2ch LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2891 is low dropout voltage regulator designed for cellular phone application.
Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

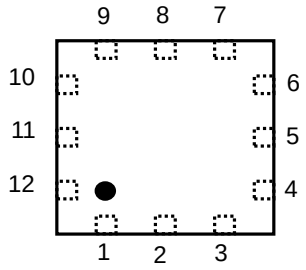
■ PACKAGE OUTLINE

NJM2891PB1

■ 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 × 2ch
- ●High Precision Output Vo±1.0%
- ●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 FFP12-B1 (2.0×2.0×0.85mm)

■ PIN CONFIGURATION

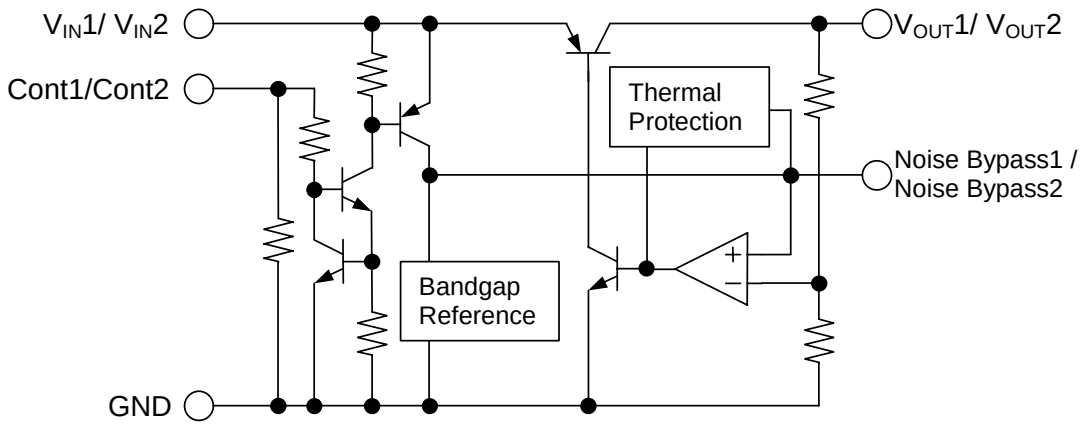


NJM2891PB1

PIN FUNCTION

1. $V_{OUT}2$	7. CONTROL1
2. $V_{OUT}2$	8. $V_{OUT}1$
3. GND	9. $V_{OUT}1$
4. CONTROL2	10. NOISE BYPASS1
5. $V_{IN}2$	11. NC
6. $V_{IN}1$	12. NOISE BYPASS2

■ 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

(Only 1CH/2CH : V_{IN}=Vo+1V, C_{IN}=0.1µF, Co=1.0uF: Vo≥2.7V (Co=2.2uF: Vo≤2.6V), Cp=0.01µF, Ta=25°C)

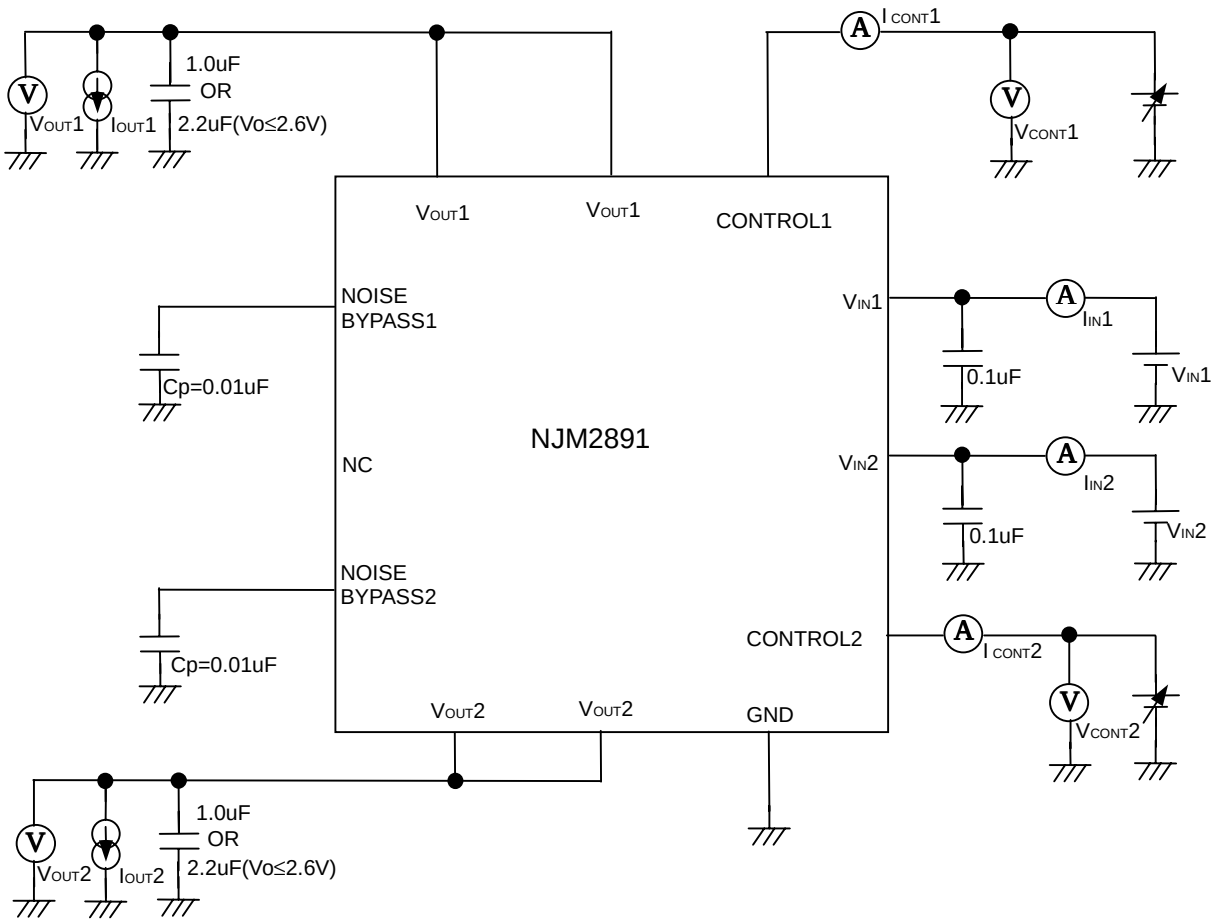
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Io=30mA	-1.0%	–	+1.0%	V
Quiescent Current	I_Q	Io=0mA, expect Icont	–	120	180	µA
Quiescent Current at Control OFF	$I_{Q(OFF)}$	V_{CONT}=0V	–	–	100	nA
Output Current	Io	Vo–0.3V	150	200	-	mA
Line Regulation	$\Delta Vo/\Delta V_{IN}$	V_{IN}=Vo+1V ~ 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, Vo=3V Version	–	70	–	dB
Average Temperature Coefficient of Output Voltage	$\Delta Vo/\Delta Ta$	Ta=0~85°C, Io=10mA	–	±50	–	ppm/°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 3)Please confirm the specification separately because some parameters depend on output voltage.

■ OUTPUT VOLTAGE RANK LIST

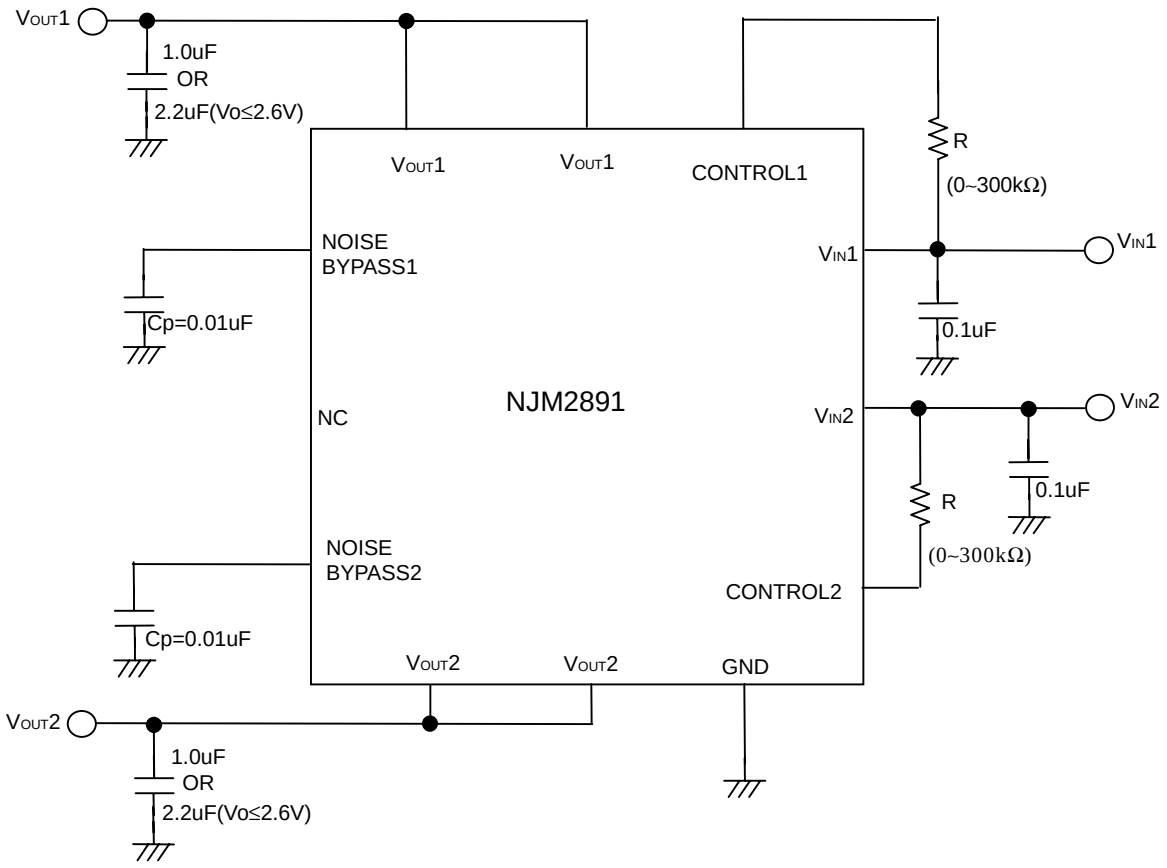
Device Name	Vout	
	CH1	CH2
NJM2891PB1-2121	2.1V	2.1V
NJM2891PB1-2725	2.7V	2.5V
NJM2891PB1-2727	2.7V	2.7V
NJM2891PB1-2825	2.8V	2.5V
NJM2891PB1-2828	2.8V	2.8V
NJM2891PB1-2929	2.9V	2.9V
NJM2891PB1-0328	3.0V	2.8V
NJM2891PB1-0303	3.0V	3.0V
NJM2891PB1-0521	5.0V	2.1V

■ TEST CIRCUIT



■ TYPICAL APPLICATION

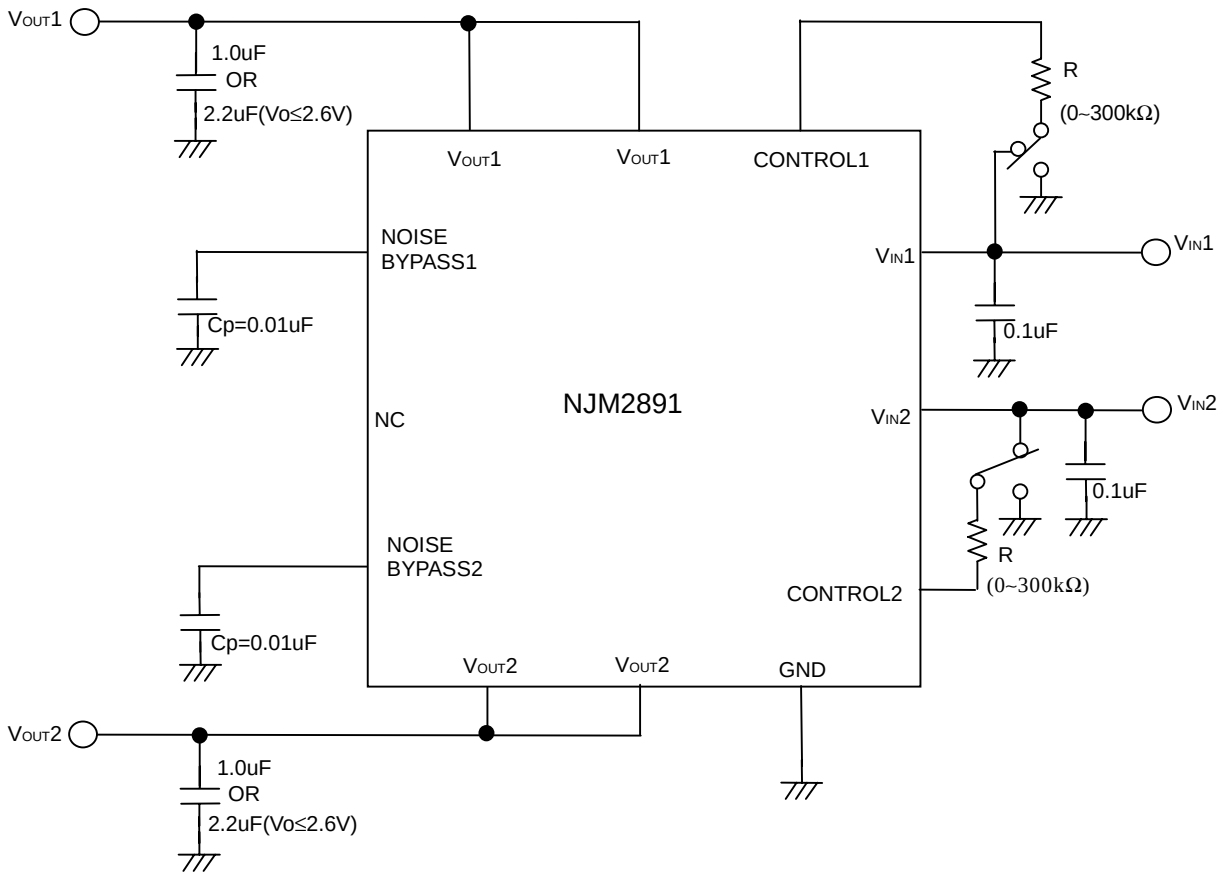
① In the case where ON/OFF Control is not required:



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.

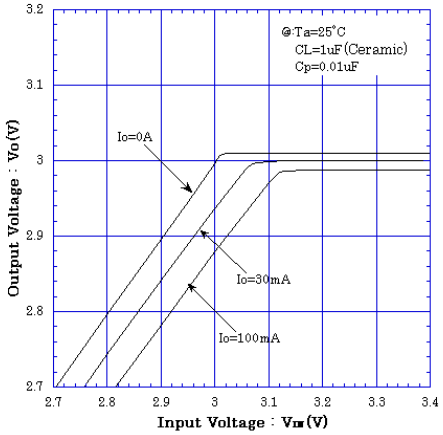
Noise level and ripple rejection will be improved when larger Cp is used. Please refer to the typical characteristics to determine the value.

Use of smaller Cp value may induce oscillation.

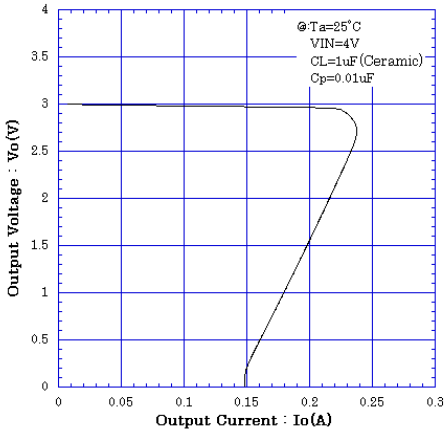
Please make sure to use Cp value of greater than 0.01uF to avoid the problem.

■ ELECTRICAL CHARACTERISTICS

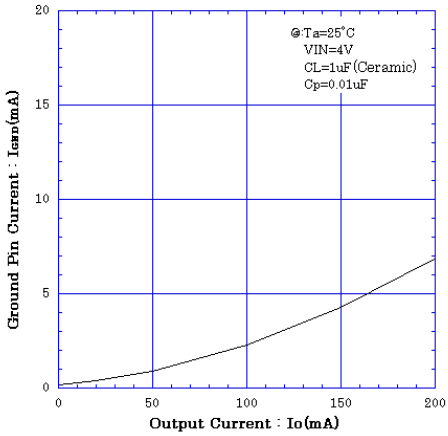
Output Voltage vs. Input Voltage(Vo=3.0V)



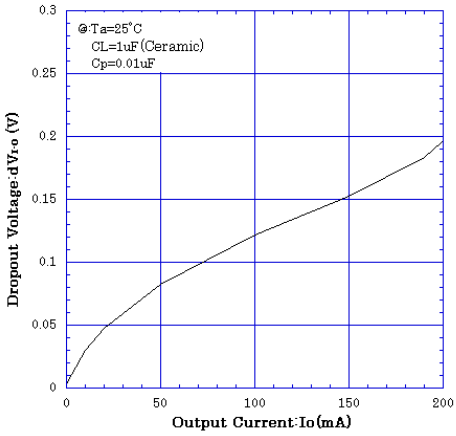
Output Voltage vs. Output Current(Vo=3.0V)



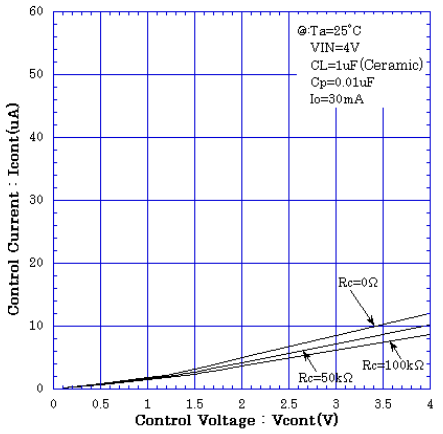
Ground Pin Current vs. Output Current(Vo=3.0V)



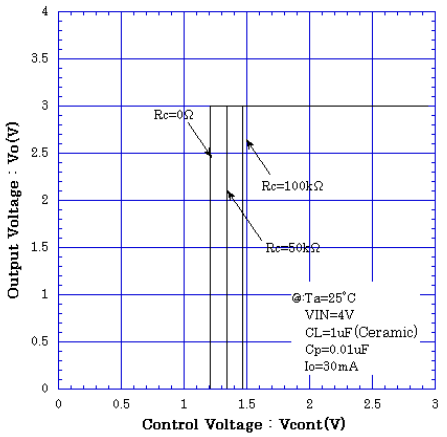
Dropout Voltage vs. Output Current(Vo=3.0V)



Control Current vs. Control Voltage(Vo=3.0V)

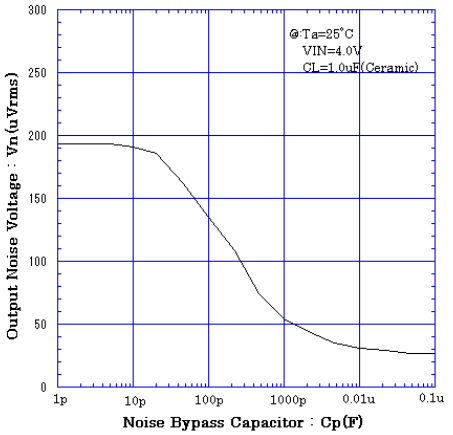


Output Voltage vs. Control Voltage(Vo=3.0V)

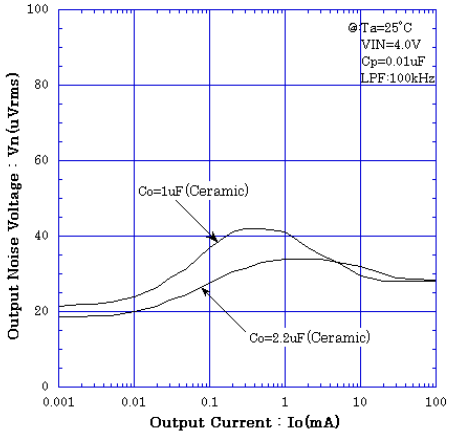


■ ELECTRICAL CHARACTERISTICS

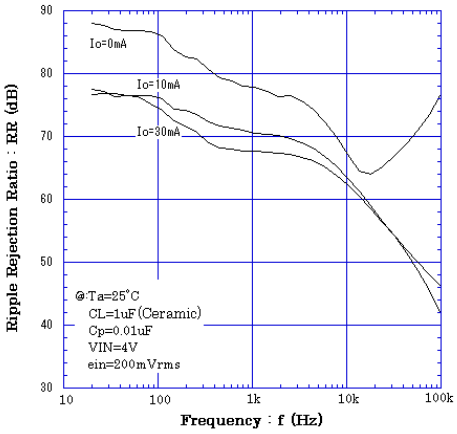
Output Noise Voltage vs. Noise Bypass Capacitor(Vo=3.0V)



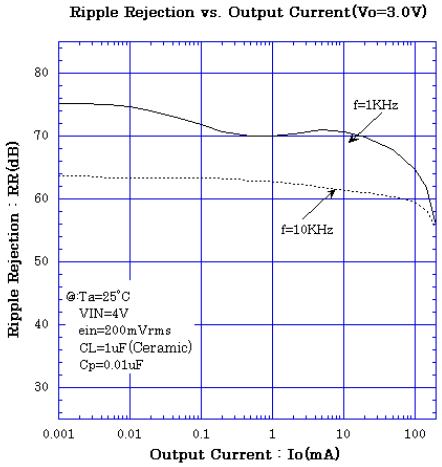
Output Noise Voltage vs. Output Current(Vo=3.0V)



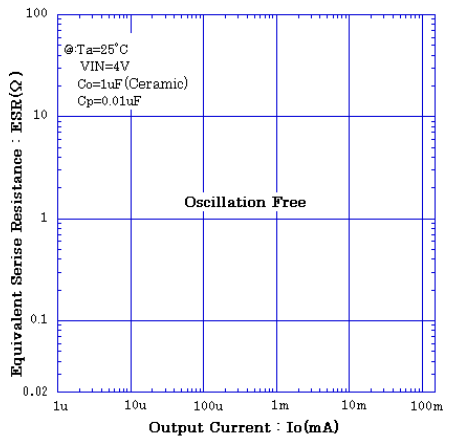
Ripple Rejection Ratio vs. Frequency(Vo=3.0V)



Ripple Rejection vs. Output Current(Vo=3.0V)

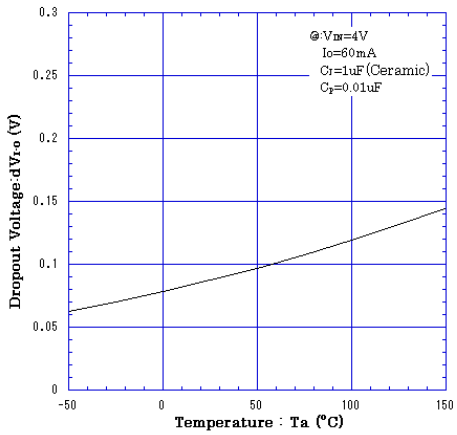


Equivalent Serise Resistance vs. Output Current(Vo=3.0V)

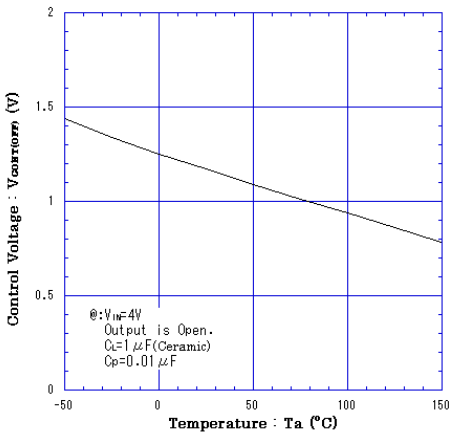


■ ELECTRICAL CHARACTERISTICS

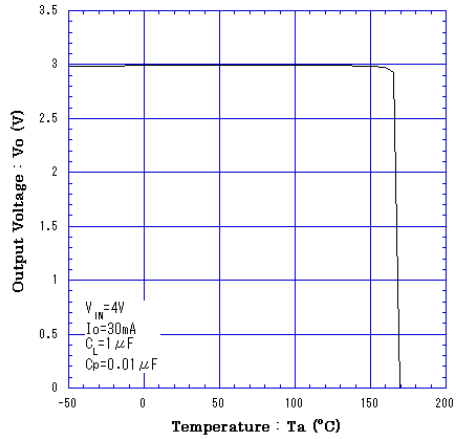
Dropout Voltage vs. Temperature(Vo=3.0V)



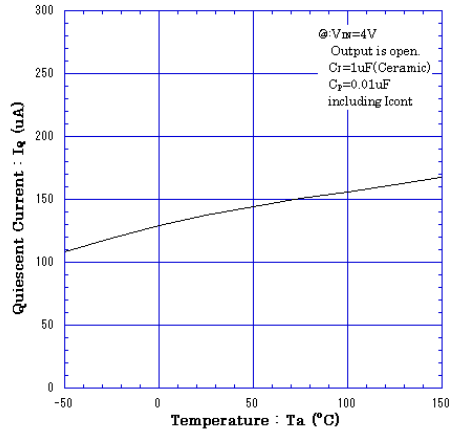
Control Voltage vs. Temperature(Vo=3.0V)



Output Voltage vs. Temperature(Vo=3.0V)



Quiescent Current vs. Temperature(Vo=3.0V)



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