

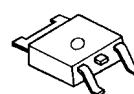
LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

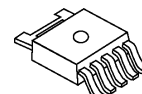
The NJM2845 is low dropout voltage regulator. Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

NJM2845 is 3 terminal type and NJM2846 is ON/OFF control built in type. These product can be selected according to the applications.

■ PACKAGE OUTLINE



NJM2845DL1

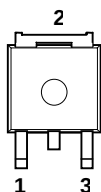


NJM2846DL3

■ FEATURES

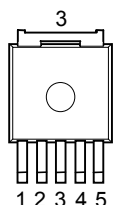
- High Ripple Rejection 75dB typ. (f=1kHz, 3V Version)
- Output Noise Voltage $V_{no}=45\mu V_{rms}$ typ. ($V_o=3V$ Version)
- Output capacitor with 2.2 μF ceramic capacitor ($V_o\geq 2.6V$)
- Output Current $I_o(max.)=800mA$
- High Precision Output $V_o \pm 1.0\%$
- Low Dropout Voltage 0.18V typ. ($I_o=500mA$)
- ON/OFF Control (NJM2846)
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-252-3 (NJM2845DL1), TO-252-5 (NJM2846DL3)

■ PIN CONFIGURATION



NJM2845DL1

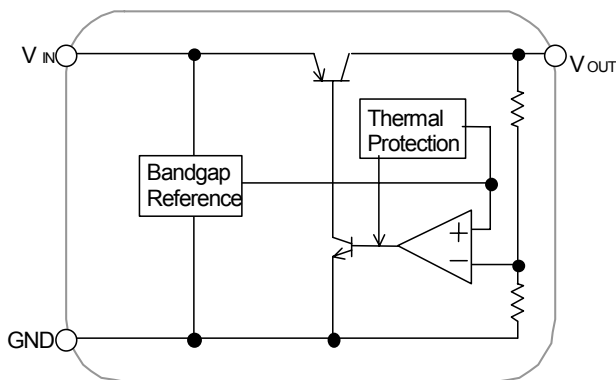
1. V_{IN}
2. GND
3. V_{OUT}



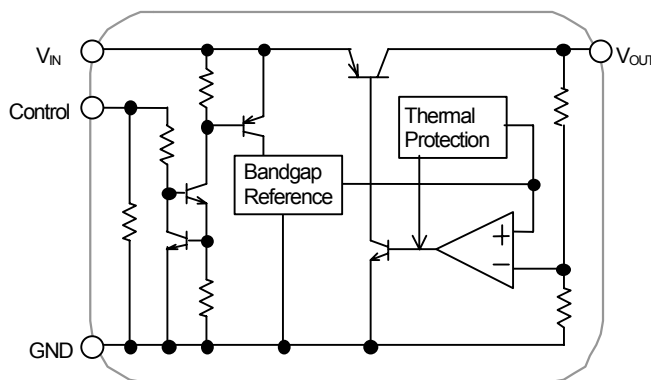
NJM2846DL3

1. CONTROL
2. V_{IN}
3. GND
4. V_o
5. NC

■ EQUIVALENT CIRCUIT



NJM2845DL1



NJM2846DL3

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■ OUTPUT VOLTAGE RANK LIST

Device Name	V _{OUT}
NJM284*DL*-18	1.8V
NJM284*DL*-23	2.3V
NJM284*DL*-25	2.5V
NJM284*DL*-03	3.0V
NJM284*DL*-33	3.3V
NJM284*DL*-05	5.0V

■ 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	10(Tc≤25°C) 1.0(Ta≤25°C)	W
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +150	°C

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

■ Operating voltage

V_{IN}=+2.5V(In case of Vo<2.3V) ~ +(Vo+10V)

■ NJM2845

■ ELECTRICAL CHARACTERISTICS (V_{IN}=Vo+1V, C_{IN}=0.33μF, Co=2.2μF(Vo≤2.6V: Co=4.7μF), Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	I _o =30mA	-1.0%	-	+1.0%	V
Quiescent Current	I _Q	I _o =0mA	-	400	600	μA
Output Current	I _o	Vo - 0.3V	800	1050	-	mA
Line Regulation	ΔVo/ΔV _{IN}	V _{IN} =Vo+1V ~ Vo+6V, I _o =30mA	-	-	0.10	%/V
Load Regulation	ΔVo/ΔI _o	I _o =0 ~ 800mA	-	-	0.004	%/mA
Dropout Voltage(*2)	ΔV _{I-O}	I _o =500mA	-	0.18	0.28	V
Ripple Rejection	RR	e _{in} =200mVrms, f=1kHz, I _o =10mA, Vo=3V Version	-	75	-	dB
Average Temperature Coefficient of Output Voltage	ΔVo/ΔTa	Ta=0 ~ 85°C, I _o =10mA	-	± 50	-	ppm/°C
Output Noise Voltage	V _{NO}	f=10Hz ~ 80kHz, I _o =10mA, Vo=3V Version	-	45	-	μVrms

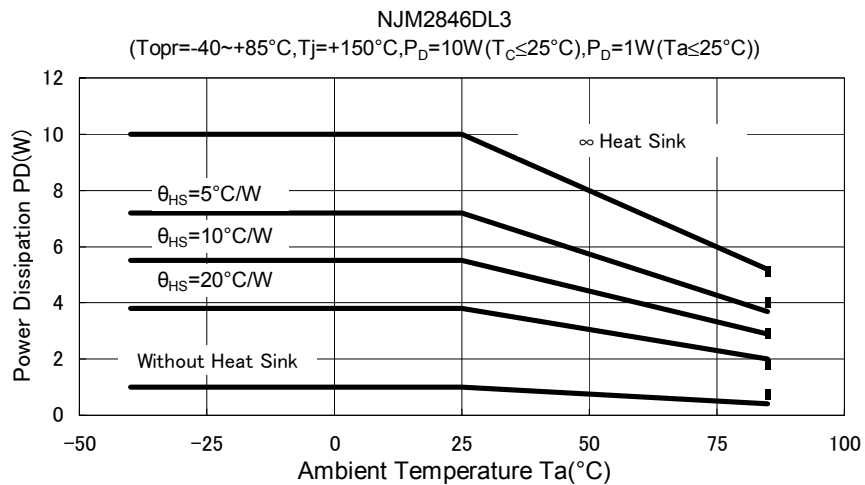
(*2): The output voltage excludes under 2.3V.

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

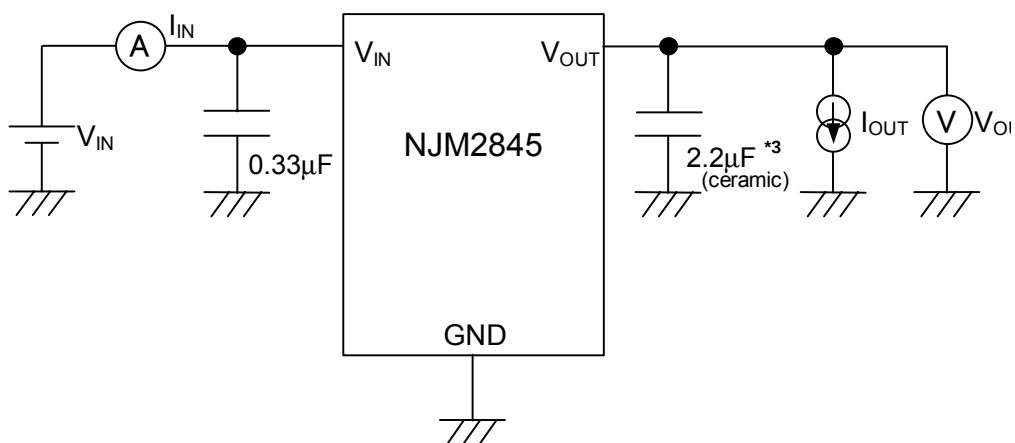
Therefore, it may be different from the individual specification for a specific output voltage.

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POWER DISSIPATION vs. AMBIENT TEMPERATURE

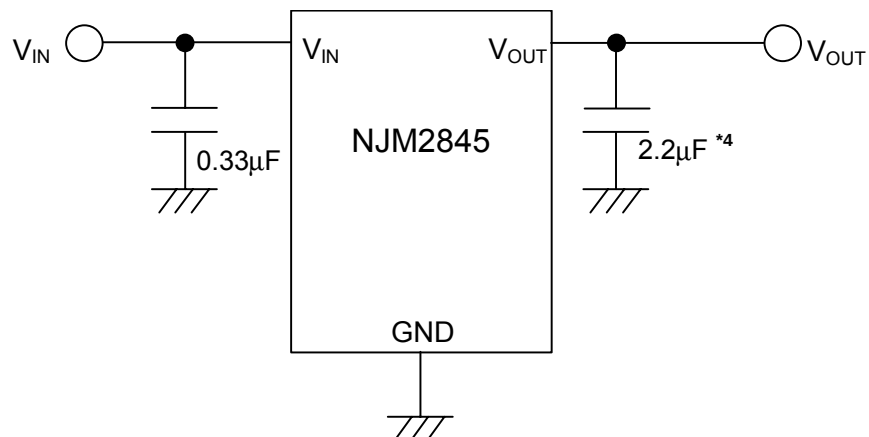


TEST CIRCUIT



*3 $V_O \leq 2.6\text{V}$ version: $C_O = 4.7\mu\text{F}$ (ceramic)

TYPICAL APPLICATION



*4 $V_O \leq 2.6\text{V}$ version: $C_O = 4.7\mu\text{F}$

NJM2845/46

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■ NJM2846

■ ELECTRICAL CHARACTERISTICS ($V_{IN}=V_O+1V$, $C_{IN}=0.33\mu F$, $C_O=2.2\mu F$ ($V_O\leq 2.6V$: $C_O=4.7\mu F$), $T_a=25^\circ C$)

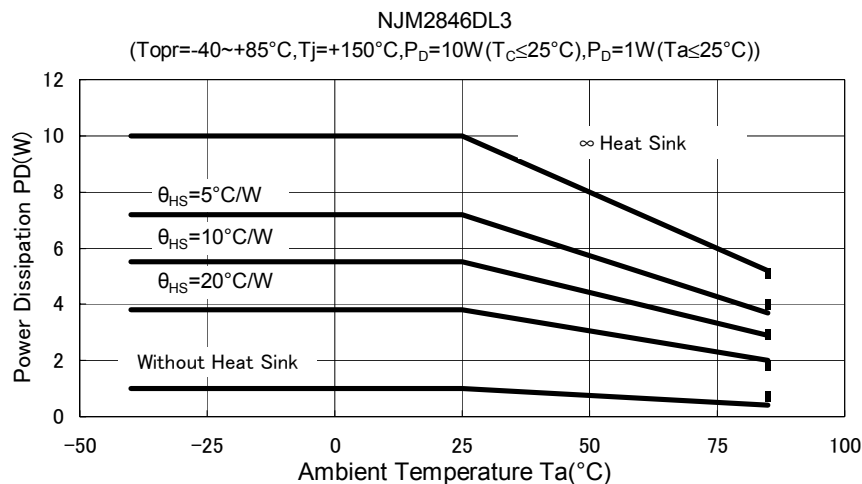
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_O	$I_O=30mA$	-1.0%	-	+1.0%	V
Quiescent Current	I_Q	$I_O=0mA$	-	400	600	μA
Quiescent Current at Control OFF	$I_{Q(OFF)}$	$V_{CONT}=0V$	-	-	100	nA
Line Regulation	I_O	$V_O - 0.3V$	800	1050	-	mA
Line Regulation	$\Delta V_O/\Delta V_{IN}$	$V_{IN}=V_O+1V \sim V_O+6V$, $I_O=30mA$	-	-	0.10	%/V
Load Regulation	$\Delta V_O/\Delta I_O$	$I_O=0 \sim 800mA$	-	-	0.004	%/mA
Dropout Voltage(*5)	ΔV_{I-O}	$I_O=500mA$	-	0.18	0.28	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	-	45	-	μV_{rms}
Control Current	I_{CONT}	$V_{CONT}=1.6V$, $I_O=0mA$	-	3	12	μA
Control Voltage for ON-state	$V_{CONT(ON)}$		1.6	-	-	V
Control Voltage for OFF-state	$V_{CONT(OFF)}$		-	-	0.6	V

(*5): The output voltage excludes under 2.3V.

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

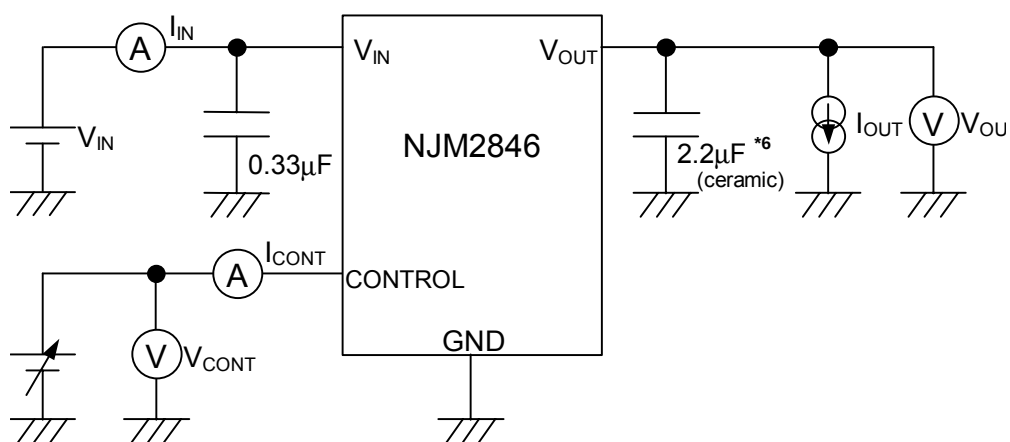
Therefore, it may be different from the individual specification for a specific output voltage.

■ POWER DISSIPATION vs. AMBIENT TEMPERATURE



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■ TEST CIRCUIT



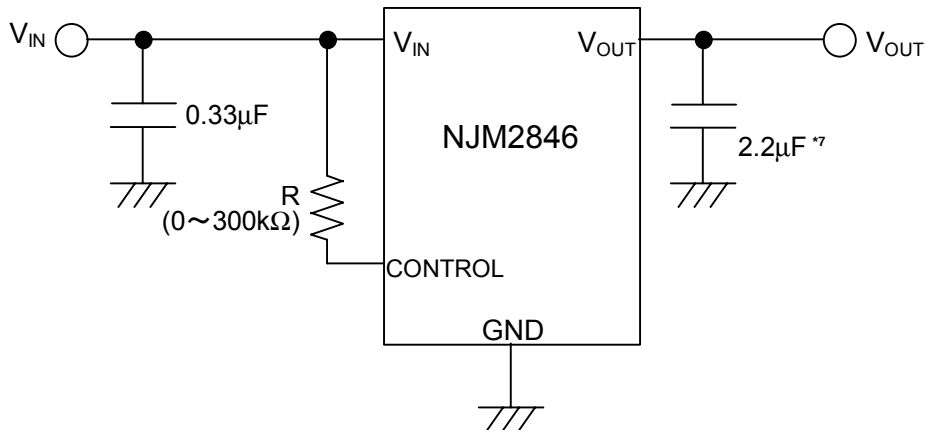
*6 $V_O \leq 2.6V$ version: $C_O = 4.7\mu F$ (ceramic)

NJM2845/46

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■ TYPICAL APPLICATION

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

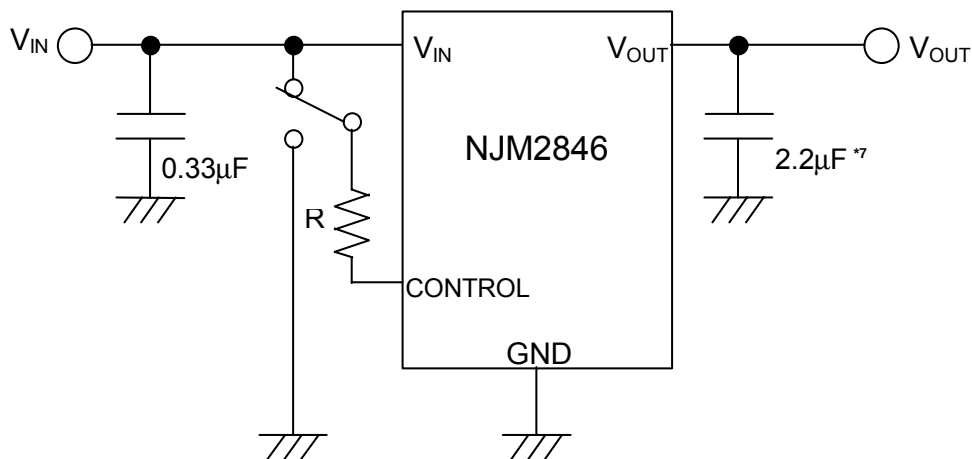


*7 $V_o \leq 2.6V$ version: $C_o = 4.7\mu F$

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:



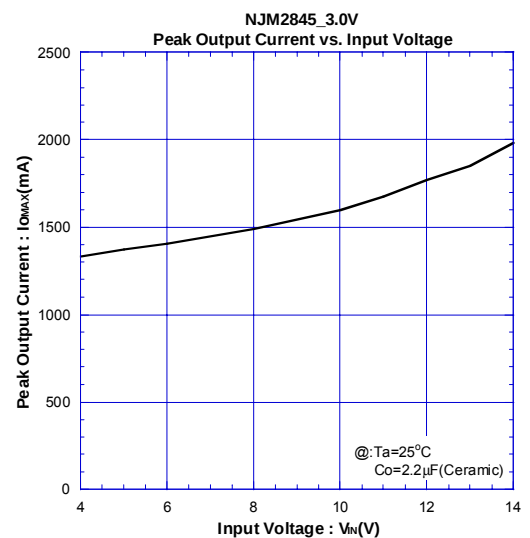
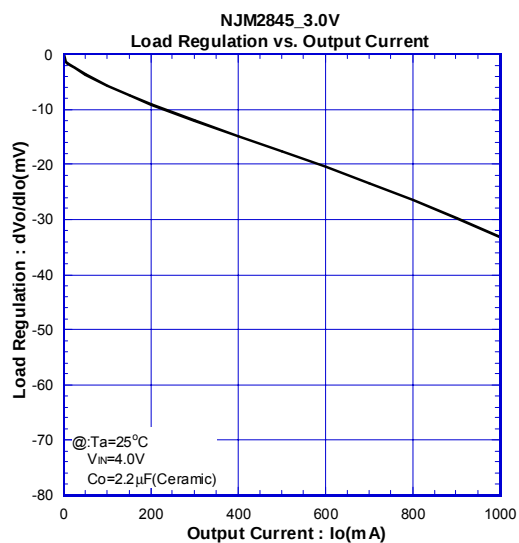
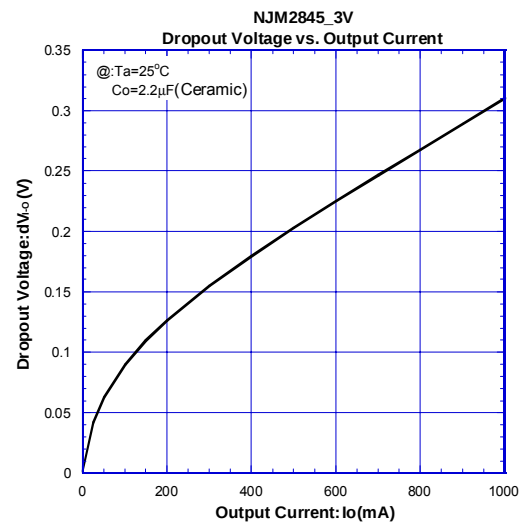
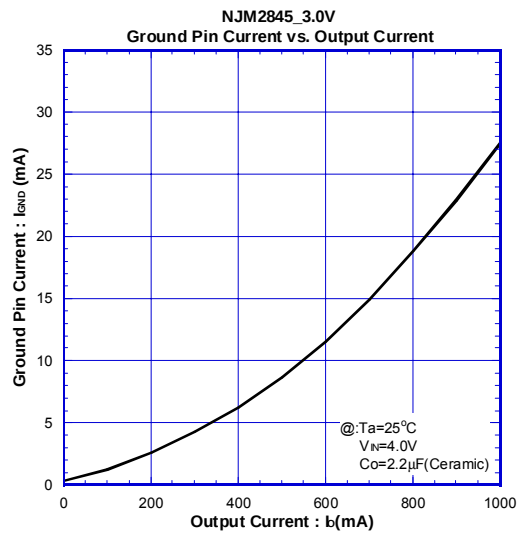
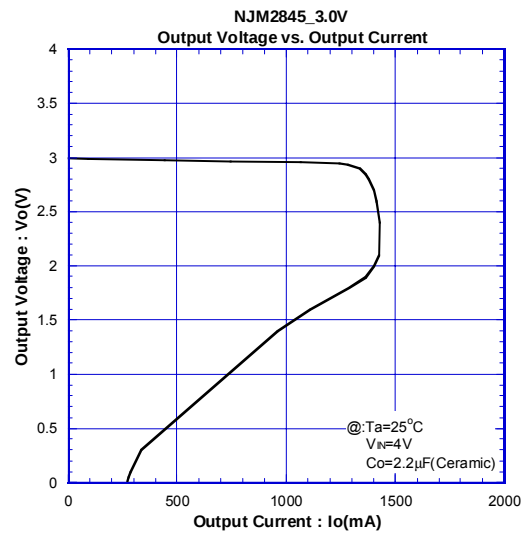
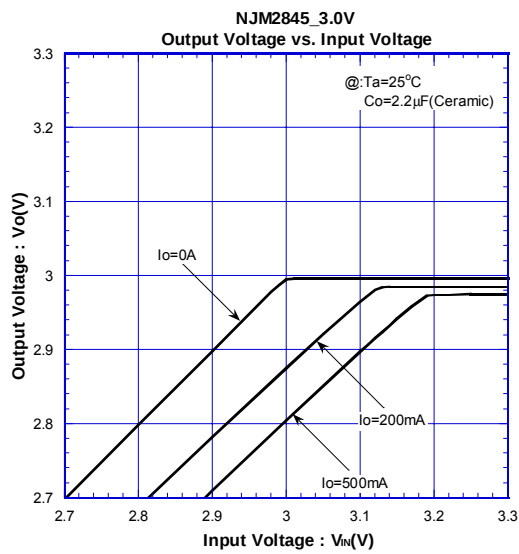
*7 $V_o \leq 2.6V$ version: $C_o = 4.7\mu F$

State of control terminal:

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

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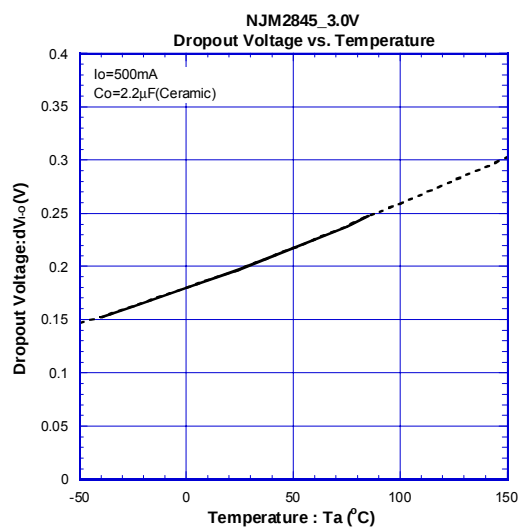
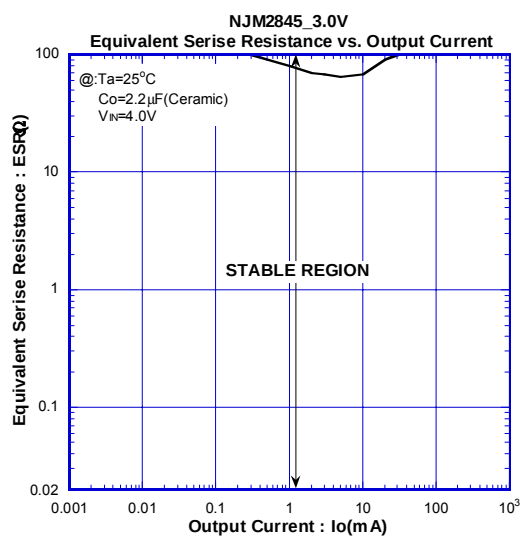
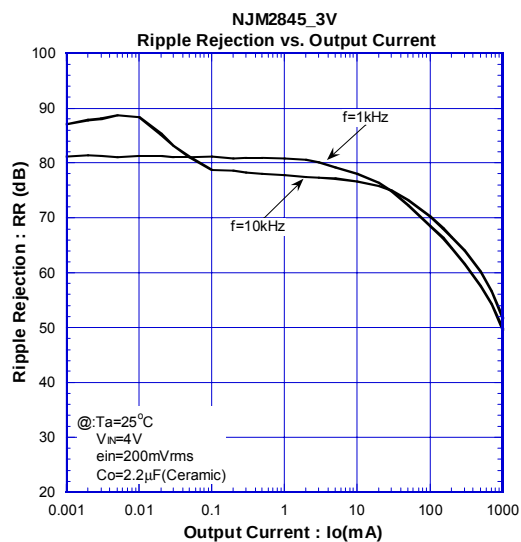
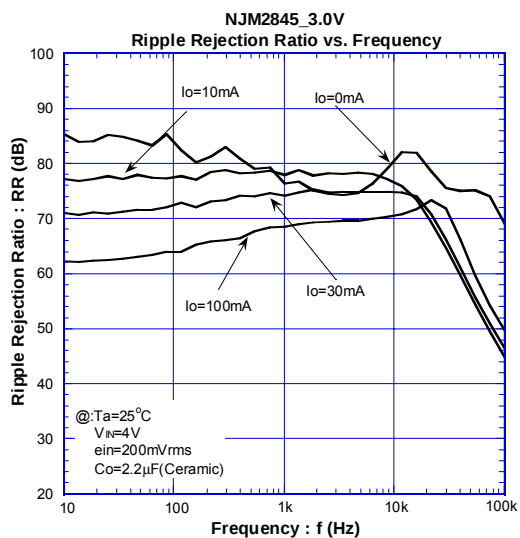
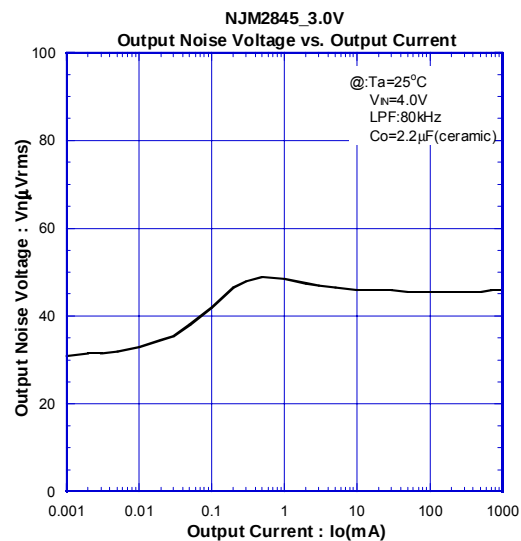
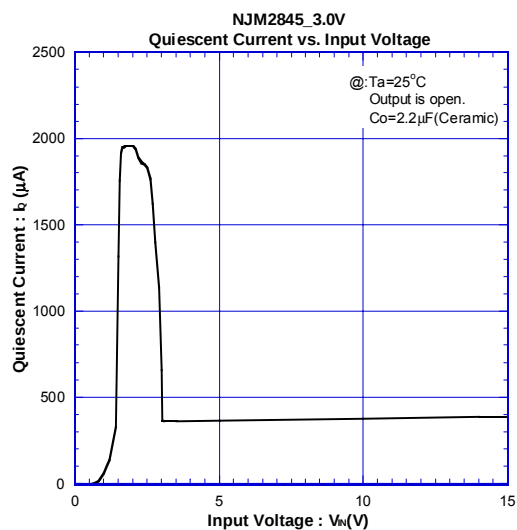
■ TYPICAL CHARACTERISTICS (NJM2845)



NJM2845/46

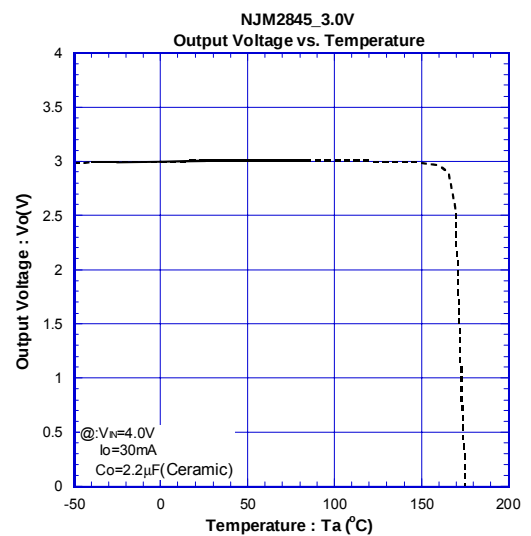
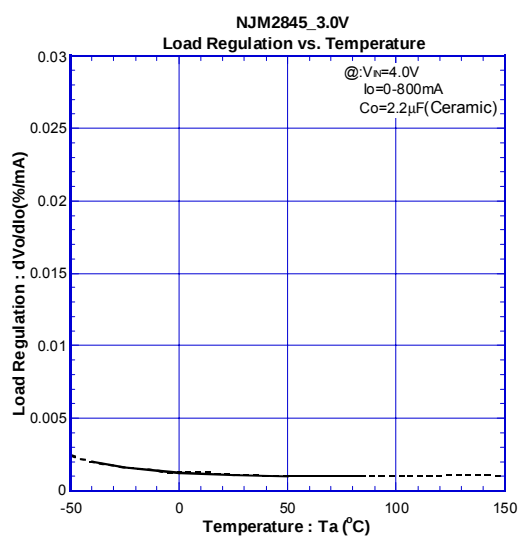
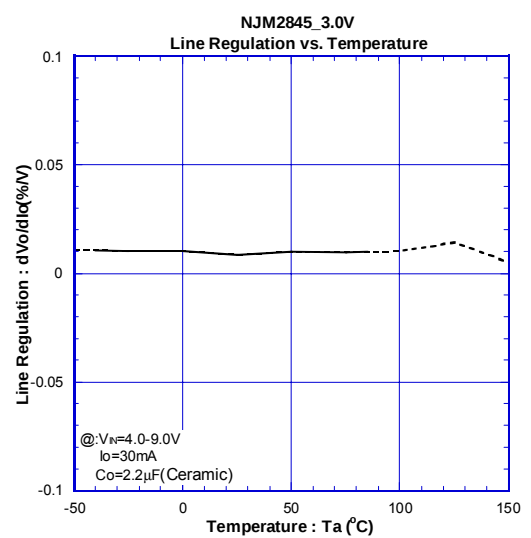
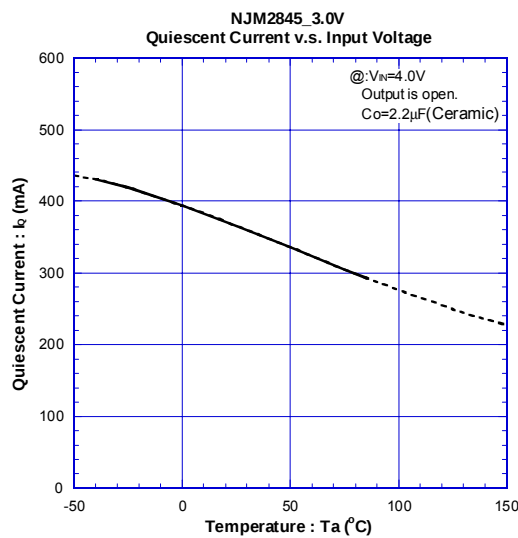
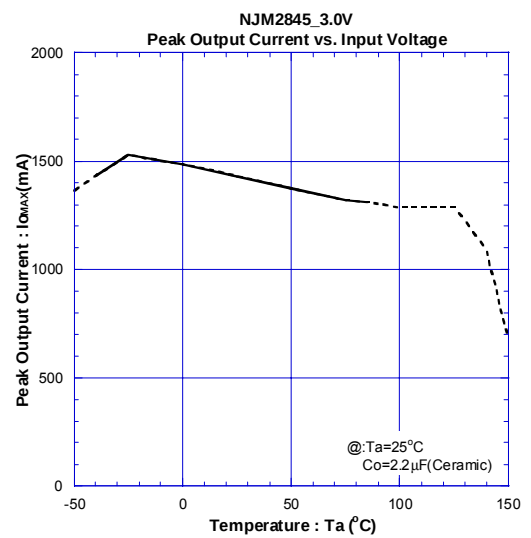
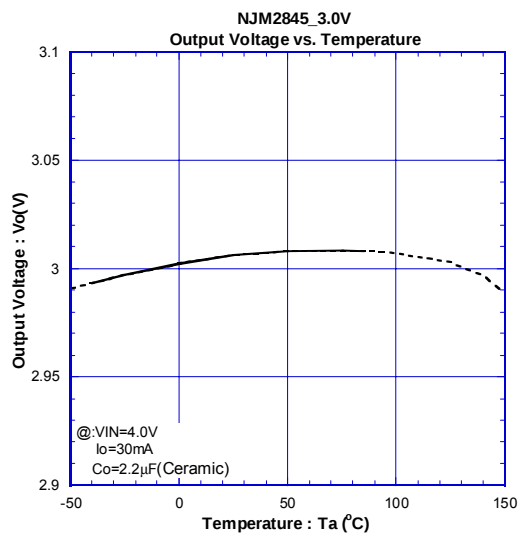
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■ TYPICAL CHARACTERISTICS (NJM2845)



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■ TYPICAL CHARACTERISTICS (NJM2845)

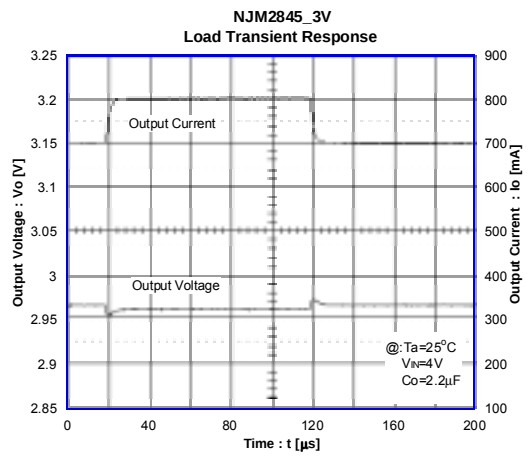
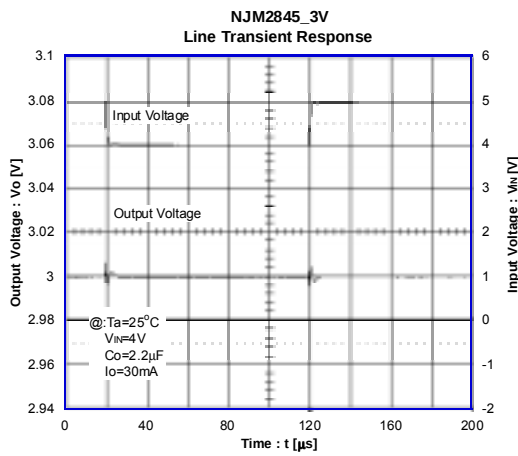
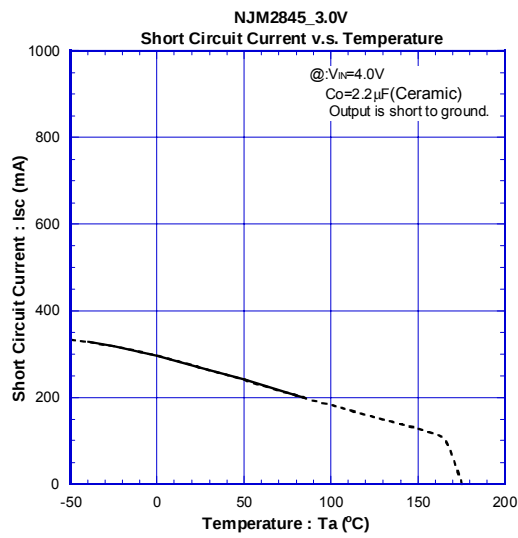


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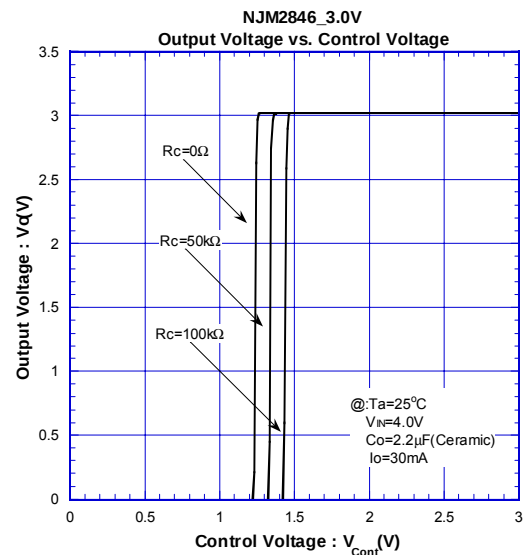
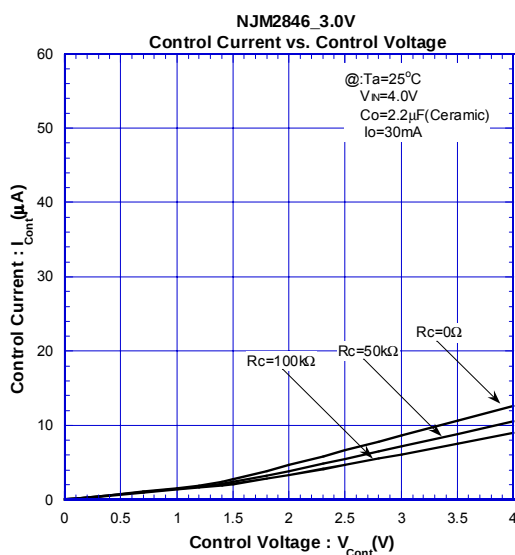
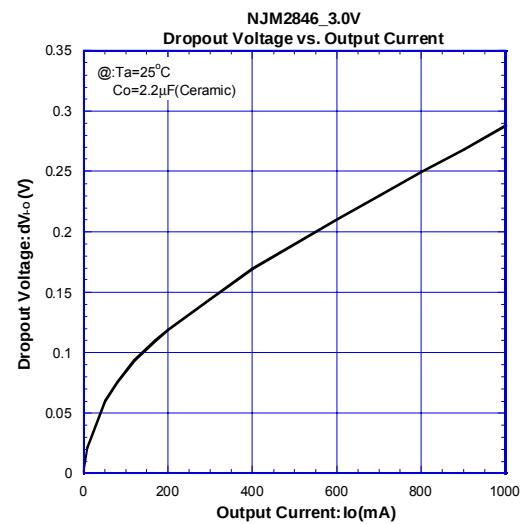
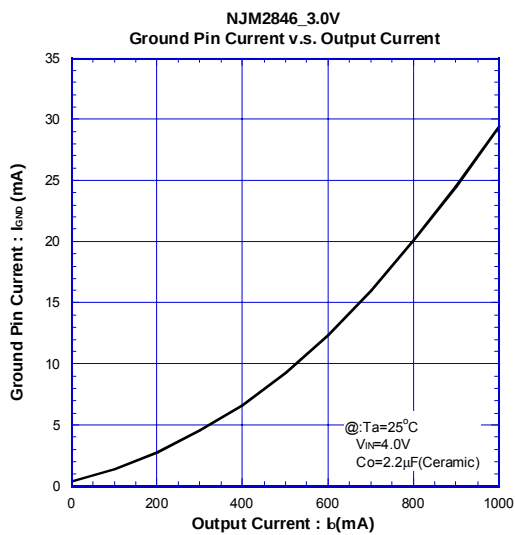
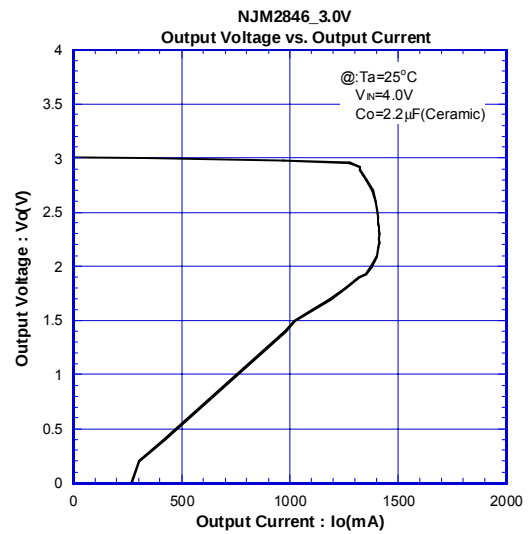
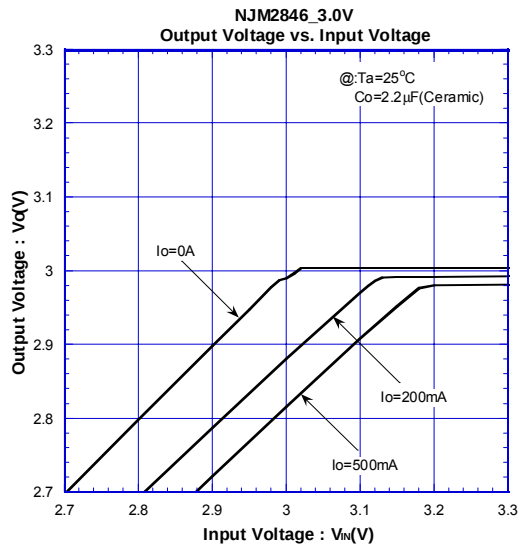


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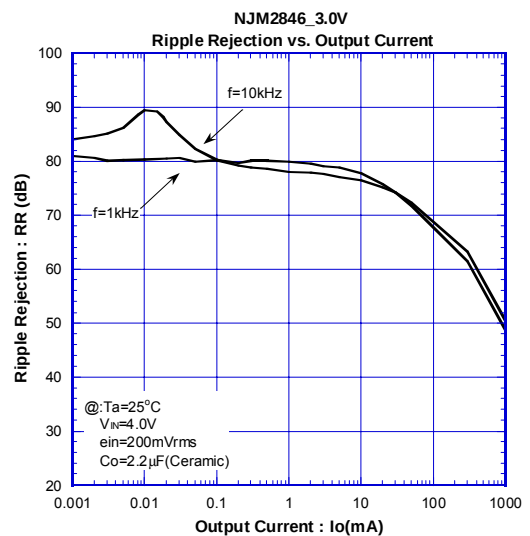
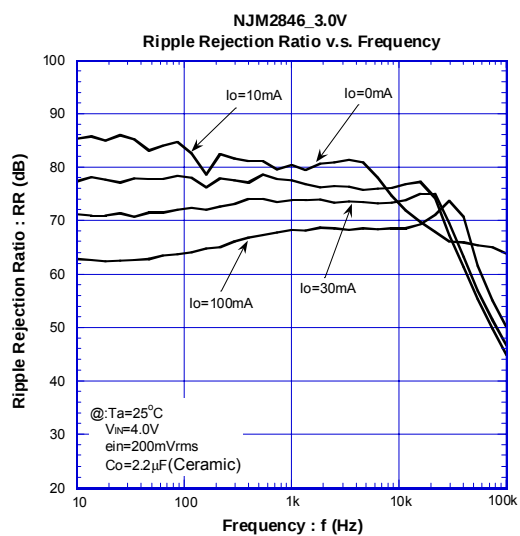
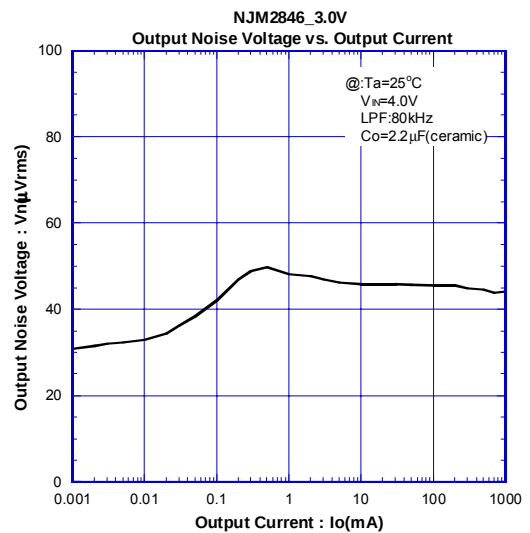
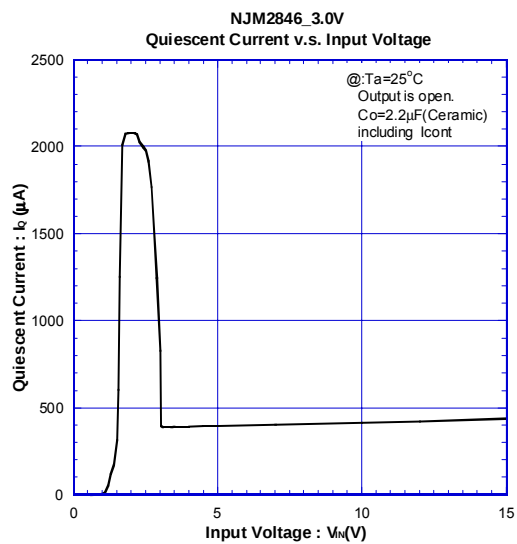
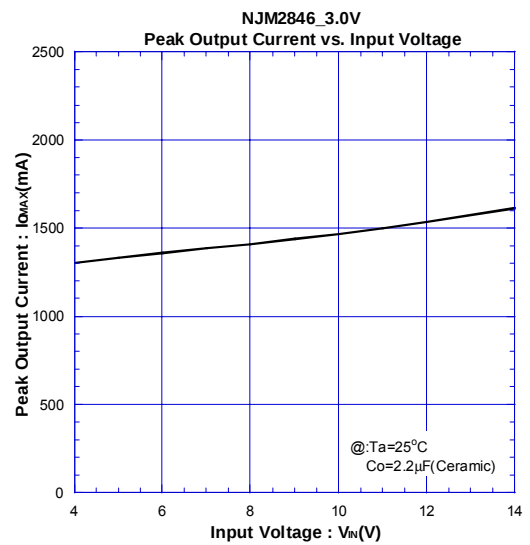
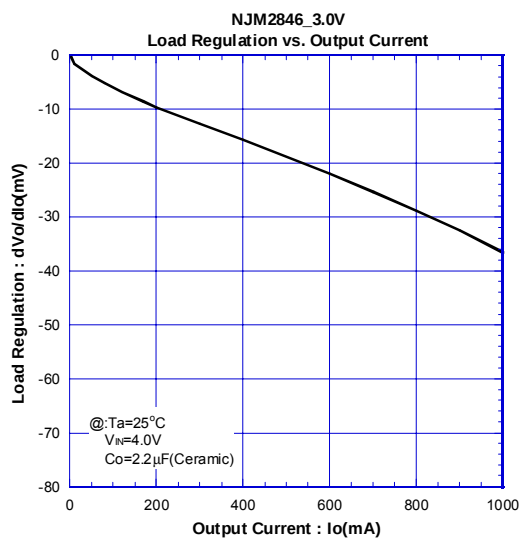
■ TYPICAL CHARACTERISTICS (NJM2845)



■ TYPICAL CHARACTERISTICS (NJM2846)

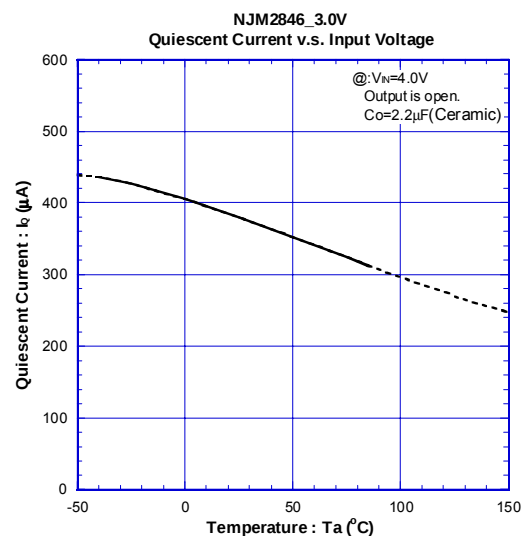
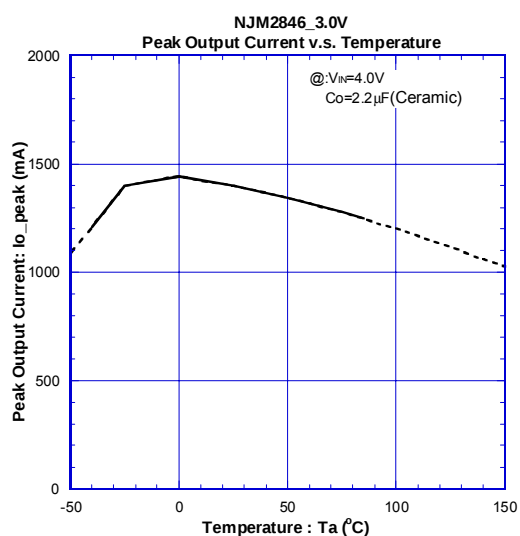
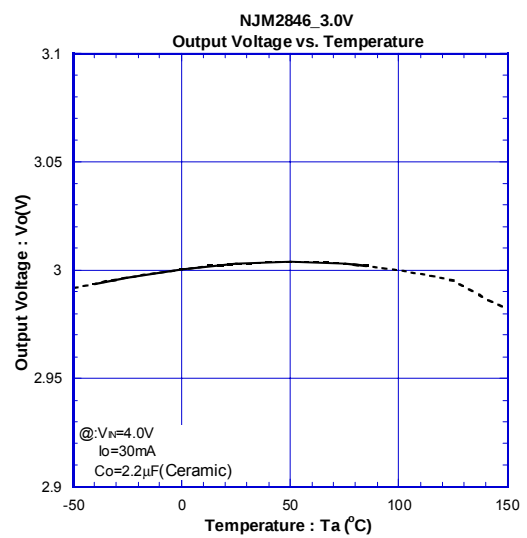
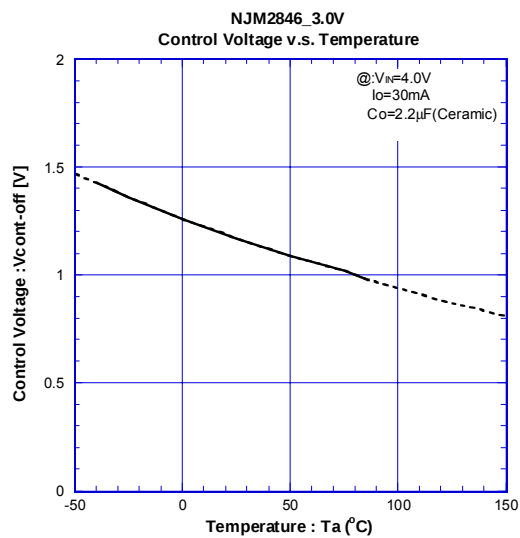
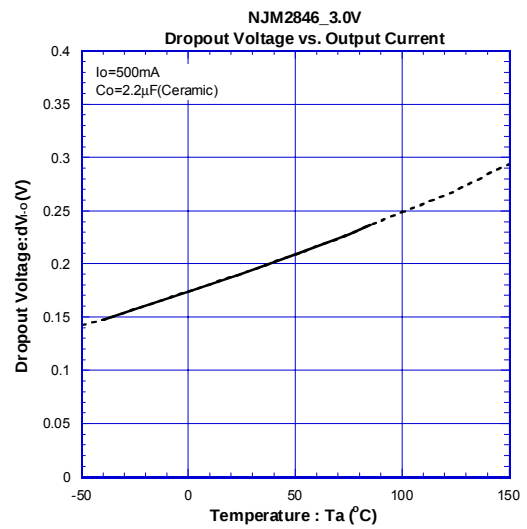
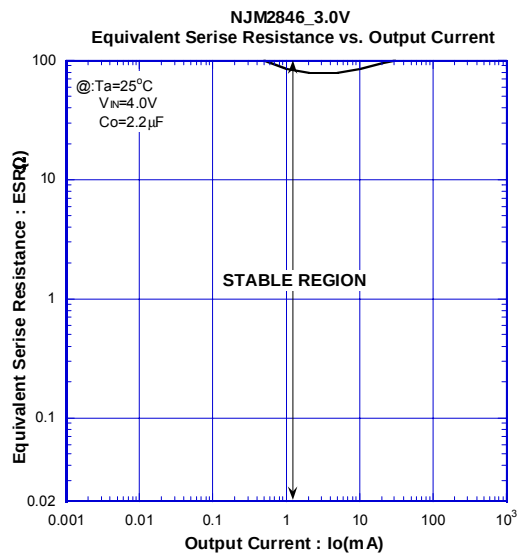


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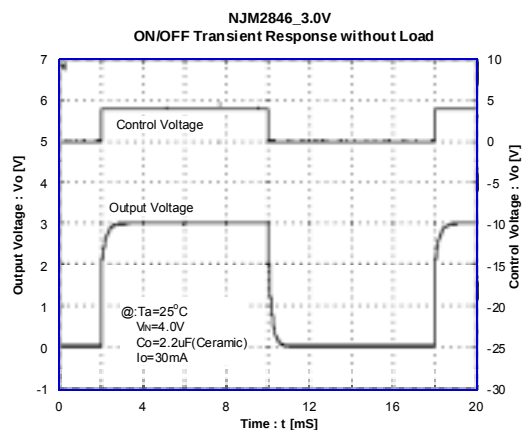
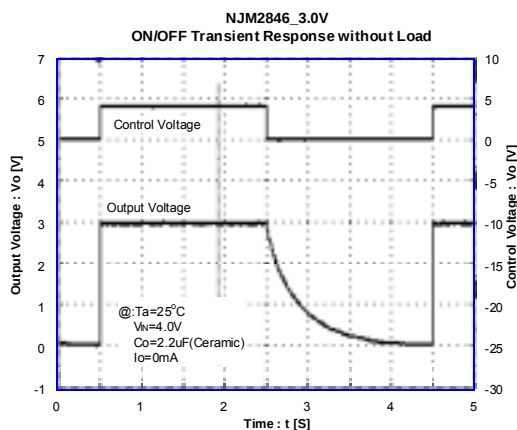
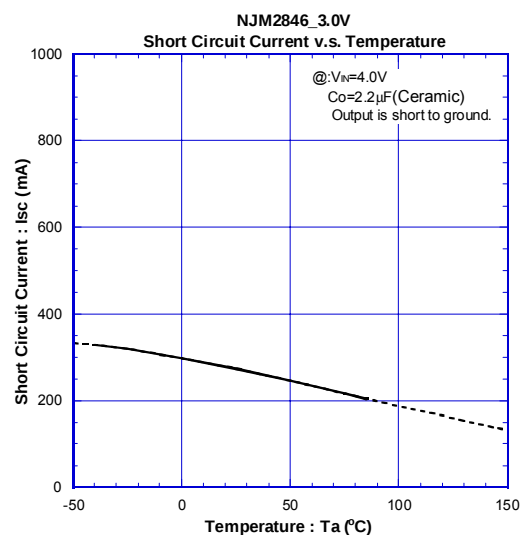
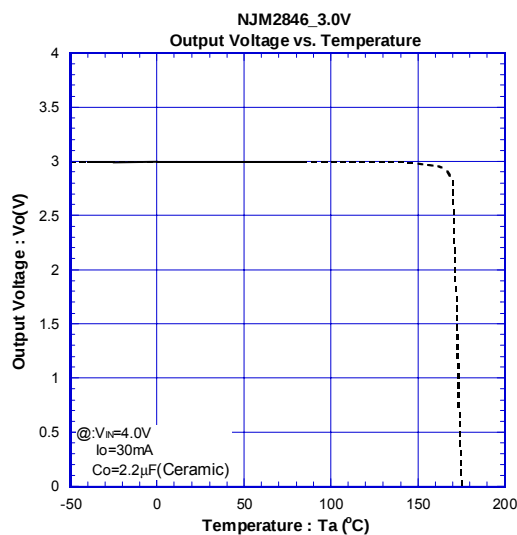
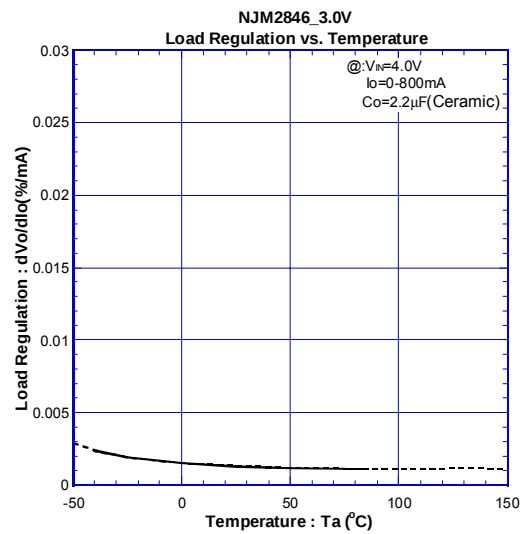
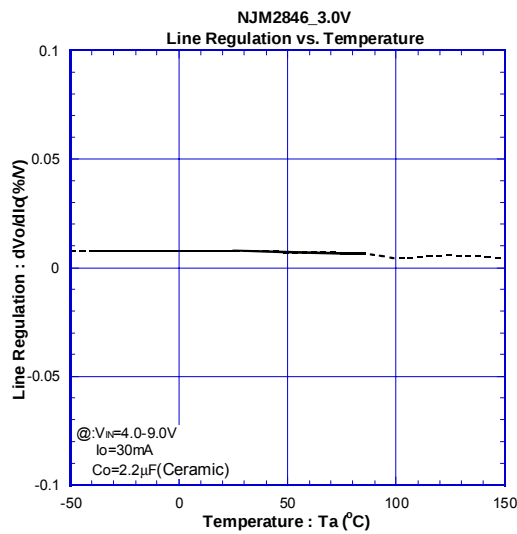
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■ TYPICAL CHARACTERISTICS (NJM2846)



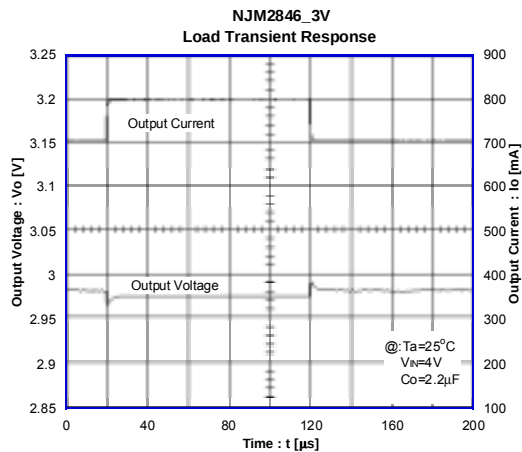
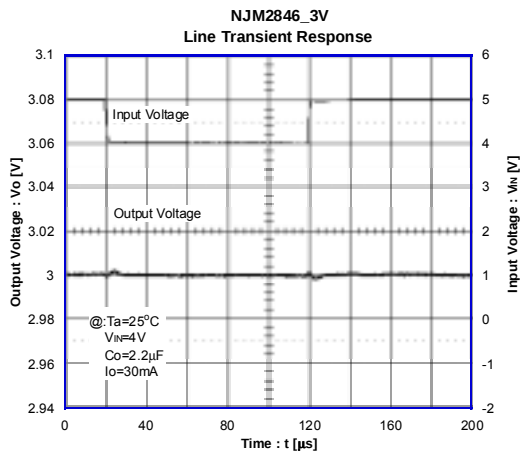
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■ TYPICAL CHARACTERISTICS (NJM2846)



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■ TYPICAL CHARACTERISTICS (NJM2846)



[CAUTION]

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