

LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2867/68 is a 100mA output low dropout voltage regulator with ON/OFF control.

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

Small packaging, 0.1 μ F small decoupling capacitor, built-in noise bypass capacitor make the NJM2865/66 suitable for space conscious applications.

■ PACKAGE OUTLINE



NJM2867F3

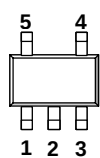


NJM2867F/NJM2868F

■ FEATURES

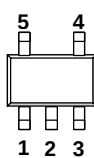
- High Ripple Rejection 75dB typ. (f=1kHz Vo=3V Version)
- Output Noise Voltage Vno=40 μ Vrms typ.
- Output capacitor with 0.1 μ F ceramic capacitor (Vo $\geq$ 2.8V)
- Output Current Io(max.)=100mA
- High Precision Output Vo $\pm$ 1.0%
- Low Dropout Voltage 0.10V typ. (Io=60mA)
- ON/OFF Control (Active High)
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline SC88A (NJM2867F3), SOT-23-5 (NJM2867F/NJM2868F)

■ PIN CONFIGURATION



NJM2867F/NJM2867F3

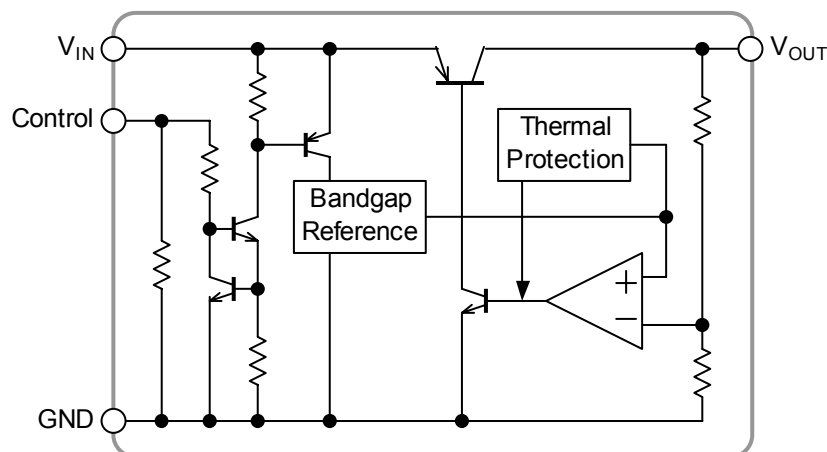
PIN FUNCTION
 1.CONTROL
 2.GND
 3.NC
 4.V_{OUT}
 5.V_{IN}



NJM2868F

PIN FUNCTION
 1. V_{IN}
 2.GND
 3.CONTROL
 4.NC
 5.V_{OUT}

■ EQUIVALENT CIRCUIT



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■ OUTPUT VOLTAGE RANK LIST

●NJM2867

Device Name	V _{OUT}	Device Name	V _{OUT}	Device Name	V _{OUT}
NJM2867F3-/F21	2.1V	NJM2867F3-/F29	2.9V	NJM2867F3-/F34	3.4V
NJM2867F3-/F24	2.4V	NJM2867F3-/F03	3.0V	NJM2867F3-/F38	3.8V
NJM2867F3-/F25	2.5V	NJM2867F3-/F31	3.1V	NJM2867F3-/F05	5.0V
NJM2867F3-/F26	2.6V	NJM2867F3-/F32	3.2V		
NJM2867F3-/F28	2.8V	NJM2867F3-/F33	3.3V		

●NJM2868

Device Name	V _{OUT}	Device Name	V _{OUT}	Device Name	V _{OUT}
NJM2868F21	2.1V	NJM2868F29	2.9V	NJM2868F34	3.4V
NJM2868F24	2.4V	NJM2868F03	3.0V	NJM2868F38	3.8V
NJM2868F25	2.5V	NJM2868F31	3.1V	NJM2868F05	5.0V
NJM2868F26	2.6V	NJM2868F32	3.2V		
NJM2868F28	2.8V	NJM2868F33	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	SC88A	250(*2)	mW
		SOT-23-5	200(*3)	
			350(*2)	
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.

■ ELECTRICAL CHARACTERISTICS

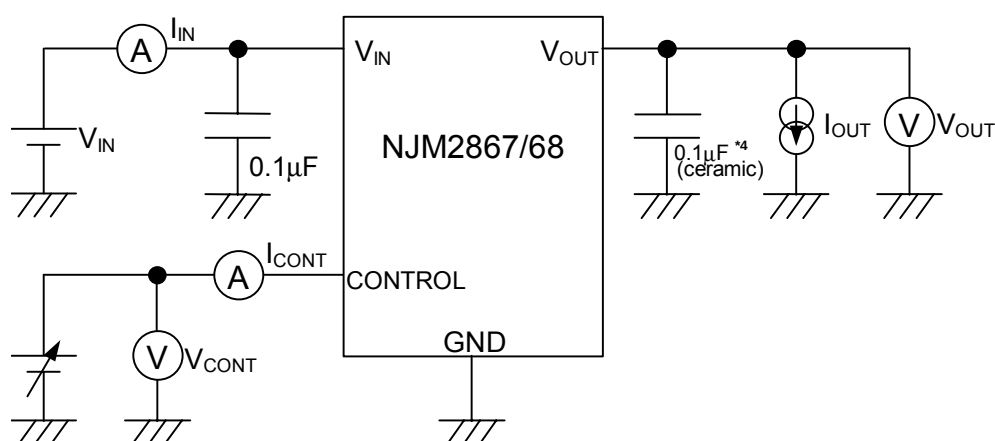
($V_{IN}=V_O+1V$, $C_{IN}=0.1\mu F$, $C_O=0.1\mu F$ ($2.3V<V_O\leq 2.8V$: $C_O=0.22\mu F$, $V_O\leq 2.3V$: $C_O=0.47\mu F$), $T_a=25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_O	$I_O=30mA$	-1.0%	—	+1.0%	V
Quiescent 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	$V_O=0.3V$	100	130	—	mA
Line Regulation	$\Delta V_O/\Delta V_{IN}$	$V_{IN}=V_O+1V \sim V_O+6V$, $I_O=30mA$	—	—	0.10	%/V
Load Regulation	$\Delta V_O/\Delta I_O$	$I_O=0 \sim 60mA$	—	—	0.03	%/mA
Dropout Voltage	ΔV_{I-O}	$I_O=60mA$	—	0.10	0.18	V
Ripple Rejection	RR	$e_{in}=200mV_{rms}$, $f=1kHz$, $I_O=10mA$, $V_O=3V$ Version	—	75	—	dB
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T_a$	$T_a=0 \sim 85^\circ C$, $I_O=10mA$	—	± 50	—	ppm/ $^\circ C$
Output Noise Voltage	V_{NO}	$f=10Hz \sim 80kHz$, $I_O=10mA$, $V_O=3V$ Version	—	40	—	μV_{rms}
Control Voltage for ON-state	$V_{CONT(ON)}$		1.6	—	—	V
Control Voltage for OFF-state	$V_{CONT(OFF)}$		—	—	0.6	V

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.

■ TEST CIRCUIT

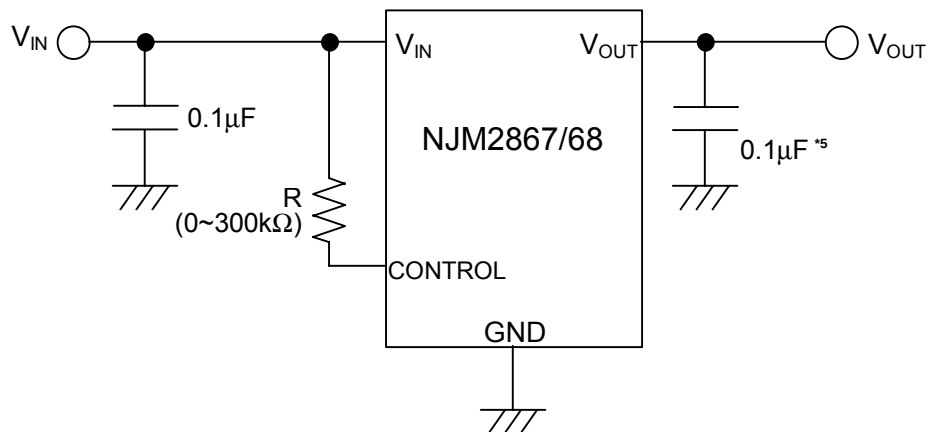


*4 2.3V< $V_O\leq 2.8V$ version: $C_O=0.22\mu F$ (ceramic)
 $V_O\leq 2.3V$ version: $0.47\mu F$ (ceramic)

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■ TYPICAL APPLICATION

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

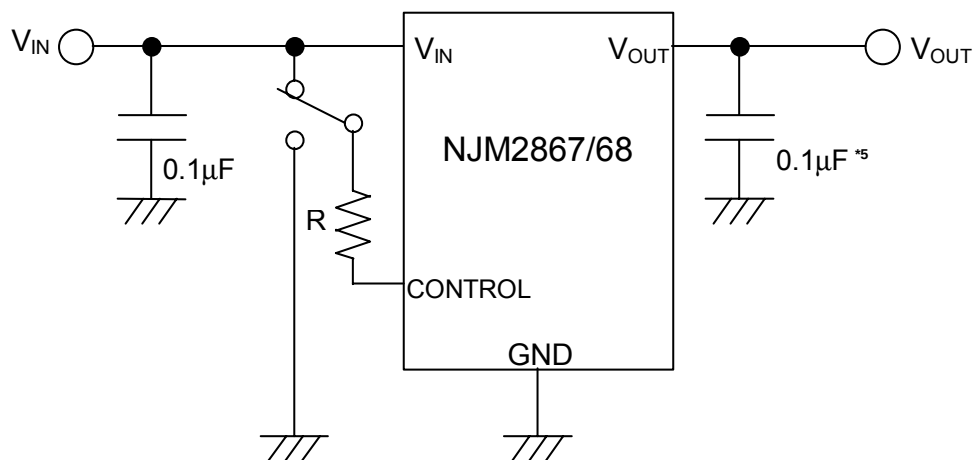


*5 2.3V < V_O ≤ 2.8V version: C_O = 0.22μF
V_O ≤ 2.3V version: 0.47μF

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:

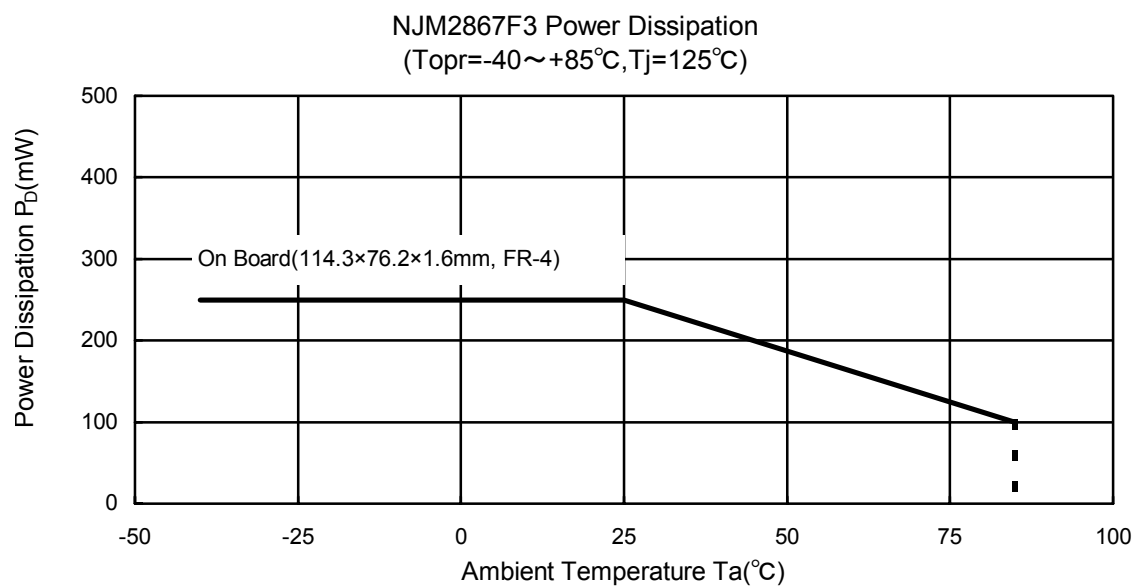
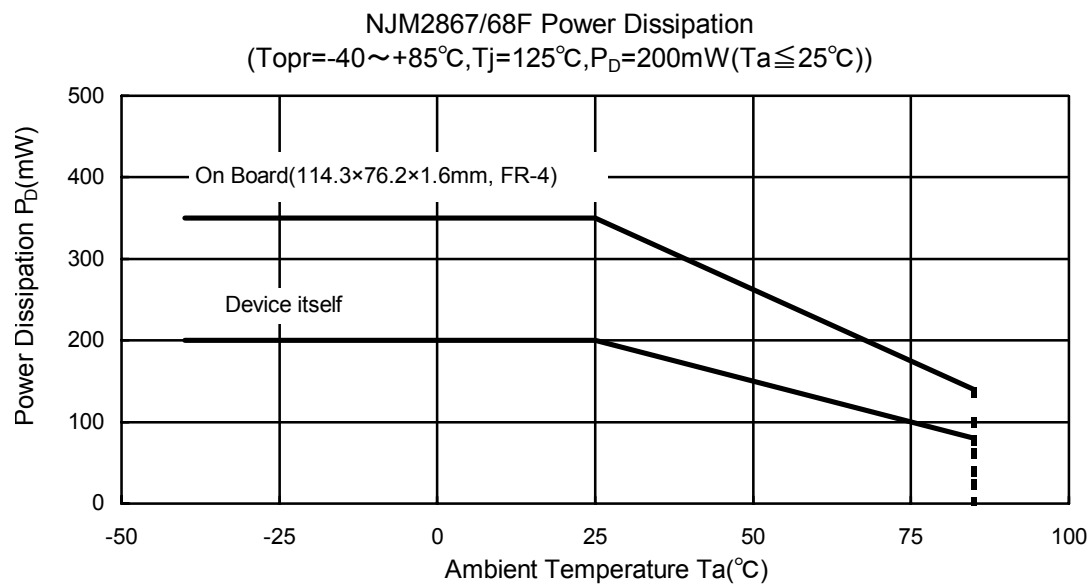


*5 2.3V < V_O ≤ 2.8V version: C_O = 0.22μF
V_O ≤ 2.3V version: 0.47μF

State of control terminal:

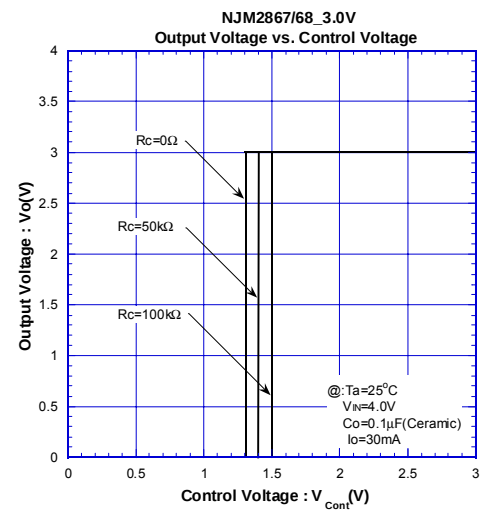
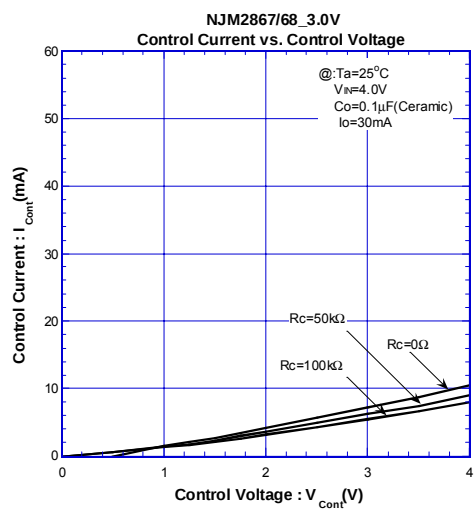
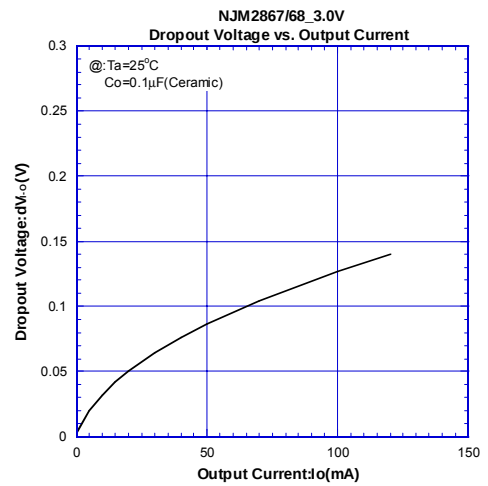
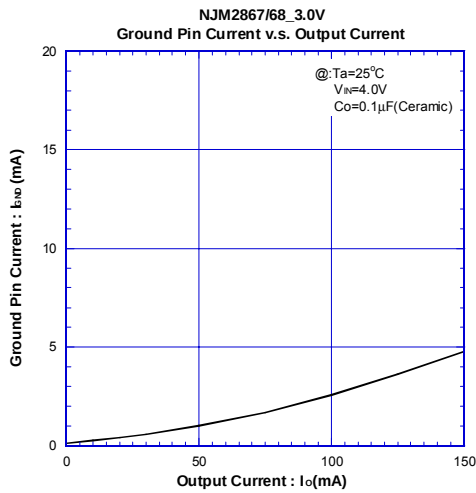
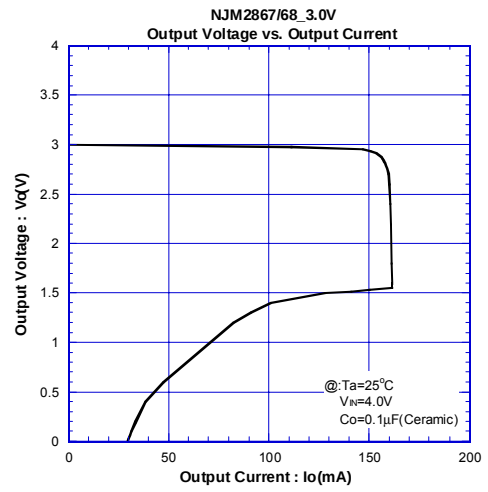
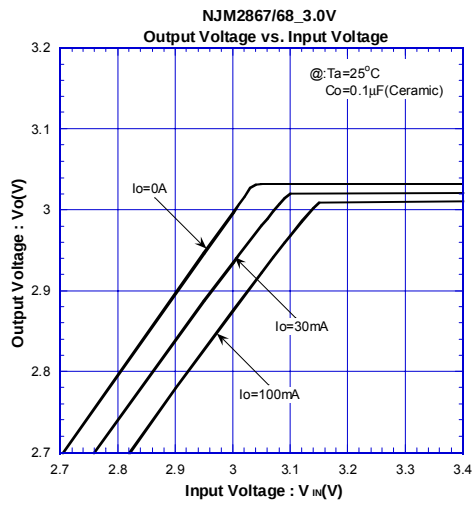
- “H” → output is enabled.
- “L” or “open” → output is disabled.

POWER DISSIPATION vs. AMBIENT TEMPERATURE

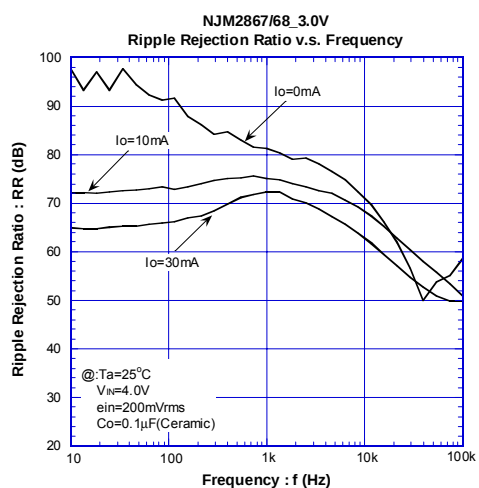
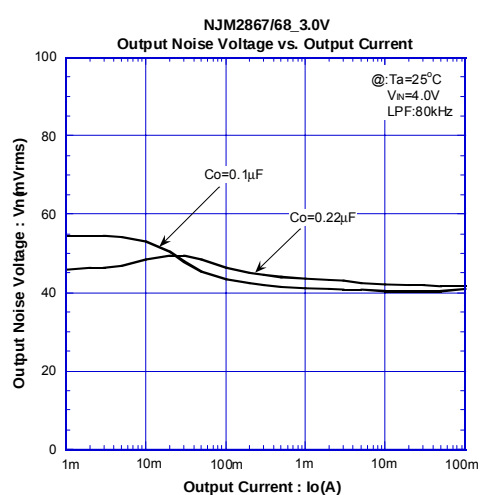
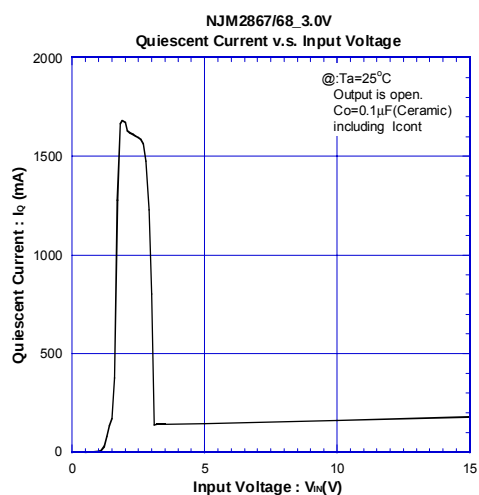
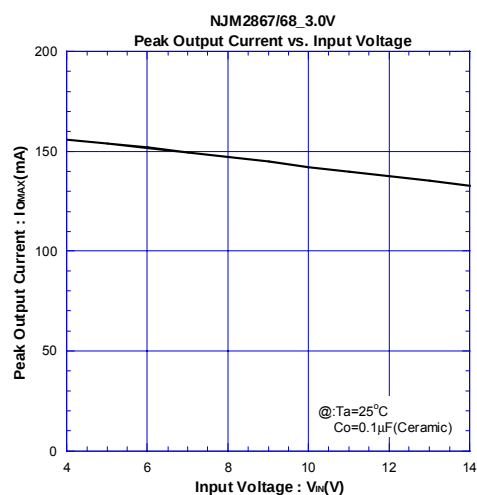
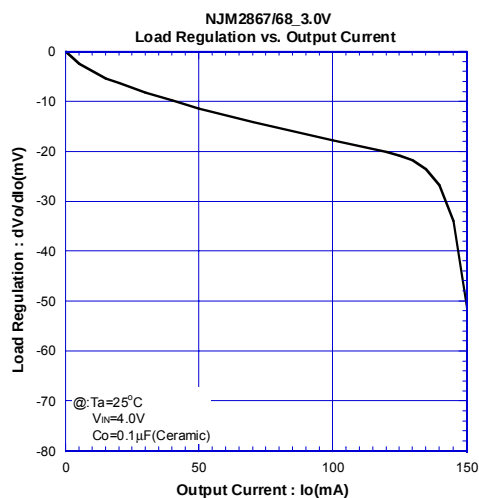


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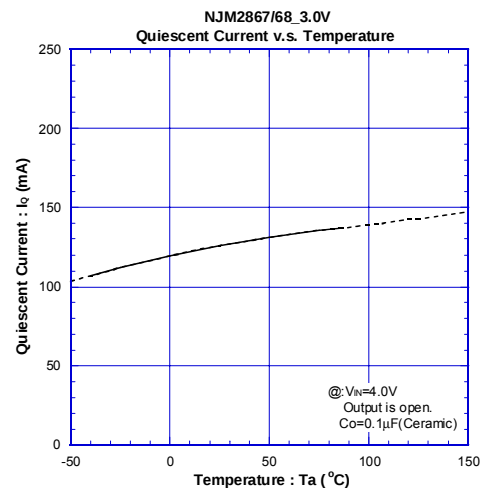
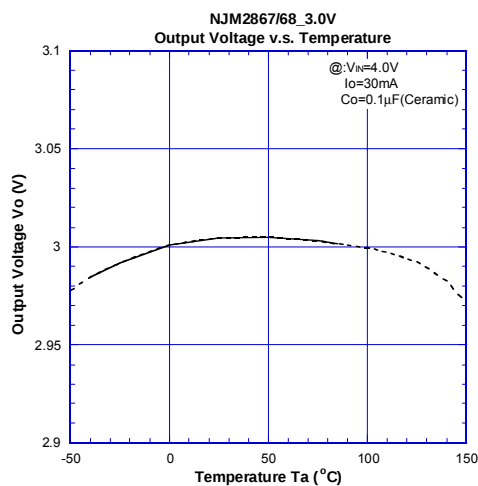
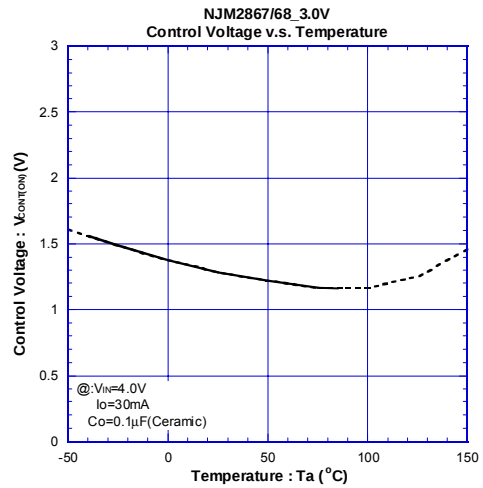
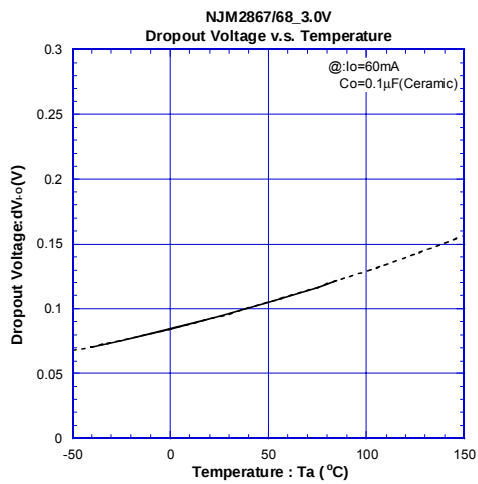
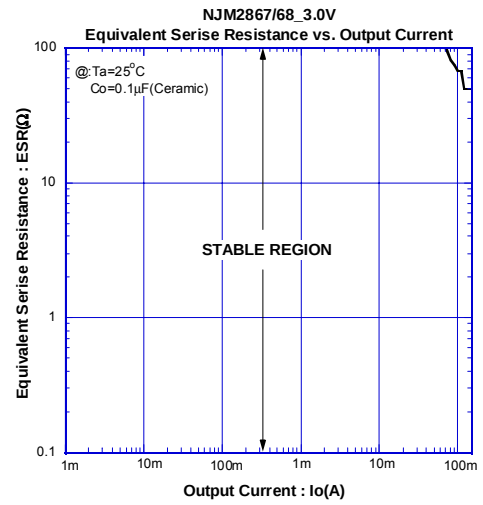
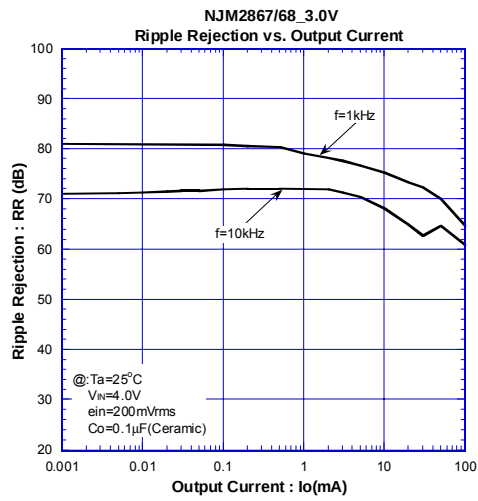
■ ELECTRICAL CHARACTERISTICS



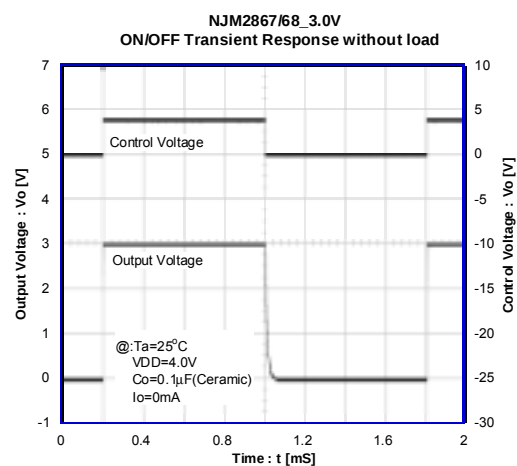
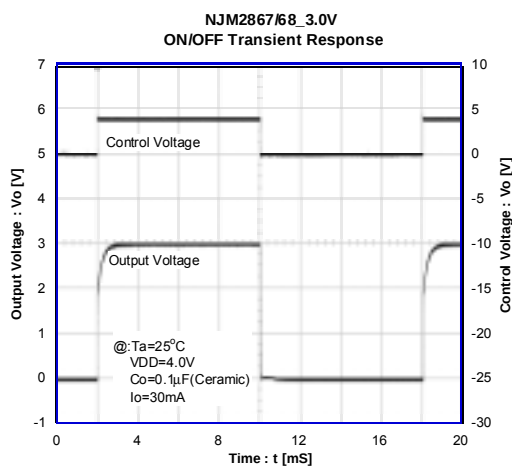
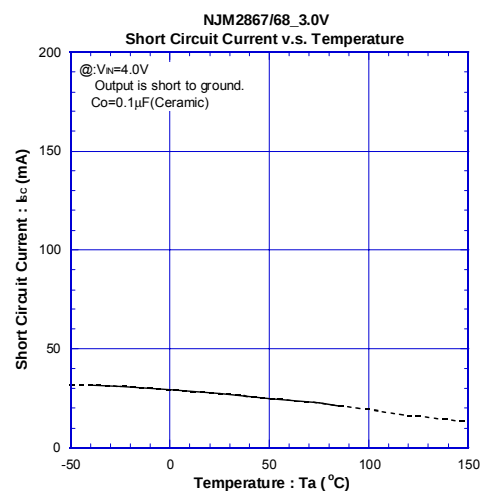
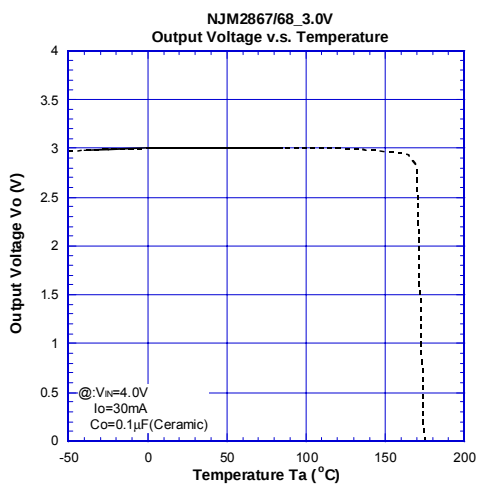
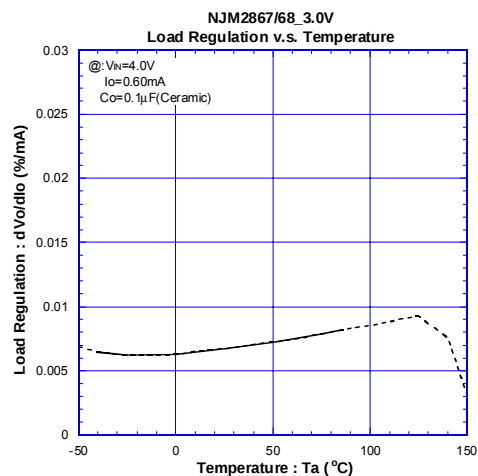
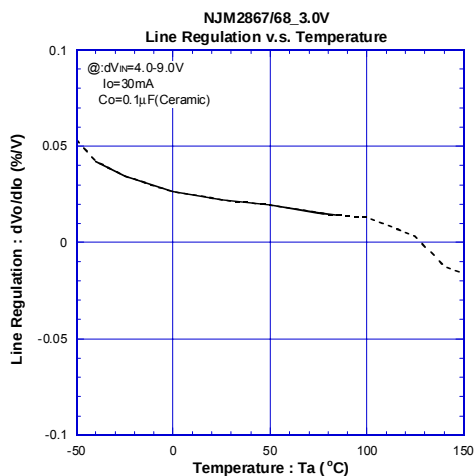
ELECTRICAL CHARACTERISTICS



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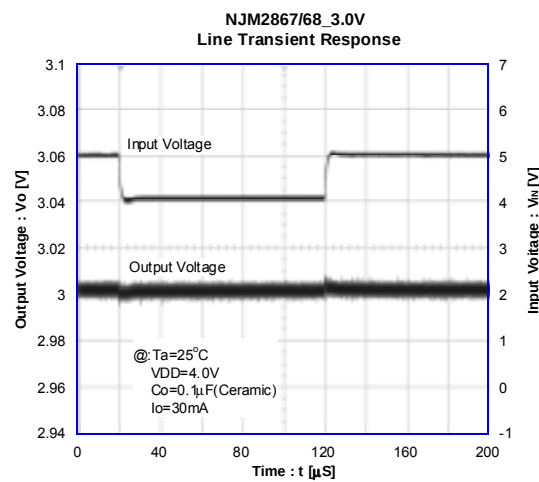
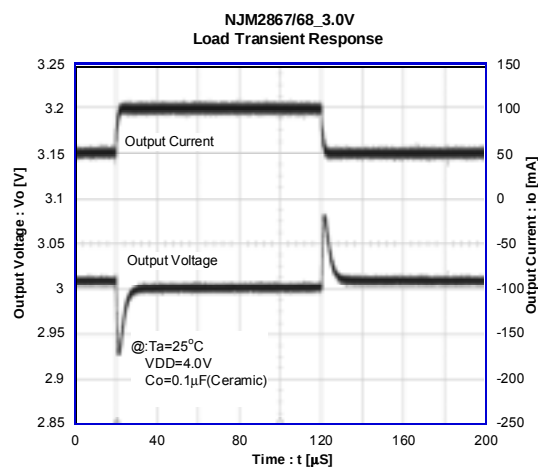


ELECTRICAL CHARACTERISTICS



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ELECTRICAL CHARACTERISTICS



[CAUTION]

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