

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)

(SOT-89)



NJM79LXXA

1. COMMON
2. IN
3. OUT



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
NJM79L03A						
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	—	μV
NJM79L05A						
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	—	μV

■ **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.

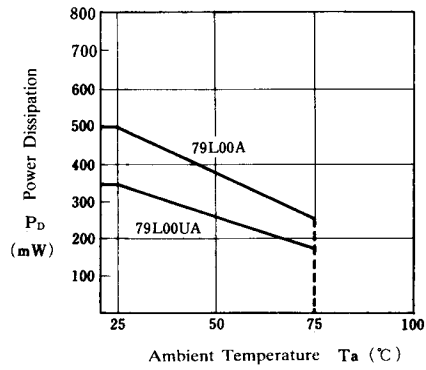
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
NJM79L06A						
Output Voltage	V_O	$V_{IN}=-12V$, $I_O=40mA$	-5.76	-6.0	-6.24	V
Line Regulation	$\Delta V_O/V_{IN}$	$V_{IN}=-8.5\sim-20V$, $I_O=40mA$	—	—	150	mV
Load Regulation	$\Delta V_O/I_O$	$V_{IN}=-12V$, $I_O=1\sim100mA$	—	—	70	mV
Quiescent Current	I_O	$V_{IN}=-12V$, $I_O=0mA$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-9\sim-19V$, $I_O=40mA$, $e_{in}=1V_{p-p}$, $f=120Hz$	40	48	—	dB
Output Noise Voltage	V_{NO}	$V_{IN}=-12V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	50	—	μV
NJM79L08A						
Output Voltage	V_O	$V_{IN}=-14V$, $I_O=40mA$	-7.68	-8.0	-8.32	V
Line Regulation	$\Delta V_O/V_{IN}$	$V_{IN}=-10.5\sim-23V$, $I_O=40mA$	—	—	175	mV
Load Regulation	$\Delta V_O/I_O$	$V_{IN}=-14V$, $I_O=1\sim100mA$	—	—	80	mV
Quiescent Current	I_O	$V_{IN}=-14V$, $I_O=0mA$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-11\sim-21V$, $I_O=40mA$, $e_{in}=1V_{p-p}$, $f=120Hz$	39	45	—	dB
Output Noise Voltage	V_{NO}	$V_{IN}=-14V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	60	—	μV
NJM79L09A						
Output Voltage	V_O	$V_{IN}=-15V$, $I_O=40mA$	-8.64	-9.0	-9.36	V
Line Regulation	$\Delta V_O/V_{IN}$	$V_{IN}=-11.5\sim-24V$, $I_O=40mA$	—	—	200	mV
Load Regulation	$\Delta V_O/I_O$	$V_{IN}=-15V$, $I_O=1\sim100mA$	—	—	90	mV
Quiescent Current	I_O	$V_{IN}=-15V$, $I_O=0mA$	—	—	6.0	mA
Ripple Rejection	RR	$V_{IN}=-12\sim-22V$, $I_O=40mA$, $e_{in}=1V_{p-p}$, $f=120Hz$	38	44	—	dB
Output Noise Voltage	V_{NO}	$V_{IN}=-15V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	70	—	μV
NJM79L12A						
Output Voltage	V_O	$V_{IN}=-19V$, $I_O=40mA$	-11.5	-12.0	-12.5	V
Line Regulation	$\Delta V_O/V_{IN}$	$V_{IN}=-14.5\sim-27V$, $I_O=40mA$	—	—	250	mV
Load Regulation	$\Delta V_O/I_O$	$V_{IN}=-19V$, $I_O=1\sim100mA$	—	—	100	mV
Quiescent Current	I_O	$V_{IN}=-19V$, $I_O=0mA$	—	—	6.5	mA
Ripple Rejection	RR	$V_{IN}=-15\sim-25V$, $I_O=40mA$, $e_{in}=1V_{p-p}$, $f=120Hz$	37	42	—	dB
Output Noise Voltage	V_{NO}	$V_{IN}=-19V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	80	—	μV

■ 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.

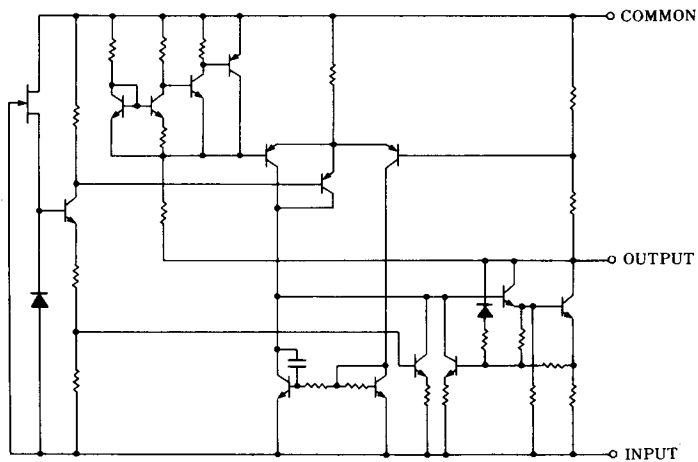
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
NJM79L15A						
Output Voltage	V_O	$V_{IN}=-23V$, $I_O=40mA$	-14.4	-15.0	-15.6	V
Line Regulation	$\Delta V_O/V_{IN}$	$V_{IN}=-17.5\sim-30V$, $I_O=40mA$	—	—	300	mV
Load Regulation	$\Delta V_O/I_O$	$V_{IN}=-23V$, $I_O=1\sim100mA$	—	—	150	mV
Quiescent Current	I_Q	$V_{IN}=-23V$, $I_O=0mA$	—	—	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}	$V_{IN}=-23V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	90	—	μV
NJM79L18A						
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	$\Delta V_O/I_O$	$V_{IN}=-27V$, $I_O=1\sim100mA$	—	—	170	mV
Quiescent Current	I_Q	$V_{IN}=-27V$, $I_O=0mA$	—	—	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}	$V_{IN}=-27V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	150	—	μV
NJM79L24A						
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	$\Delta V_O/I_O$	$V_{IN}=-33V$, $I_O=1\sim100mA$	—	—	200	mV
Quiescent Current	I_Q	$V_{IN}=-33V$, $I_O=0mA$	—	—	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}	$V_{IN}=-33V$, $BW=10Hz\sim100kHz$, $I_O=40mA$	—	200	—	μV

■ Power Dissipation vs. Ambient Temperature



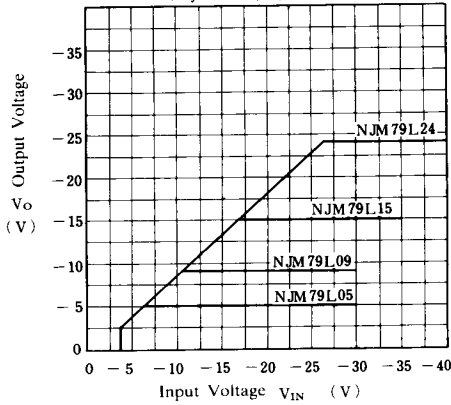
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■ Equivalent Circuit

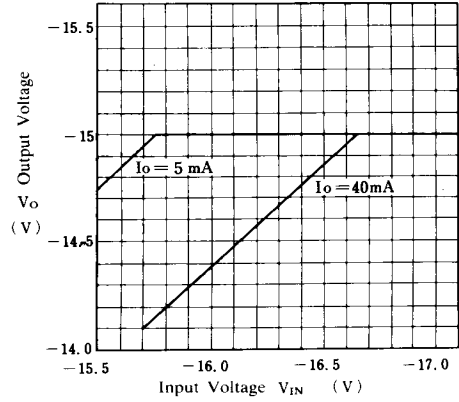


■ Typical Characteristics

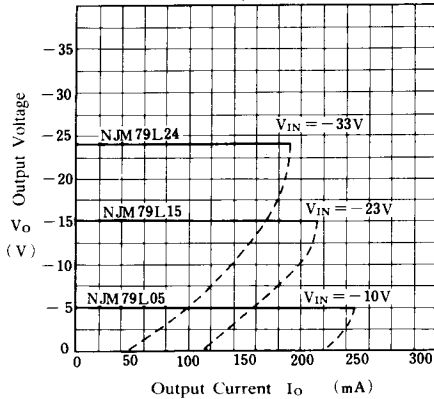
NJM79L00 Input Voltage vs. Output Voltage
($T_j = 25^\circ\text{C}$, $I_o = 40\text{mA}$)



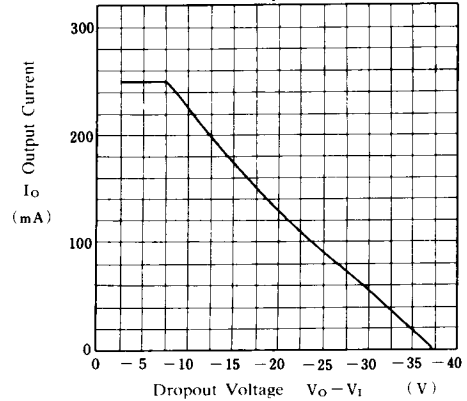
NJM79L15 Output Voltage vs. Low Input Voltage
($T_j = 25^\circ\text{C}$)



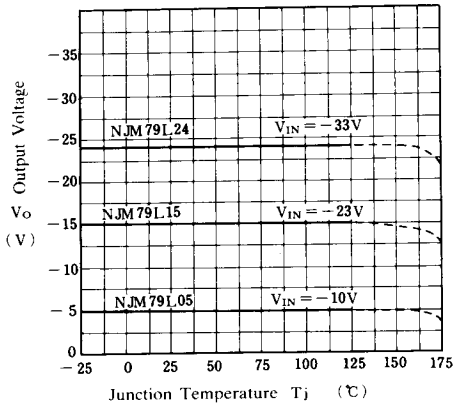
NJM79L05/15/24 Load Characteristics
($T_j = 25^\circ\text{C}$)



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

