

LOW DROPOUT VOLTAGE REGULATOR

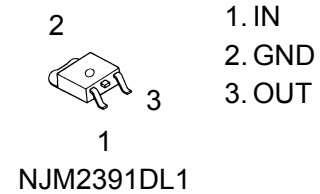
■ GENERAL DESCRIPTION

The NJM2391 is a low dropout voltage regulators featuring high precision voltage.

It is suitable for Notebook PCs, PC cards and hard disks where 3.3V need to be generated from 5V supply.

A small TO-252 package is adopted for the space saving.

■ PACKAGE OUTLINE



■ FEATURES

- Output Current $I_o(\text{max.})=1\text{A}$
- High Precision Output Voltage $V_o\pm 1\%$
- Low Dropout Voltage $\Delta V_{I-O} = 1.1\text{V typ. At } I_o=1\text{A}$
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-252

■ ABSOLUTE MAXIMUM RATINGS

($T_a=25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V^+	+10	V
Power Dissipation	P_D	TO-252 8 ($T_c=25^\circ\text{C}$) 0.8($T_a\leq 25^\circ\text{C}$)	W
Operating Temperature	T_{opr}	-40 ~ +85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-50 ~ +125	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS (C_{IN}=0.1μF, Co=10μF, T_j=25°C)

Measurement is to be conducted is pulse testing

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Vo=2.5V Version Output Voltage	V _O	V _{IN} =5.5V, I _o =0.01A	2.475	2.5	2.525	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =4V~9V, I _o =1A	–	–	50	mV
Load Regulation	ΔV _O -I _o	V _{IN} =5.5V, I _o =0~1A	–	–	50	mV
Quiescent Current	I _Q	V _{IN} =5.5V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =5.5V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	53	63	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =5.5V, I _o =0.5A BW=10Hz~100kHz	–	85	185	μV
Vo=2.6V Version Output Voltage	V _O	V _{IN} =5.6V, I _o =0.01A	2.574	2.60	2.626	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =4.1V~9.1V, I _o =1A	–	–	52	mV
Load Regulation	ΔV _O -I _o	V _{IN} =5.6V, I _o =0~1A	–	–	52	mV
Quiescent Current	I _Q	V _{IN} =5.6V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =5.6V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	53	63	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =5.6V, I _o =0.5A BW=10Hz~100kHz	–	87	187	μV
Vo=2.85V Version Output Voltage	V _O	V _{IN} =5.85V, I _o =0.01A	2.82	2.85	2.88	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =4.35V~9.35V, I _o =1A	–	–	57	mV
Load Regulation	ΔV _O -I _o	V _{IN} =5.85V, I _o =0~1A	–	–	57	mV
Quiescent Current	I _Q	V _{IN} =5.85V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =5.85V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	53	63	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =5.85V, I _o =0.5A BW=10Hz~100kHz	–	90	190	μV
Vo=3V Version Output Voltage	V _O	V _{IN} =6V, I _o =0.01A	2.97	3.00	3.03	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =4.5V~9.5V, I _o =1A	–	–	60	mV
Load Regulation	ΔV _O -I _o	V _{IN} =6V, I _o =0~1A	–	–	60	mV
Quiescent Current	I _Q	V _{IN} =6V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =6V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	52	62	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =6V, I _o =0.5A BW=10Hz~100kHz	–	95	195	μV

■ ELECTRICAL CHARACTERISTICS (C_{IN}=0.1μF, Co=10μF, T_j=25°C)

Measurement is to be conducted is pulse testing

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Vo=3.3V Version Output Voltage	V _O	V _{IN} =6.3V, I _o =0.01A	3.267	3.30	3.333	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =4.8V~9.8V, I _o =1A	–	–	66	mV
Load Regulation	ΔV _O -I _o	V _{IN} =6.3V, I _o =0~1A	–	–	66	mV
Quiescent Current	I _Q	V _{IN} =6.3V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =6.3V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	52	62	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =6.3V, I _o =0.5A BW=10Hz~100kHz	–	100	200	μV
Vo=3.5V Version Output Voltage	V _O	V _{IN} =6.5V, I _o =0.01A	3.465	3.50	3.535	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =5V~10V, I _o =1A	–	–	70	mV
Load Regulation	ΔV _O -I _o	V _{IN} =6.5V, I _o =0~1A	–	–	70	mV
Quiescent Current	I _Q	V _{IN} =6.5V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =6.5V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	52	62	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =6.5V, I _o =0.5A BW=10Hz~100kHz	–	105	205	μV
Vo=5V Version Output Voltage	V _O	V _{IN} =8V, I _o =0.01A	4.95	5.00	5.05	V
Line Regulation	ΔV _O -V _{IN}	V _{IN} =6.5V~9.5V, I _o =1A	–	–	60	mV
Load Regulation	ΔV _O -I _o	V _{IN} =8V, I _o =0~1A	–	–	100	mV
Quiescent Current	I _Q	V _{IN} =8V, I _o =0A	–	2.3	4.0	mA
Ripple Rejection	RR	V _{IN} =8V, e _{in} =2V _{P-P} f=120Hz, I _o =0.5A	50	60	–	dB
Dropout Voltage	ΔV _{I-O}	I _o =1A	–	1.1	1.2	V
Output Noise Voltage	V _{NO}	V _{IN} =8V, I _o =0.5A BW=10Hz~100kHz	–	150	260	μV

[CAUTION]

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