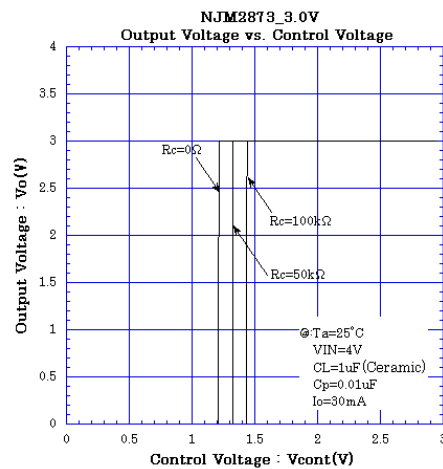
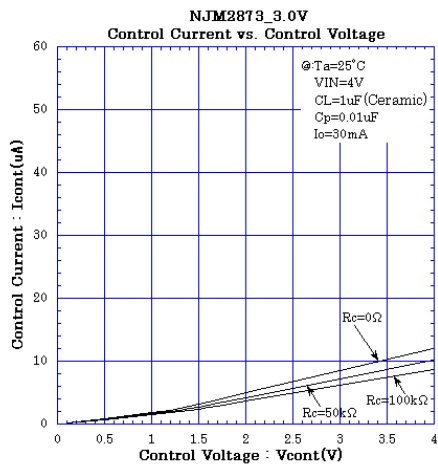
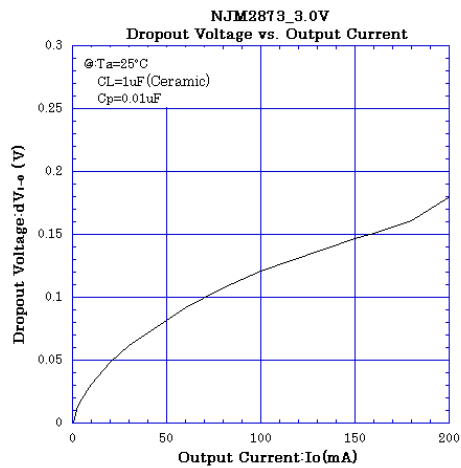
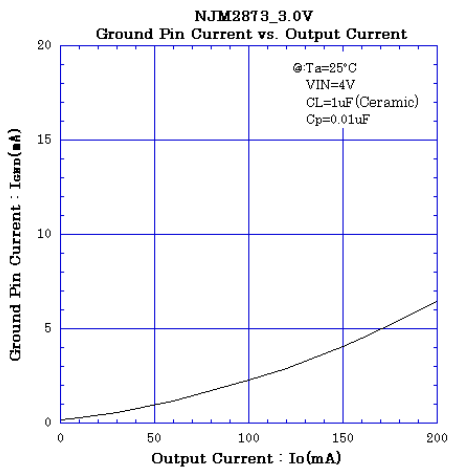
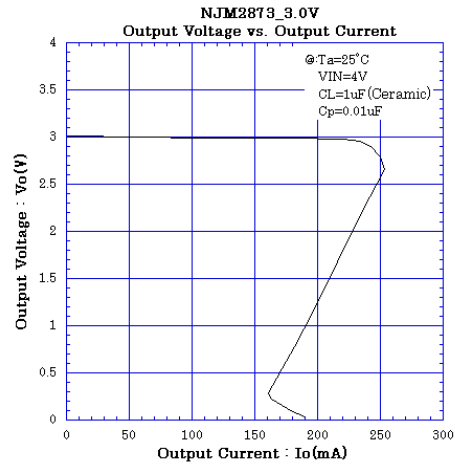
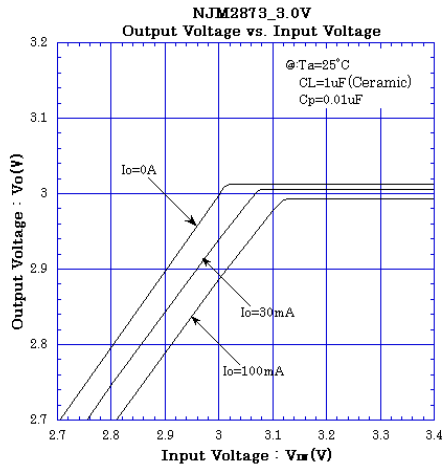
Noise bypass capacitance Cp reduces noise generated by band-gap reference circuit.

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

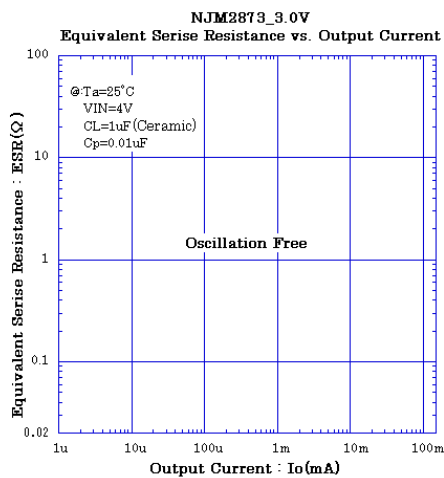
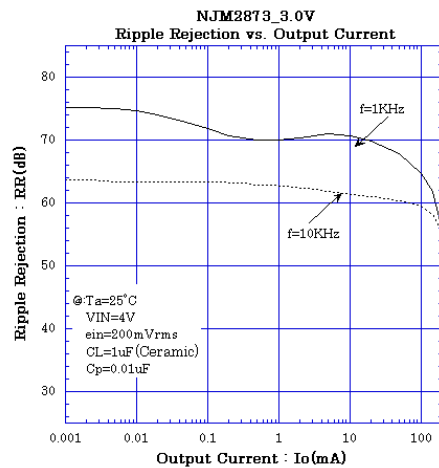
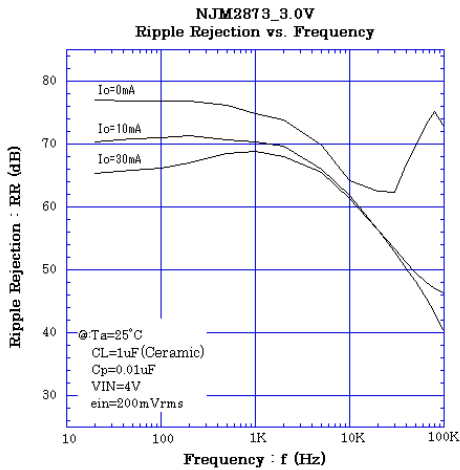
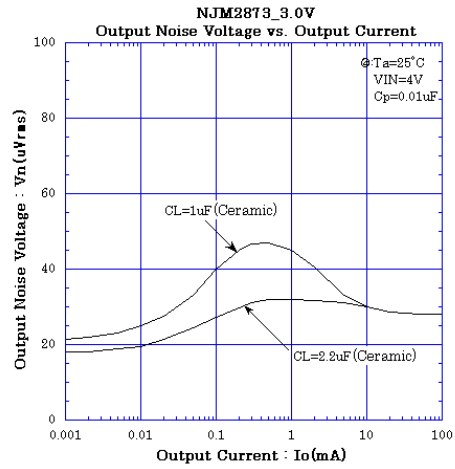
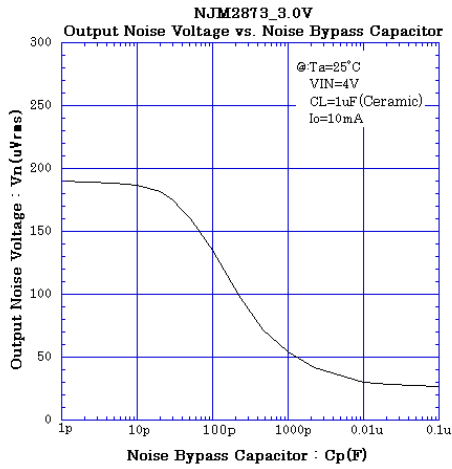
Use of smaller Cp value may induce oscillation.

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

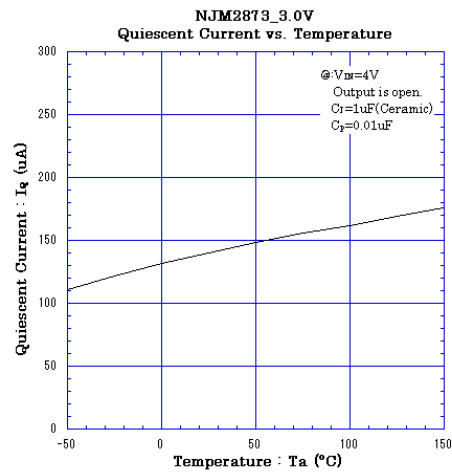
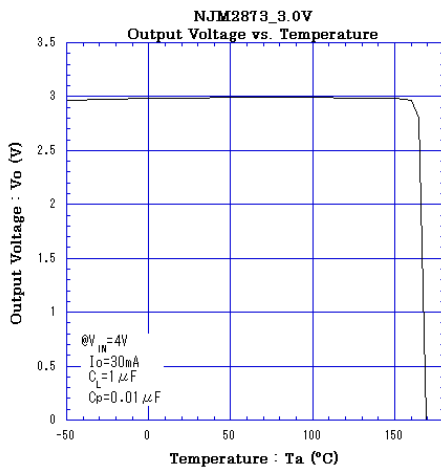
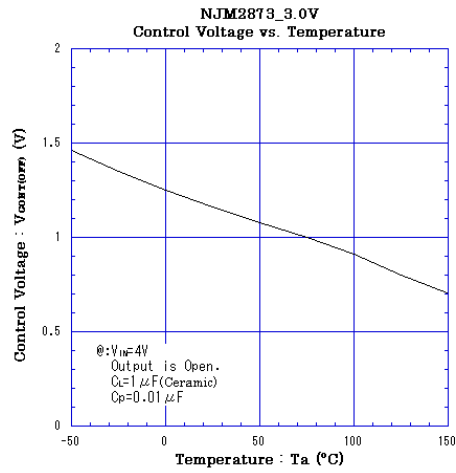
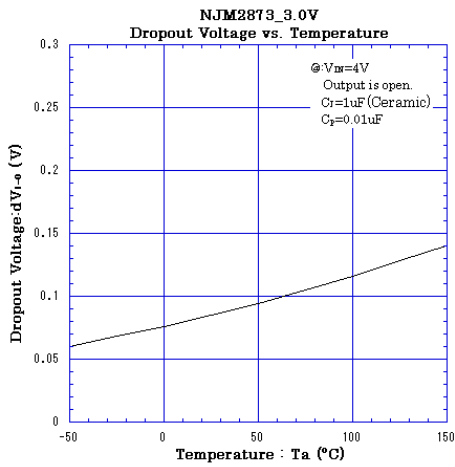
ELECTRICAL CHARACTERISTICS



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[CAUTION]

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