

LOW DROPOUT VOLTAGE REGULATOR

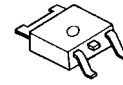
■ GENERAL DESCRIPTION

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

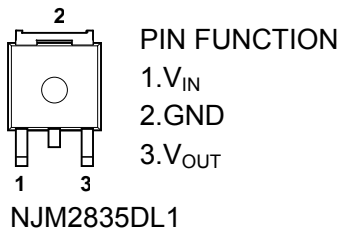


NJM2835DL1

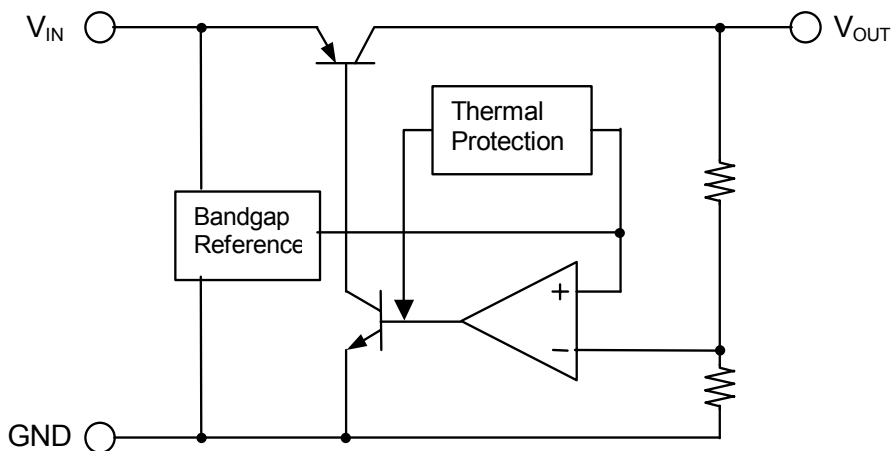
■ FEATURES

- 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



■ 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 ≤25°C) 1(T _a ≤25°C)	W
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +150	°C

■ ELECTRICAL CHARACTERISTICS

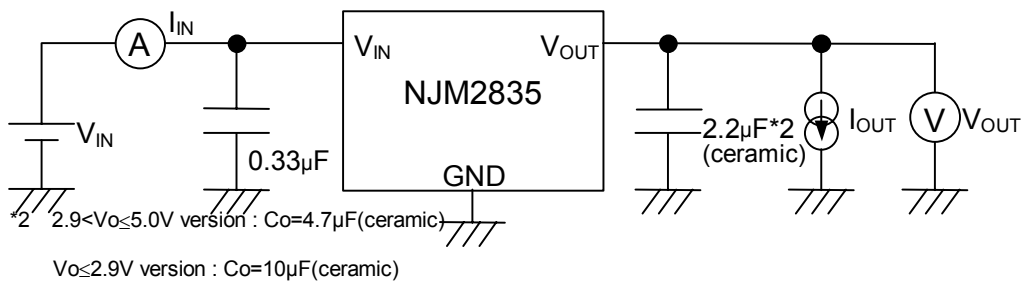
(V_{IN}= V_o+1V, C_{IN}=0.33μF, C_o=2.2μF (2.9V<V_o≤5V:C_o=4.7μF, V_o≤2.9V:C_o=10μF), Ta=25°C)

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	V _o ≤5V Version	-	200	300	μA
			5V<V _o ≤10V Version	-	215	315	μA
			10V<V _o ≤15V Version	-	230	330	μA
Output Current	I _o	V _o -0.3V	500	650	-	mA	
Line Regulation	ΔV _o /ΔV _{IN}	V _{IN} =V _o +1V ~ V _o +6V(V _o ≤12V), V _{IN} =V _o +1V ~ 18V(V _o >12V), I _o =30mA	-	-	0.10	%/V	
Load Regulation	ΔV _o /ΔI _o	I _o =0 ~ 500mA	-	-	0.007	%/mA	
Dropout Voltage(*1)	ΔV _{I-O}	I _o =300mA	-	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	ΔV _o /ΔT _a	T _a =0 ~ 85°C, I _o =10mA	-	± 50	-	ppm/°C	
Output Noise Voltage	V _{NO}	f=10Hz ~ 80kHz, I _o =10mA, V _o =3V Version	-	45	-	μV _{rms}	
Input Voltage	V _{IN}		-	-	18	V	

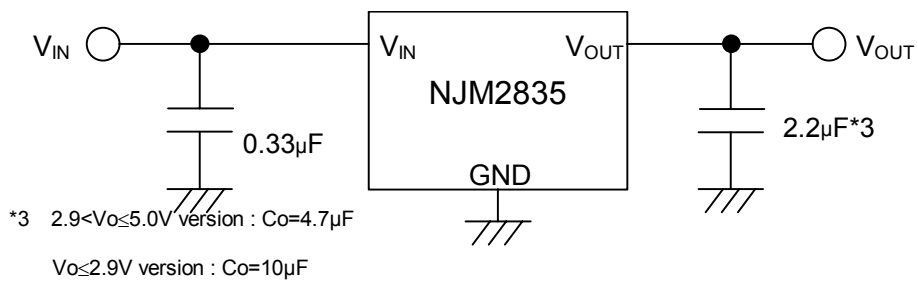
(*1): The above specification is a common specification for all output voltages.

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

■ TEST CIRCUIT



■ TYPICAL APPLICATION



*Input Capacitance C_{IN}

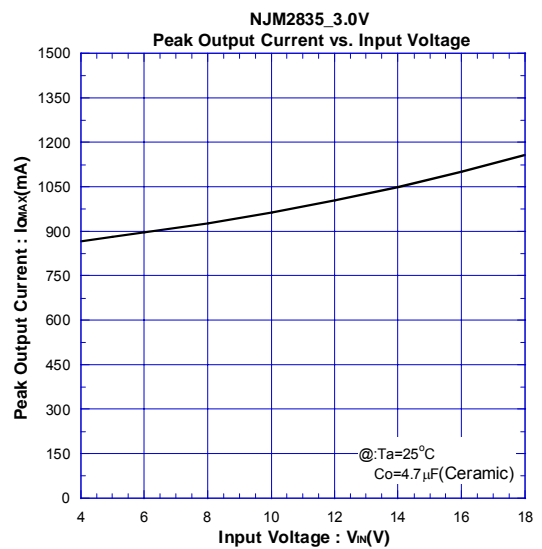
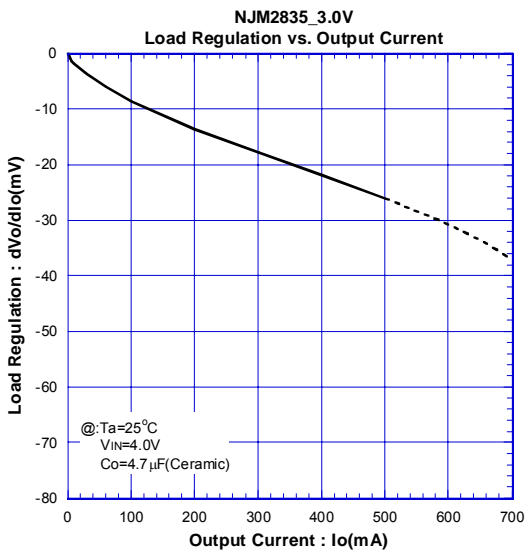
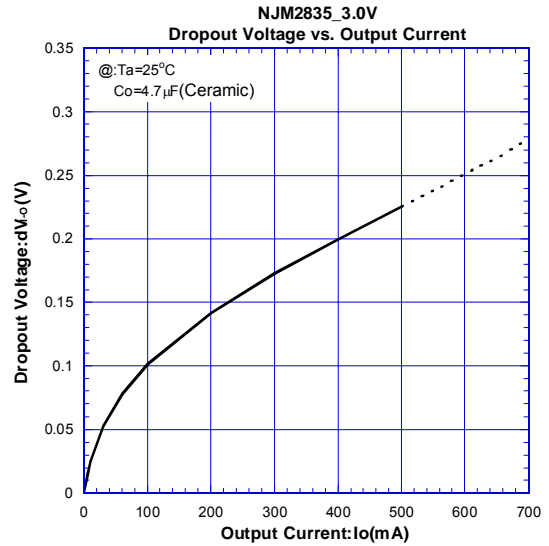
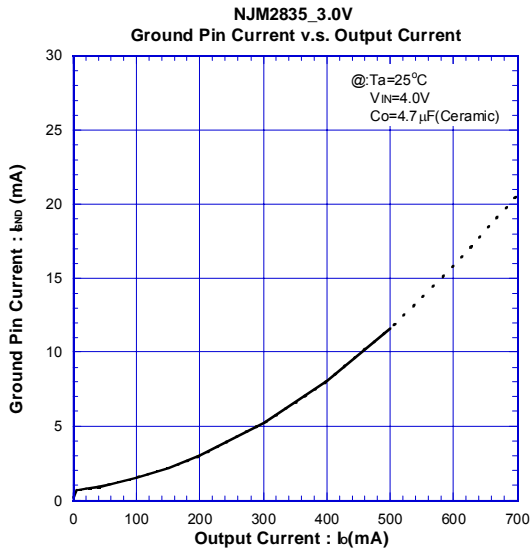
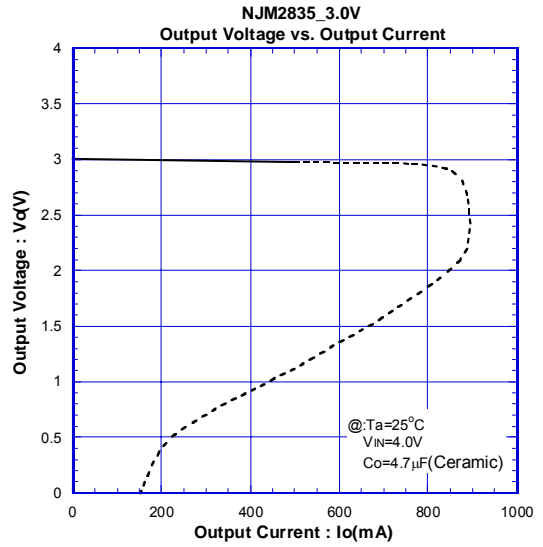
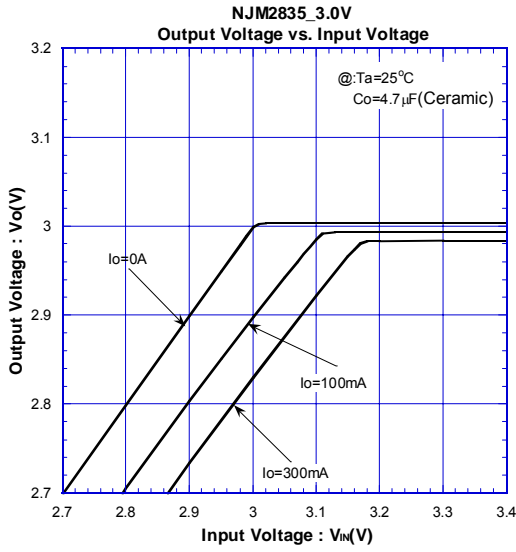
Input Capacitance C_{IN} is required to prevent oscillation and reduce power supply ripple for applications with high power supply impedance or a long power supply line.

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

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

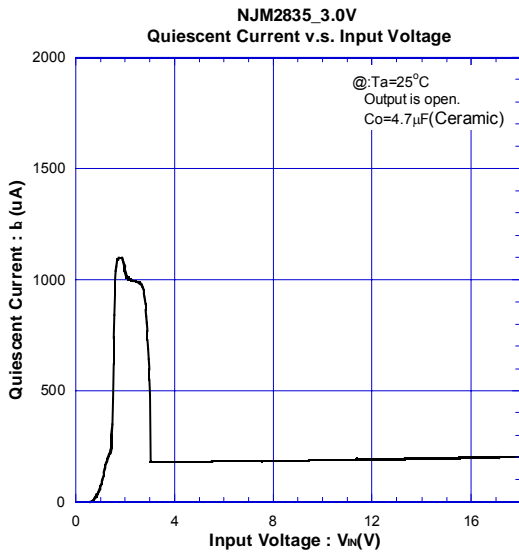
TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (3V Version)

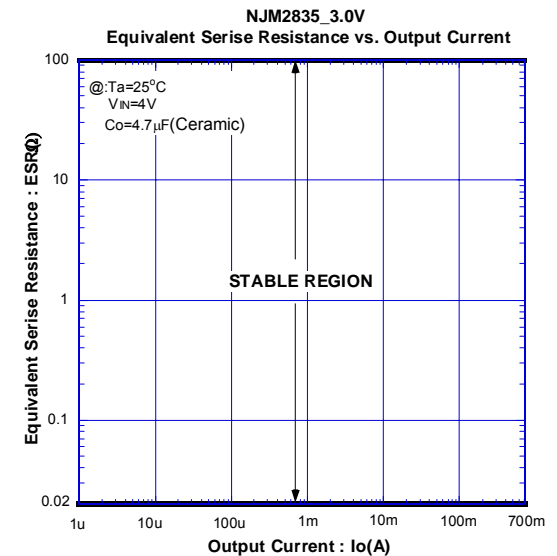
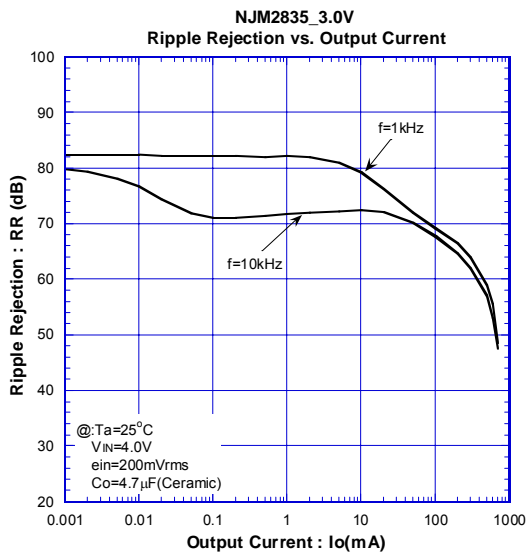
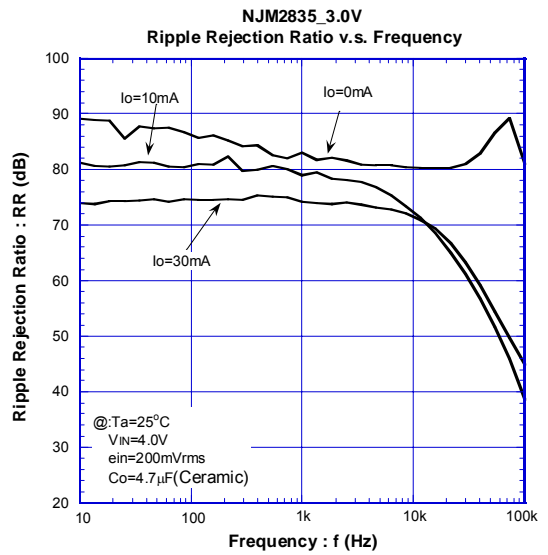
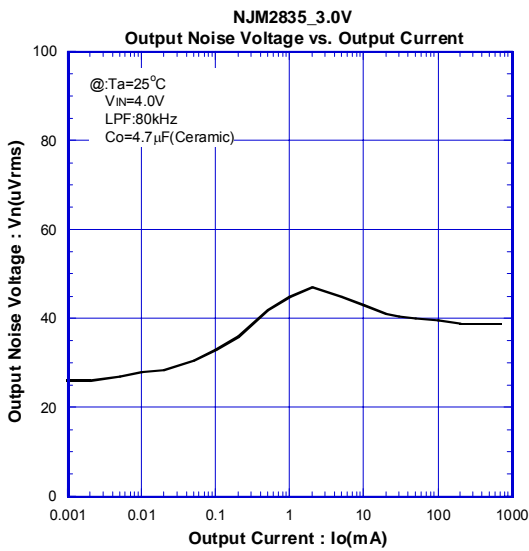


■ TYPICAL CHARACTERISTICS

● DC CHARACTERISTICS (3V Version)

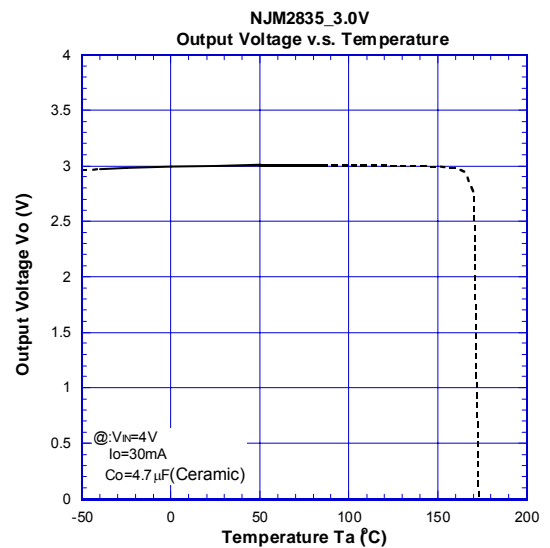
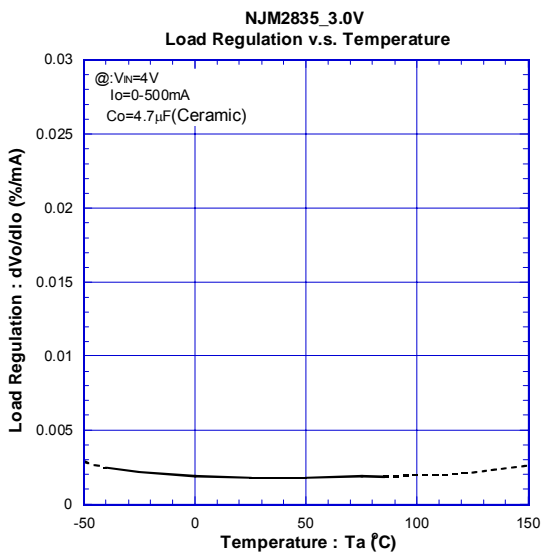
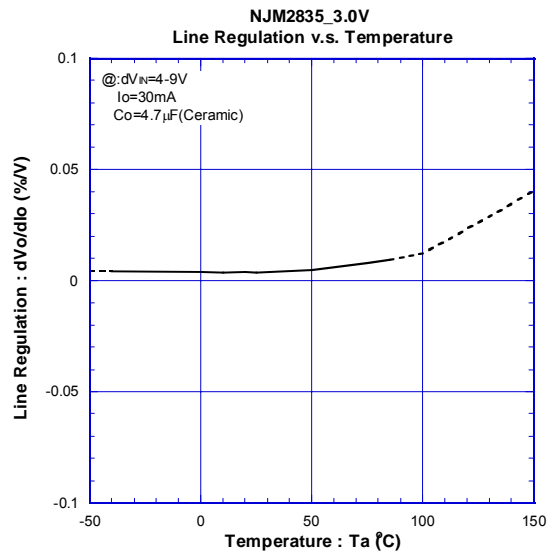
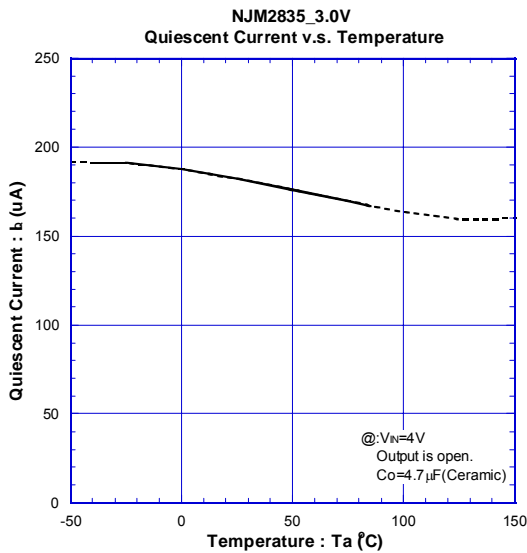
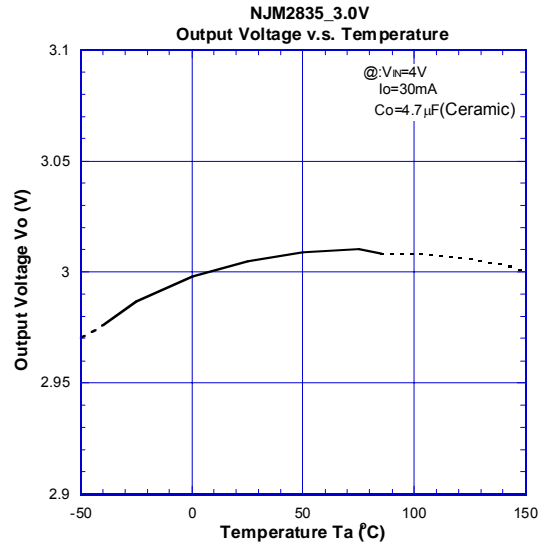
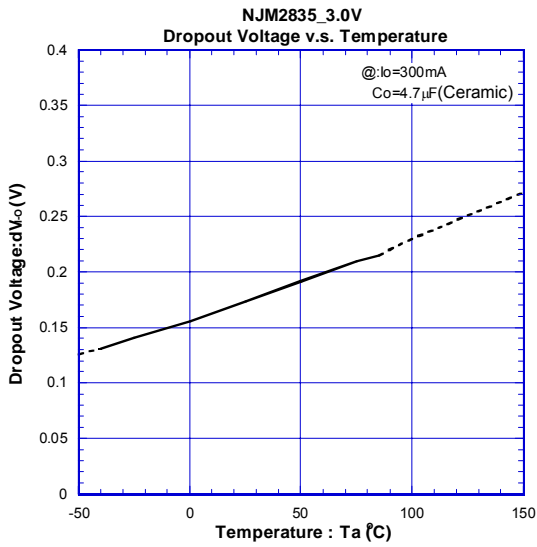


● AC CHARACTERISTICS (3V Version)



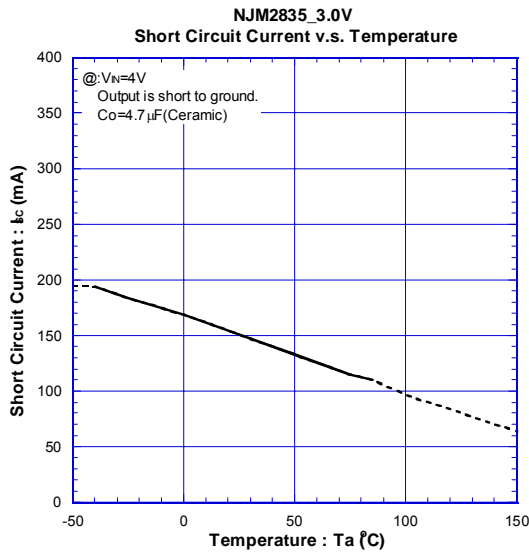
TYPICAL CHARACTERISTICS

● TEMPERATURE CHARACTERISTICS (3V Version)



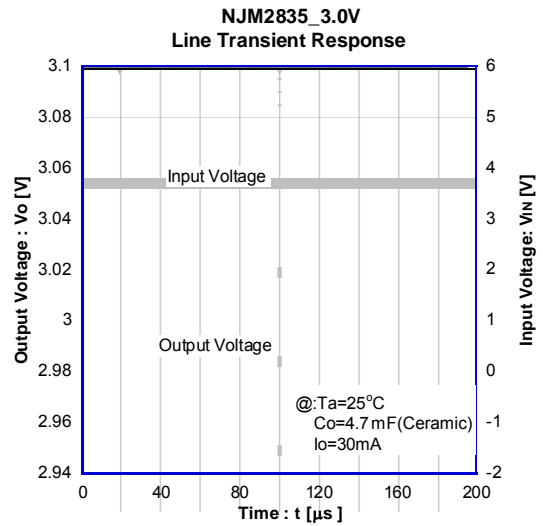
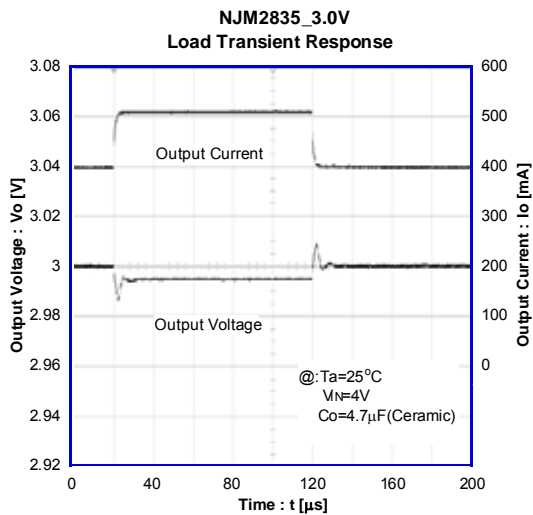
TYPICAL CHARACTERISTICS

TEMPERATURE CHARACTERISTICS (3V Version)



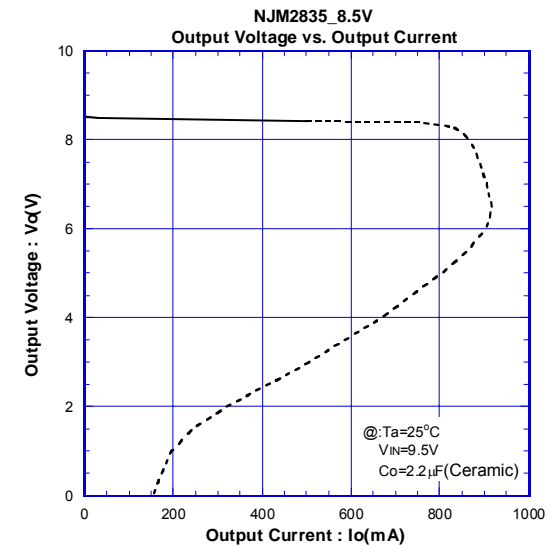
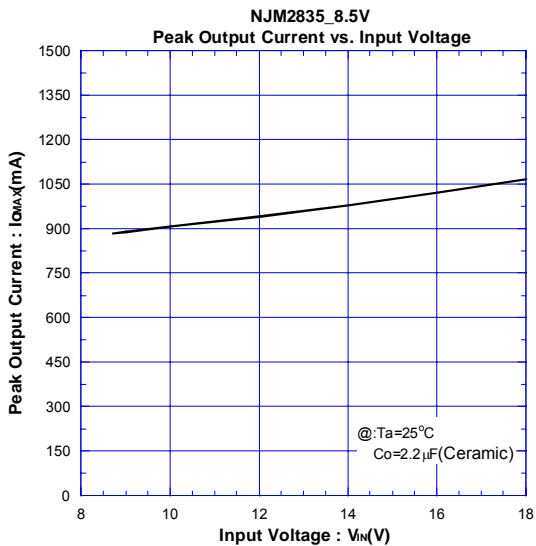
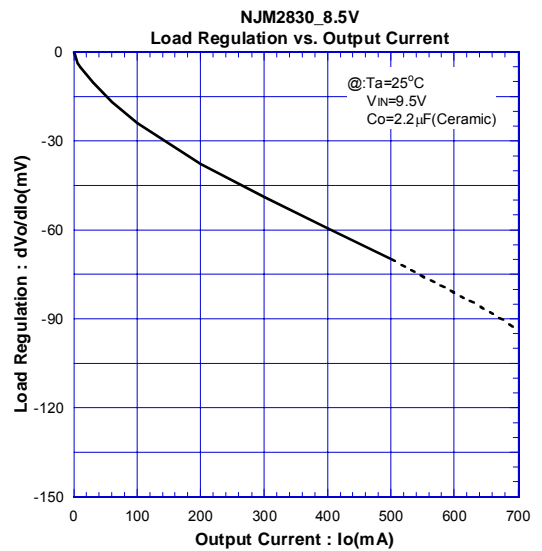
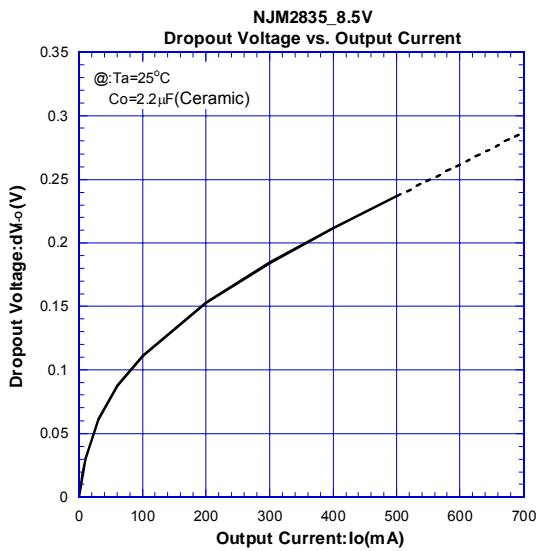
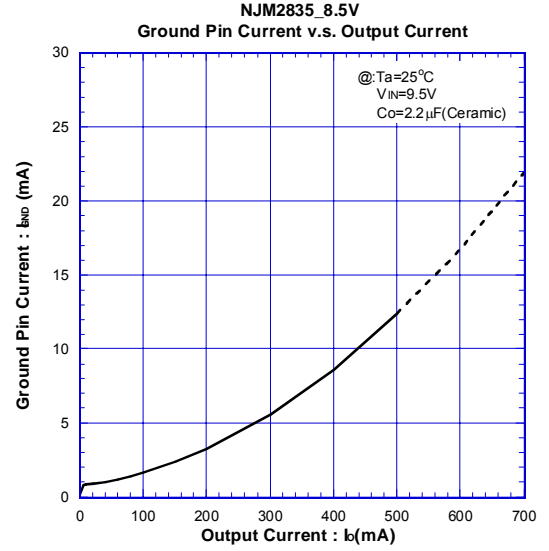
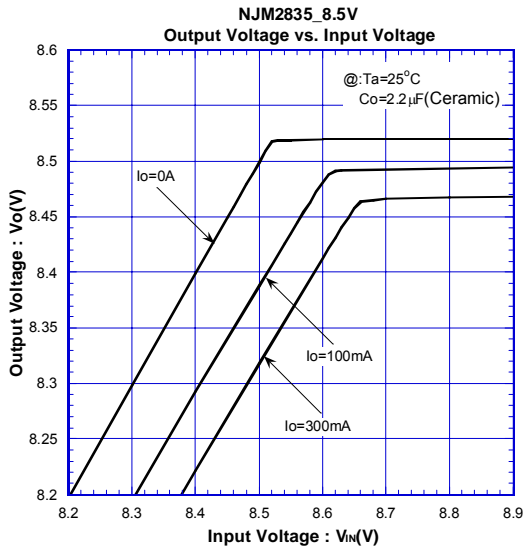
TYPICAL CHARACTERISTICS

TRANSIENT RESPONSE (3V Version)



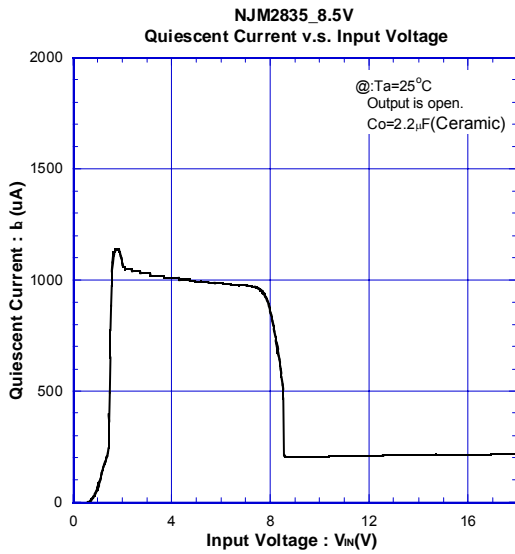
TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (8.5V Version)

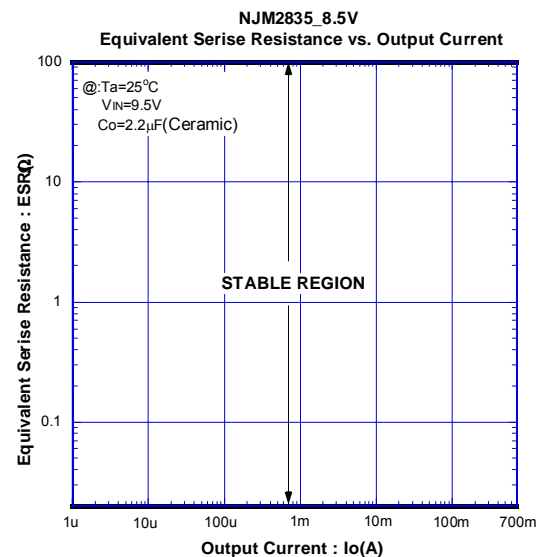
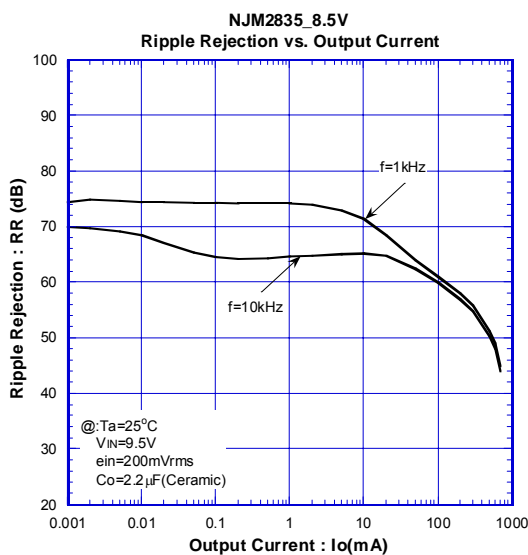
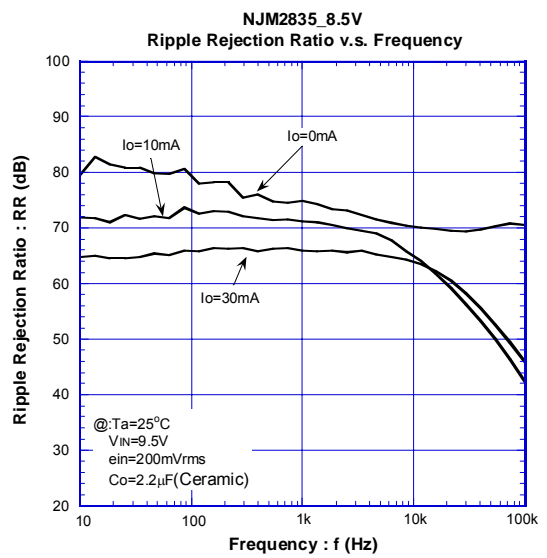
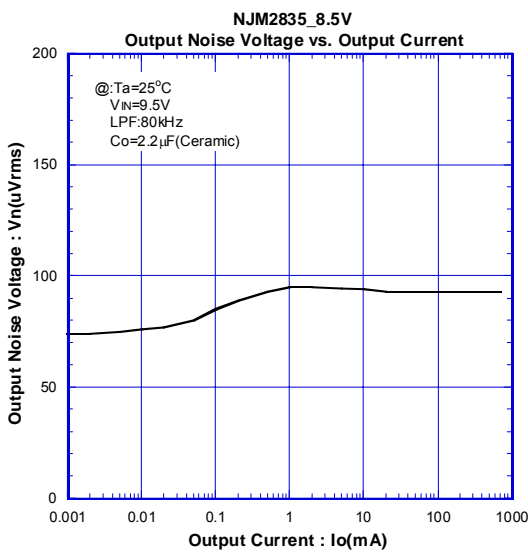


TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (8.5V Version)

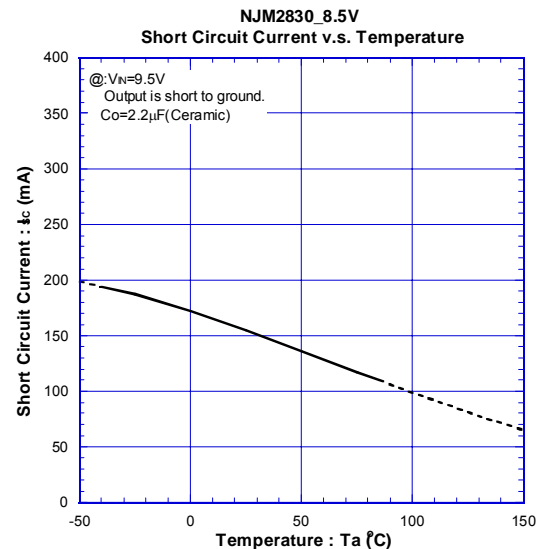
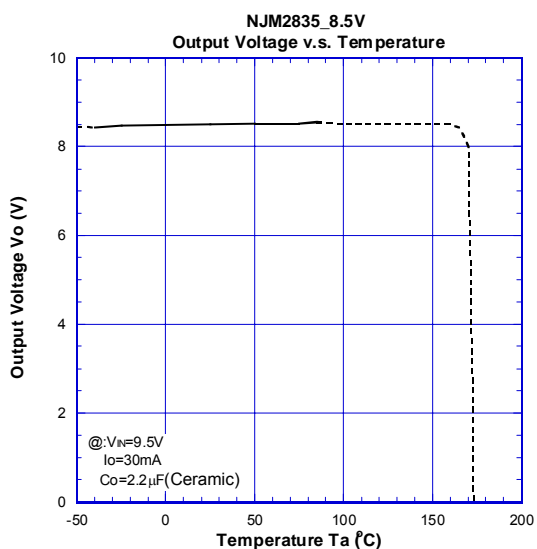
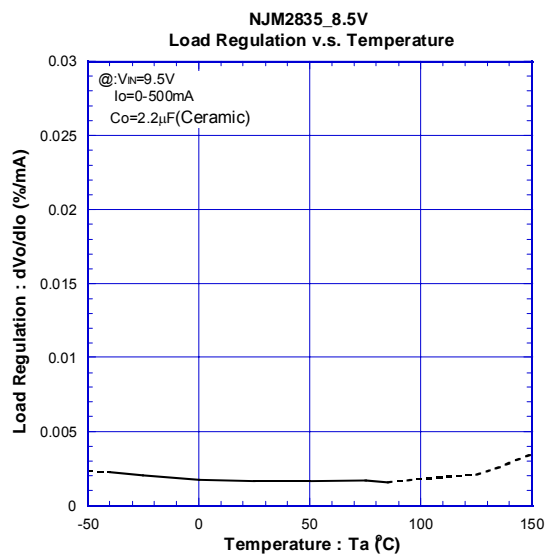
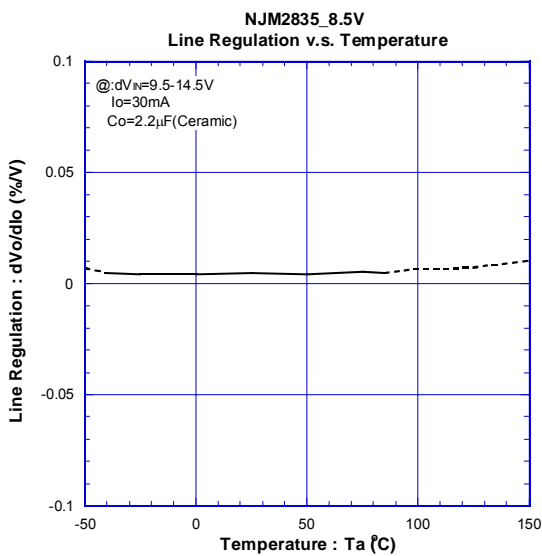
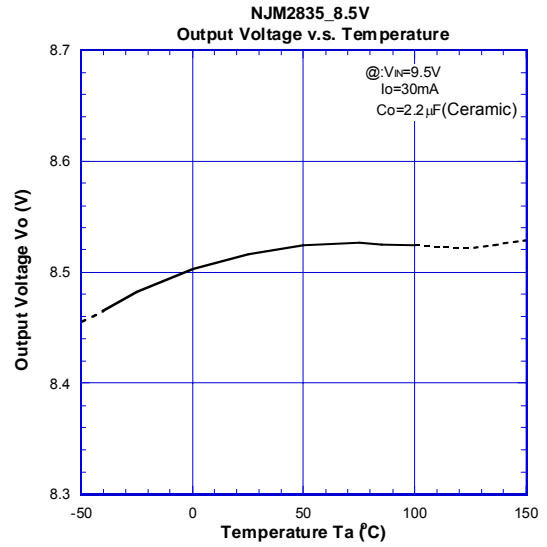
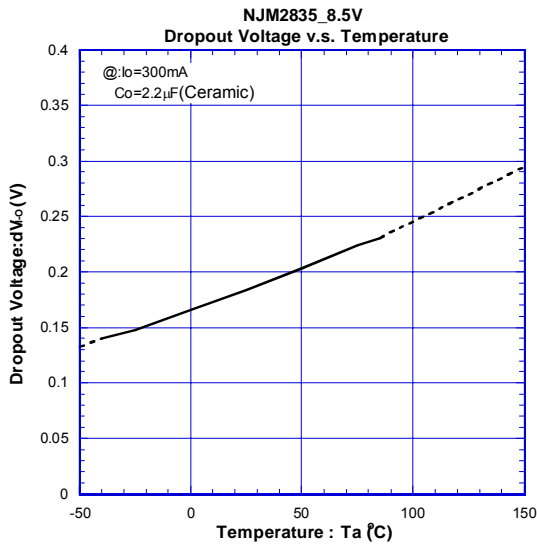


AC CHARACTERISTICS (8.5V Version)



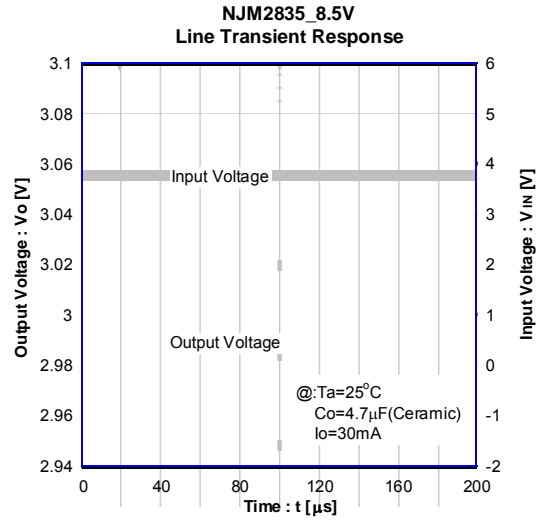
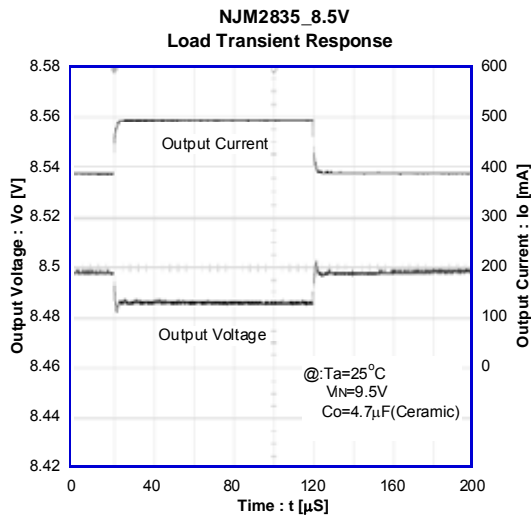
TYPICAL CHARACTERISTICS

TEMPERATURE CHARACTERISTICS (8.5V Version)



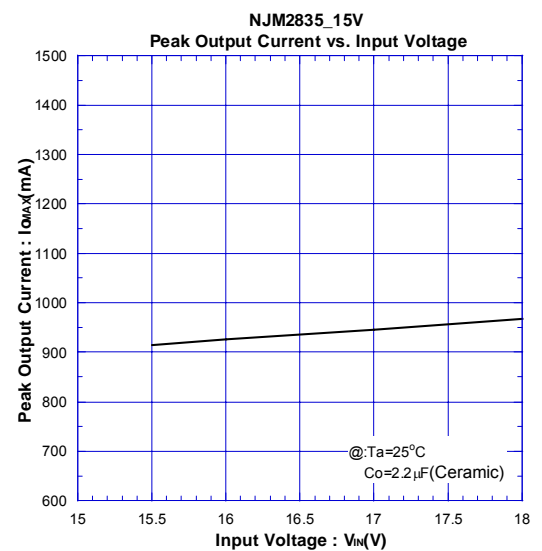
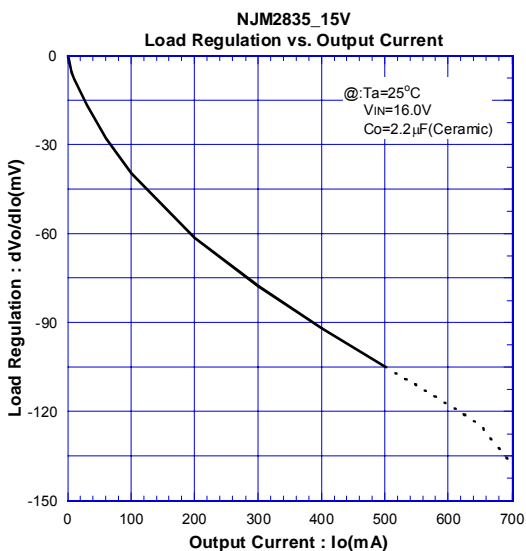
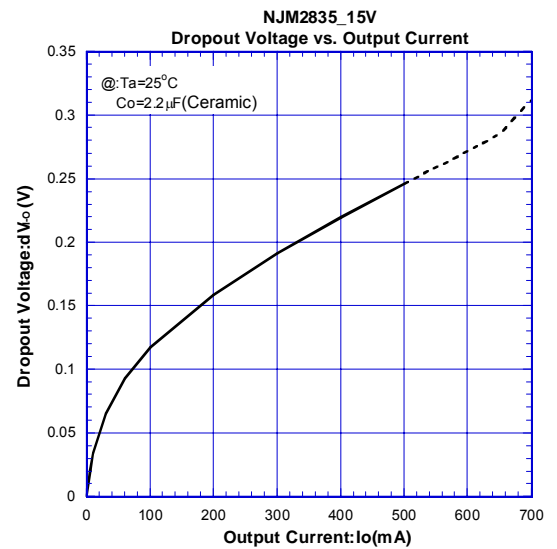
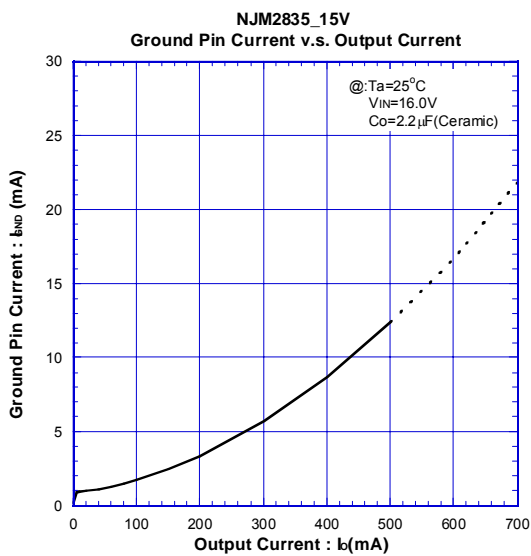
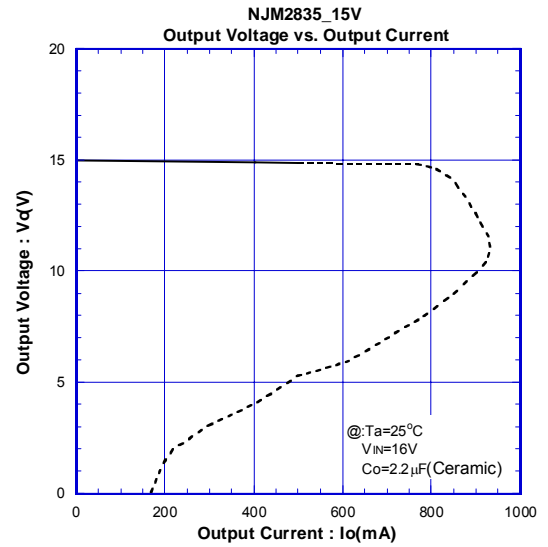
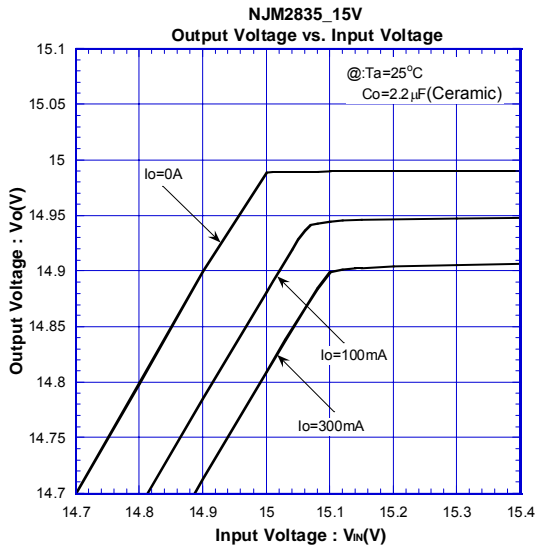
■ TYPICAL CHARACTERISTICS

● TRANSIENT RESPONSE (8.5V Version)



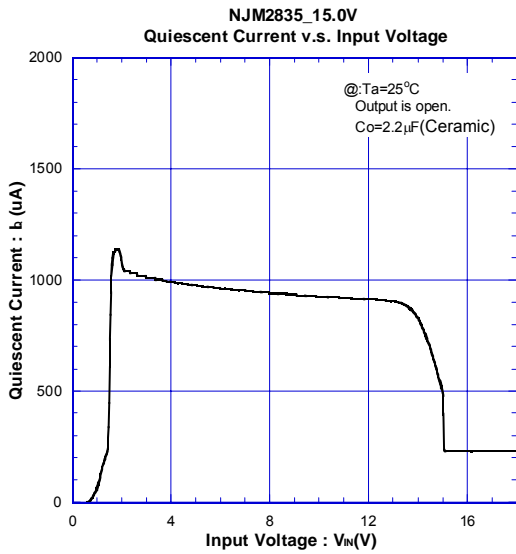
■ TYPICAL CHARACTERISTICS

● DC CHARACTERISTICS (15V Version)

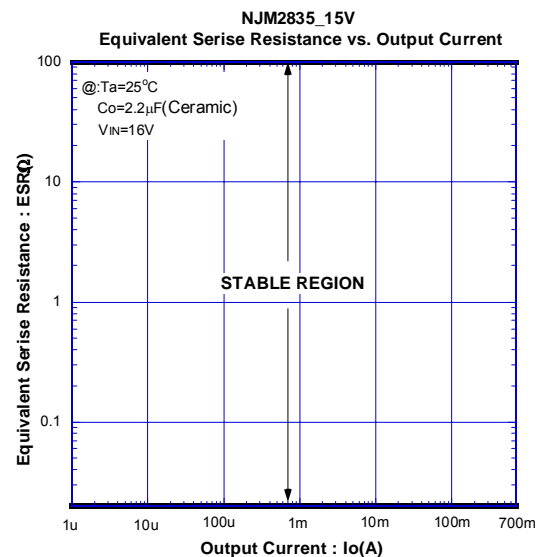
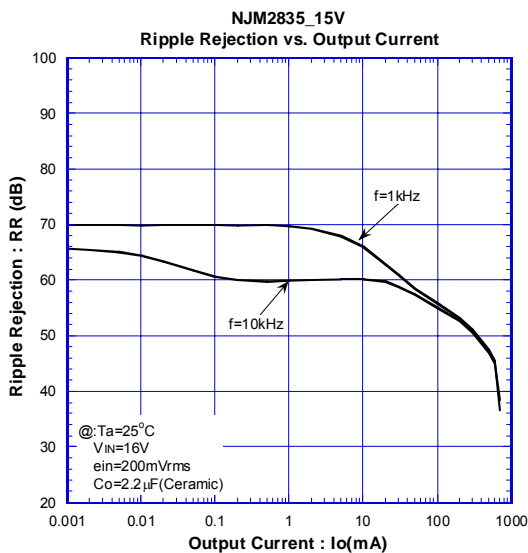
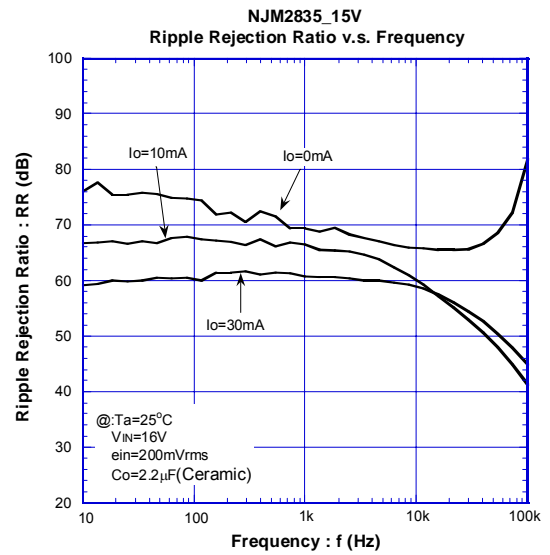
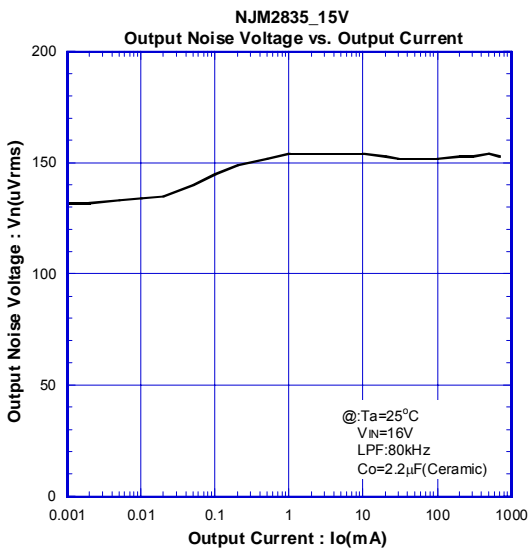


TYPICAL CHARACTERISTICS

DC CHARACTERISTICS (15V Version)

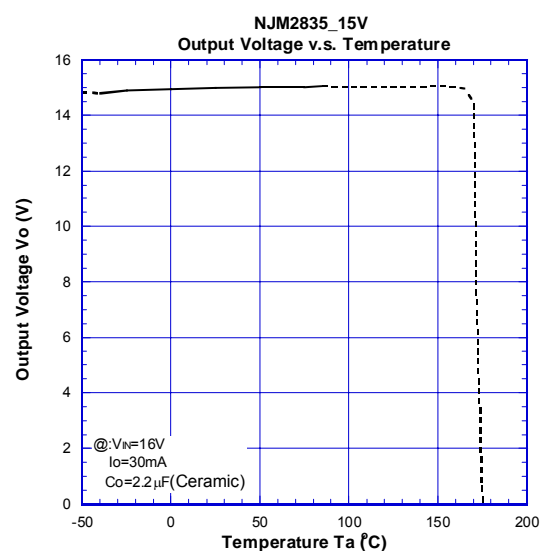
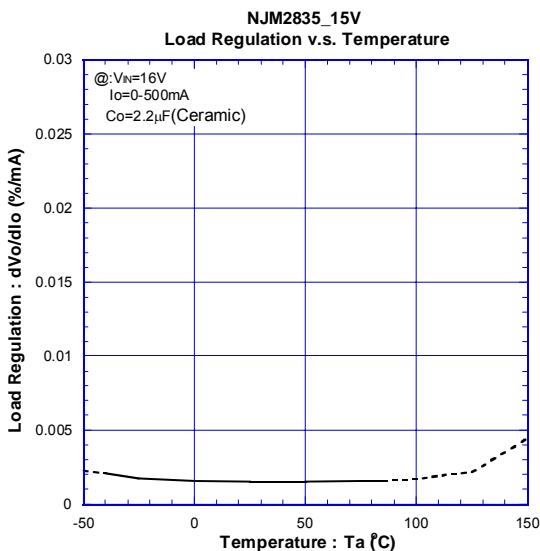
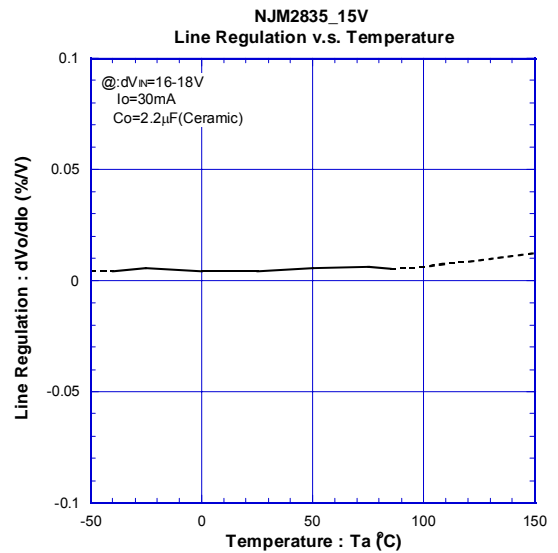
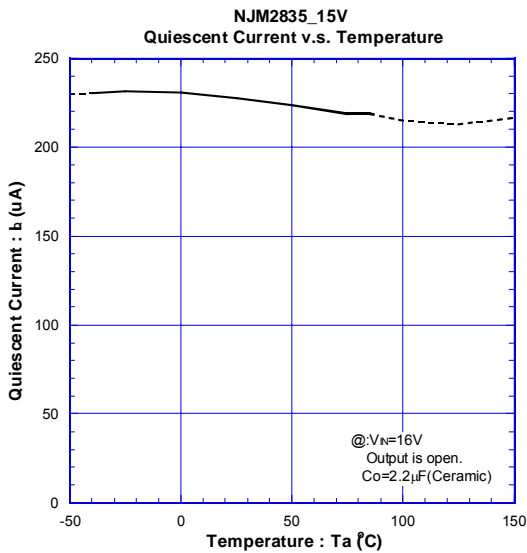
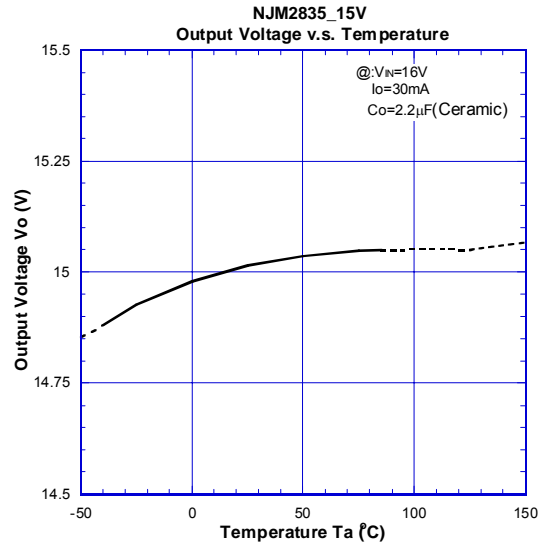
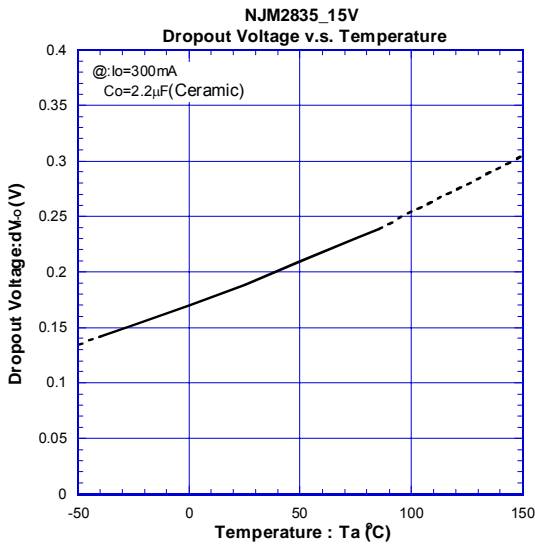


AC CHARACTERISTICS (15V Version)



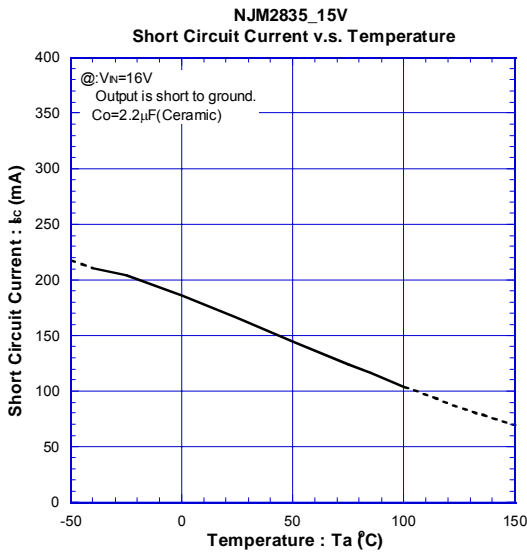
TYPICAL CHARACTERISTICS

TEMPERATURE CHARACTERISTICS (15V Version)



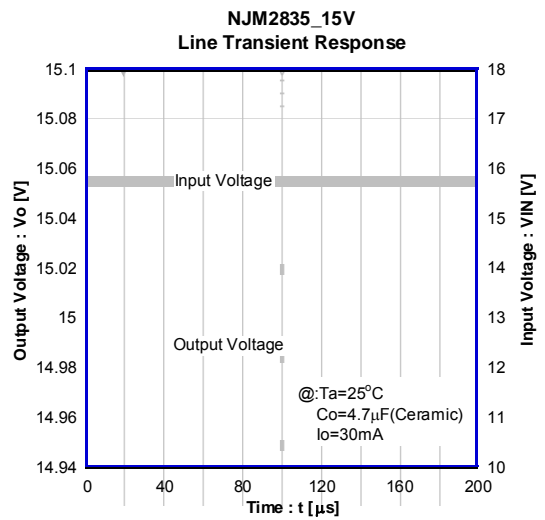
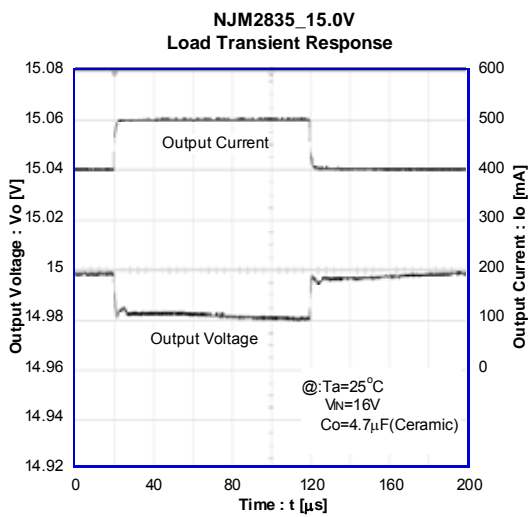
TYPICAL CHARACTERISTICS

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