

LOW DROPOUT VOLTAGE REGULATOR

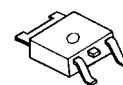
■ GENERAL DESCRIPTION

The NJM2835 is a 500mA output low dropout voltage regulator.

Advanced Bipolar technology achieves low noise, high ripple rejection and high supply voltage.

2.1V to 15.5V output voltage range, 2.2 μ F small decoupling capacitor, built-in noise bypass capacitor make the NJM2835 suitable for various applications.

■ PACKAGE OUTLINE

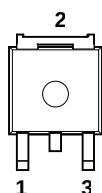


NJM2835DL1

■ FEATURES

- Output voltage options available 2.1 ~ 15.5V
- High Ripple Rejection 75dB typ. (f=1kHz, Vo=3V Version)
- Output Noise Voltage Vno=45 μ Vrms typ.
- Output capacitor with 2.2 μ F ceramic capacitor (Vo $\geq$ 5.1V)
- Output Current Io(max.)=500mA
- High Precision Output Vo $\pm$ 1.0%
- Low Dropout Voltage 0.18V typ. (Io=300mA)
- Internal Thermal Overload Protection
- Internal Over Current Protection
- Bipolar Technology
- Package Outline TO-252-3

■ PIN CONFIGURATION

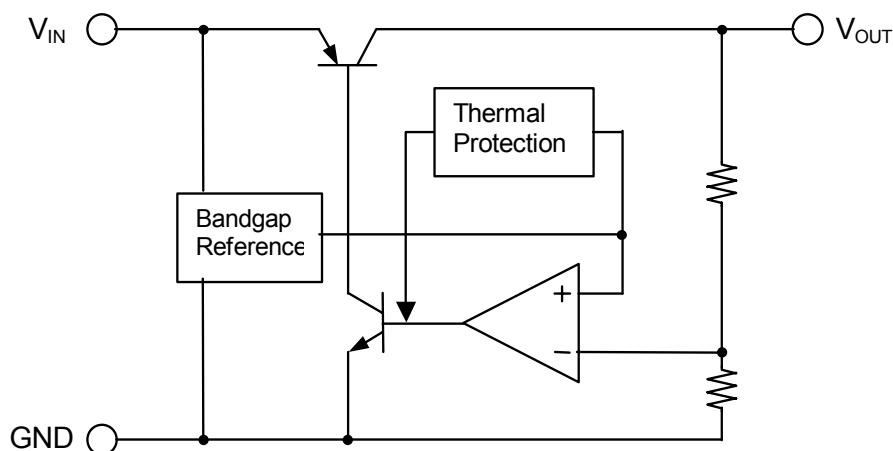


NJM2835DL1

PIN FUNCTION

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

■ EQUIVALENT CIRCUIT



■ OUTPUT VOLTAGE RANK LIST

The WHITE column shows applicable Voltage Rank(s)

Device Name	Vout	Device Name	Vout	Device Name	Vout
NJM2835DL1-21	2.1V	NJM2835DL1-36	3.6V	NJM2835DL1-08	8.0V
NJM2835DL1-22	2.2V	NJM2835DL1-37	3.7V	NJM2835DL1-85	8.5V
NJM2835DL1-23	2.3V	NJM2835DL1-38	3.8V	NJM2835DL1-09	9.0V
NJM2835DL1-24	2.4V	NJM2835DL1-39	3.9V	NJM2835DL1-10	10.0V
NJM2835DL1-25	2.5V	NJM2835DL1-04	4.0V	NJM2835DL1-12	12.0V
NJM2835DL1-26	2.6V	NJM2835DL1-41	4.1V	NJM2835DL1-15	15.0V
NJM2835DL1-27	2.7V	NJM2835DL1-42	4.2V		
NJM2835DL1-28	2.8V	NJM2835DL1-43	4.3V		
NJM2835DL1-29	2.9V	NJM2835DL1-44	4.4V		
NJM2835DL1-03	3.0V	NJM2835DL1-45	4.5V		
NJM2835DL1-31	3.1V	NJM2835DL1-46	4.6V		
NJM2835DL1-32	3.2V	NJM2835DL1-47	4.7V		
NJM2835DL1-33	3.3V	NJM2835DL1-48	4.8V		
NJM2835DL1-34	3.4V	NJM2835DL1-49	4.9V		
NJM2835DL1-35	3.5V	NJM2835DL1-05	5.0V		

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	+20	V
Power Dissipation	P_D	10($T_c \leq 25^\circ\text{C}$) 1($T_a \leq 25^\circ\text{C}$)	W
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +150	°C

■ ELECTRICAL CHARACTERISTICS

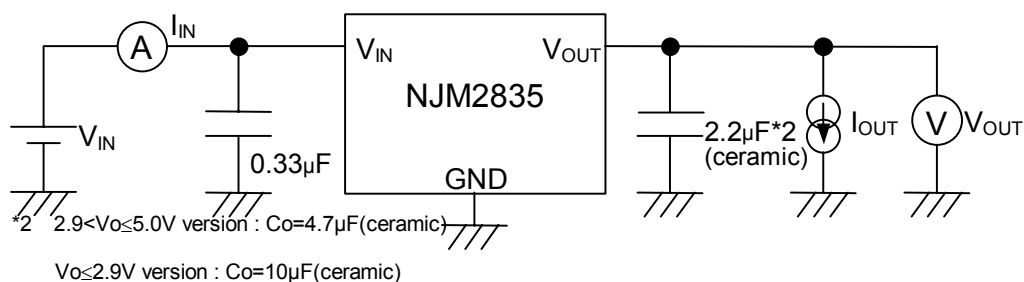
($V_{IN} = V_O + 1V$, $C_{IN} = 0.33\mu F$, $C_O = 2.2\mu F$ (2.9V < $V_O \leq 5V$: $C_O = 4.7\mu F$, $V_O \leq 2.9V$: $C_O = 10\mu F$), $T_a = 25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_O	$I_O = 30\text{mA}$	-1.0%	-	+1.0%	V
Quiescent Current	I_Q	$I_O = 0\text{mA}$	$V_O \leq 5V$ Version	-	200	300 μA
			5V < $V_O \leq 10V$ Version	-	215	315 μA
			10V < $V_O \leq 15V$ Version	-	230	330 μA
Output Current	I_O	$V_O - 0.3V$	500	650	-	mA
Line Regulation	$\Delta V_O / \Delta V_{IN}$	$V_{IN} = V_O + 1V \sim V_O + 6V$ ($V_O \leq 12V$), $V_{IN} = V_O + 1V \sim 18V$ ($V_O > 12V$), $I_O = 30\text{mA}$	-	-	0.10	%/V
Load Regulation	$\Delta V_O / \Delta I_O$	$I_O = 0 \sim 500\text{mA}$	-	-	0.007	%/mA
Dropout Voltage(*1)	ΔV_{I-O}	$I_O = 300\text{mA}$	-	0.18	0.28	V
Ripple Rejection	RR	$e_{in} = 200\text{mV}_{rms}$, $f = 1\text{kHz}$, $I_O = 10\text{mA}$ $V_O = 3V$ Version	-	75	-	dB
Average Temperature Coefficient of Output Voltage	$\Delta V_O / \Delta T_a$	$T_a = 0 \sim 85^\circ\text{C}$, $I_O = 10\text{mA}$	-	± 50	-	ppm/°C
Output Noise Voltage	V_{NO}	$f = 10\text{Hz} \sim 80\text{kHz}$, $I_O = 10\text{mA}$, $V_O = 3V$ Version	-	45	-	μV_{rms}
Input Voltage	V_{IN}		-	-	18	V

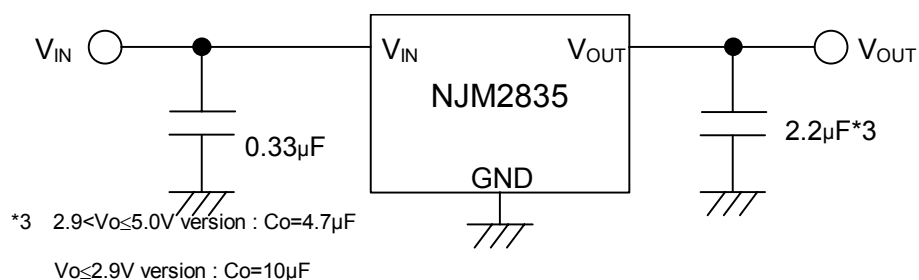
(*1): The above specification is a common specification for all output voltages.

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

■ TEST CIRCUIT



■ TYPICAL APPLICATION



*Input Capacitance C_{IN}

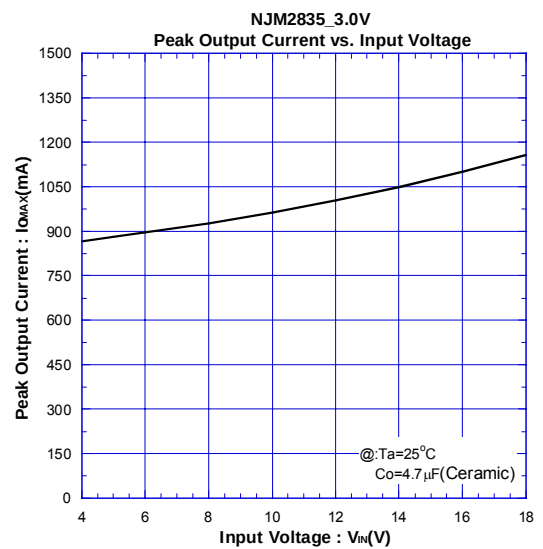
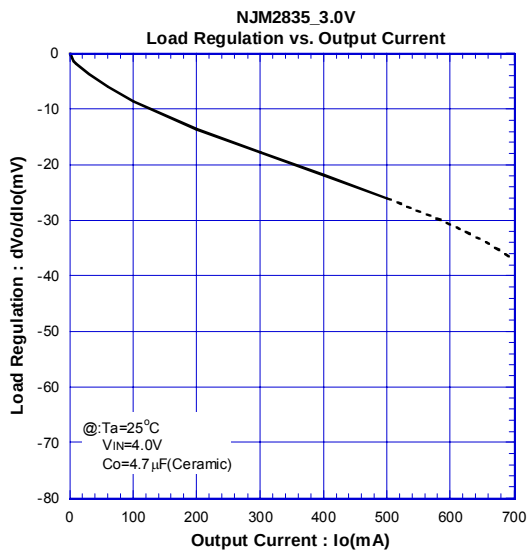
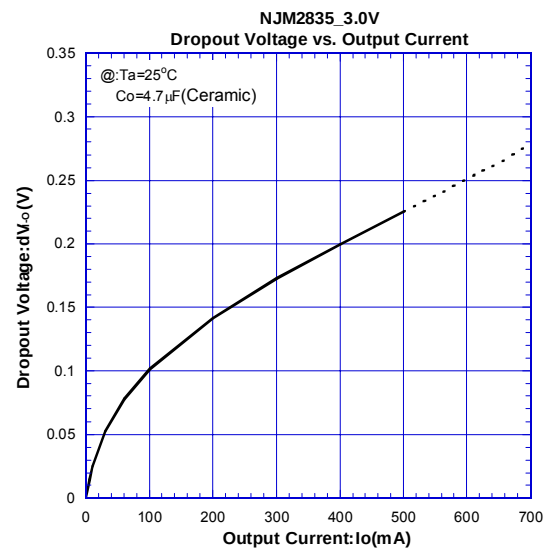
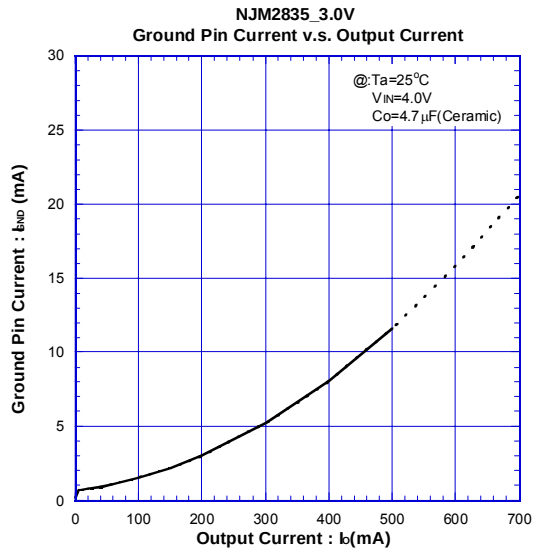
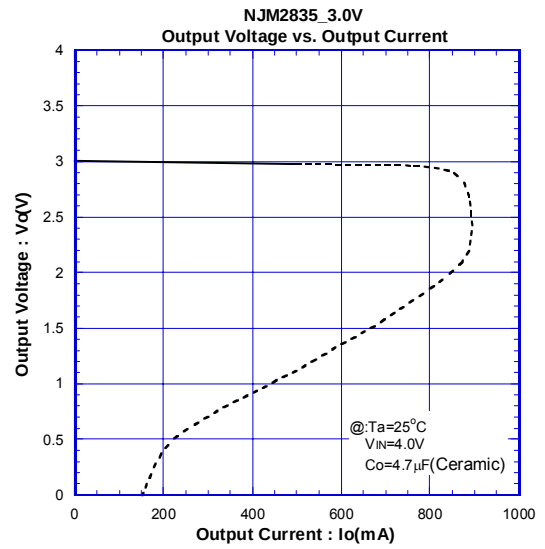
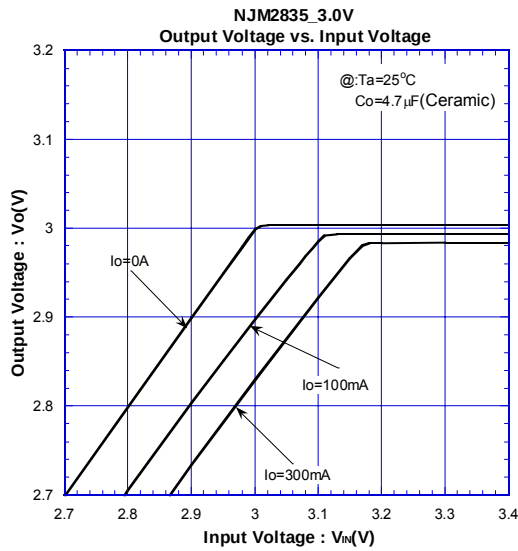
Input Capacitance C_{IN} is required to prevent oscillation and reduce power supply ripple for applications with high power supply impedance or a long power supply line.

Use the C_{IN} value of $0.33\mu\text{F}$ greater to avoid the problem.

C_{IN} should connect between GND and V_{IN} as short as possible.

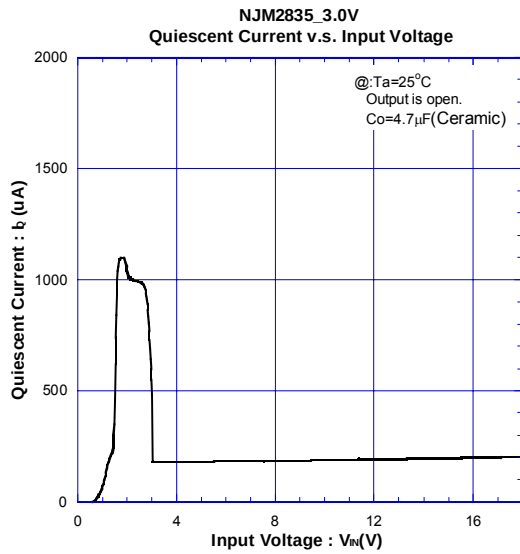
TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (3V Version)

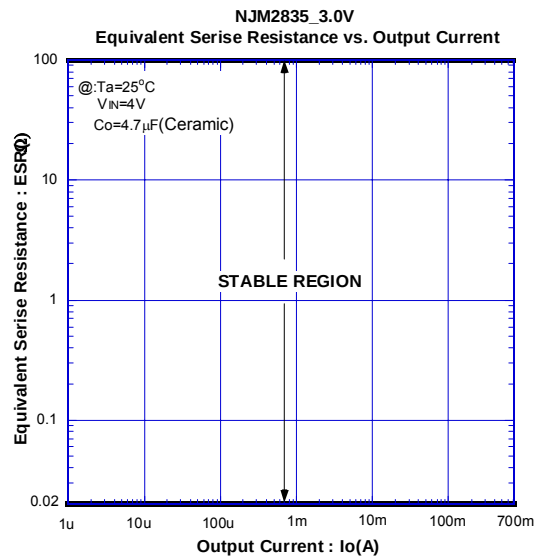
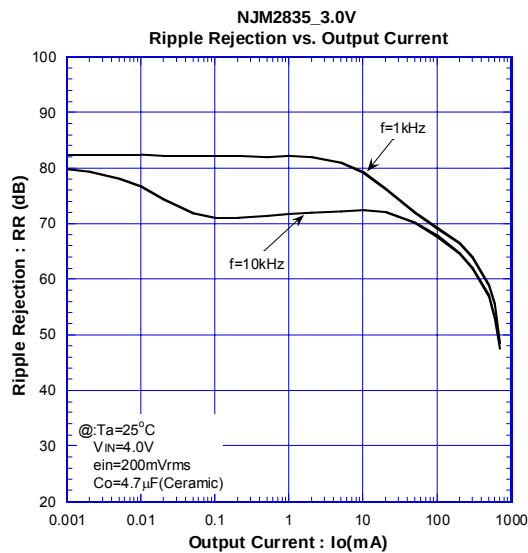
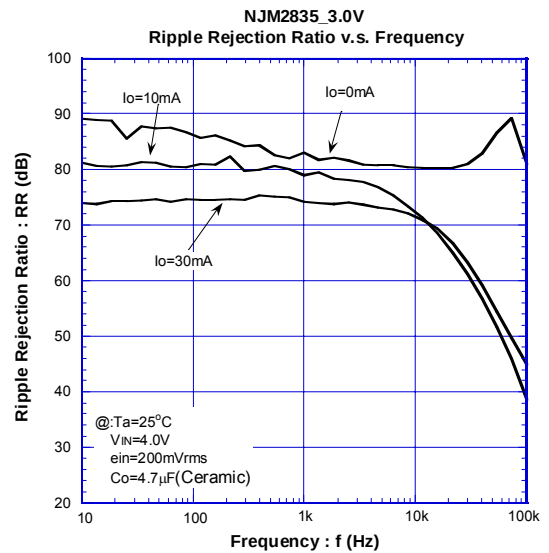
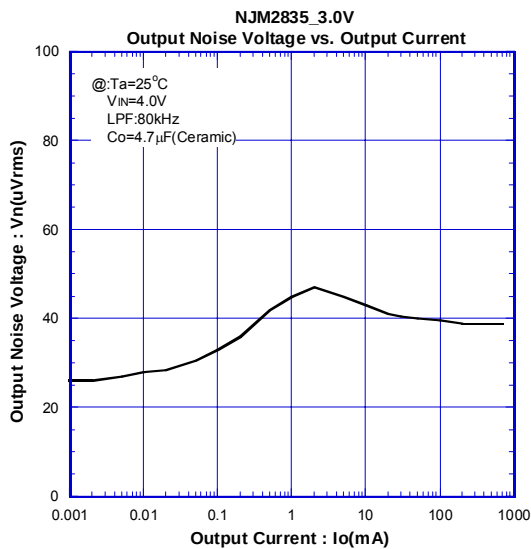


TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (3V Version)

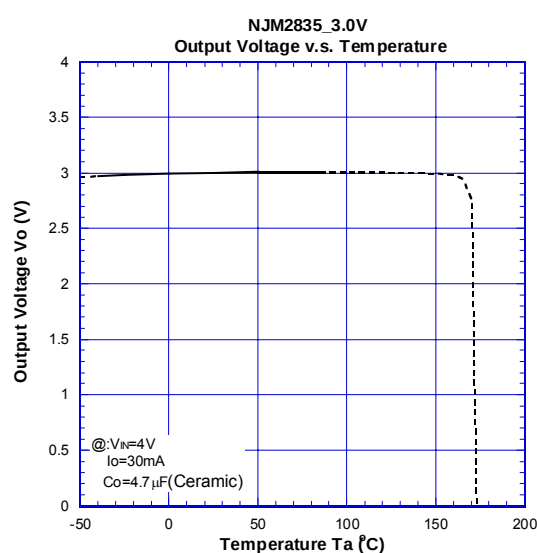
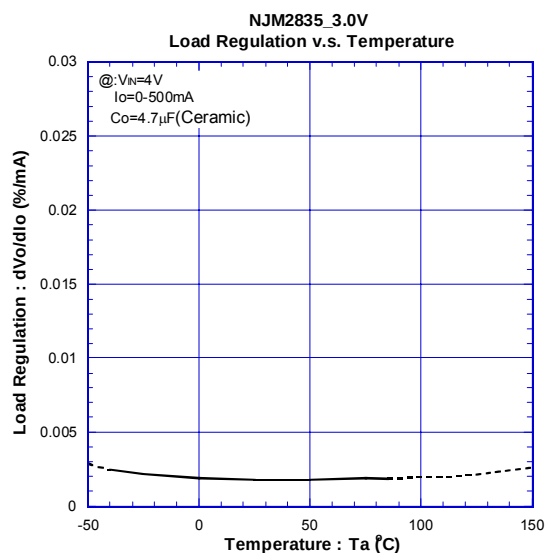
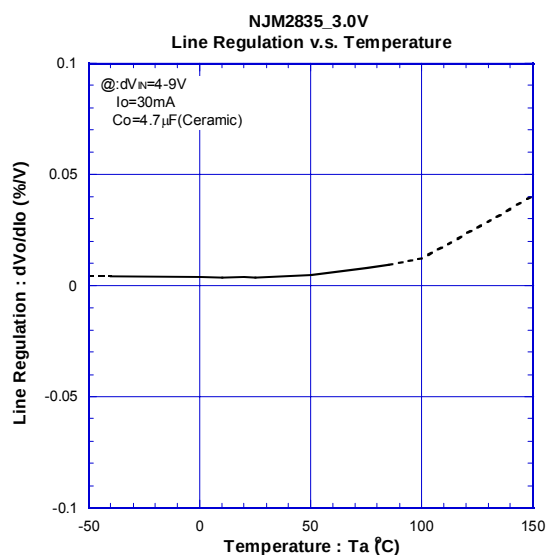
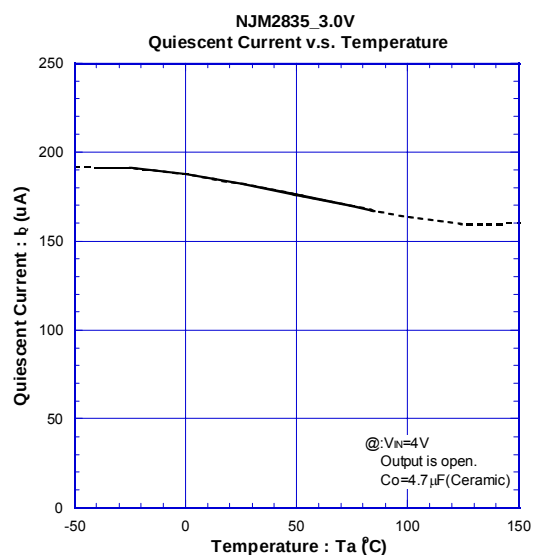
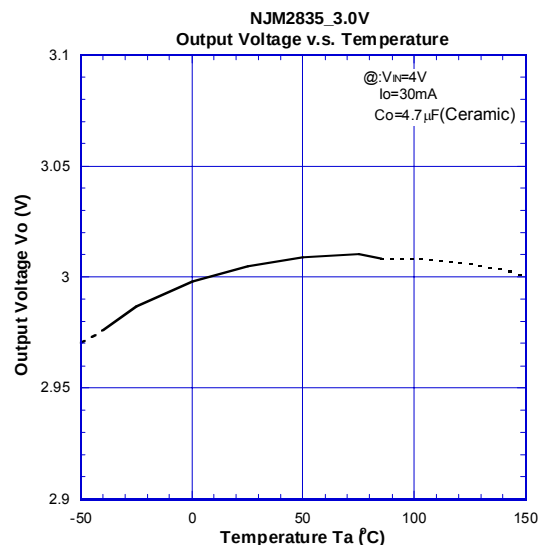
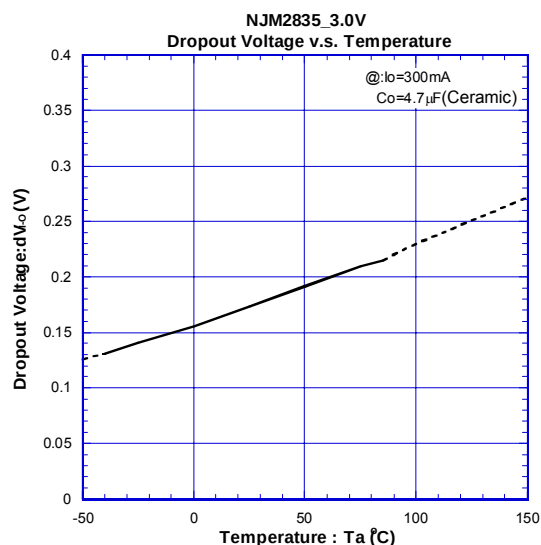


AC CHARACTERISTICS (3V Version)



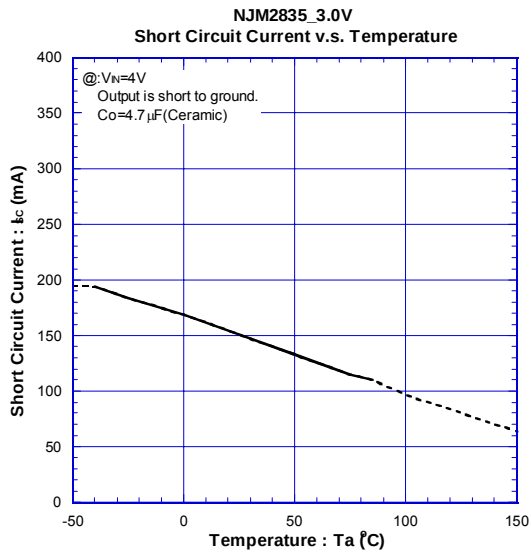
TYPICAL CHARACTERISTICS

●TEMPERATURE CHARACTERISTICS (3V Version)



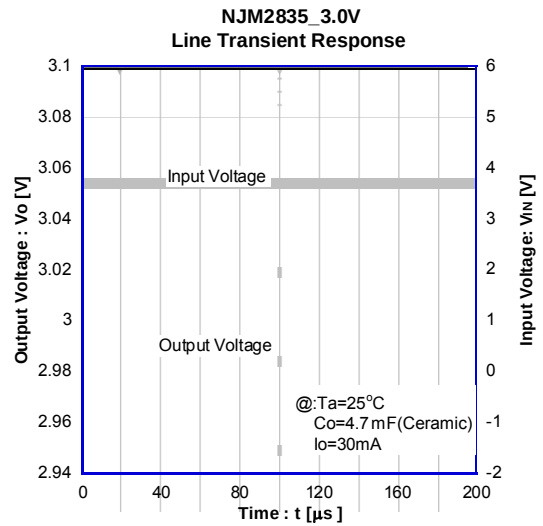
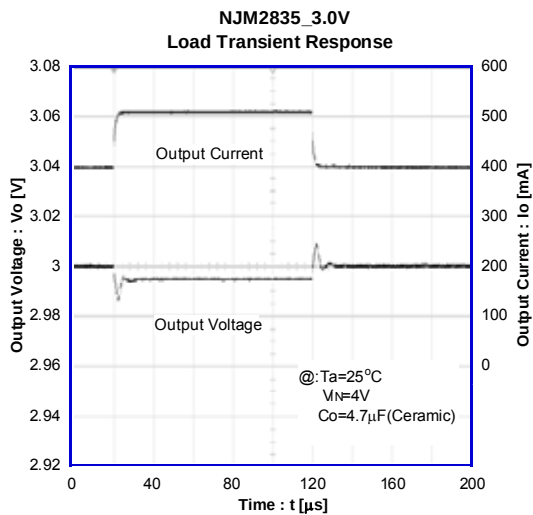
■ TYPICAL CHARACTERISTICS

● TEMPERATURE CHARACTERISTICS (3V Version)



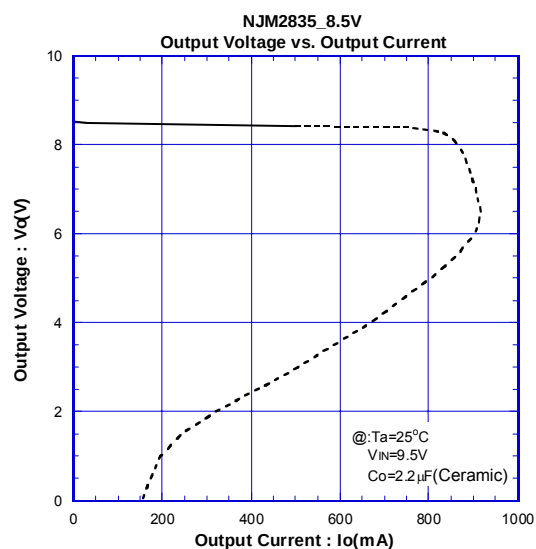
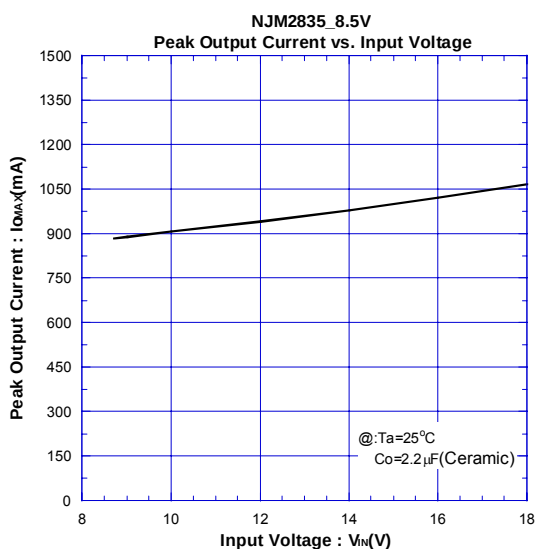
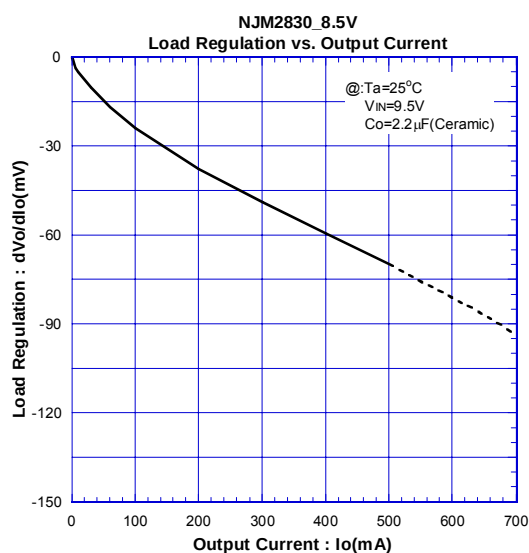
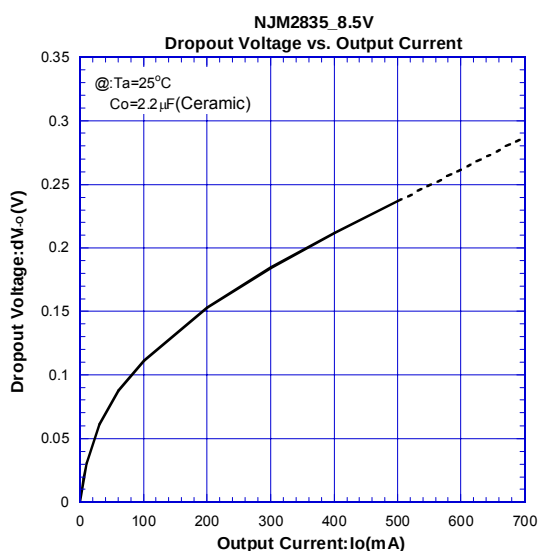
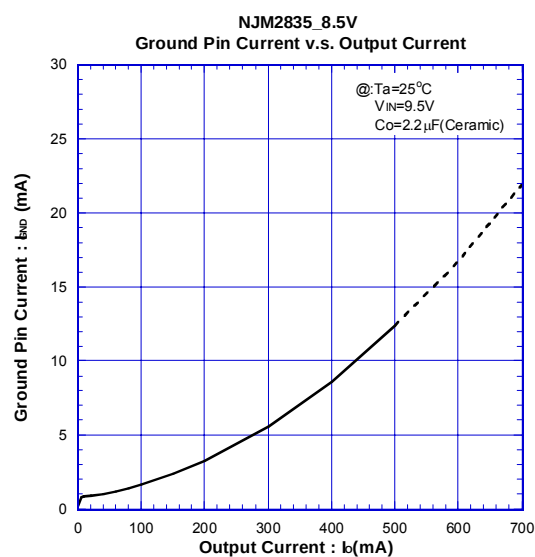
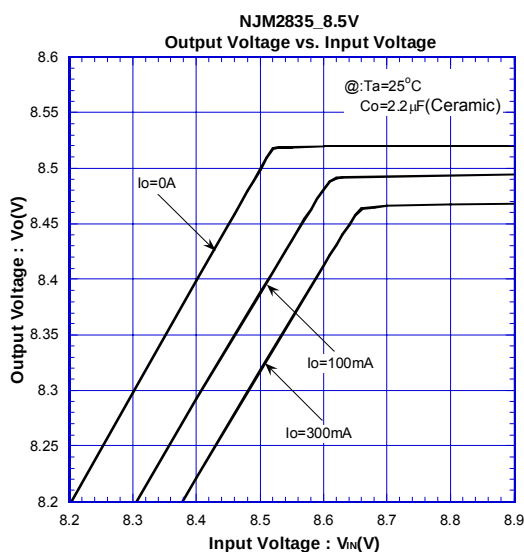
■ TYPICAL CHARACTERISTICS

● TRANSIENT RESPONSE (3V Version)



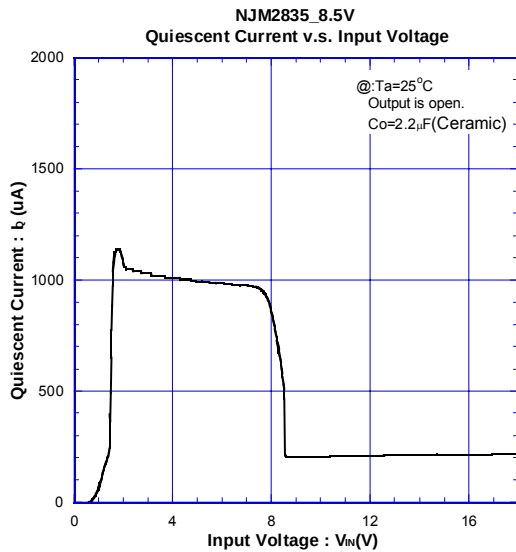
■ TYPICAL CHARACTERISTICS

● DC CHARACTERISTICS (8.5V Version)

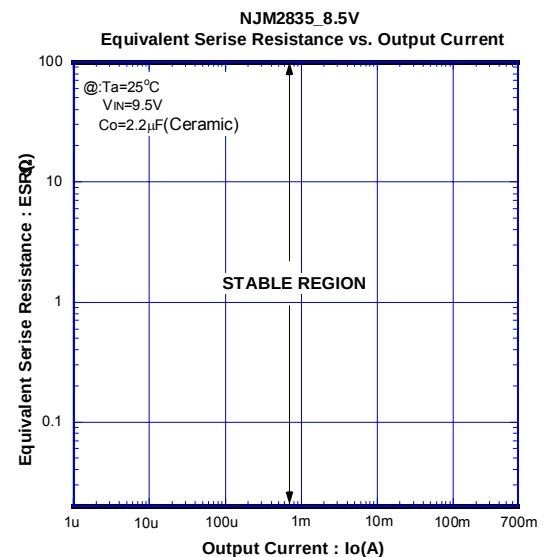
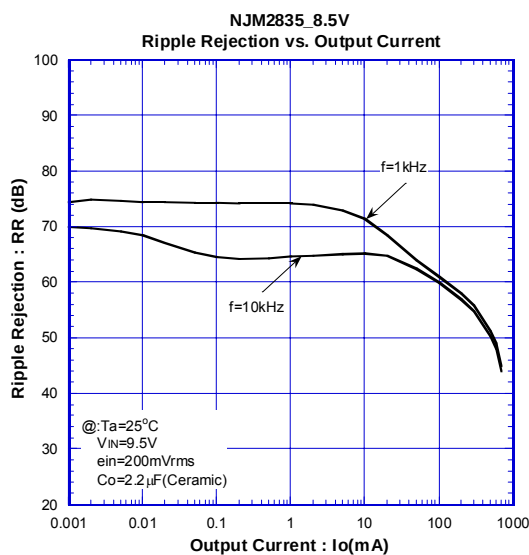
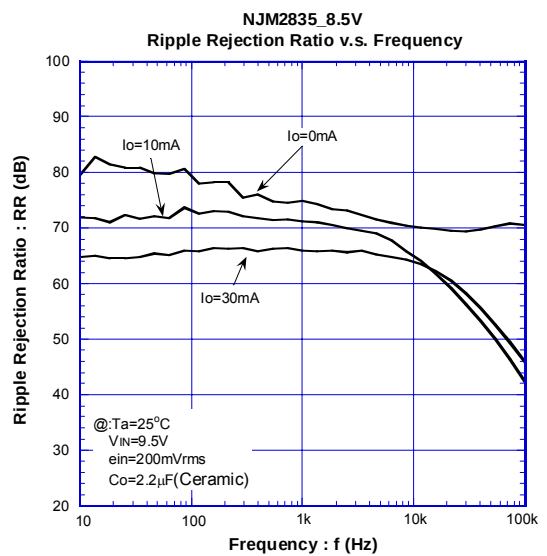
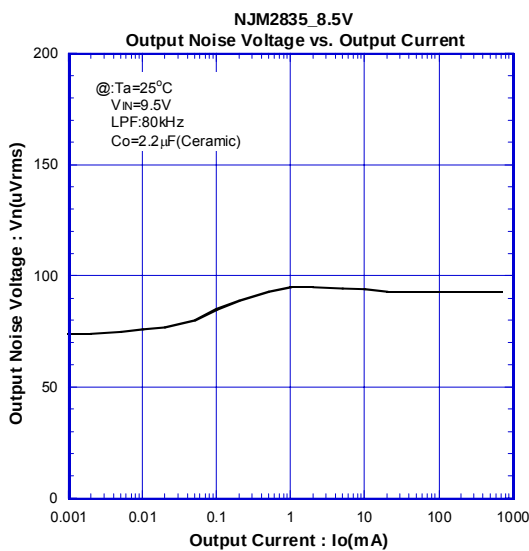


TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (8.5V Version)

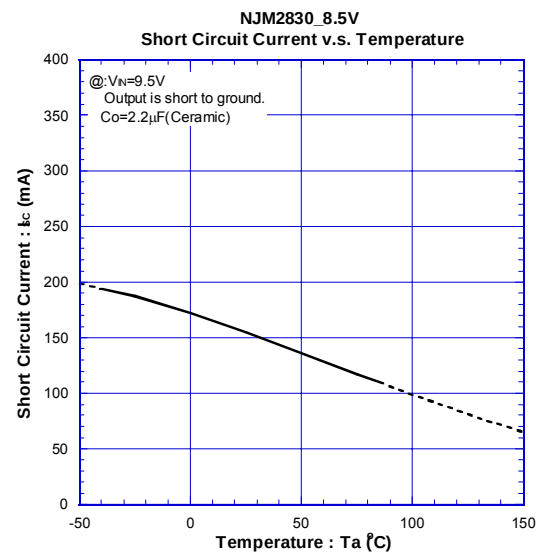
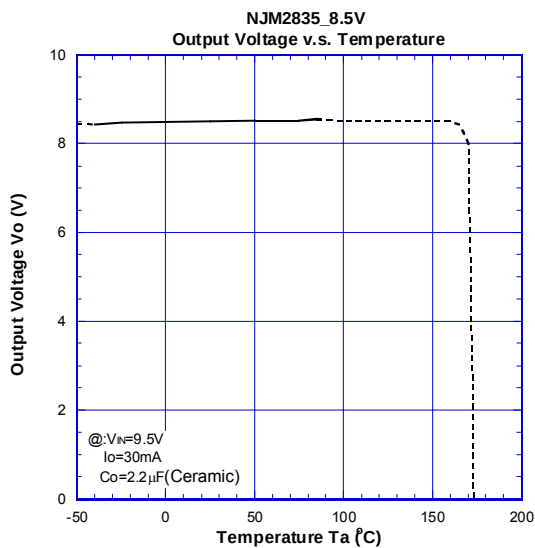
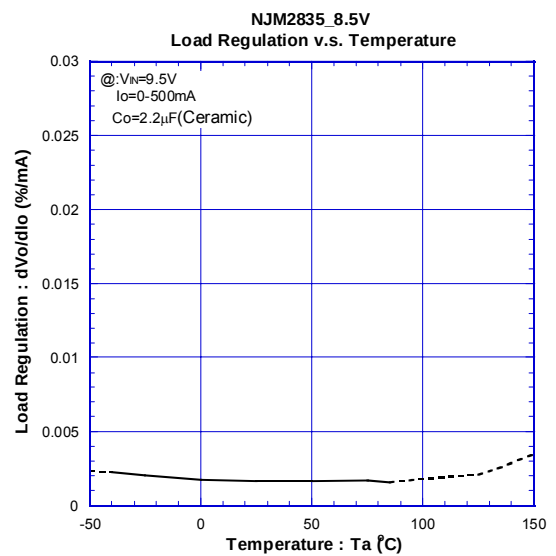
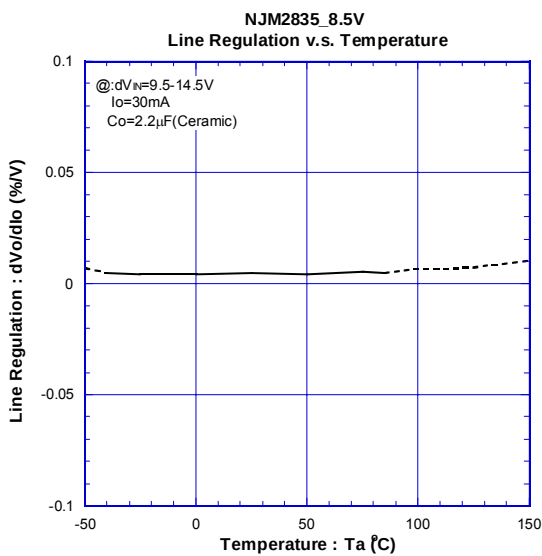
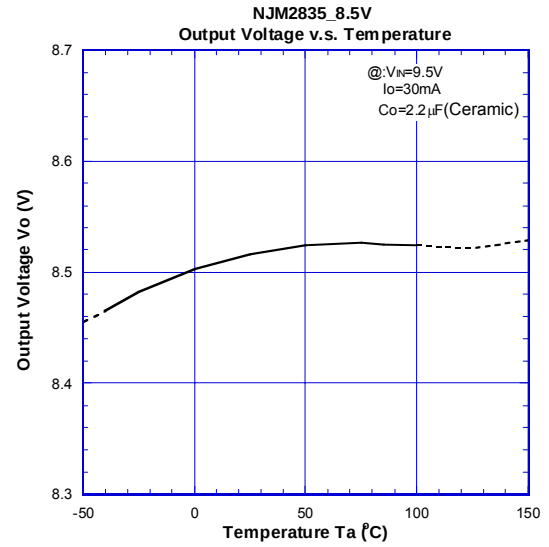
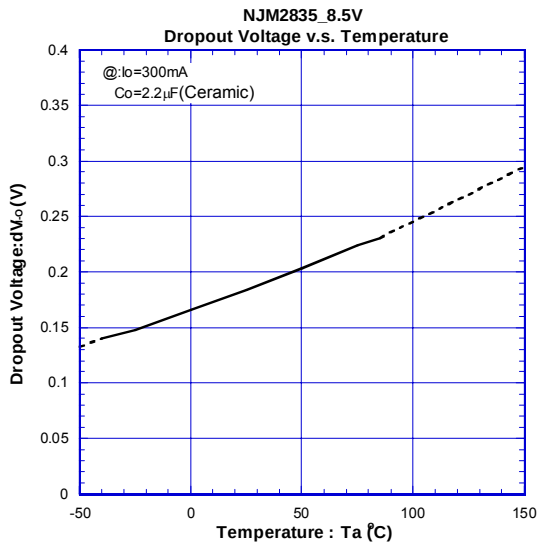


AC CHARACTERISTICS (8.5V Version)



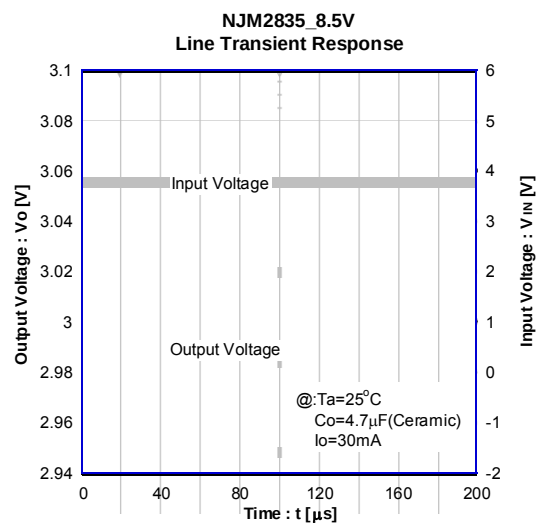
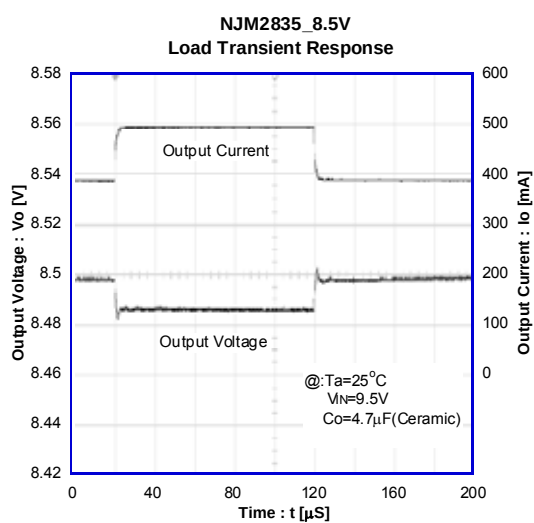
TYPICAL CHARACTERISTICS

•TEMPERATURE CHARACTERISTICS (8.5V Version)



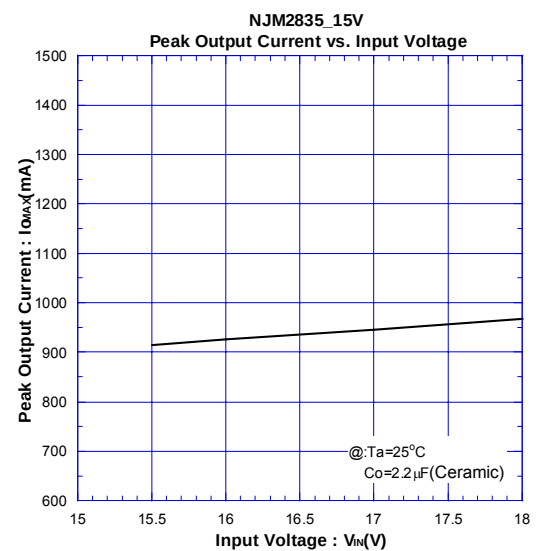
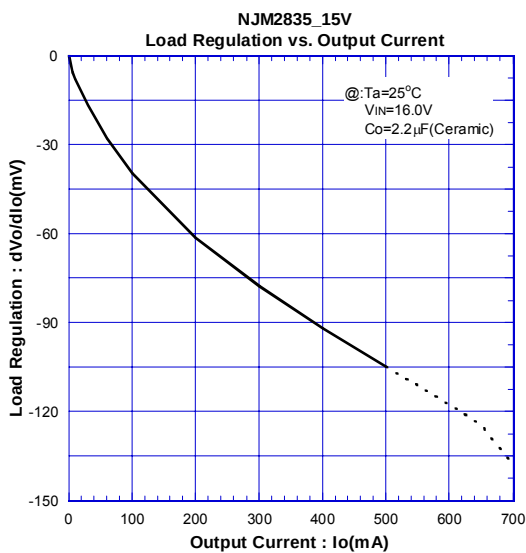
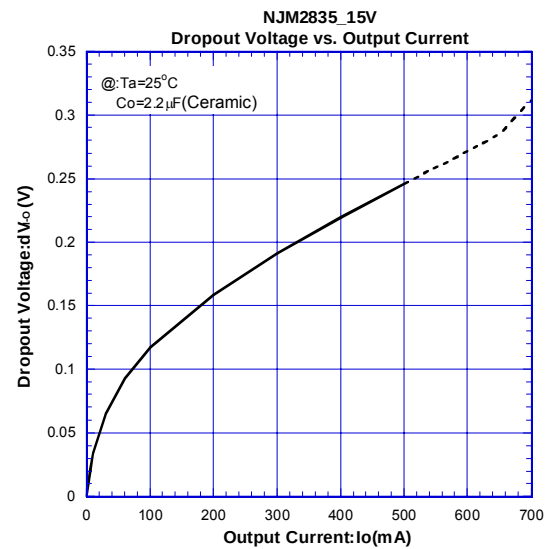
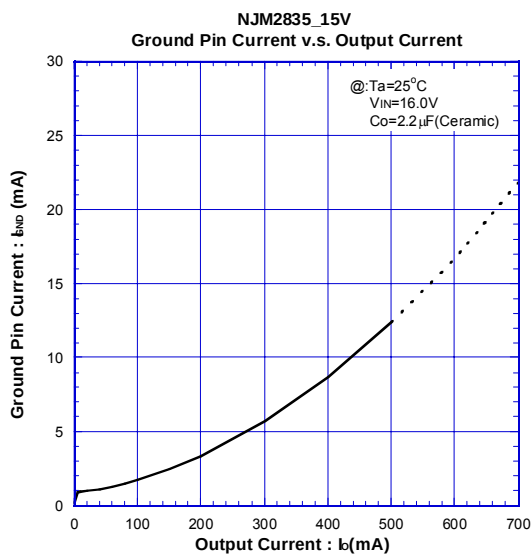
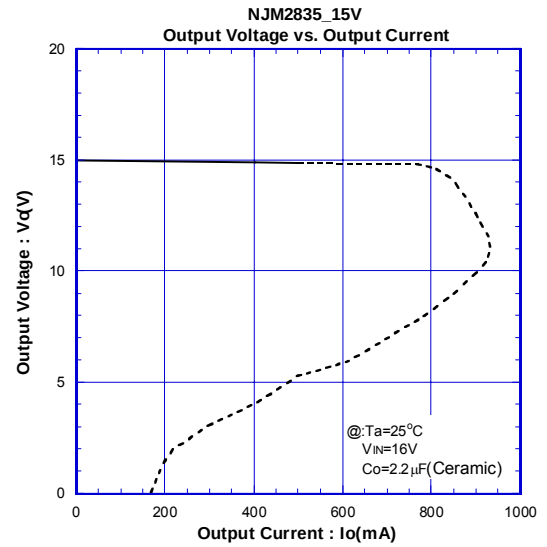
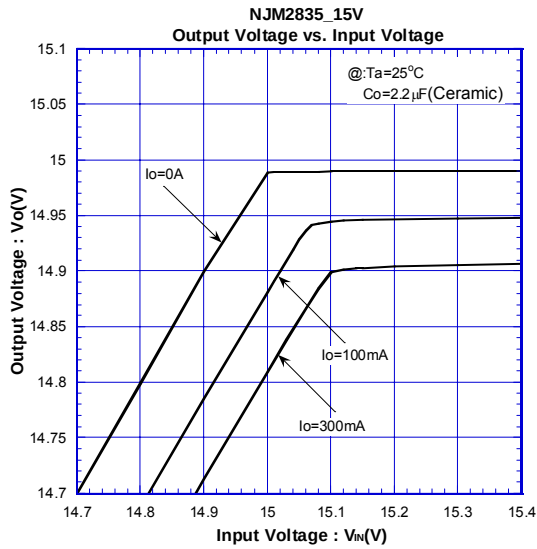
■ TYPICAL CHARACTERISTICS

● TRANSIENT RESPONSE (8.5V Version)



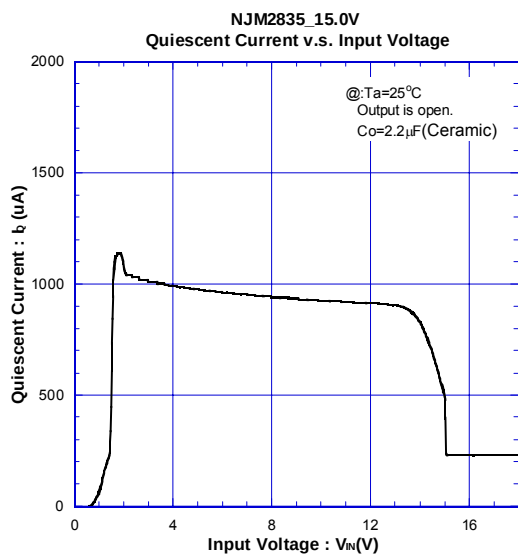
■ TYPICAL CHARACTERISTICS

● DC CHARACTERISTICS (15V Version)

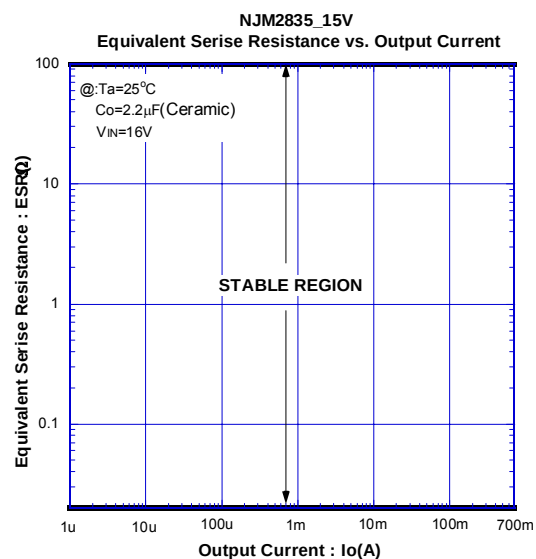
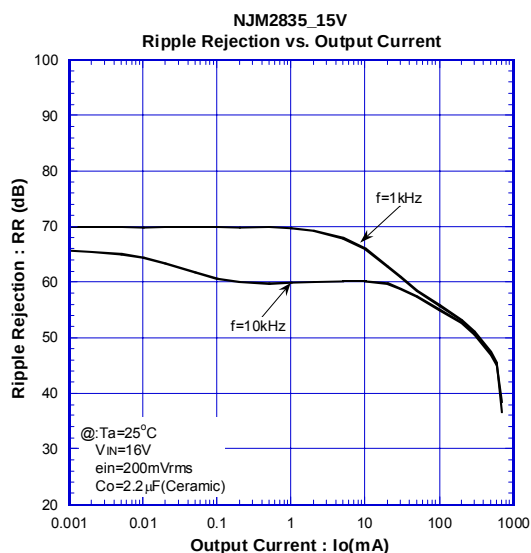
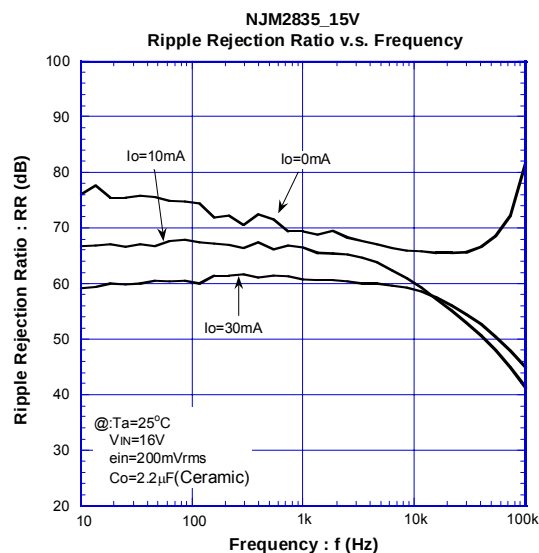
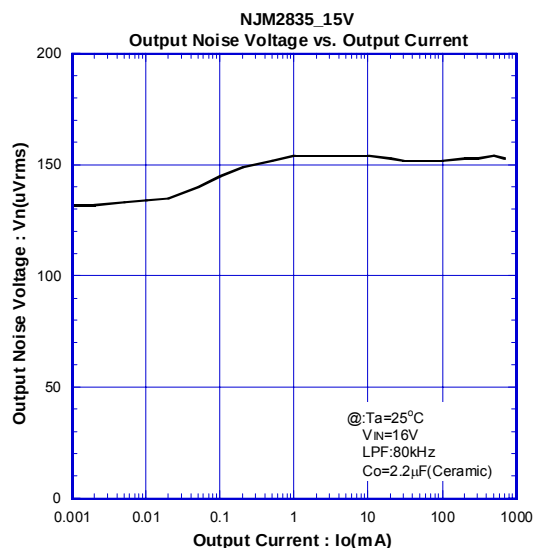


TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (15V Version)

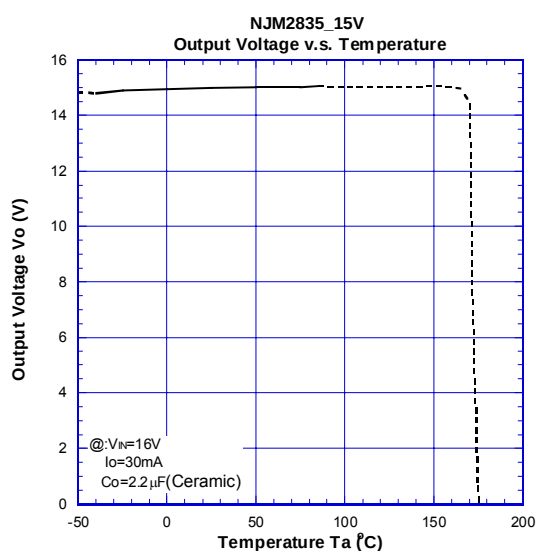
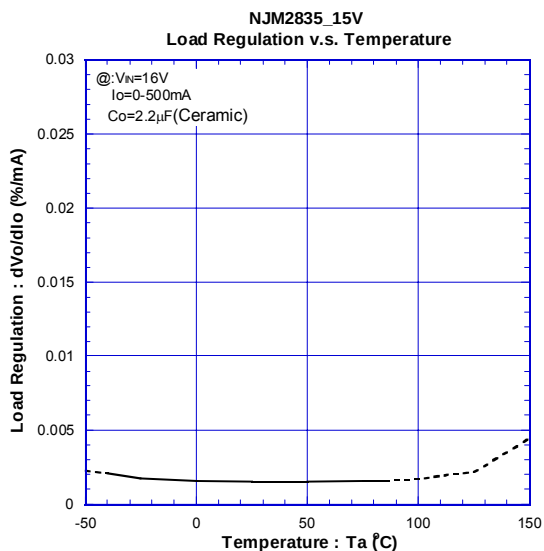
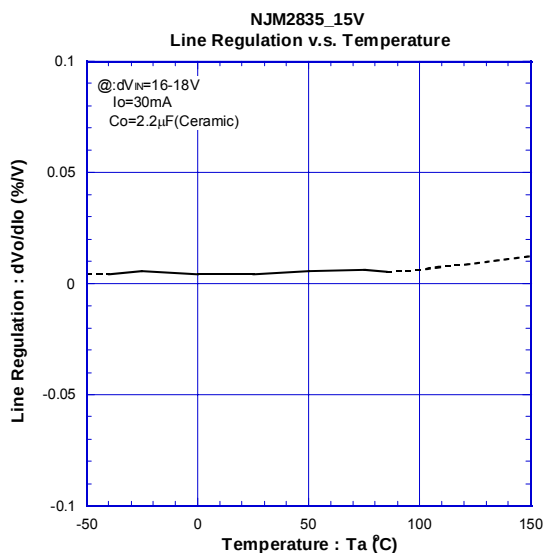
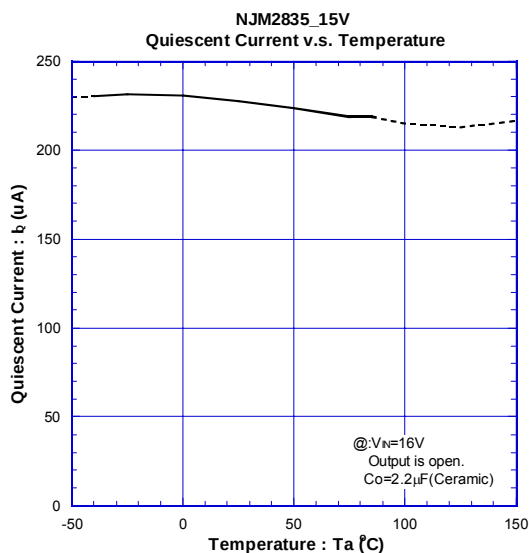
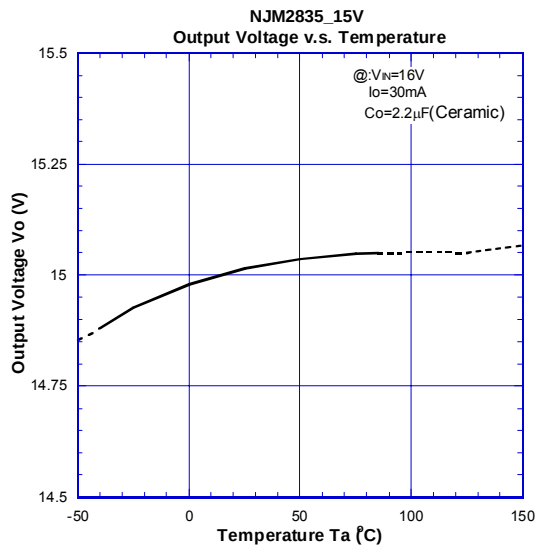
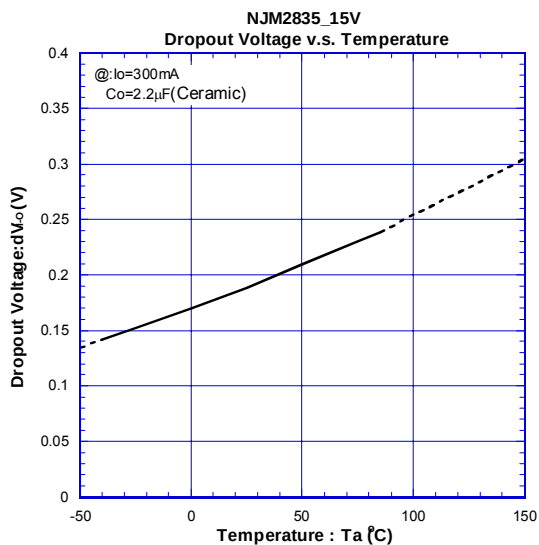


AC CHARACTERISTICS (15V Version)



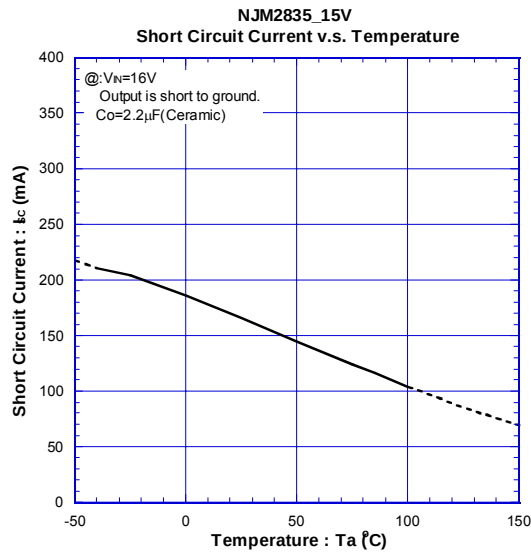
■ TYPICAL CHARACTERISTICS

● TEMPERATURE CHARACTERISTICS (15V Version)



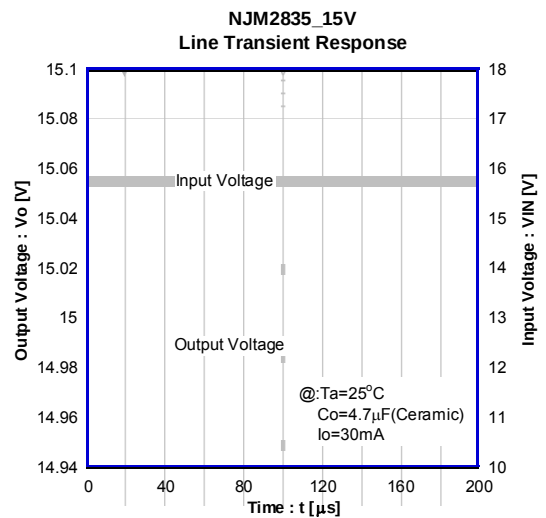
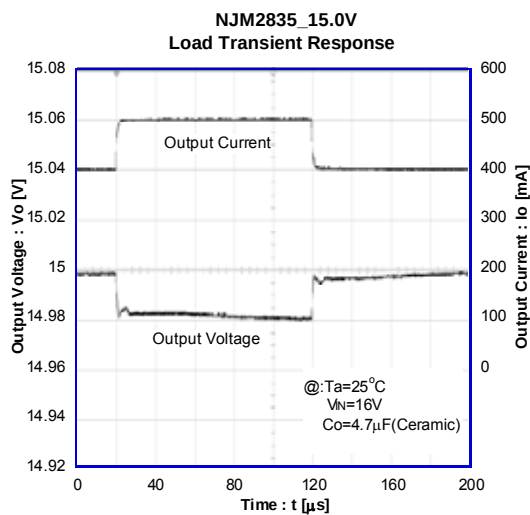
■ TYPICAL CHARACTERISTICS

● TEMPERATURE CHARACTERISTICS (15V Version)



■ TYPICAL CHARACTERISTICS

● TRANSIENT RESPONSE (15V Version)



[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