

NJM79L00

The NJM79L00 series of 3-Terminal Negative Voltage Regulators is constructed using the New JRC Planar epitaxial process. These regulators employ internal current-limiting and thermal-shutdown, making them essentially indestructible. If adequate heat sinking is provided, they can deliver up to 100mA output current. They are intended as fixed voltage regulators in a wide range of applications including local or on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators. The NJM79L00 used as a Zener diode/resistor combination replacement, offers an effective output impedance improvement of typically two orders of magnitude, along with lower quiescent current and lower noise.

■ Absolute Maximum Ratings

Input Voltage	$V_{IN}$ (79L03A ~ 79L09A)	-30V
	(79L12A ~ 79L15A)	-35V
	(79L18A ~ 79L24A)	-40V
Output Current	$I_O$	100mA
Power Dissipation	$P_D$ (TO-92)	500mW
	(SOT-89)	350mW
Operating Temperature Range	$T_{opr}$	-30 ~ +75°C
Storage Temperature Range	$T_{stg}$	-40 ~ +125°C

■ Package Outline

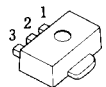
(TO-92)



NJM79LXXA

- 1. COMMON
- 2. IN
- 3. OUT

(SOT-89)



NJM79LXXUA

- 1. COMMON
- 2. IN
- 3. OUT

■ Electrical Characteristics ( $C_{IN}=0.33\mu F$ ,  $C_O=1.0\mu F$ ,  $T_J=25^\circ C$ )

Measurement is to be conducted in pulse testing.

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>NJM79L03A</b>						
Output Voltage	$V_O$	$V_{IN}=-10V, I_O=40mA$	-2.88	-3.0	-3.12	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-7 \sim -20V, I_O=40mA$	—	—	60	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-10V, I_O=1 \sim 100mA$	—	—	72	mV
Quiescent Current	$I_O$	$V_{IN}=-10V, I_O=0mA$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-8 \sim -18V, I_O=40mA, e_{in}=1V_{p-p}, f=120Hz$	45	51	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-10V, BW=10Hz \sim 100kHz, I_O=40mA$	—	30	—	$\mu V$
<b>NJM79L05A</b>						
Output Voltage	$V_O$	$V_{IN}=-10V, I_O=40mA$	-4.8	-5.0	-5.2	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-7 \sim -20V, I_O=40mA$	—	—	150	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-10V, I_O=1 \sim 100mA$	—	—	60	mV
Quiescent Current	$I_O$	$V_{IN}=-10V, I_O=0mA$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-8 \sim -18V, I_O=40mA, e_{in}=1V_{p-p}, f=120Hz$	41	49	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-10V, BW=10Hz \sim 100kHz, I_O=40mA$	—	40	—	$\mu V$

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■ **Electrical Characteristics** ( $C_{IN}=0.33\mu\text{F}$ ,  $C_O=1.0\mu\text{F}$ ,  $T_j=25^\circ\text{C}$ )

Measurement is to be conducted in pulse testing.

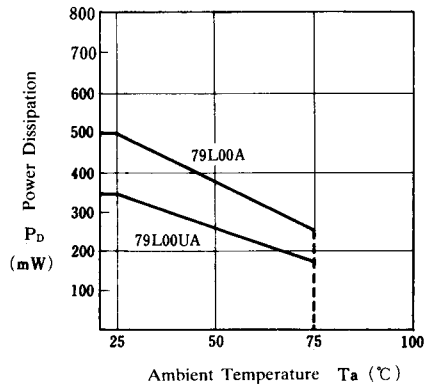
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>NJM79L06A</b>						
Output Voltage	$V_O$	$V_{IN}=-12\text{V}$ , $I_O=40\text{mA}$	-5.76	-6.0	-6.24	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-8.5\sim-20\text{V}$ , $I_O=40\text{mA}$	—	—	150	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-12\text{V}$ , $I_O=1\sim 100\text{mA}$	—	—	70	mV
Quiescent Current	$I_O$	$V_{IN}=-12\text{V}$ , $I_O=0\text{mA}$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-9\sim-19\text{V}$ , $I_O=40\text{mA}$ , $e_{in}=1V_{p-p}$ , $f=120\text{Hz}$	40	48	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-12\text{V}$ , $BW=10\text{Hz}\sim 100\text{kHz}$ , $I_O=40\text{mA}$	—	50	—	$\mu\text{V}$
<b>NJM79L08A</b>						
Output Voltage	$V_O$	$V_{IN}=-14\text{V}$ , $I_O=40\text{mA}$	-7.68	-8.0	-8.32	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-10.5\sim-23\text{V}$ , $I_O=40\text{mA}$	—	—	175	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-14\text{V}$ , $I_O=1\sim 100\text{mA}$	—	—	80	mV
Quiescent Current	$I_O$	$V_{IN}=-14\text{V}$ , $I_O=0\text{mA}$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-11\sim-21\text{V}$ , $I_O=40\text{mA}$ , $e_{in}=1V_{p-p}$ , $f=120\text{Hz}$	39	45	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-14\text{V}$ , $BW=10\text{Hz}\sim 100\text{kHz}$ , $I_O=40\text{mA}$	—	60	—	$\mu\text{V}$
<b>NJM79L09A</b>						
Output Voltage	$V_O$	$V_{IN}=-15\text{V}$ , $I_O=40\text{mA}$	-8.64	-9.0	-9.36	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-11.5\sim-24\text{V}$ , $I_O=40\text{mA}$	—	—	200	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-15\text{V}$ , $I_O=1\sim 100\text{mA}$	—	—	90	mV
Quiescent Current	$I_O$	$V_{IN}=-15\text{V}$ , $I_O=0\text{mA}$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-12\sim-22\text{V}$ , $I_O=40\text{mA}$ , $e_{in}=1V_{p-p}$ , $f=120\text{Hz}$	38	44	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-15\text{V}$ , $BW=10\text{Hz}\sim 100\text{kHz}$ , $I_O=40\text{mA}$	—	70	—	$\mu\text{V}$
<b>NJM79L12A</b>						
Output Voltage	$V_O$	$V_{IN}=-19\text{V}$ , $I_O=40\text{mA}$	-11.5	-12.0	-12.5	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-14.5\sim-27\text{V}$ , $I_O=40\text{mA}$	—	—	250	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-19\text{V}$ , $I_O=1\sim 100\text{mA}$	—	—	100	mV
Quiescent Current	$I_O$	$V_{IN}=-19\text{V}$ , $I_O=0\text{mA}$	—	—	6.5	mA
Ripple Rejection	RR	$V_{IN}=-15\sim-25\text{V}$ , $I_O=40\text{mA}$ , $e_{in}=1V_{p-p}$ , $f=120\text{Hz}$	37	42	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-19\text{V}$ , $BW=10\text{Hz}\sim 100\text{kHz}$ , $I_O=40\text{mA}$	—	80	—	$\mu\text{V}$

■ **Electrical Characteristics** ( $C_{IN}=0.33\mu F$ ,  $C_O=1.0\mu F$ ,  $T_J=25^\circ C$ )

Measurement is to be conducted in pulse testing.

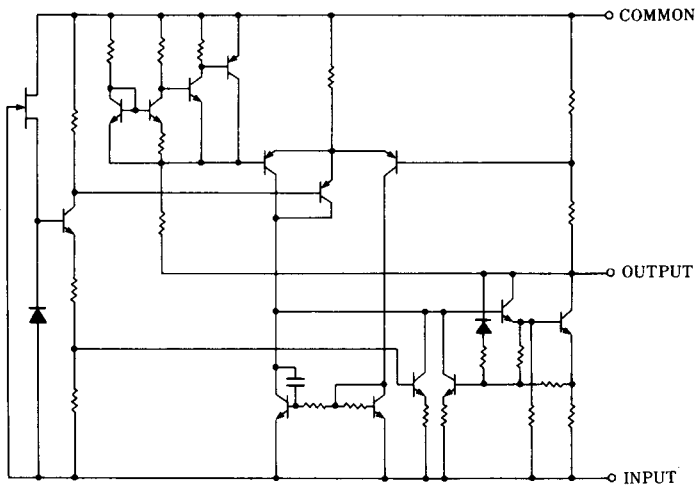
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>NJM79L15A</b>						
Output Voltage	$V_O$	$V_{IN}=-23V$ , $I_O=40mA$	-14.4	-15.0	-15.6	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-17.5\sim-30V$ , $I_O=40mA$	—	—	300	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-23V$ , $I_O=1\sim 100mA$	—	—	150	mV
Quiescent Current	$I_O$	$V_{IN}=-23V$ , $I_O=0mA$	—	—	6.5	mA
Ripple Rejection	RR	$V_{IN}=-18.5\sim-28.5V$ , $I_O=40mA$ , $e_{in}=1V_{p-p}$ , $f=120Hz$	34	39	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-23V$ , $BW=10Hz\sim 100kHz$ , $I_O=40mA$	—	90	—	$\mu V$
<b>NJM79L18A</b>						
Output Voltage	$V_O$	$V_{IN}=-27V$ , $I_O=40mA$	-17.3	-18.0	-18.7	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-20.7\sim-33V$ , $I_O=40mA$	—	—	325	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-27V$ , $I_O=1\sim 100mA$	—	—	170	mV
Quiescent Current	$I_O$	$V_{IN}=-27V$ , $I_O=0mA$	—	—	6.5	mA
Ripple Rejection	RR	$V_{IN}=-23\sim-33V$ , $I_O=40mA$ , $e_{in}=1V_{p-p}$ , $f=120Hz$	33	48	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-27V$ , $BW=10Hz\sim 100kHz$ , $I_O=40mA$	—	150	—	$\mu V$
<b>NJM79L24A</b>						
Output Voltage	$V_O$	$V_{IN}=-33V$ , $I_O=40mA$	-23.0	-24.0	-25.0	V
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-27\sim-38V$ , $I_O=40mA$	—	—	350	mV
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-33V$ , $I_O=1\sim 100mA$	—	—	200	mV
Quiescent Current	$I_O$	$V_{IN}=-33V$ , $I_O=0mA$	—	—	6.5	mA
Ripple Rejection	RR	$V_{IN}=-29\sim-35V$ , $I_O=40mA$ , $e_{in}=1V_{p-p}$ , $f=120Hz$	31	47	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-33V$ , $BW=10Hz\sim 100kHz$ , $I_O=40mA$	—	200	—	$\mu V$

■ Power Dissipation vs. Ambient Temperature

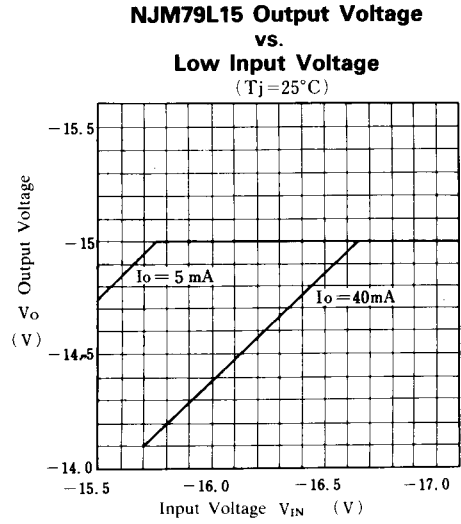
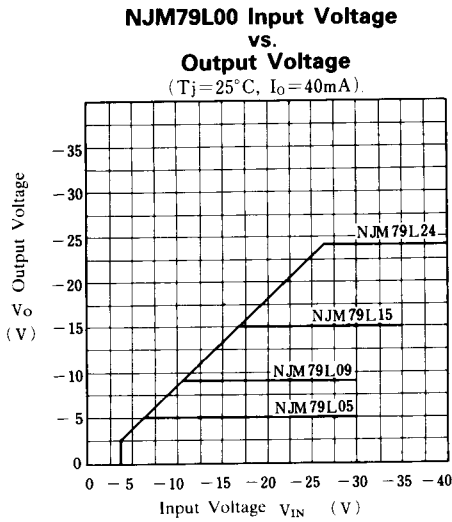


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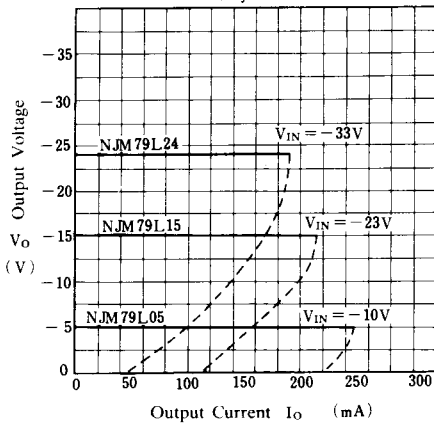
■ Equivalent Circuit



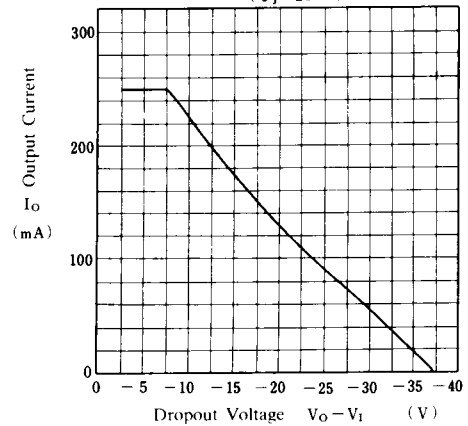
## ■ Typical Characteristics



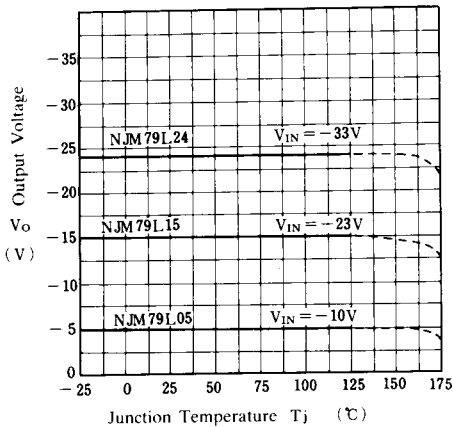
**NJM79L05/15/24 Load Characteristics**  
( $T_j = 25^\circ\text{C}$ )



**NJM79L00 Series Short Circuit Current**  
( $T_j = 25^\circ\text{C}$ )



**NJM79L05/12/24 Output Voltage vs. Junction Temperature**



**NJM79L05/15/24 Ripple Rejection vs. Frequency**  
( $I_o = 40\text{mA}$ ,  $e_m = 2V_{P-P}$ ,  $T_j = 25^\circ\text{C}$ )

