OUTLINE

The R1122N Series are CMOS-based voltage regulator ICs with high output voltage accuracy, extremely low supply current, low ON-resistance, and high Ripple Rejection. Each of these voltage regulator ICs consists of a voltage reference unit, an error amplifier, resistors, a current limit circuit, and a chip enable circuit. These ICs perform with low dropout voltage and a chip enable function.

The line transient response and load transient response of the R1122N Series are excellent, thus these ICs are very suitable for the power supply for hand-held communication equipment.

The output voltage of these ICs is fixed with high accuracy. Since the package for these ICs is SOT-23-5 (Mini-mold) package, high density mounting of the ICs on boards is possible.

FEATURES

- Supply Current .................................................................Typ. 100μA
- Standby Mode Current .....................................................Typ. 0.1μA
- Dropout Voltage ..............................................................Typ. 0.19V (IOUT=100mA 3.0V Output type)
- Ripple Rejection ..............................................................Typ. 80dB(f=1kHz)
- Temperature-Drift Coefficient of Output Voltage ..........Typ. ±100ppm/°C
- Line Regulation ...............................................................Typ. 0.05%/V
- Output Voltage Accuracy ..............................................±2.0%
- Output Voltage Range ..................................................1.5V to 5.0V (0.1V steps)
  (For other voltages, please refer to MARK INFORMATIONS.)
- Package .................................................................SOT-23-5 (Mini-mold)
- Built-in chip enable circuit  ( 2 types; A: active "Low", B: active “High")
- Built-in fold-back protection circuit ................................Short Current Typ.30mA
- Pin-out ....................................................................Similar to the TK112,TK111
- Ceramic Capacitors Recommended to be used with this IC

APPLICATIONS

- Power source for cellular phones such as GSM, CDMA, PCS and so forth.
- Power source for domestic appliances such as cameras, VCRs and camcorders.
- Power source for battery-powered equipment.
**SELECTION GUIDE**

The output voltage, the active type for the ICs can be selected at the user’s request.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Package</th>
<th>Quantity per Reel</th>
<th>Pb Free</th>
<th>Halogen Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1122Nxx1-*TR-FE</td>
<td>SOT-23-5</td>
<td>3,000 pcs</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

xx: The output voltage can be designated in the range from 1.5V(15) to 5.0V(50) in 0.1V steps. (For other voltages, please refer to MARK INFORMATIONS.)

*: Designation of Active Type.
(A) "L" active
(B) "H" active
PIN CONFIGURATION

SOT-23-5

Pin No | Symbol | Description |
-------|--------|-------------|
1      | V_OUT | Output pin  |
2      | GND   | Ground Pin  |
3      | V_DD  | Input Pin   |
4      | CE or CE | Chip Enable Pin |
5      | NC    | No Connection |

**PIN DESCRIPTION**

**ABSOLUTE MAXIMUM RATINGS**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Item</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_IN</td>
<td>Input Voltage</td>
<td>7.0</td>
<td>V</td>
</tr>
<tr>
<td>V_CE</td>
<td>Input Voltage (CE or CE Pin)</td>
<td>-0.3 ~ V_IN+0.3</td>
<td>V</td>
</tr>
<tr>
<td>V_OUT</td>
<td>Output Voltage</td>
<td>-0.3 ~ V_IN+0.3</td>
<td>V</td>
</tr>
<tr>
<td>I_OUT</td>
<td>Output Current</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>P_D</td>
<td>Power Dissipation (SOT-23-5)</td>
<td>420</td>
<td>mW</td>
</tr>
</tbody>
</table>

For Power Dissipation, please refer to PACKAGE INFORMATION.

Electronic and mechanical stress momentarily exceeded absolute maximum ratings may cause the permanent damages and may degrade the life time and safety for both device and system using the device in the field.

The functional operation at or over these absolute maximum ratings is not assured.
### ELECTRICAL CHARACTERISTICS

**R1122Nxx1A**  
Topt=25°C

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Item</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
</table>
| Vout   | Output Voltage | \( V_{IN} = Set\ V_{OUT} + 1V \)  
\( 1mA \leq I_{OUT} \leq 30mA \) | Vout \(<0.98\) | Vout \(\times1.02\) | Vout | V |
| Iout   | Output Current | \( V_{IN} = Set\ V_{OUT} + 1V \)  
When Vout = Set Vout -0.1V | 150 | | | mA |
| ΔVout/Iout | Load Regulation | \( V_{IN} = Set\ V_{OUT} + 1V \)  
\( 1mA \leq I_{OUT} \leq 80mA \) | 12 | 40 | | mV |
| Vdif   | Dropout Voltage | Refer to the ELECTRICAL CHARACTERISTICS by OUTPUT VOLTAGE | | | | |
| Iss    | Supply Current | \( V_{IN} = Set\ V_{OUT} + 1V \) | 100 | 170 | | μA |
| Istandby | Supply Current (Standby) | \( V_{IN} = V_{CE} = Set\ V_{OUT} + 1V \) | 0.1 | 1.0 | | μA |
| ΔVout/Δvin | Line Regulation | \( V_{OUT}+0.5V \leq V_{IN} \leq 6.0V \)  
\( I_{OUT} = 30mA \) | 0.05 | 0.20 | | %/V |
| RR     | Ripple Rejection | \( f = 1kHz,\ Ripple\ 0.5Vp-p \)  
\( V_{IN} = Set\ V_{OUT} + 1V \) | 80 | | | dB |
| Vin    | Input Voltage | | 2.0 | 6.0 | | V |
| ΔVout/ΔTopt | Output Voltage Temperature Coefficient | \( I_{OUT} = 30mA \)  
\(-40^\circ C \leq Topt \leq 85^\circ C \) | \( \pm100 \) | | | ppm/°C |
| Isc    | Short Current Limit | \( V_{OUT} = 0V \) | 30 | | | mA |
| Rpu    | CE Pull-up Resistance | \( CE \) | 2.5 | 5.0 | 10.0 | MΩ |
| Vceh   | CE Input Voltage “H” | \( CE \) | 1.5 | | \( V_{IN} \) | V |
| Vcel   | CE Input Voltage “L” | \( CE \) | 0.00 | | 0.25 | V |
| en     | Output Noise | BW=10Hz to 100kHz | 30 | | | μVrms |

#### RECOMMENDED OPERATING CONDITIONS  (ELECTRICAL CHARACTERISTICS)

All of electronic equipment should be designed that the mounted semiconductor devices operate within the recommended operating conditions. The semiconductor devices cannot operate normally over the recommended operating conditions, even if when they are used over such conditions by momentary electronic noise or surge. And the semiconductor devices may receive serious damage when they continue to operate over the recommended operating conditions.
### R1122Nxx1B

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Item</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOUT</td>
<td>Output Voltage</td>
<td>VIN = Set VOUT + 1V</td>
<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1mA ≤ IOUT ≤ 30mA</td>
<td>VOUT 0.98</td>
<td>VOUT 1.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IOUT</td>
<td>Output Current</td>
<td>VIN = Set VOUT + 1V</td>
<td></td>
<td></td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When VOUT = Set VOUT - 0.1V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔVOUT/IOUT</td>
<td>Load Regulation</td>
<td>VIN = Set VOUT + 1V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1mA ≤ IOUT ≤ 80mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOUT</td>
<td>Dropout Voltage</td>
<td>Refer to the ELECTRICAL CHARACTERISTICS by OUTPUT VOLTAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iss</td>
<td>Supply Current</td>
<td>VIN = Set VOUT + 1V</td>
<td>100</td>
<td></td>
<td>170</td>
<td>µA</td>
</tr>
<tr>
<td>Istandby</td>
<td>Supply Current (Standby)</td>
<td>VIN = Set VOUT + 1V</td>
<td>0.1</td>
<td></td>
<td>1.0</td>
<td>µA</td>
</tr>
<tr>
<td>ΔVOUT/ΔVIN</td>
<td>Line Regulation</td>
<td>Set VOUT + 0.5V ≤ VIN ≤ 6.0V</td>
<td>0.05</td>
<td></td>
<td>0.20</td>
<td>%/V</td>
</tr>
<tr>
<td>RR</td>
<td>Ripple Rejection</td>
<td>f = 1kHz, Ripple 0.5Vp-p</td>
<td>80</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Vin</td>
<td>Input Voltage</td>
<td>VIN = Set VOUT + 1V</td>
<td>2.0</td>
<td></td>
<td>6.0</td>
<td>V</td>
</tr>
<tr>
<td>ΔVOUT/ΔTopt</td>
<td>Output Voltage</td>
<td>IOUT = 30mA</td>
<td>±100</td>
<td></td>
<td></td>
<td>ppm/°C</td>
</tr>
<tr>
<td>Isc</td>
<td>Short Current Limit</td>
<td>VOUT = 0V</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rpd</td>
<td>CE Pull-down Resistance</td>
<td>VCE =GND</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vceh</td>
<td>CE Input Voltage “H”</td>
<td>VIN = Set VOUT + 1V</td>
<td>1.5</td>
<td></td>
<td>VIN</td>
<td>V</td>
</tr>
<tr>
<td>Vcel</td>
<td>CE Input Voltage “L”</td>
<td>VIN = Set VOUT + 1V</td>
<td>0.00</td>
<td></td>
<td>0.25</td>
<td>V</td>
</tr>
<tr>
<td>en</td>
<td>Output Noise</td>
<td>BW=10Hz to 100kHz</td>
<td>30</td>
<td></td>
<td></td>
<td>µVrms</td>
</tr>
</tbody>
</table>

### RECOMMENDED OPERATING CONDITIONS (ELECTRICAL CHARACTERISTICS)

All of electronic equipment should be designed that the mounted semiconductor devices operate within the recommended operating conditions. The semiconductor devices cannot operate normally over the recommended operating conditions, even if when they are used over such conditions by momentary electronic noise or surge. And the semiconductor devices may receive serious damage when they continue to operate over the recommended operating conditions.
ELECTRICAL CHARACTERISTICS by OUTPUT VOLTAGE

<table>
<thead>
<tr>
<th>Output Voltage $V_{\text{OUT}}$ (V)</th>
<th>Dropout Voltage $V_{\text{DIFF}}$ (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>Typ.</td>
</tr>
<tr>
<td>$1.5 \leq V_{\text{OUT}} \leq 1.6$</td>
<td>0.32</td>
</tr>
<tr>
<td>$1.7 \leq V_{\text{OUT}} \leq 1.8$</td>
<td>0.28</td>
</tr>
<tr>
<td>$1.9 \leq V_{\text{OUT}} \leq 2.3$</td>
<td>0.25</td>
</tr>
<tr>
<td>$2.4 \leq V_{\text{OUT}} \leq 2.7$</td>
<td>0.20</td>
</tr>
<tr>
<td>$2.8 \leq V_{\text{OUT}} \leq 5.0$</td>
<td>0.19</td>
</tr>
</tbody>
</table>

I_{\text{OUT}} = 100mA

OPERATION

In these ICs, fluctuation of the output voltage, $V_{\text{OUT}}$ is detected by feed-back registers R1, R2, and the result is compared with a reference voltage by the error amplifier, so that a constant voltage is output.

A current limit circuit for protection at short mode, and a chip enable circuit, are included.
TEST CIRCUITS

Fig.1 Standard test Circuit

Fig.2 Supply Current Test Circuit

Fig.3 Ripple Rejection, Line Transient Response Test Circuit

Fig.4 Load Transient Response Test Circuit
TECHNICAL NOTES

When using these ICs, consider the following points:

Phase Compensation

In these ICs, phase compensation is made for securing stable operation even if the load current is varied. For this purpose, be sure to use a capacitor $C_{OUT}$ with good frequency characteristics and ESR (Equivalent Series Resistance).

(Note: When the additional ceramic capacitors are connected to the output pin with the output capacitor for phase compensation, the operation might be unstable. Because of this, test these ICs with the same external components as the ones to be used on the PCB.)

Recommended Capacitors ; GRM40X5R225K6.3 (Murata)
   GRM40-034X5R335K6.3 (Murata)
   GRM40-034X5R475K6.3 (Murata)

PCB Layout

Make $V_{DD}$ and GND lines sufficient. If their impedance is high, picking up the noise or unstable operation may result. Connect a capacitor with a capacitance of 2.2μF or more between $V_{DD}$ and GND pin as close as possible.

Set external components, especially output capacitor as close as possible to the ICs and make wiring as short as possible.

TYPICAL APPLICATION

(External Components)

Output Capacitor ; Ceramic 2.2μF (Set output voltage in the range from 2.5 to 5.0V)
   Ceramic 4.7μF (Set output voltage in the range from 1.5 to 2.5V)

Input Capacitor ; Ceramic 2.2μF
TYPICAL CHARACTERISTICS

1) Output Voltage vs. Output Current

**R1122N151B**

- Output Voltage $V_{OUT}(V)$
  - $V_{IN}=2.0V$
  - $V_{IN}=2.5V$
  - $V_{IN}=3.5V$
- Output Current $I_{OUT}(mA)$
  - 0, 100, 200, 300, 500, 400

**R1122N201B**

- Output Voltage $V_{OUT}(V)$
  - $V_{IN}=2.3V$
  - $V_{IN}=2.5V$
  - $V_{IN}=3.0V$
  - $V_{IN}=4.0V$
- Output Current $I_{OUT}(mA)$
  - 0, 100, 200, 300, 500, 400

**R1122N301B**

- Output Voltage $V_{OUT}(V)$
  - $V_{IN}=3.3V$
  - $V_{IN}=3.5V$
  - $V_{IN}=4.0V$
  - $V_{IN}=5.0V$
- Output Current $I_{OUT}(mA)$
  - 0, 100, 200, 300, 500, 400

**R1122N401B**

- Output Voltage $V_{OUT}(V)$
  - $V_{IN}=4.3V$
  - $V_{IN}=4.5V$
  - $V_{IN}=5.0V$
  - $V_{IN}=6.0V$
- Output Current $I_{OUT}(mA)$
  - 0, 100, 200, 300, 500, 400

**R1122N501B**

- Output Voltage $V_{OUT}(V)$
  - $V_{IN}=5.3V$
  - $V_{IN}=5.5V$
  - $V_{IN}=6.0V$
  - $V_{IN}=7.0V$
- Output Current $I_{OUT}(mA)$
  - 0, 100, 200, 300, 500, 400
2) Output Voltage vs. Input Voltage

R1122N151B

[Graph showing Output Voltage vs. Input Voltage for R1122N151B]

R1122N201B

[Graph showing Output Voltage vs. Input Voltage for R1122N201B]

R1122N301B

[Graph showing Output Voltage vs. Input Voltage for R1122N301B]

R1122N401B

[Graph showing Output Voltage vs. Input Voltage for R1122N401B]

R1122N501B

[Graph showing Output Voltage vs. Input Voltage for R1122N501B]
3) Dropout Voltage vs. Output Current

- **R1122N151B**
- **R1122N201B**
- **R1122N301B**
- **R1122N401B**
- **R1122N501B**
4) Output Voltage vs. Temperature

**R1122N151A/B**

- $V_{IN}=2.5\,V$
- $C_{IN}=1\,\mu F$
- $C_{OUT}=2.2\,\mu F$
- $I_{OUT}=30\,mA$

**R1122N201A/B**

- $V_{IN}=3.0\,V$
- $C_{IN}=1\,\mu F$
- $C_{OUT}=2.2\,\mu F$
- $I_{OUT}=30\,mA$

**R1122N301A/B**

- $V_{IN}=4.0\,V$
- $C_{IN}=1\,\mu F$
- $C_{OUT}=2.2\,\mu F$
- $I_{OUT}=30\,mA$

**R1122N401A/B**

- $V_{IN}=5.0\,V$
- $C_{IN}=1\,\mu F$
- $C_{OUT}=2.2\,\mu F$
- $I_{OUT}=30\,mA$

**R1122N501A/B**

- $V_{IN}=6.0\,V$
- $C_{IN}=1\,\mu F$
- $C_{OUT}=2.2\,\mu F$
- $I_{OUT}=30\,mA$
5) Supply Current vs. Input Voltage

**R1122N151B**

**R1122N201B**

**R1122N301B**

**R1122N401B**

**R1122N501B**
6) Supply Current vs. Temperature

**R1122N151A/B**

Supply Current ($\mu$A) vs. Temperature ($^\circ$C)

- $V_{IN}=2.5V$
- $C_{IN}=1\mu F$
- $C_{OUT}=2.2\mu F$

**R1122N201A/B**

Supply Current ($\mu$A) vs. Temperature ($^\circ$C)

- $V_{IN}=3.0V$
- $C_{IN}=1\mu F$
- $C_{OUT}=2.2\mu F$

**R1122N301A/B**

Supply Current ($\mu$A) vs. Temperature ($^\circ$C)

- $V_{IN}=4.0V$
- $C_{IN}=1\mu F$
- $C_{OUT}=2.2\mu F$

**R1122N401A/B**

Supply Current ($\mu$A) vs. Temperature ($^\circ$C)

- $V_{IN}=5.0V$
- $C_{IN}=1\mu F$
- $C_{OUT}=2.2\mu F$

**R1122N501A/B**

Supply Current ($\mu$A) vs. Temperature ($^\circ$C)

- $V_{IN}=6.0V$
- $C_{IN}=1\mu F$
- $C_{OUT}=2.2\mu F$
### 7) Ripple Rejection vs. Frequency

<table>
<thead>
<tr>
<th>Component</th>
<th>Input Voltage (V)</th>
<th>Output Capacitance (μF)</th>
<th>Output Current (mA)</th>
<th>Ripple Rejection (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R1122N151A/B</strong></td>
<td>VIN = 2.5V ±0.5Vp-p</td>
<td>COUT = 2.2μF</td>
<td>IOUT = 30mA</td>
<td>ripple rejection graph 1</td>
</tr>
<tr>
<td><strong>R1122N201A/B</strong></td>
<td>VIN = 3.0V ±0.5Vp-p</td>
<td>COUT = 2.2μF</td>
<td>IOUT = 30mA</td>
<td>ripple rejection graph 2</td>
</tr>
<tr>
<td><strong>R1122N301A/B</strong></td>
<td>VIN = 4.0V ±0.5Vp-p</td>
<td>COUT = 2.2μF</td>
<td>IOUT = 30mA</td>
<td>ripple rejection graph 3</td>
</tr>
<tr>
<td><strong>R1122N401A/B</strong></td>
<td>VIN = 5.0V ±0.5Vp-p</td>
<td>COUT = 2.2μF</td>
<td>IOUT = 30mA</td>
<td>ripple rejection graph 4</td>
</tr>
<tr>
<td><strong>R1122N501A/B</strong></td>
<td>VIN = 6.0V ±0.5Vp-p</td>
<td>COUT = 2.2μF</td>
<td>IOUT = 30mA</td>
<td>ripple rejection graph 5</td>
</tr>
</tbody>
</table>
8) Ripple Rejection vs. Input Voltage (DC bias)

**R1122N301B**

- C\text{OUT}=\text{Ceramic }2.2\mu\text{F}
- I\text{OUT}=1\text{mA}

<table>
<thead>
<tr>
<th>Input Voltage VIN (V)</th>
<th>Ripple Rejection RR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.10</td>
<td>90.00</td>
</tr>
<tr>
<td>3.20</td>
<td>80.00</td>
</tr>
<tr>
<td>3.30</td>
<td>70.00</td>
</tr>
<tr>
<td>3.40</td>
<td>60.00</td>
</tr>
<tr>
<td>3.50</td>
<td>50.00</td>
</tr>
</tbody>
</table>

**R1122N301B**

- C\text{OUT}=\text{Ceramic }2.2\mu\text{F}
- I\text{OUT}=10\text{mA}

<table>
<thead>
<tr>
<th>Input Voltage VIN (V)</th>
<th>Ripple Rejection RR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.10</td>
<td>90.00</td>
</tr>
<tr>
<td>3.20</td>
<td>80.00</td>
</tr>
<tr>
<td>3.30</td>
<td>70.00</td>
</tr>
<tr>
<td>3.40</td>
<td>60.00</td>
</tr>
<tr>
<td>3.50</td>
<td>50.00</td>
</tr>
</tbody>
</table>

**R1122N301B**

- C\text{OUT}=\text{Ceramic }2.2\mu\text{F}
- I\text{OUT}=50\text{mA}

<table>
<thead>
<tr>
<th>Input Voltage VIN (V)</th>
<th>Ripple Rejection RR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.10</td>
<td>90.00</td>
</tr>
<tr>
<td>3.20</td>
<td>80.00</td>
</tr>
<tr>
<td>3.30</td>
<td>70.00</td>
</tr>
<tr>
<td>3.40</td>
<td>60.00</td>
</tr>
<tr>
<td>3.50</td>
<td>50.00</td>
</tr>
</tbody>
</table>

9) Input Transient Response

**R1122N501B**

- To\text{p}=25^°\text{C}
- VIN=\text{2.5V} \leftrightarrow \text{3.5V}
- I\text{OUT}=30\text{mA}
- C\text{IN}=\text{none}
- C\text{OUT}=2.2\mu\text{F}
- tr/tf=5\mu\text{s}
R1122N201B

Tek Run: 2.50MS/s Average

Topt=25°C

VIN=3.0V→4.0V
IOUT=30mA
CIN=none
COUT=2.2μF
tr/tf=5μs

R1122N301B

Tek Run: 2.50MS/s Average

Topt=25°C

VIN=4.0V→5.0V
IOUT=30mA
CIN=none
COUT=2.2μF
tr/tf=5μs

R1122N401B

Tek Run: 2.50MS/s Average

Topt=25°C

VIN=5.0V→6.0V
IOUT=30mA
CIN=none
COUT=2.2μF
tr/tf=5μs

VIN=3.0V→4.0V
IOUT=30mA
CIN=none
COUT=2.2μF
tr/tf=5μs
10) Load Transient Response

**R1122N501B**

Topt=25°C

VIN=6.0V ↔ 7.0V
IOUT=30mA
CIN=none
COUT=2.2μF
tr/tf=5μs

**R1122N151B**

Topt=25°C

IOUT=50mA ↔ 100mA
VIN=2.5V
CIN=2.2μF
COUT=2.2μF
tr/tf=5μs

**R1122N201B**

Topt=25°C

IOUT=50mA ↔ 100mA
VIN=3.0V
CIN=2.2μF
COUT=2.2μF
tr/tf=5μs
R1122N

**R1122N301B**

Topt=25°C

![Graph](image)

I_{OUT}=50mA \leftrightarrow 100mA

V_{IN}=4.0V

C_{IN}=2.2\mu F

C_{OUT}=2.2\mu F

tr/tf=5\mu s

**R1122N401B**

Topt=25°C

![Graph](image)

I_{OUT}=50mA \leftrightarrow 100mA

V_{IN}=5.0V

C_{IN}=2.2\mu F

C_{OUT}=2.2\mu F

tr/tf=5\mu s

**R1122N501B**

Topt=25°C

![Graph](image)

I_{OUT}=50mA \leftrightarrow 100mA

V_{IN}=6.0V

C_{IN}=2.2\mu F

C_{OUT}=2.2\mu F

tr/tf=5\mu s
The relationship between I_{OUT} (output current) and ESR of the output capacitor is shown in the graphs below. The conditions when the white noise level is under 40 \mu V (Avg.) are indicated by the hatched area in the graph. (Note: When additional ceramic capacitors are connected to the output pin with the output capacitor for phase compensation, operation might be unstable. Because of this, test these ICs with the same external components as the ones to be used on the PCB.)

<Measuring Conditions>
(1)V_{IN}=V_{OUT}+1V
(2)Frequency band: 10Hz to 1MHz
(3)Temperature: 25°C
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