3-TERMINAL NEGATIVE VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

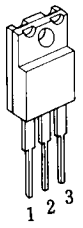
The NJM79M00 series of 3-Terminal Negative Voltage Regulators are constructed using the New JRC Planar epitaxial process. These regulators employ internal current limiting, thermal shutdown and safearea compensation, making them essentially indestructible. If adequate heat sinking is provided, they can deliver up to 500mA output current. They are intended as fixed voltage regulators in a wide range of applications including local (on-card) regulation for elimination of noise and distribution problems associated with single point regulation. In addition to use a fixed voltage regulators, these devices can be used with external components to obtain adjustable output voltages and currents.

■ FEATURES

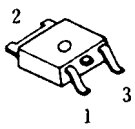
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Excellent Ripple Rejection
- Guarantee'd 500mA Output Current
- Output Capacitor recommended electrolytic capacitor
- Package Outline TO-220F, TO-252
- Bipolar Technology

■ PACKAGE OUTLINE

(TO-220F)



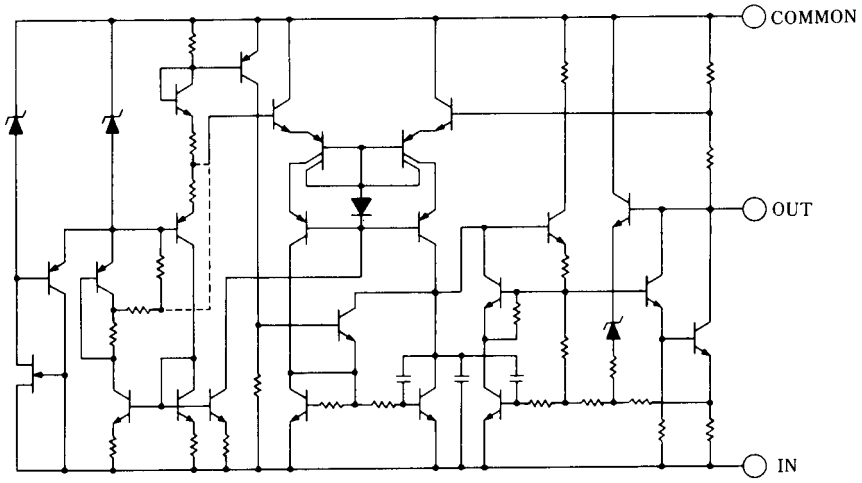
(TO-252)



NJM79M00FA	NJM79M00DL1A
1. COMMON	1. COMMON
2. IN	2. IN
3. OUT	3. OUT

(note) The radiation fin is connected to Pin 2.

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(T_a=25ºC)

PARAMETER	SYMBOL	MAXIMUM RATINGS			UNIT
Input Voltage	V_{IN}	79M05 to 79M09 79M12 to 79M15 79M18 to 79M24		-35 -35 -40	V
Storage Temperature Range	T_{stg}	TO-220F -40 to +150 TO-252 -40 to +150			ºC
Operating Temperature Range	Operating Junction Temperature Operating Junction Temperature		T_j T_{opr}	TO-220F -40 to +150 TO-252 -40 to +150 -40 to +85	ºC
Power Dissipation	P_D	7.5(T_C≤75ºC)			W

■ THERMAL CHARACTERISTICS

			TO-220F	TO-252	
Thermal Resistance	Junction-to-Ambient Temperature	θja	60	125	ºC/W
	Junction-to-Case	θjc	7	12.5	

■ELECTRICAL CHARACTERISTICS (T_j=25ºC, C_{IN}=2.2µF, C_O=1.0µF)

Measurement is to be conduced in pulse testing

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
NJM79M05FA/DL1A						
Output Voltage	V_O	V_{IN}=-10V, I_O=0.35A	-4.8	-5.0	-5.2	V
Quiescent Current	I_Q	V_{IN}=-10V, I_O=0mA	-	2.2	5.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-10V, I_O=0.005 to 0.5A	-	35	50	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-7 to -25V, I_O=0.35A	-	5	50	mV
Ripple Rejection	RR	V_{IN}=-10V, I_O=0.35A, e_{in}=2V_{P-P}, f=120Hz	50	58	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-10V, I_O=0.35A , BW=10Hz to 100kHz,	-	100	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-10V, I_O=5mA	-	-0.4	-	mV/ºC

■ **ELECTRICAL CHARACTERISTICS** (T_J=25°C, C_{IN}=2.2µF, C_O=1.0µF)

Measurement is to be conducted in pulse testing.

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
NJM79M06FA/DL1A						
Output Voltage	V_O	V_{IN}=-11V, I_O=0.35A	-5.75	-6.0	-6.25	V
Quiescent Current	I_Q	V_{IN}=-11V, I_O=0mA	-	2.2	5.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-11V, I_O=0.005 to 0.5A	-	35	60	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-8 to -25V, I_O=0.35A	-	5	60	mV
Ripple Rejection	RR	V_{IN}=-11V, I_O=0.35A, e_{in}=2V_{P-P}, f=120Hz	50	57	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-11V, I_O=0.35A , BW=10Hz to 100kHz,	-	110	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-11V, I_O=5mA	-	-0.5	-	mV/ºC
NJM79M08FA/DL1A						
Output Voltage	V_O	V_{IN}=-14V, I_O=0.35A	-7.7	-8.0	-8.3	V
Quiescent Current	I_Q	V_{IN}=-14V, I_O=0mA	-	2.2	5.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-14V, I_O=0.005 to 0.5A	-	40	80	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-10.5 to -25V, I_O=0.35A	-	8	80	mV
Ripple Rejection	RR	V_{IN}=-14V, I_O=0.35A, e_{in}=2V_{P-P}, f=120Hz	50	55	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-14V, I_O=0.35A , BW=10Hz to 100kHz,	-	130	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-14V, I_O=5mA	-	-0.7	-	mV/ºC
NJM79M09FA/DL1A						
Output Voltage	V_O	V_{IN}=-15V, I_O=0.35A	-8.65	-9.0	-9.35	V
Quiescent Current	I_Q	V_{IN}=-15V, I_O=0mA	-	2.2	5.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-15V, I_O=0.005 to 0.5A	-	40	90	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-11.5 to -25V, I_O=0.35A	-	8	80	mV
Ripple Rejection	RR	V_{IN}=-15V, I_O=0.35A, e_{in}=2V_{P-P}, f=120Hz	50	54	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-15V, I_O=0.35A , BW=10Hz to 100kHz,	-	150	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-15V, I_O=5mA	-	-0.8	-	mV/ºC
NJM79M12FA/DL1A						
Output Voltage	V_O	V_{IN}=-19V, I_O=0.35A	-11.5	-12.0	-12.5	V
Quiescent Current	I_Q	V_{IN}=-19V, I_O=0mA	-	2.7	6.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-19V, I_O=0.005 to 0.5A	-	30	120	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-14.5 to -30V, I_O=0.35A	-	3	80	mV
Ripple Rejection	RR	V_{IN}=-19V, I_O=0.35A, e_{in}=2V_{P-P}, f=120Hz	54	71	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-19V, I_O=0.35A , BW=10Hz to 100kHz,	-	150	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-19V, I_O=5mA	-	-0.4	-	mV/ºC

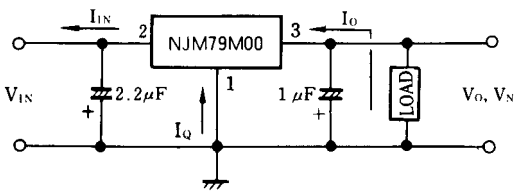
■ **ELECTRICAL CHARACTERISTICS** (T_J=25°C, C_{IN}=2.2µF, C_O=1.0µF)

Measurement is to be conducted in pulse testing.

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
NJM79M15FA/DL1A						
Output Voltage	V_O	V_{IN}=-23V, I_O=0.35A	-14.4	-15.0	-15.6	V
Quiescent Current	I_Q	V_{IN}=-23V, I_O=0mA	-	2.7	6.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-23V, I_O=0.005 to 0.5A	-	30	150	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-17.5 to -30V, I_O=0.35A	-	3	80	mV
Ripple Rejection	RR	V_{IN}=-23V, I_O=0.35A, e_{in}=$2V_{P-P}$, f=120Hz	54	70	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-23V, I_O=0.35A , BW=10Hz to 100kHz	-	170	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-23V, I_O=5mA	-	-0.5	-	mV/ºC
NJM79M18FA/DL1A						
Output Voltage	V_O	V_{IN}=-27V, I_O=0.35A	-17.3	-18.0	-18.7	V
Quiescent Current	I_Q	V_{IN}=-27V, I_O=0mA	-	2.7	6.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-27V, I_O=0.005 to 0.5A	-	35	180	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-21 to -33V, I_O=0.35A	-	4	80	mV
Ripple Rejection	RR	V_{IN}=-27V, I_O=0.35A, e_{in}=$2V_{P-P}$, f=120Hz	54	69	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-27V, I_O=0.35A , BW=10Hz to 100kHz	-	200	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-27V, I_O=5mA	-	-0.6	-	mV/ºC
NJM79M24FA/DL1A						
Output Voltage	V_O	V_{IN}=-33, I_O=0.35A	-23.0	-24.0	-25.0	V
Quiescent Current	I_Q	V_{IN}=-33, I_O=0mA	-	2.7	6.0	mA
Load Regulation	ΔV_O - I_O	V_{IN}=-33, I_O=0.005 to 0.5A	-	40	240	mV
Line Regulation	ΔV_O - V_{IN}	V_{IN}=-27 to -38V, I_O=0.35A	-	5	80	mV
Ripple Rejection	RR	V_{IN}=-33V, I_O=0.35A, e_{in}=$2V_{P-P}$, f=120Hz	54	66	-	dB
Output Noise Voltage	V_{NO}	V_{IN}=-33V, I_O=0.35A , BW=10Hz to 100kHz	-	300	-	µV
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	V_{IN}=-33V, I_O=5mA	-	-0.8	-	mV/ºC

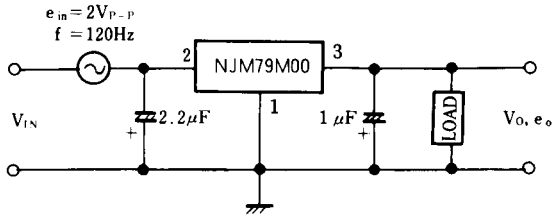
■ TEST CIRCUIT

1. Output Voltage, Line Regulation, Load Regulation, Quiescent Current, Average Temperature Coefficient of Output Voltage, Output Noise Voltage



$I_Q = I_{IN} - I_O$

2. Ripple Rejection

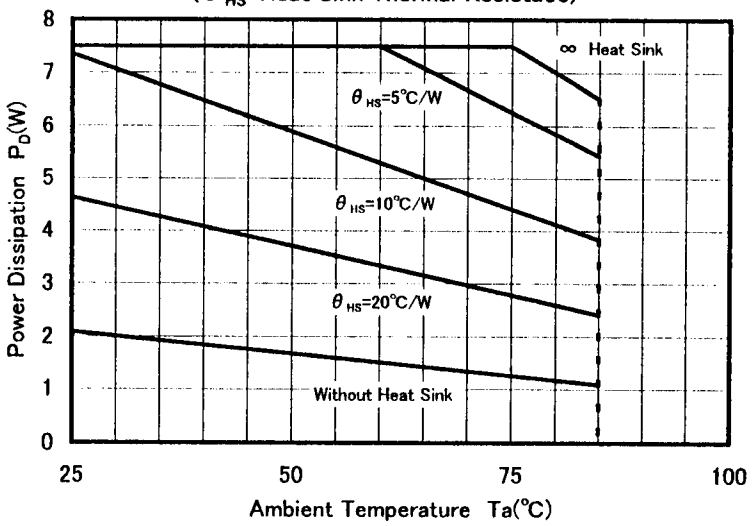


$$RR = 20\log_{10}\left(\frac{e_{in}}{e_o}\right) \text{ [dB]}$$

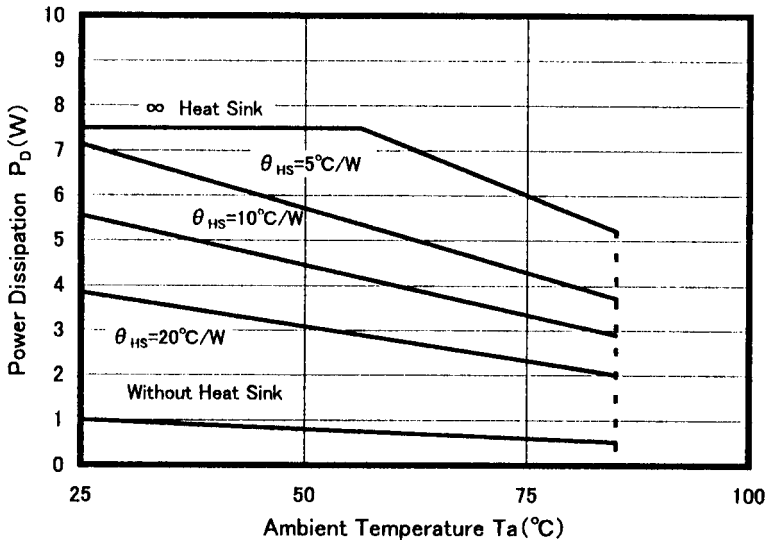
■ POWER DISSIPATION VS. AMBIENT TEMPERATURE

NJM79M00FA

(θ_{HS}=Heat Sink Thermal Resistace)

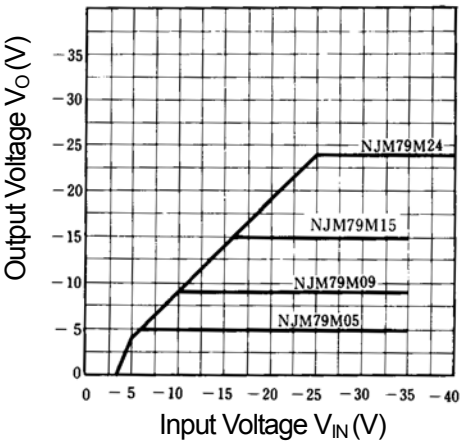


NJM79M00DL1A

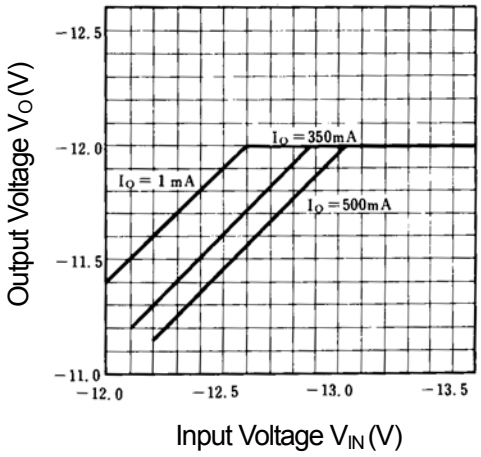


■ TYPICAL CHARACTERISTICS

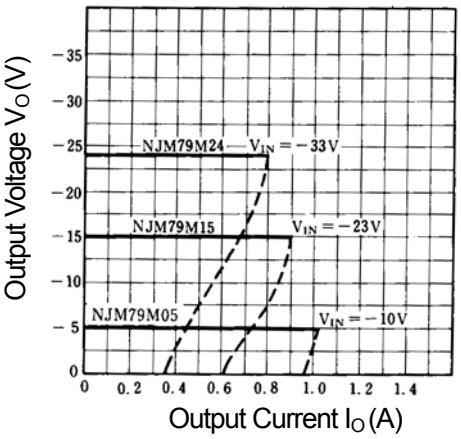
NJM79M00 Output Characteristics
(Io=0.35A, Tj=25°C)



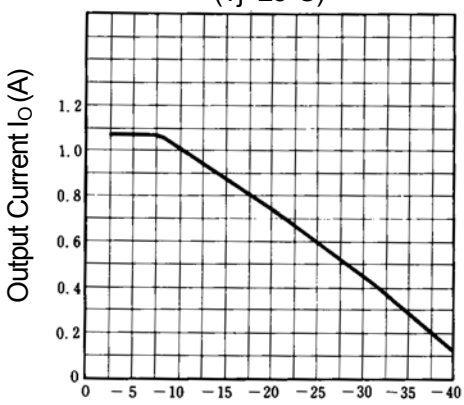
NJM79M12 Output Voltage vs. Low Input Voltage
(Io=0.35A, Tj=25°C)



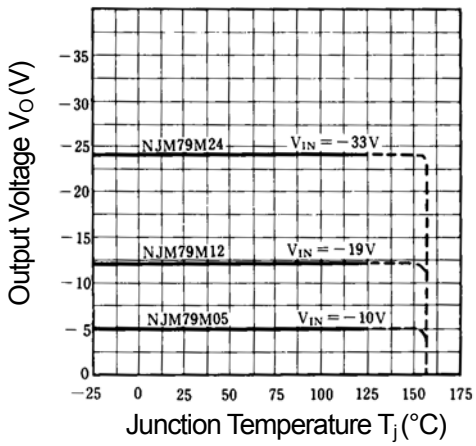
NJM79M05/15/24 Load Characteristics
(Tj=25°C)



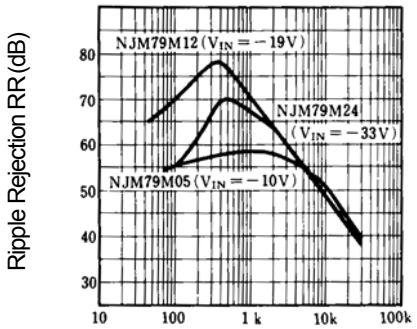
NJM79M00 Series Short Circuit Output Current
(Tj=25°C)



NJM7805/15/24 Output Voltage vs. Junction Temperature



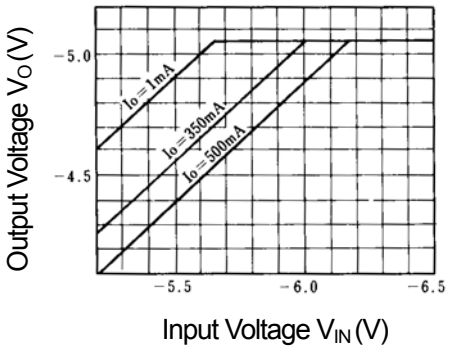
NJM79M05/15/24 Ripple Rejection vs. Frequency
(Tj=25°C, Io=0.35A, ein=$2V_{P-P}$)



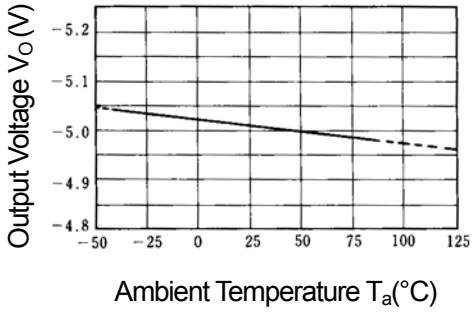
■ TYPICAL CHARACTERISTICS

NJM79M05 Dropout Characteristics

(Tj=25°C)

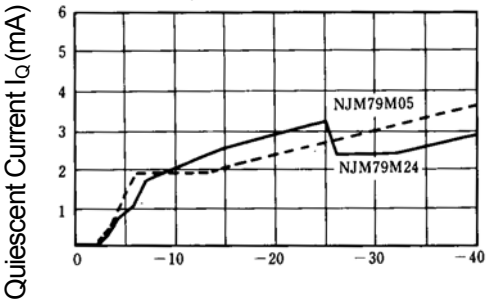


NJM79M05 Output Voltage vs. Temperature



Quiescent Current vs. Input Voltage

(Tj=25°C, Io=0mA)



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Данный компонент на территории Российской Федерации

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Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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