3OUTPUT LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2893 is a 3-channel low dropout voltage regulator featuring a low noise, high precision of ±1.0%, high ripple rejection ratio of 75dB, and 100mA output current (all outputs). It has an ON/OFF function which reduces the quiescent current on stand-by mode. Further the NJM2893 is available in a small and thin surface mount 8-lead MSOP (TVSP) package, and it can use ceramic capacitor of 1μF as an output capacitor. Therefore it can achieve a high-density mounting and is suitable for small precision devices, portable devices and others.

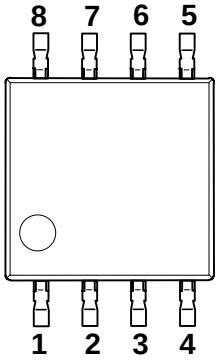
■ PACKAGE OUTLINE

NJM2893RB1
(MSOP8 (TVSP8)

■ FEATURES

- High Ripple Rejection 75dB typ. (f=1kHz,Vo=3V Version)
- Output Noise Voltage Vno=45μV rms typ.
- Output capacitor with 1.0uF ceramic capacitor (Vo≥2.7V)
- Output Current Io(max.)=100mA x3
- 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 MSOP8 (TVSP8)* *MEET JEDEC MO-187-DA / THIN TYPE

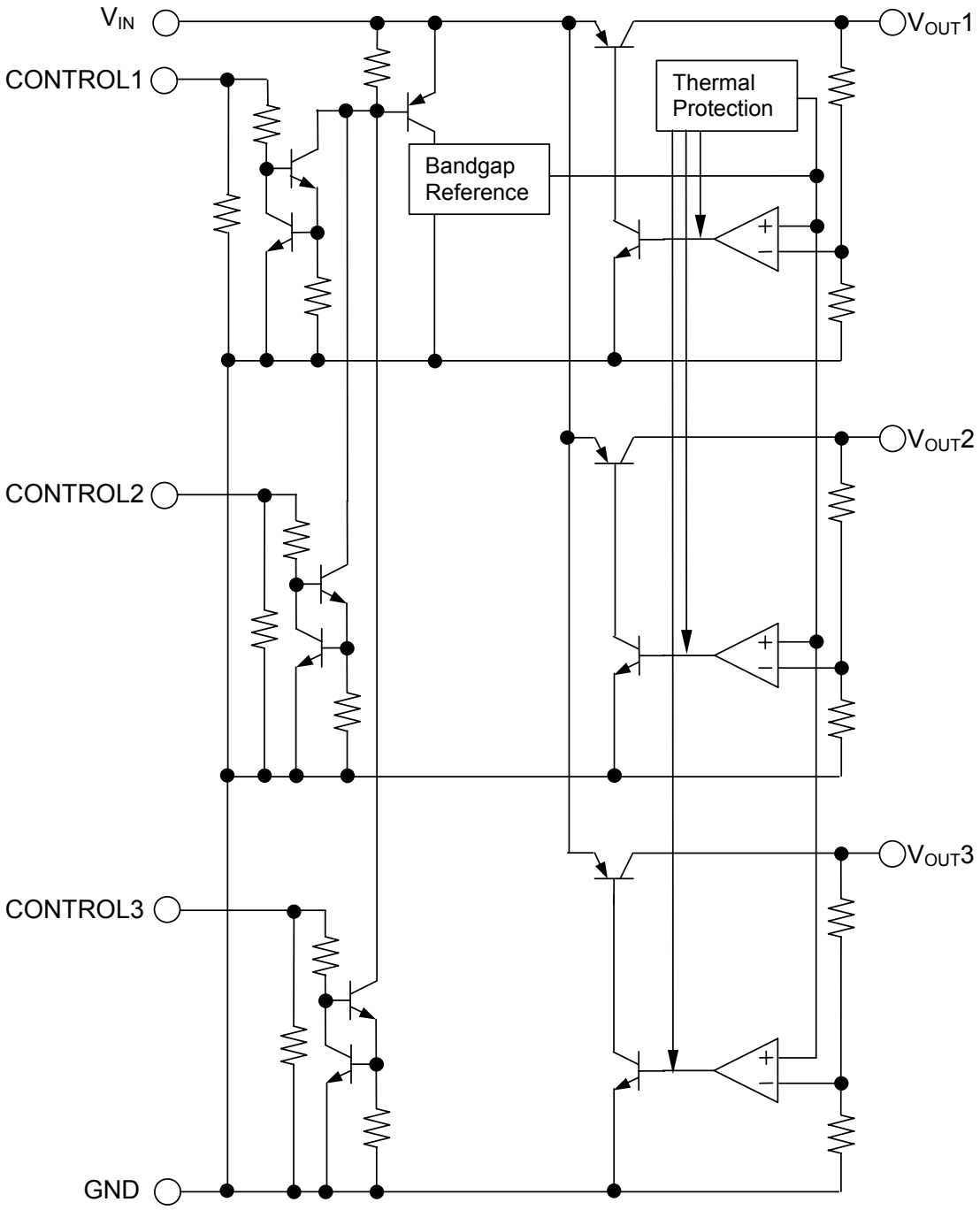
■ PIN CONFIGURATION



NJM2893RB1

PIN FUNCTION
1.V_{OUT}1
2.V_{OUT}2
3.V_{OUT}3
4.GND
5.CONTROL3
6.CONTROL2
7.CONTROL1
8.V_{IN}

■ EQUIVALENT CIRCUIT



■ 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

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	+14	V
Control Voltage	V_{CONT}	+14(*1)	V
Power Dissipation	P_D	320	mW
Operating Temperature	Topr	−40 to +85	°C
Storage Temperature	Tstg	−40 to +125	°C

(*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}=0.1μF, Co=1.0uF: Vo≥2.7V (Co=2.2uF: Vo≤2.6V), Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Io=30mA	-1.0%	–	+1.0%	V
Quiescent Current1	I_{Q1}	V_{CONT1}=V_{IN}, V_{CONT2}=V_{CONT3}=0V *1ch ON Io=0mA, expect Icont	–	150	220	μA
Quiescent Current2	I_{Q2}	V_{CONT1}= V_{CONT2}=V_{IN}, V_{CONT3}=0V *2ch ON Io=0mA, expect Icont	–	270	400	μA
Quiescent Current3	I_{Q3}	V_{CONT1}= V_{CONT2}=V_{CONT3}=V_{IN} Io=0mA, expect Icont	–	390	580	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 to Vo+6V, Io=30mA	–	–	0.10	%/V
Load Regulation	ΔVo/ΔIo1	Io=0 to 100mA	–	–	0.03	%/mA
Dropout Voltage	ΔV_{I-O1}	Io=60mA	–	0.10	0.18	V
Ripple Rejection	RR	ein=200mVrms,f=1kHz, Io=10mA, Vo=3V Version	–	75	–	dB
Average Temperature Coefficient of Output Voltage	ΔVo/ΔTa	Ta=0 to 85°C, Io=10mA	–	±50	–	ppm/°C
Output Noise Voltage	V_{NO}	f=10Hz to 80kHz, Io=10mA, Vo=3V Version	–	45	–	μVrms
Control Voltage for ON-state	$V_{CONT(ON)}$		1.6	–	–	V
Control Voltage for OFF-state	$V_{CONT(OFF)}$		–	–	0.6	V

(*2) V_{IN} =Vo+1V means add 1V to higher output voltage.

The above specification is a common specification for all output voltages.

Therefore, it may be different from the individual specification for a specific output voltage.