

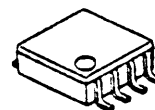
## 3OUTPUT LOW DROPOUT VOLTAGE REGULATOR

### ■GENERAL DESCRIPTION

The NJM2893 is a 3ch low dropout voltage regulator with ON/OFF Control in TVSP-8 package.

It is suitable for camcorder, IC decoder, camera and other portable items.

### ■PACKAGE OUTLINE

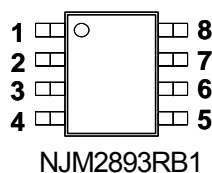


NJM2893RB1

### ■FEATURES

- High Ripple Rejection      70dB typ. at  $f=1\text{kHz}$
- Low Noise                      45 $\mu\text{Vrms}$  typ.
- Output capacitor with 1.0 $\mu\text{F}$  ceramic capacitor at  $V_o \geq 2.7\text{V}$
- Output Current                 $I_o(\text{max.})=100\text{mA} \times 3\text{ch}$
- High Precision Output        $\pm 1.0\%$
- Low Dropout Voltage        0.1V typ. at  $I_o=60\text{mA}$
- ON/OFF Control
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limit
- Bipolar Technology
- Package Outline               TVSP-8

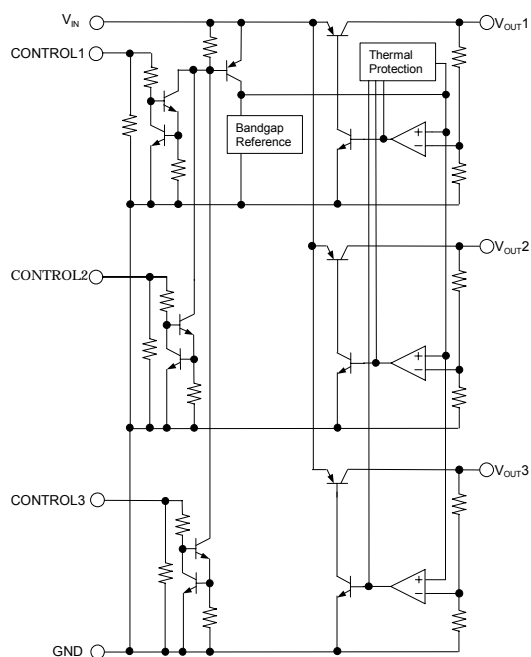
### ■PIN CONFIGURATION



#### PIN FUNCTION

1. $V_{OUT1}$	5. CONTROL3
2. $V_{OUT2}$	6. CONTROL2
3. $V_{OUT3}$	7. CONTROL1
4. GND	8. $V_{IN}$

### ■EQUIVALENT CIRCUIT



## ■ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	+14	V
Control Voltage	$V_{CONT}$	+14(note1)	V
Power Dissipation	$P_D$	320	mW
Operating Temperature	$T_{opr}$	-40 to +85	°C
Storage Temperature	$T_{stg}$	-40 to +125	°C

(note1) When input voltage is less than +14V, the absolute maximum control voltage is equal to the input voltage.

## ■ELECTRICAL CHARACTERISTICS

( $V_{IN}=V_O+1V$ ,  $C_{IN}=0.1\mu F$ ,  $C_O=1.0\mu F$ :  $V_O\geq 2.7V$  ( $C_O=2.2\mu F$ :  $V_O\leq 2.6V$ ),  $T_a=25^\circ C$ )

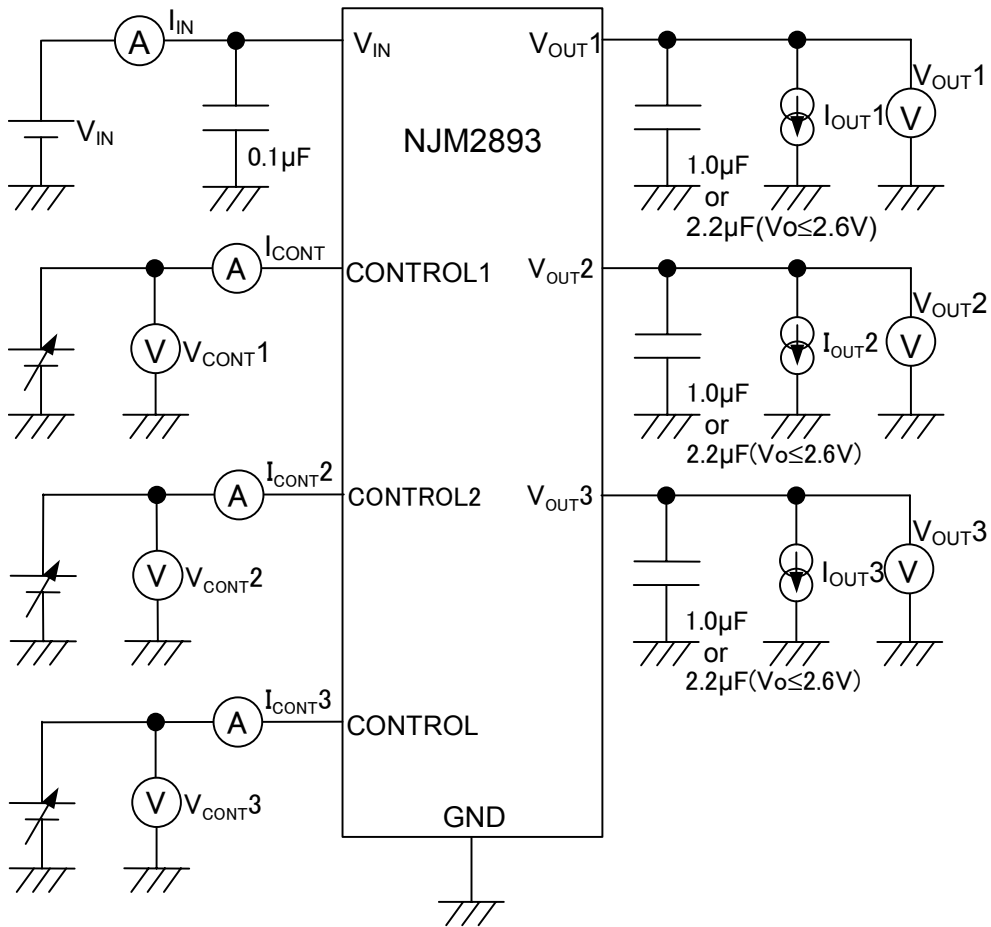
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	$V_O$	$I_O=30mA$	-1.0%	-	+1.0%	V
Quiescent Current1	$I_{Q1}$	$V_{CONT1}=V_{IN}$ , $V_{CONT2}=V_{CONT3}=0V$ *1ch ON $I_O=0mA$ , expect $I_{cont}$	-	140	220	$\mu A$
Quiescent Current2	$I_{Q2}$	$V_{CONT1}=V_{CONT2}=V_{IN}$ , $V_{CONT3}=0V$ *2ch ON $I_O=0mA$ , expect $I_{cont}$	-	240	370	$\mu A$
Quiescent Current3	$I_{Q3}$	$V_{CONT1}=V_{CONT2}=V_{CONT3}=V_{IN}$ $I_O=0mA$ , expect $I_{cont}$	-	340	520	$\mu A$
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	$\Delta V_O/\Delta V_{IN}$	$V_{IN}=V_O+1V$ to $V_O+6V$ , $I_O=30mA$	-	-	0.10	%/V
Load Regulation	$\Delta V_O/\Delta I_O$	$I_O=0$ to $60mA$	-	-	0.03	%/mA
Dropout Voltage	$\Delta V_{I-O}$	$I_O=60mA$	-	0.10	0.18	V
Ripple Rejection	RR	$e_{in}=200mV_{rms}$ , $f=1kHz$ , $I_O=10mA$ , $V_O=3V$	-	70	-	dB
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T_a$	$T_a=0$ to $85^\circ C$ , $I_O=10mA$	-	$\pm 50$	-	ppm/°C
Output Noise Voltage	$V_{NO}$	$f=10Hz$ to $80kHz$ , $I_O=10mA$ , $V_O=3V$	-	45	-	$\mu V_{rms}$
Control Voltage for ON-state	$V_{CONT(ON)}$		1.6	-	-	V
Control Voltage for OFF-state	$V_{CONT(OFF)}$		-	-	0.6	V

(note2) Please confirm the specification separately because some parameters depend on output voltage.

## ■OUTPUT VOLTAGE RANK LIST

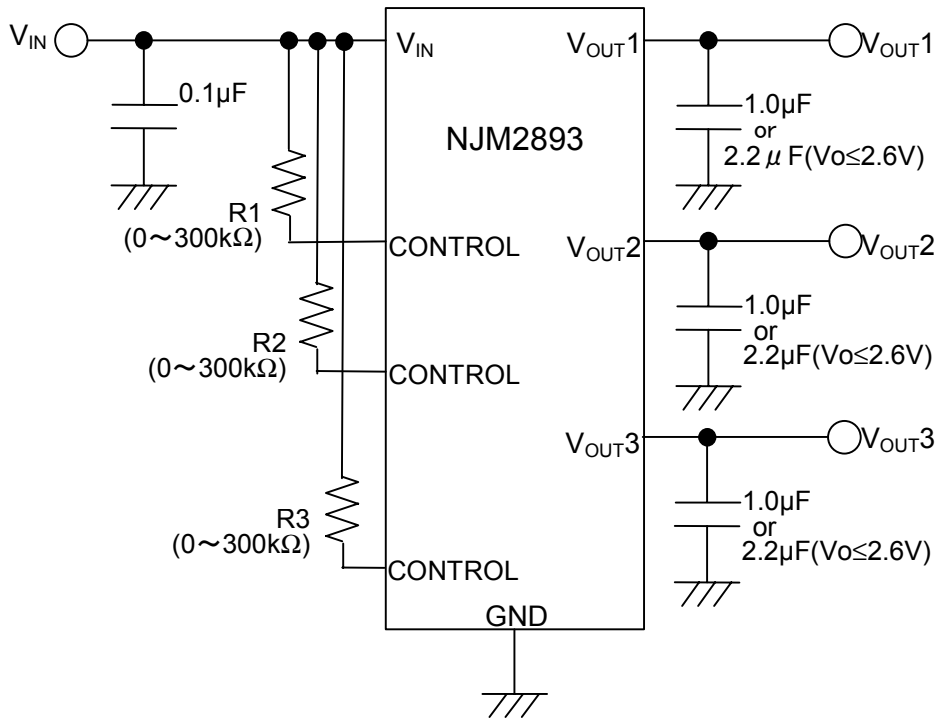
Device Name	VOUT		
	CH1	CH2	CH3
NJM2893RB1-CCC	2.1V	2.1V	2.1V
NJM2893RB1-LLL	3.0V	3.0V	3.0V
NJM2893RB1-YLC	5.0V	3.0V	2.1V

## ■TEST CIRCUIT



## ■ TYPICAL APPLICATION

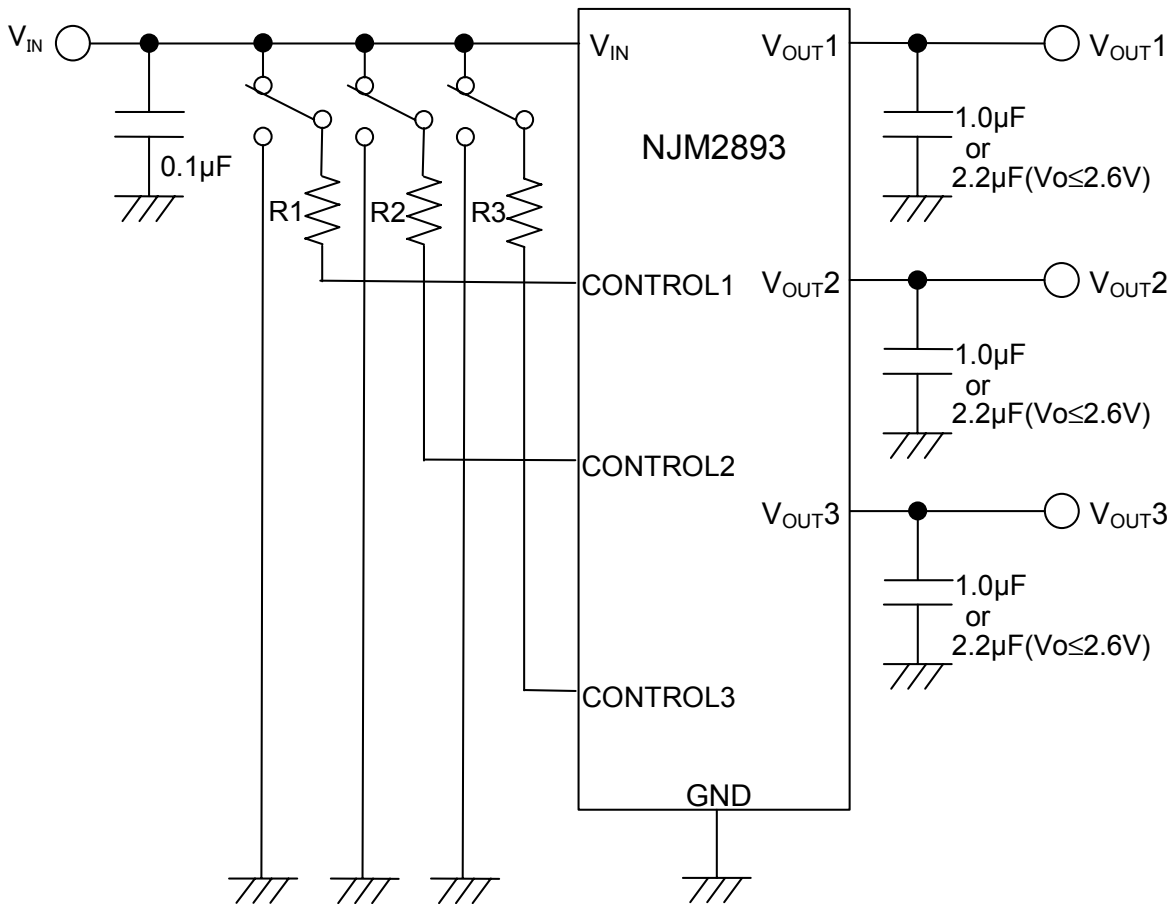
(1) In the case where ON/OFF Control is not required:



Connect control terminal to VIN 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.

**[CAUTION]**

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.