

2ch LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2892 is a 2ch low dropout voltage regulator with ON/OFF control.

Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

■ PACKAGE OUTLINE

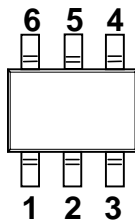


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■ FEATURES

- High Ripple Rejection 75dB typ. (f=1kHz $V_o=3V$ version)
- Output Noise Voltage $V_{NO}=45\mu V_{rms}$ typ.
- Output capacitor with 1.0 μF ceramic capacitor ($V_o\geq 2.7V$)
- Output Current $I_o(max.)=100mA \times 2ch$
- High Precision Output $V_o\pm 1.0\%$
- Low Dropout Voltage 0.1V typ. ($I_o=60mA$)
- ON/OFF Control
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline SOT-23-6 (MTP-6 : 2.8x2.9x1.1mm)

■ PIN CONFIGURATION



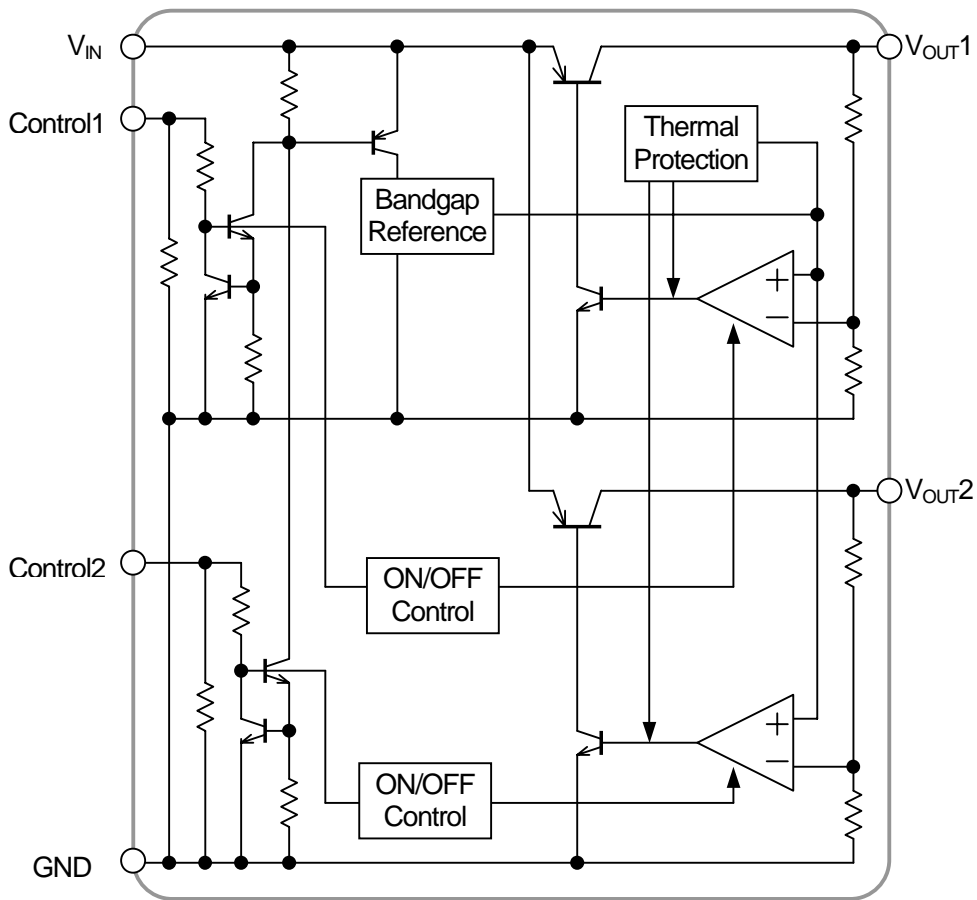
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PIN FUNCTION

1. V_{OUT2}
2. GND
3. V_{OUT1}
4. CONTROL1
5. V_{IN}
6. CONTROL2

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■ EQUIVALENT CIRCUIT



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■ OUTPUT VOLTAGE RANK LIST (* : Under development)

Device Name	V _{OUT}	
	Ch 1	Ch 2
*NJM2892F1-1515	1.5V	1.5V
*NJM2892F1-1815	1.8V	1.5V
NJM2892F1-2121	2.1V	2.1V
NJM2892F1-0303	3.0V	3.0V
NJM2892F1-3328	3.3V	2.8V
NJM2892F1-3333	3.3V	3.3V
NJM2892F1-0521	5.0V	2.1V
*NJM2892F1-0533	5.0V	3.3V

■ 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	SOT-23-6 350(*2) 200(*3)	mW
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

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

(*2): Mounted on glass epoxy board based on EIA/JEDEC. (114.3x76.2x1.6mm: 2Layers)

(*3): Device itself.

■ Operating voltage

V_{IN}=+2.3 ~ +14V (In case of Vo<2.1V version)

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=Vo+1V, C_{IN}=0.1μF, Co=1.0μF: Vo≥2.7V (Co=2.2μF : 1.8V<Vo≤2.6V., Co=4.7μF : Vo≤1.8V), Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Io=30mA	-1.0%	-	+1.0%	V
Quiescent Current 1	I _{Q1}	V _{CONT} 1= V _{IN} , V _{CONT} 2= 0V or V _{CONT} 2= V _{IN} , V _{CONT} 1= 0V Io=0mA, Except I _{CONT}	-	150	220	μA
Quiescent Current 2	I _{Q2}	V _{CONT} 1= V _{CONT} 2= V _{IN} Io=0mA, Except I _{CONT}	-	270	400	μA
Quiescent Current at Control OFF	I _{Q(OFF)}	V _{CONT} =0V	-	-	100	nA
Output Current	Io	Vo=0.3V	100	130	-	mA
Line Regulation	ΔVo/ΔV _{IN}	V _{IN} =Vo+1V ~ Vo+6V, Io=30mA	-	-	0.10	%/V
Load Regulation	ΔVo/ΔIo	Io=0 ~ 60mA	-	-	0.03	%/mA
Dropout Voltage(*4)	ΔV _{IO}	Io=60mA	-	0.1	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 ~ 85°C, Io=10mA	-	± 50	-	ppm/°C
Output Noise Voltage	V _{NO}	f=10Hz ~ 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

(*4): The output voltage excludes under 2.1V.

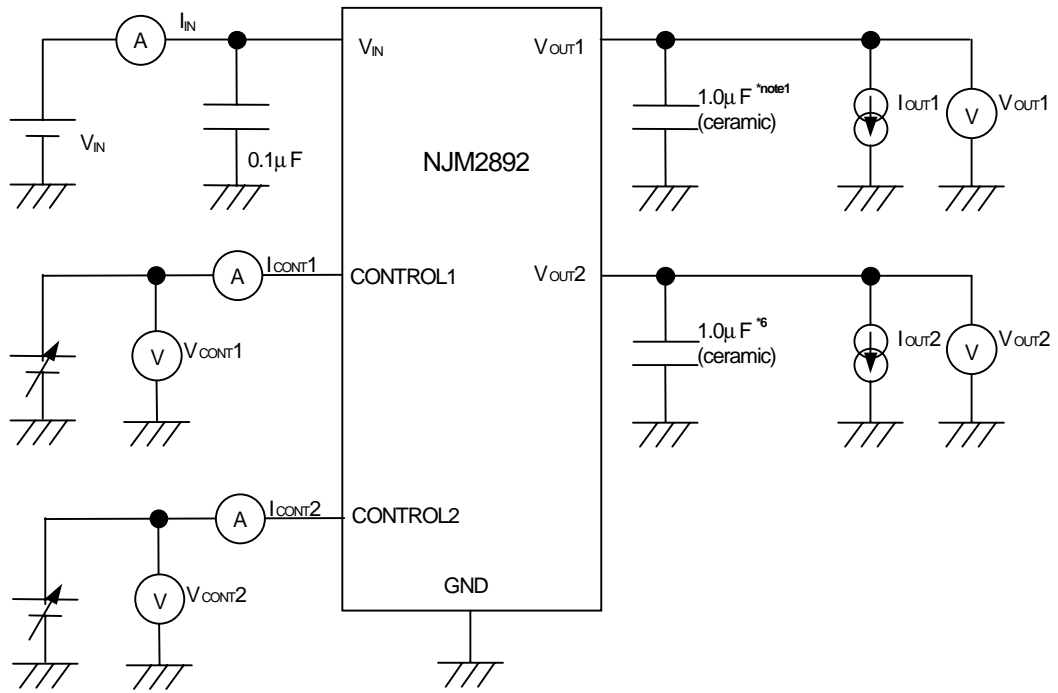
(*5): V_{IN}=Vo+1V means add 1V to higher output voltage.

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.

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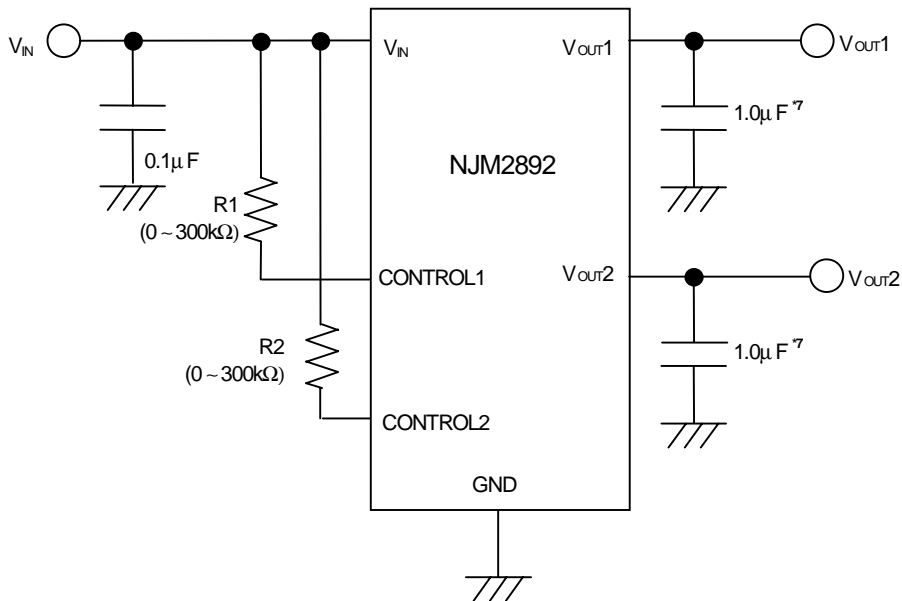
■ TEST CIRCUIT



*6 1.8V < V_o ≤ 2.6V version : $C_o = 2.2\mu F$ (ceramic)
 $V_o \leq 1.8V$ version : $C_o = 4.7\mu F$ (ceramic)

■ TYPICAL APPLICATION

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

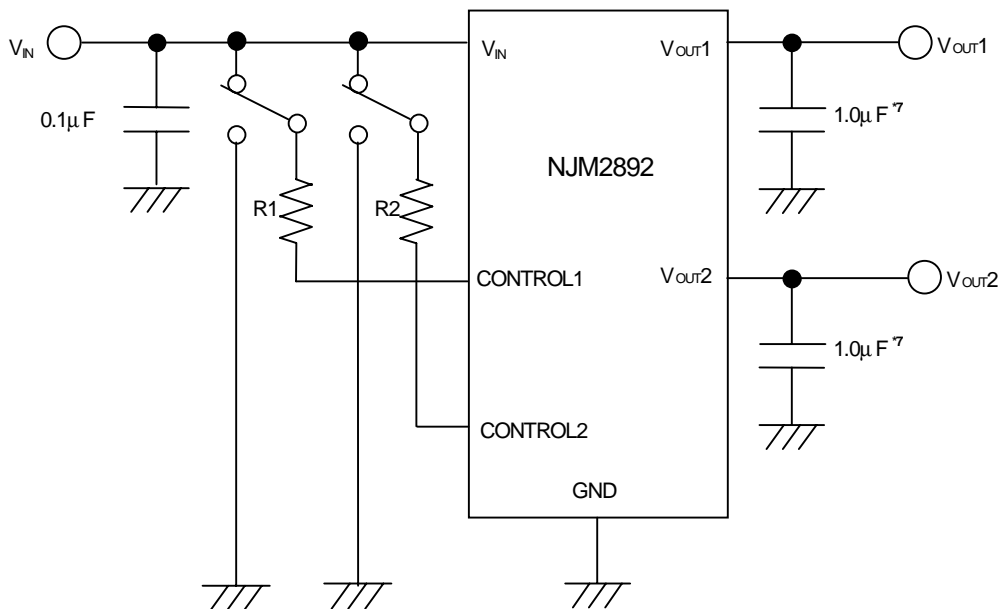


*7 1.8V < V_o ≤ 2.6V version : $C_o=2.2\mu F$
 $V_o \leq 1.8V$ version : $C_o=4.7\mu F$

Connect control terminal to V_{IN} terminal

The quiescent current can be reduced by using a resistance "R". Instead, it increases the minimum operating voltage. For further information, please refer to Figure "Output Voltage vs. Control Voltage".

② In use of ON/OFF CONTROL:



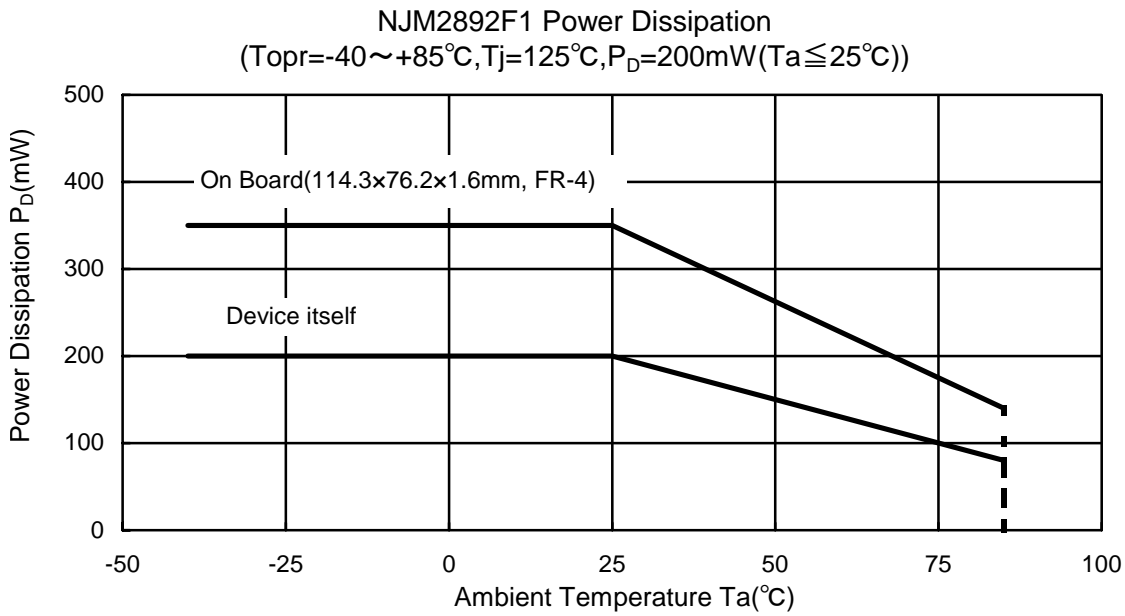
*7 1.8V < V_o ≤ 2.6V version : $C_o=2.2\mu F$
 $V_o \leq 1.8V$ version : $C_o=4.7\mu F$

State of control terminal:

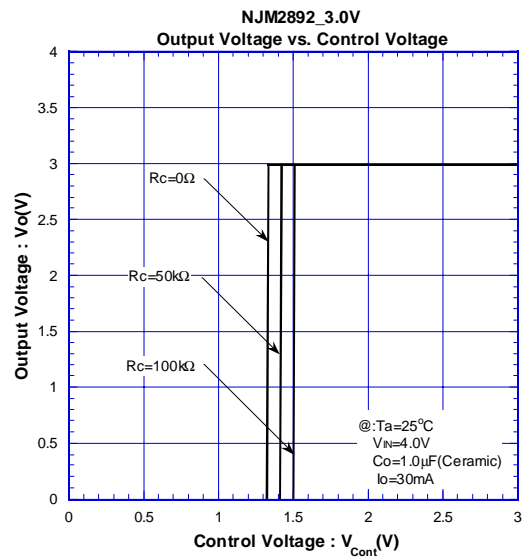
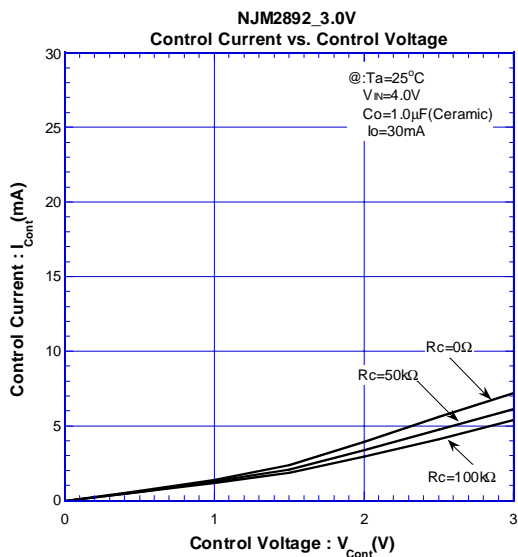
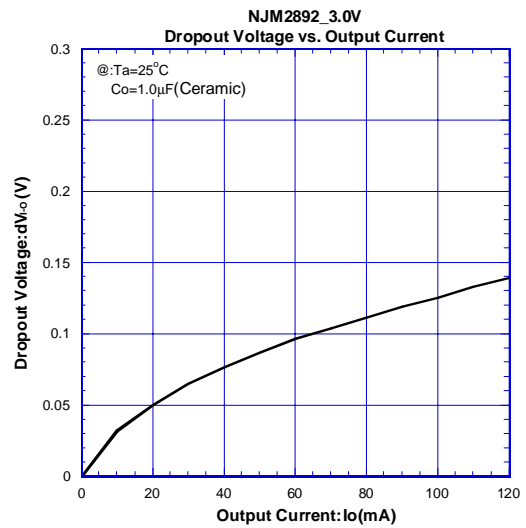
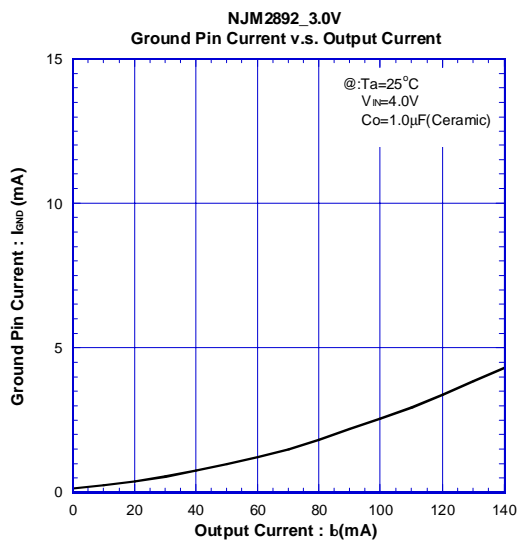
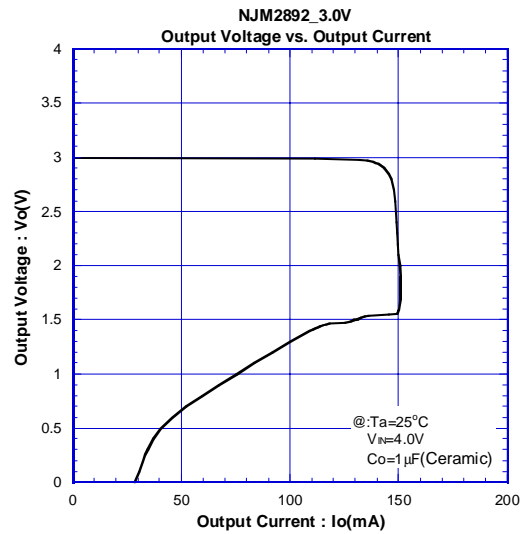
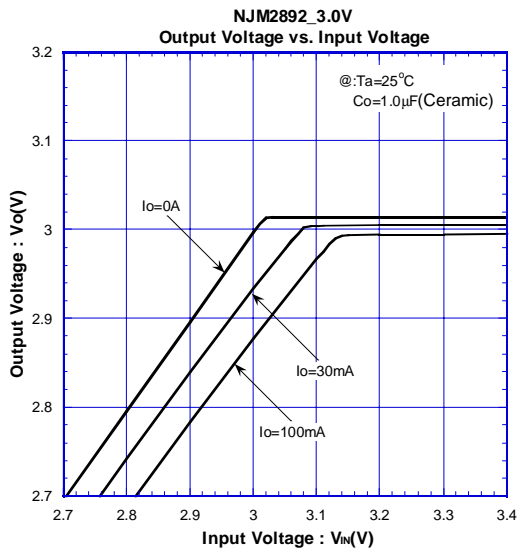
- "H" → output is enabled.
- "L" or "open" → output is disabled.

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POWER DISSIPATION vs. AMBIENT TEMPERATURE

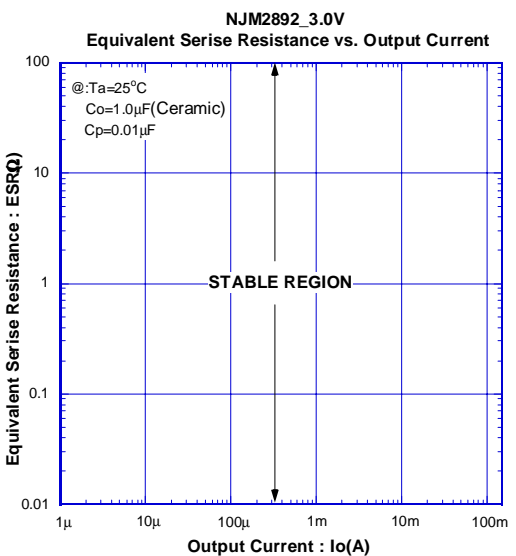
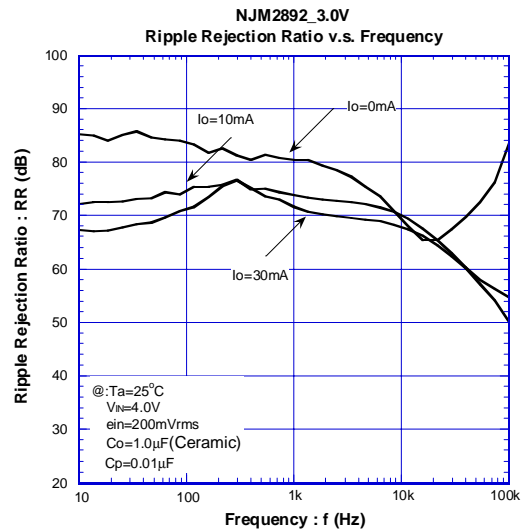
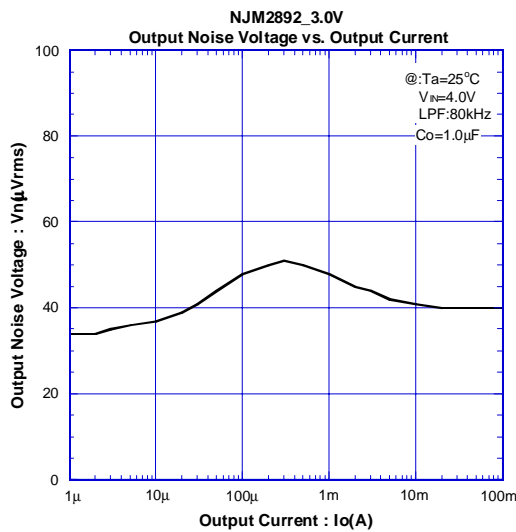
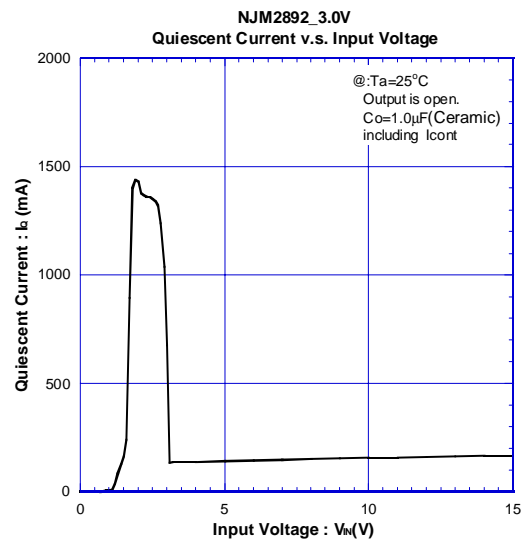
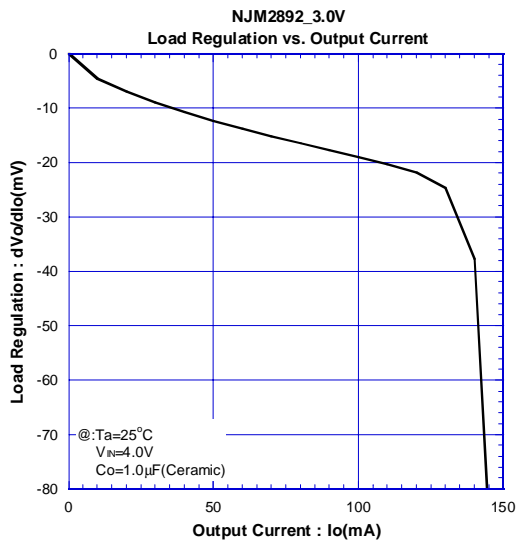


ELECTRICAL CHARACTERISTICS

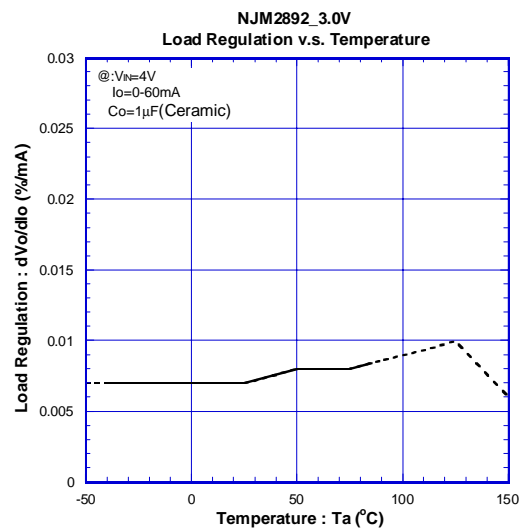
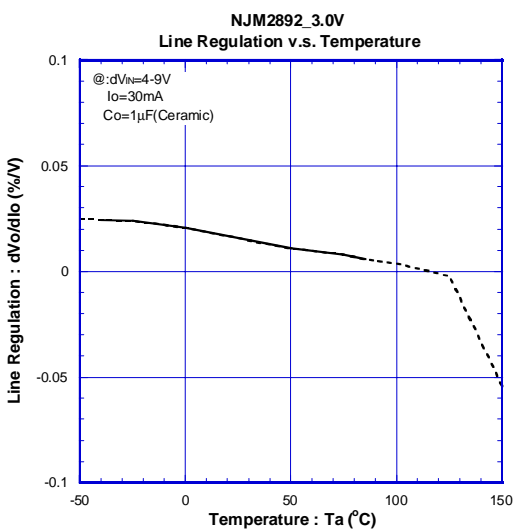
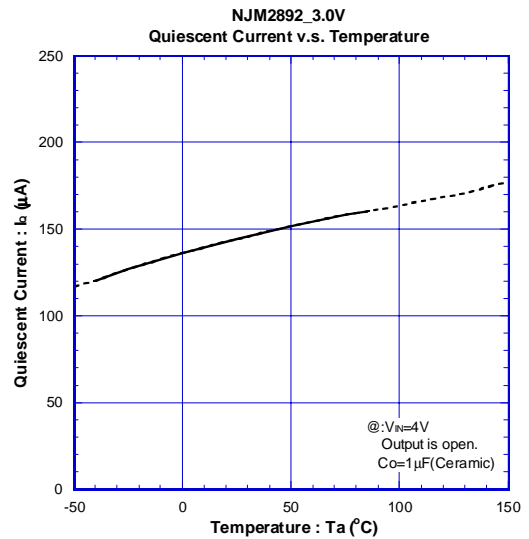
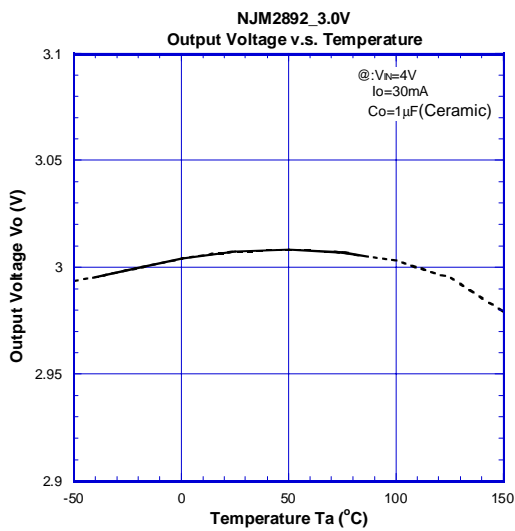
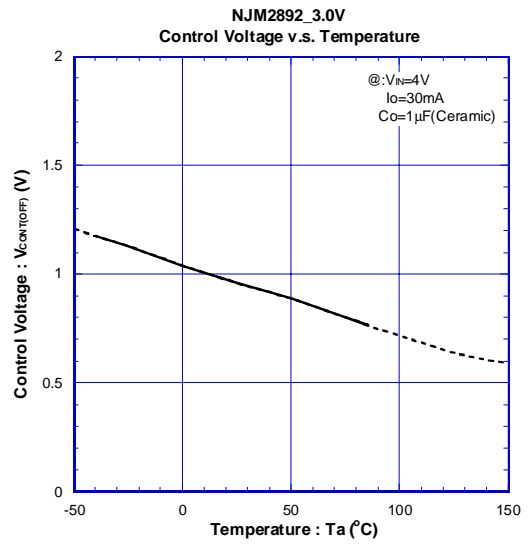
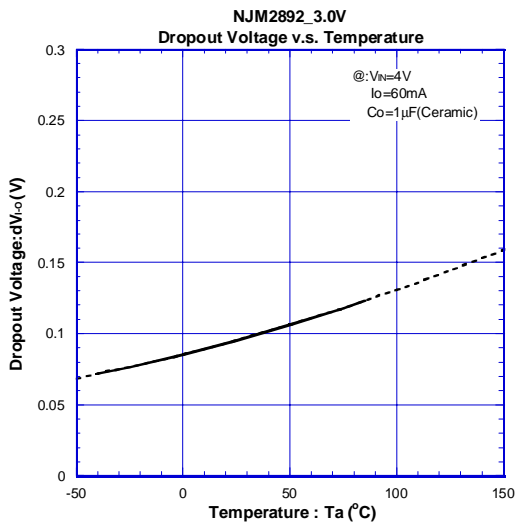


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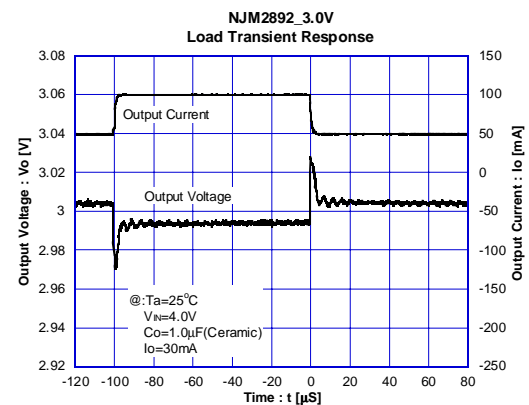
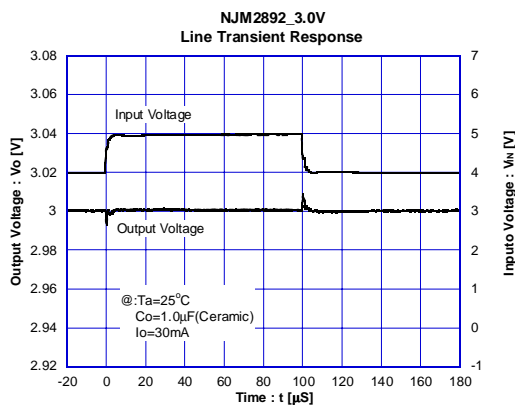
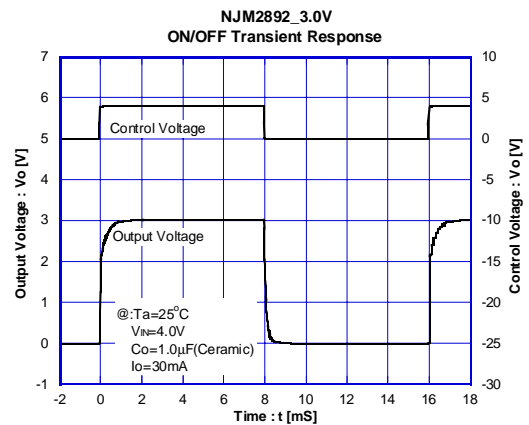
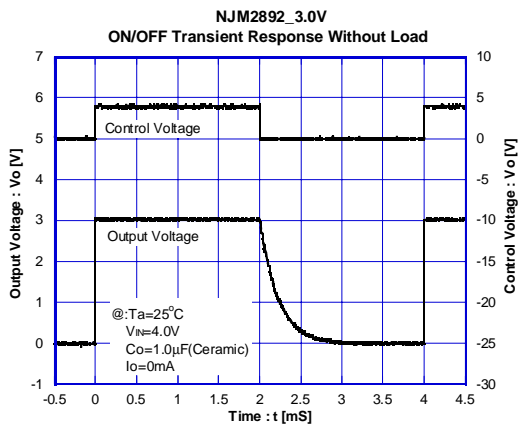
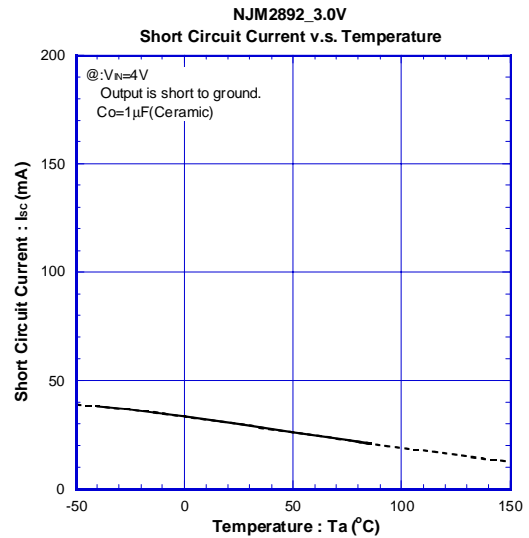
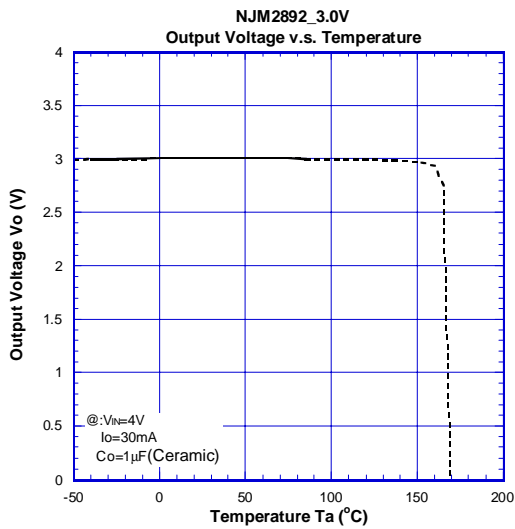


ELECTRICAL CHARACTERISTICS



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ELECTRICAL CHARACTERISTICS



[CAUTION]

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