

---

## Designated client product

This product will be discontinued its production in the near term.  
And it is provided for customers currently in use only, with a time limit.  
It can not be available for your new project. Please select other new or existing products.

For more information, please contact our sales office in your region.

New Japan Radio Co.,Ltd.

[www.njr.com](http://www.njr.com)

## LOW DROPOUT VOLTAGE REGULATOR WITH ON/OFF CONTROL

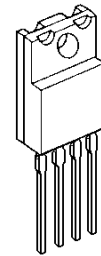
### ■ GENERAL DESCRIPTION

The NJM2396 is low dropout voltage regulator with ON/OFF control.

The output current is up to 1.5A and dropout voltage is 0.2Vtyp. at  $I_o=0.5A$ .

The NJM2396 is suitable for power module, TV, Display, car stereo and low power applications.

### ■ PACKAGE OUTLINE

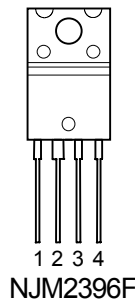


NJM2396F

### ■ FEATURE

- Low Dropout Voltage       $\Delta V_{I-O}=0.2V$  typ. at  $I_o=0.5A$
- Output Current               $I_o(\text{max.})=1.5A$
- ON/OFF Control
- Internal Short Circuit Current Limit
- Internal Overvoltage Protection
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline              TO-220F-4

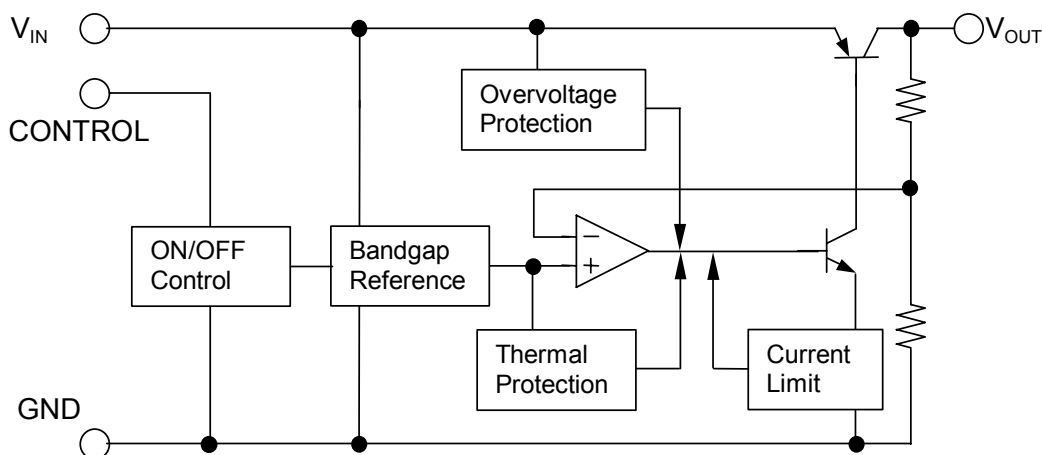
### ■ PIN CONFIGURATION



#### PIN FUNCTION

1.  $V_{IN}$
2.  $V_{OUT}$
3. GND
4. ON/OFF CONTROL

### ■ EQUIVALENT CIRCUIT



# NJM2396

## ■ OUTPUT VOLTAGE RANK LIST

Device Name	V <sub>OUT</sub>
NJM2396F33	3.3V
NJM2396F05	5.0V
NJM2396F63	6.3V
NJM2396F08	8.0V
NJM2396F83	8.3V
NJM2396F09	9.0V
NJM2396F12	12.0V

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V <sub>IN</sub>	+35	V
Control Voltage	V <sub>CONT</sub>	+35(*1)	V
Output Current	I <sub>o</sub>	1.5	A
Power Dissipation	P <sub>D</sub>	18(Tc<50°C)	W
Operating Junction Temperature Range	T <sub>j</sub>	-40 to +150	°C
Operating Temperature Range	T <sub>opr</sub>	-40 to 85	°C
Storage Temperature Range	T <sub>stg</sub>	-50 to 150	°C

(\*1): When input voltage is less than +35V, the absolute maximum control voltage is equal to the input voltage.

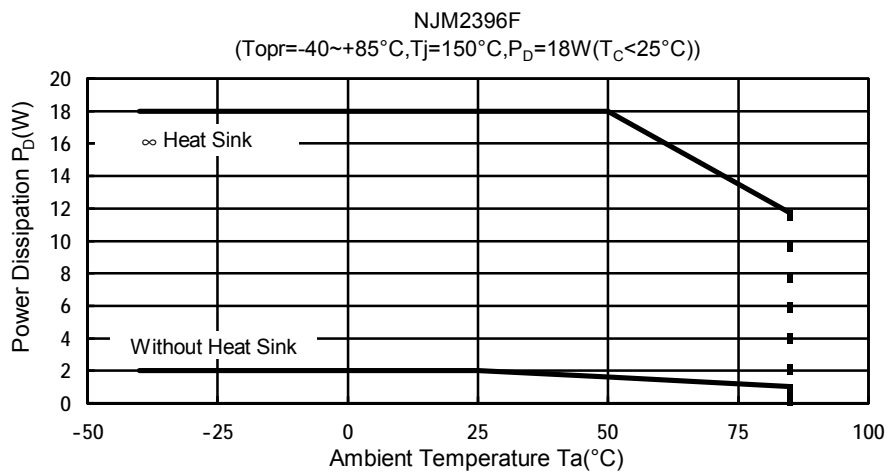
## ■ ELECTRICAL CHARACTERISTICS (V<sub>IN</sub>=V<sub>O</sub>+1V, I<sub>o</sub>=0.5A, C<sub>IN</sub>=0.33μF, C<sub>o</sub>=22μF, T<sub>j</sub>=25°C)

Measurement is to be conducted is pulse testing.

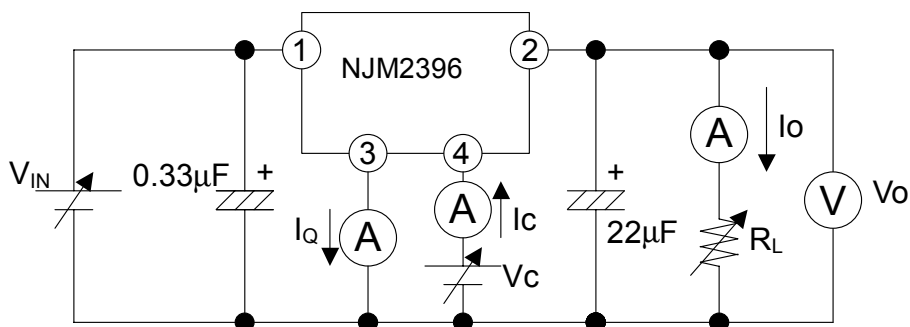
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V <sub>o</sub>	V <sub>IN</sub> =V <sub>O</sub> +1V	-4%	-	+4%	V
Line Regulation	ΔV <sub>o</sub> /ΔV <sub>IN</sub>	V <sub>IN</sub> =V <sub>O</sub> +1V to V <sub>O</sub> +17V	-	0.04	0.16	%/V
Load Regulation	ΔV <sub>o</sub> /ΔI <sub>o</sub>	V <sub>IN</sub> =V <sub>O</sub> +2V, I <sub>o</sub> =0A to 1.5A	-	0.2	1.4	%/A
Average Temperature Coefficient of Output Voltage	ΔV <sub>o</sub> /ΔT	T <sub>j</sub> =0 to 125°C	-	±0.02	-	%/°C
Standby Current	I <sub>Q</sub>	I <sub>o</sub> =0A	-	-	5	mA
Dropout Voltage	ΔV <sub>I-O</sub>	I <sub>o</sub> =0.5A	-	0.2	0.5	V
Ripple Rejection	NJM2396F33	RR V <sub>IN</sub> =V <sub>O</sub> +2V e <sub>in</sub> =0.5Vrms, f=120Hz	52	60	-	dB
	NJM2396F05		52	60	-	
	NJM2396F63		52	60	-	
	NJM2396F08		50	58	-	
	NJM2396F83		50	58	-	
	NJM2396F09		50	58	-	
	NJM2396F12		48	58	-	
ON Control Voltage	V <sub>CONT(ON)</sub>		2.0(*2)	-	-	V
OFF Control Voltage	V <sub>CONT(OFF)</sub>		-	-	0.4	V
ON Control Current	I <sub>CONT(ON)</sub>	V <sub>C</sub> =2.7V	-	-	20	μA
OFF Control Current	I <sub>CONT(OFF)</sub>	V <sub>C</sub> =0.4V	-	-	-20	μA

(\*2): When ON/OFF CONTROL Terminal is open, Output Voltage is ON.

## POWER DISSIPATION vs. AMBIENT TEMPERATURE



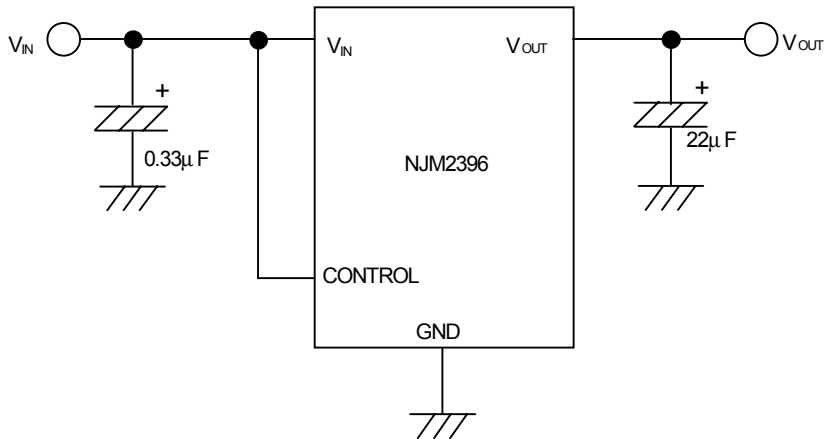
## TEST CIRCUIT



# NJM2396

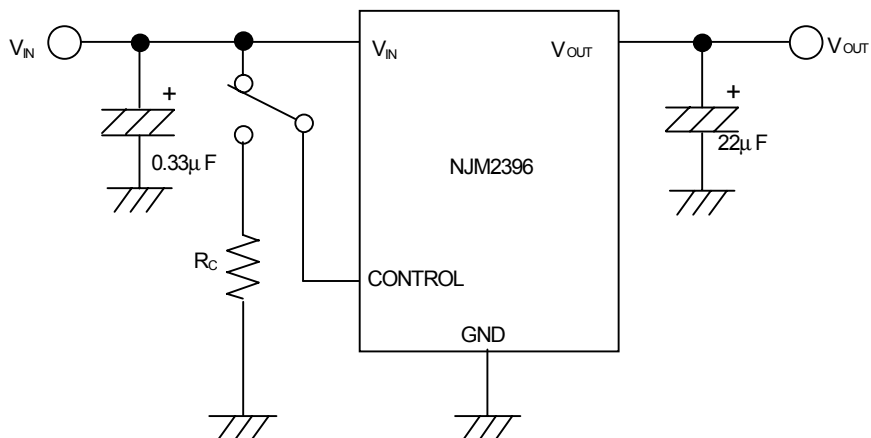
## ■ TYPICAL APPLICATION

① In the case where ON/OFF Control is not required:



Connect control terminal to  $V_{IN}$  terminal or open.

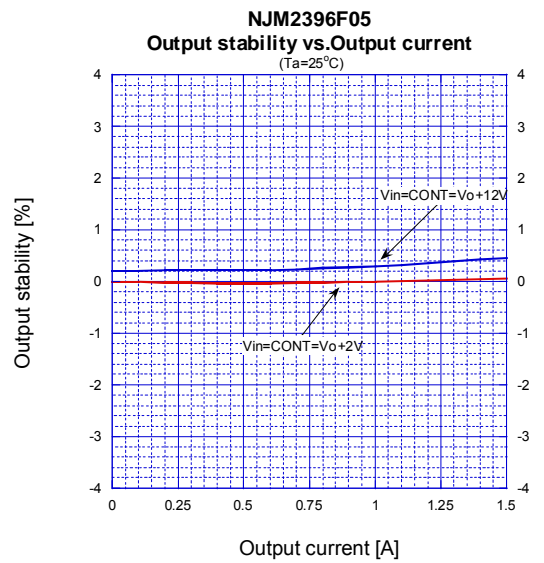
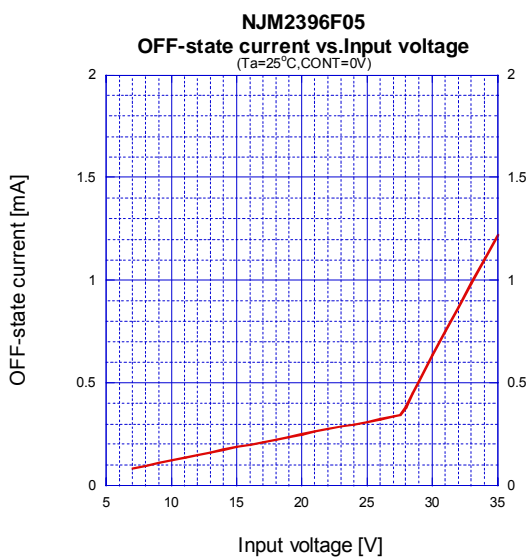
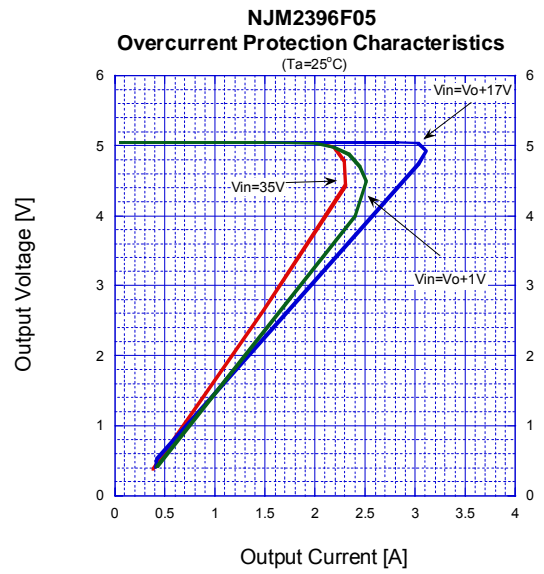
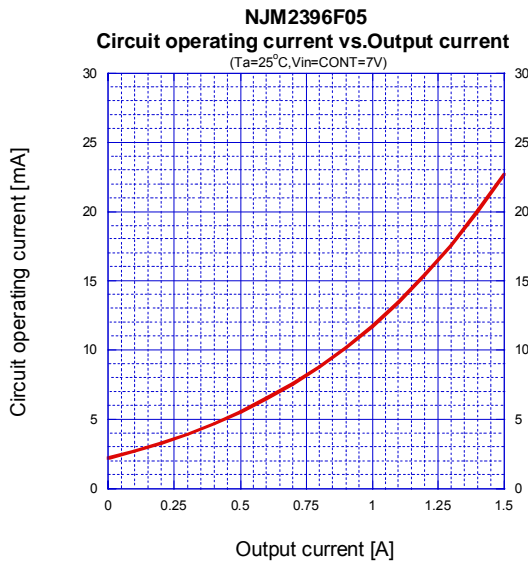
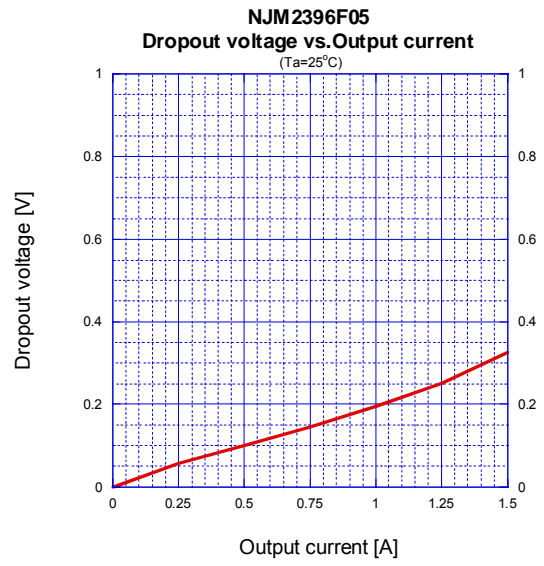
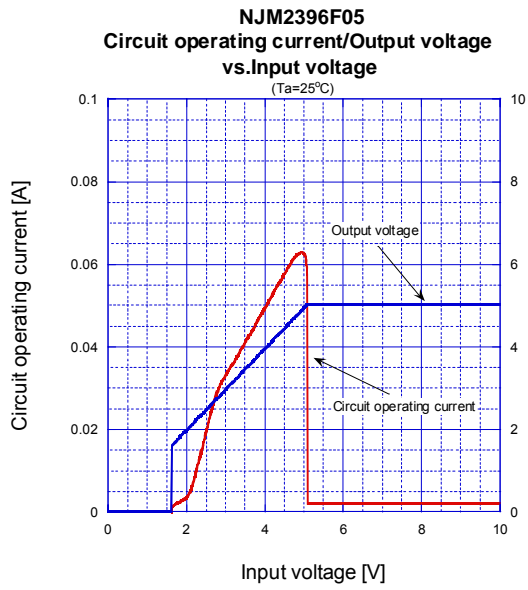
② In use of ON/OFF CONTROL:



State of control terminal:

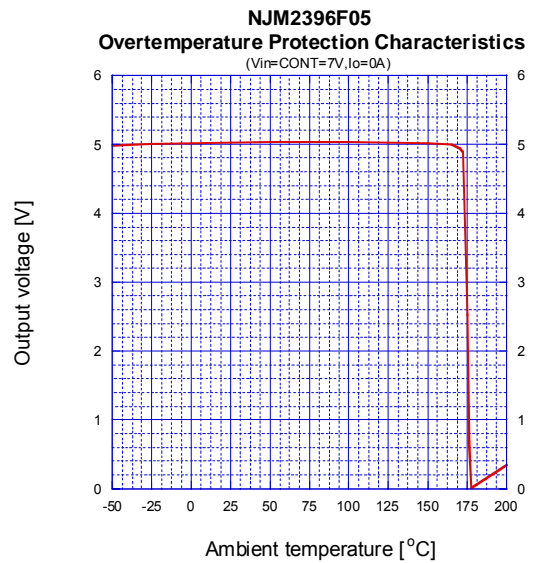
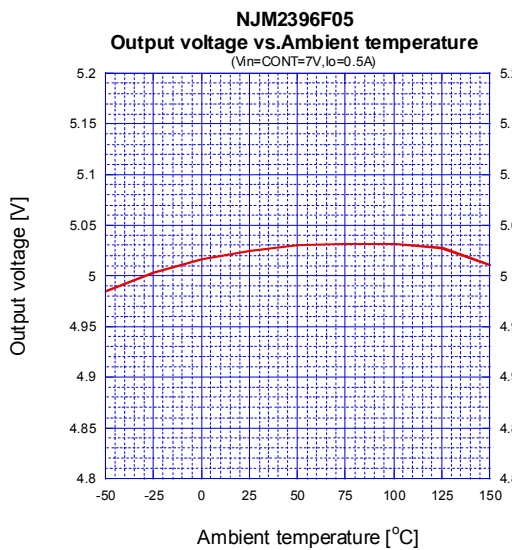
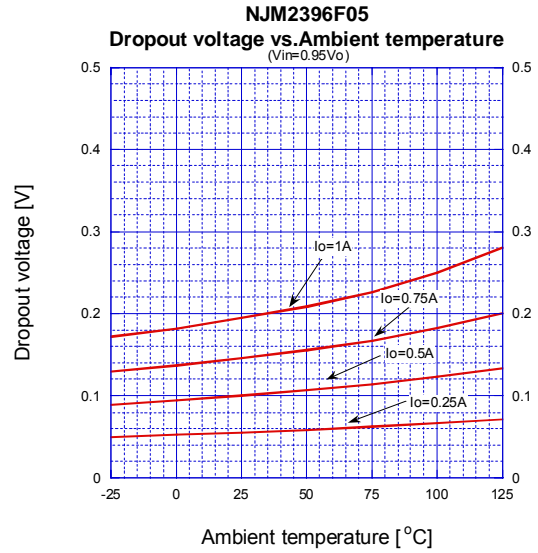
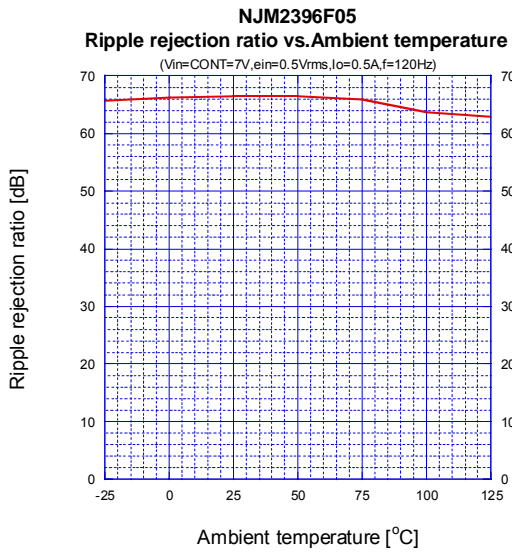
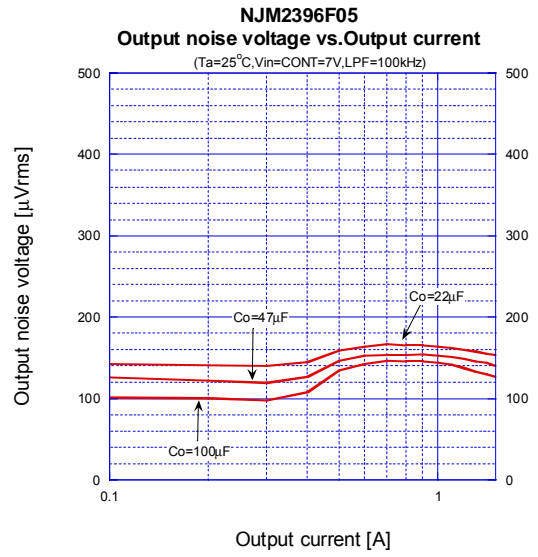
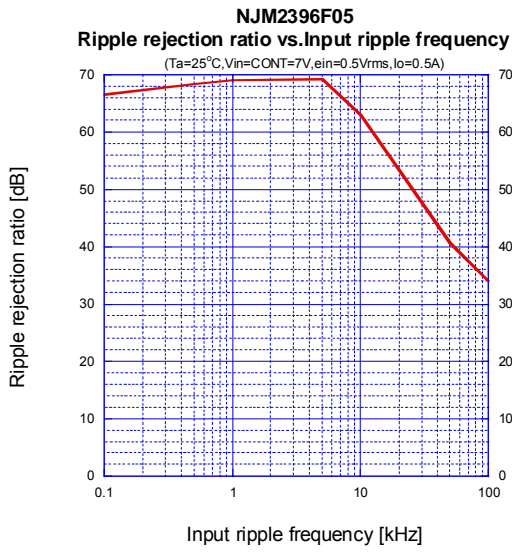
- “H” or “open” → output is enabled.
- “L” → output is disabled.

## TYPICAL CHARACTERISTICS

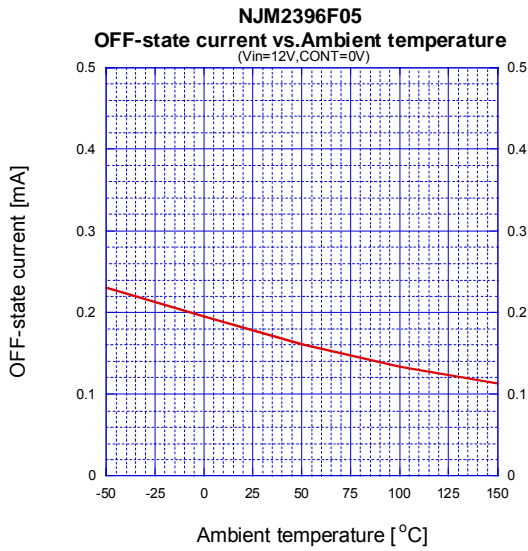
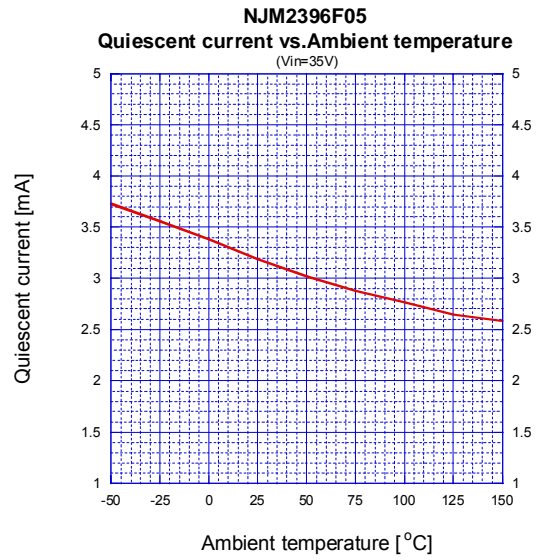
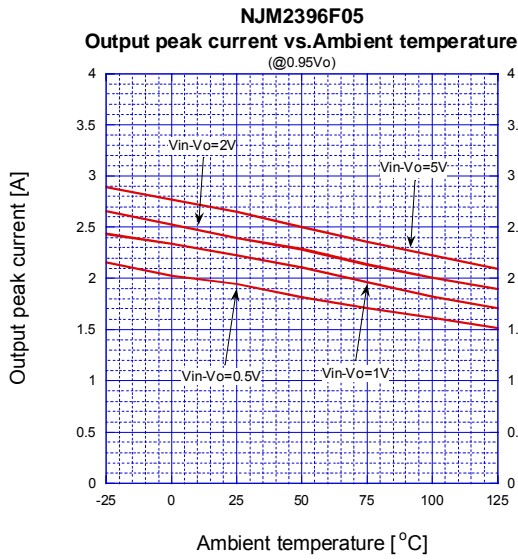


# NJM2396

## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS





**[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.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View NJM2396F63 on WIN SOURCE](#)
-  [NJR Corporation/NJRC Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management