

### 3-TERMINAL NEGATIVE VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

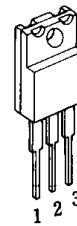
The NJM79M00 series of 3-Terminal Negative Voltage Regulators are constructed using the New JRC Planar epitaxial process. These regulators employ internal current limiting, thermal shutdown and safe-area compensation, making them essentially indestructible. If adequate heat sinking is provided, they 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
- Package Outline TO-220F, TO-252
- Bipolar Technology

■ PACKAGE OUTLINE

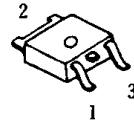
(TO-220F)



NJM79M00FA

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

(TO-252)



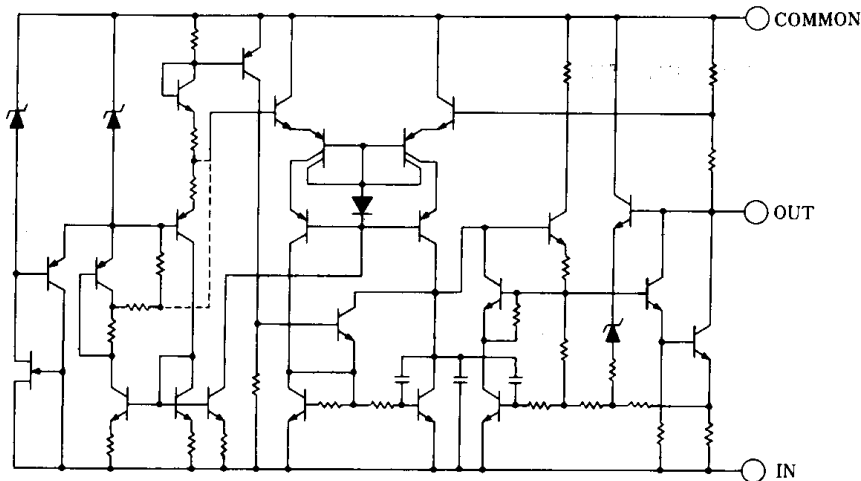
NJM79M00DL1A

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

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

3

■ EQUIVALENT CIRCUIT



## ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MAXIMUM RATINGS		UNIT
Input Voltage	$V_{IN}$	79M05~79M09	-35	V
		79M12~79M15	-35	
		79M18~79M24	-40	
Storage Temperature Range	$T_{stg}$	TO-220F	-40~+150	°C
		TO-252	-40~+150	
Operating Temperature Range	Operating Junction Temperature	$T_j$	TO-220F -30~+150	°C
	Operating Junction Temperature	$T_{opr}$	TO-252 -30~+150 -40~+85	
Power Dissipation	$P_D$	7.5( $T_C \leq 75^\circ C$ )		W

## ■ THERMAL CHARACTERISTICS

Thermal Resistance	Junction-to-Ambient Temperature	$\theta_{ja}$	TO220F	TO252	°C/W
			Junction-to-Case	$\theta_{jc}$	
			60	125	
			7	12.5	

## ■ ELECTRICAL CHARACTERISTICS ( $T_j=25^\circ C$ , $C_{IN}=2.2 \mu F$ , $C_o=1.0 \mu F$ .)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>NJM79M05 FA/DL1A</b>						
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	$\Delta V_O-I_O$	$V_{IN}=-10V, I_O=0.005\sim 0.5A$	—	35	50	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-7\sim -25V, I_O=0.35A$	—	5	50	mV
Ripple Rejection	RR	$V_{IN}=-10V, I_O=0.35A, e_n=2V_{p-p}, f=120Hz$	50	58	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-10V, I_O=0.35A, BW=10Hz\sim 100kHz$	—	100	—	$\mu V$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-10V, I_O=5mA$	—	-0.4	—	mV/°C

■ **ELECTRICAL CHARACTERISTICS** ( $T_j=25^\circ\text{C}$ ,  $C_{IN}=2.2\ \mu\text{F}$ ,  $C_o=1.0\ \mu\text{F}$ ) Measurement is to be conducted in pulse testing

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>NJM79M06 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-11\text{V}$ , $I_O=0.35\text{A}$	-5.75	-6.0	-6.25	V
Quiescent Current	$I_Q$	$V_{IN}=-11\text{V}$ , $I_O=0\text{mA}$	—	2.2	5.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-11\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	35	60	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-8\sim -25\text{V}$ , $I_O=0.35\text{A}$	—	5	60	mV
Ripple Rejection	RR	$V_{IN}=-11\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{p.p.}$ , $f=120\text{Hz}$	50	57	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-11\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	110	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-11\text{V}$ , $I_O=5\text{mA}$	—	-0.5	—	mV/ $^\circ\text{C}$
<b>NJM79M08 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-14\text{V}$ , $I_O=0.35\text{A}$	-7.7	-8.0	-8.3	V
Quiescent Current	$I_Q$	$V_{IN}=-14\text{V}$ , $I_O=0\text{mA}$	—	2.2	5.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-14\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	40	80	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-10.5\sim -25\text{V}$ , $I_O=0.35\text{A}$	—	8	80	mV
Ripple Rejection	RR	$V_{IN}=-14\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{p.p.}$ , $f=120\text{Hz}$	50	55	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-14\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	130	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-14\text{V}$ , $I_O=5\text{mA}$	—	-0.7	—	mV/ $^\circ\text{C}$
<b>NJM79M09 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-15\text{V}$ , $I_O=0.35\text{A}$	-8.65	-9.0	-9.35	V
Quiescent Current	$I_Q$	$V_{IN}=-15\text{V}$ , $I_O=0\text{mA}$	—	2.2	5.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-15\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	40	90	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-11.5\sim -25\text{V}$ , $I_O=0.35\text{A}$	—	8	80	mV
Ripple Rejection	RR	$V_{IN}=-15\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{p.p.}$ , $f=120\text{Hz}$	50	54	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-15\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	150	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-15\text{V}$ , $I_O=5\text{mA}$	—	-0.8	—	mV/ $^\circ\text{C}$
<b>NJM79M12 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-19\text{V}$ , $I_O=0.35\text{A}$	-11.5	-12.0	-12.5	V
Quiescent Current	$I_Q$	$V_{IN}=-19\text{V}$ , $I_O=0\text{mA}$	—	2.7	6.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-19\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	30	120	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-14.5\sim -30\text{V}$ , $I_O=0.35\text{A}$	—	3	80	mV
Ripple Rejection	RR	$V_{IN}=-19\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{p.p.}$ , $f=120\text{Hz}$	54	71	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-19\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	150	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-19\text{V}$ , $I_O=5\text{mA}$	—	-0.4	—	mV/ $^\circ\text{C}$

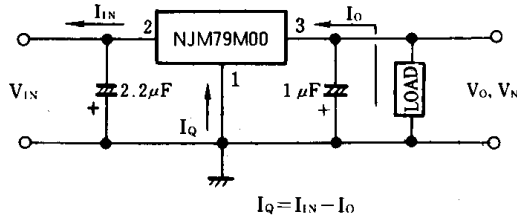
3

■ **ELECTRICAL CHARACTERISTICS** ( $T_j=25^\circ\text{C}$ ,  $C_{IN}=2.2\ \mu\text{F}$ ,  $C_o=1.0\ \mu\text{F}$ ) Measurement is to be conducted in pulse testing.

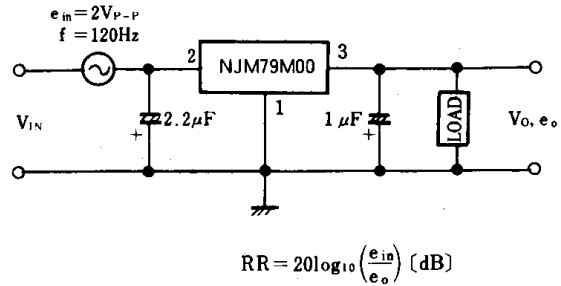
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>NJM79M15 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-23\text{V}$ , $I_O=0.35\text{A}$	-14.4	-15.0	-15.6	V
Quiescent Current	$I_Q$	$V_{IN}=-23\text{V}$ , $I_O=0\text{mA}$	—	2.7	6.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-23\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	30	150	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-17.5\sim -30\text{V}$ , $I_O=0.35\text{A}$	—	3	80	mV
Ripple Rejection	RR	$V_{IN}=-23\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{P-P}$ , $f=120\text{Hz}$	54	70	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-23\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	170	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-23\text{V}$ , $I_O=5\text{mA}$	—	-0.5	—	mV/ $^\circ\text{C}$
<b>NJM79M18 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-27\text{V}$ , $I_O=0.35\text{A}$	-17.3	-18.0	-18.7	V
Quiescent Current	$I_Q$	$V_{IN}=-27\text{V}$ , $I_O=0\text{mA}$	—	2.7	6.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-27\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	35	180	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-21\sim -33\text{V}$ , $I_O=0.35\text{A}$	—	4	80	mV
Ripple Rejection	RR	$V_{IN}=-27\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{P-P}$ , $f=120\text{Hz}$	54	69	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-27\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	200	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-27\text{V}$ , $I_O=5\text{mA}$	—	-0.6	—	mV/ $^\circ\text{C}$
<b>NJM79M24 FA/DL1</b>						
Output Voltage	$V_O$	$V_{IN}=-33\text{V}$ , $I_O=0.35\text{A}$	-23.0	-24.0	-25.0	V
Quiescent Current	$I_Q$	$V_{IN}=-33\text{V}$ , $I_O=0\text{mA}$	—	2.7	6.0	mA
Load Regulation	$\Delta V_O-I_O$	$V_{IN}=-33\text{V}$ , $I_O=0.005\sim 0.5\text{A}$	—	40	240	mV
Line Regulation	$\Delta V_O-V_{IN}$	$V_{IN}=-27\sim -38\text{V}$ , $I_O=0.35\text{A}$	—	5	80	mV
Ripple Rejection	RR	$V_{IN}=-33\text{V}$ , $I_O=0.35\text{A}$ , $e_{in}=2\text{V}_{P-P}$ , $f=120\text{Hz}$	54	66	—	dB
Output Noise Voltage	$V_{NO}$	$V_{IN}=-33\text{V}$ , $I_O=0.35\text{A}$ , $BW=10\text{Hz}\sim 100\text{kHz}$	—	300	—	$\mu\text{V}$
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$V_{IN}=-33\text{V}$ , $I_O=5\text{mA}$	—	-0.8	—	mV/ $^\circ\text{C}$

■ TEST CIRCUIT

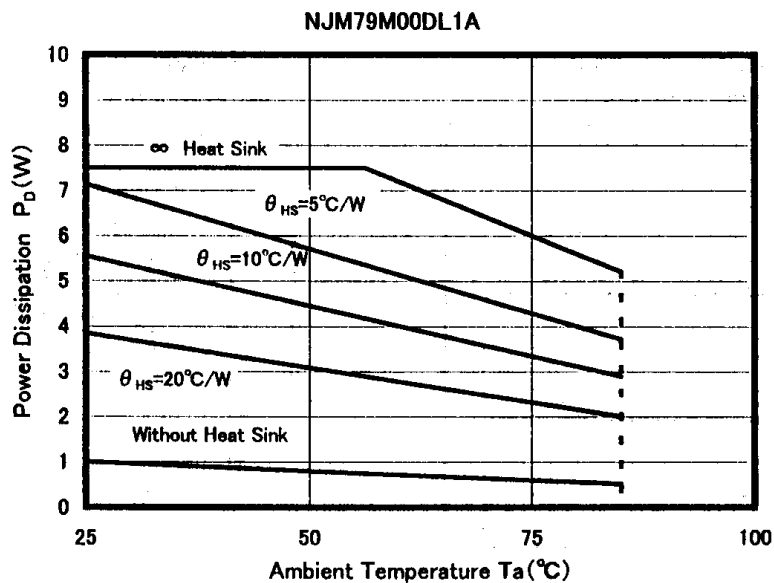
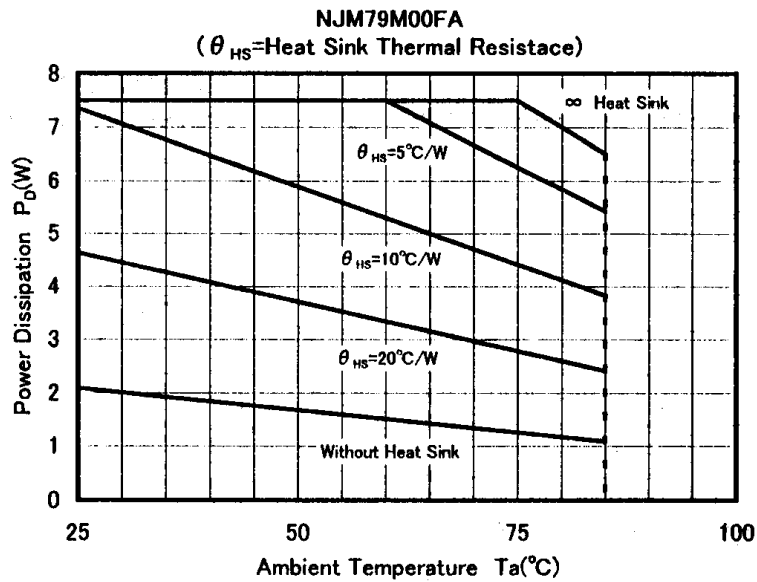
1. Output Voltage, Line Regulation, Load Regulation, Quiescent Current, Average Temperature Coefficient of Output Voltage, Output Noise Voltage



2. Ripple Rejection



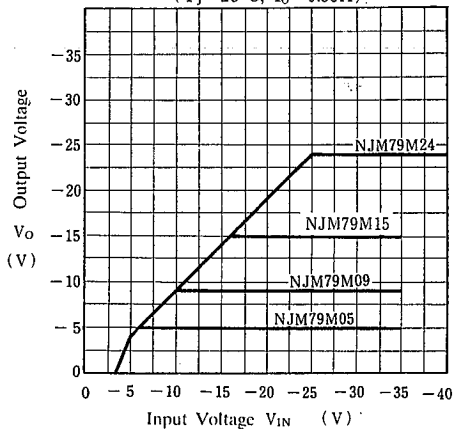
■ POWER DISSIPATION VS. AMBIENT TEMPERATURE



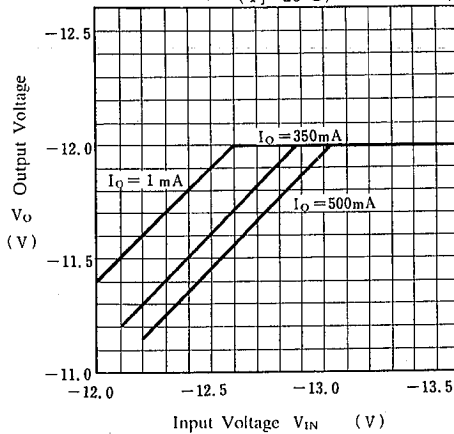
# NJM79M00

## TYPICAL CHARACTERISTICS

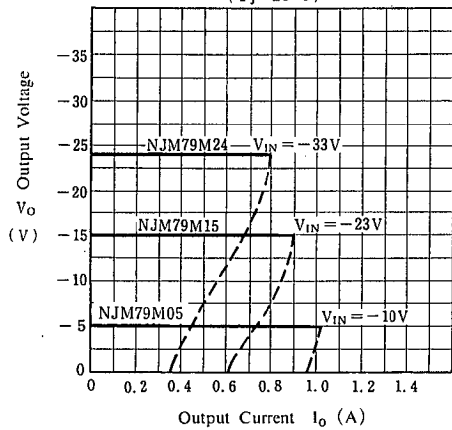
**NJM79M00 Output Characteristics**  
( $T_j = 25^\circ\text{C}$ ,  $I_o = 0.35\text{A}$ )



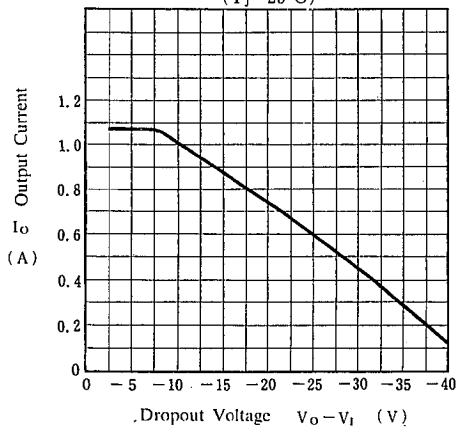
**NJM79M12 Output Voltage vs. Low Input Voltage**  
( $T_j = 25^\circ\text{C}$ )



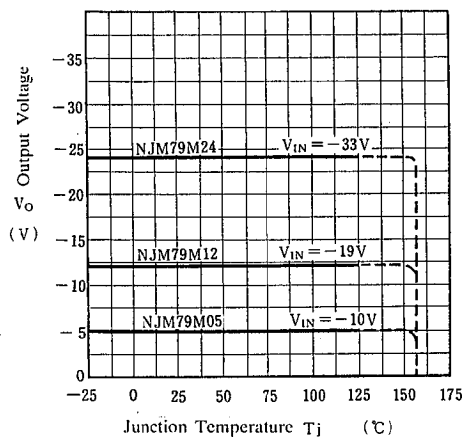
**NJM79M05/15/24 Load Characteristics**  
( $T_j = 25^\circ\text{C}$ )



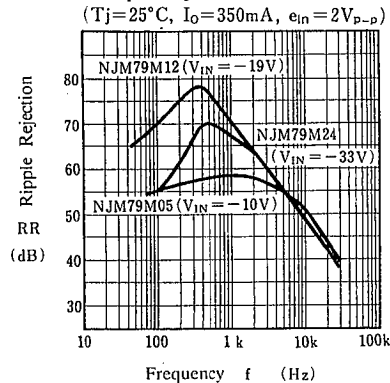
**NJM79M00 Series Short Circuit Output Current**  
( $T_j = 25^\circ\text{C}$ )



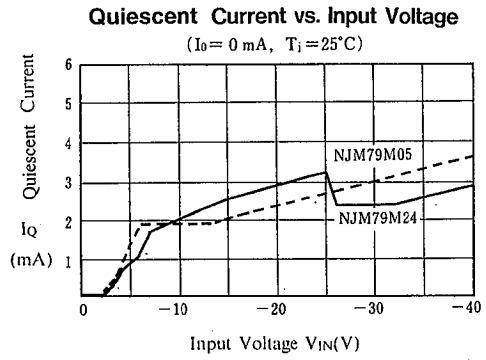
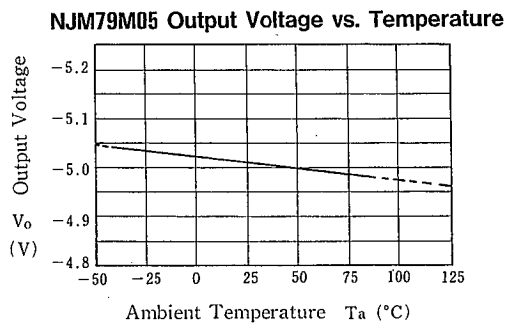
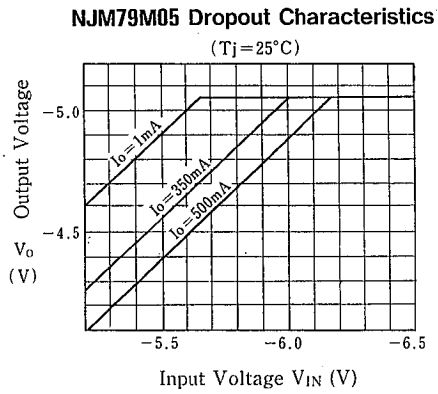
**NJM79M05/12/24 Output Voltage vs. Junction Temperature**



**NJM79M05/15/24 Ripple Rejection vs. Frequency**  
( $T_j = 25^\circ\text{C}$ ,  $I_o = 350\text{mA}$ ,  $e_{in} = 2V_{P-P}$ )



## ■ TYPICAL CHARACTERISTICS



# NJM79M00

---

## MEMO

**[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 usages of the product and not intended for the guarantee or permission of any right including the industrial rights.



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Linear Voltage Regulators](#) category:*

*Click to view products by [Nisshinbo](#) manufacturer:*

Other Similar products are found below :

[LV56831P-E](#) [LV5684PVD-XH](#) [MCDTSA6-2R](#) [L7815ACV-DG](#) [LV56801P-E](#) [TCR3DF13,LM\(CT](#) [TCR3DF39,LM\(CT](#) [TLE42794G](#)  
[L78L05CZ/1SX](#) [L78LR05DL-MA-E](#) [LM317T](#) [636416C](#) [714954EB](#) [LV5680P-E](#) [L78M15CV-DG](#) [L79M05T-E](#) [TLS202A1MBVHTSA1](#)  
[L78LR05D-MA-E](#) [NCV317MBTG](#) [NTE7227](#) [NCV78M09BDTRKG](#) [LV5680NPVC-XH](#) [LT1054CN8](#) [ME6208A50M3G](#) [SL7533-8](#)  
[ME6231A50M3G](#) [ME6231A50PG](#) [ME6231C50M5G](#) [AMS1117S-3.3](#) [AMS1117-5.0](#) [AMS1117S-5.0](#) [AMS1117-3.3](#) [MD5118](#) [MD5121](#)  
[MD5127](#) [MD5128](#) [MD5130](#) [MD5144](#) [MD5150](#) [MD5115](#) [MD5125](#) [MD5133](#) [MD5136](#) [MD5140](#) [MD5110](#) [MD52E18WB6](#) [MD52E33WB6](#)  
[MD52E15QA3](#) [MD52E21QA3](#) [MD52E25QA3](#)