



R200LD10

LINEAR INTEGRATED CIRCUIT

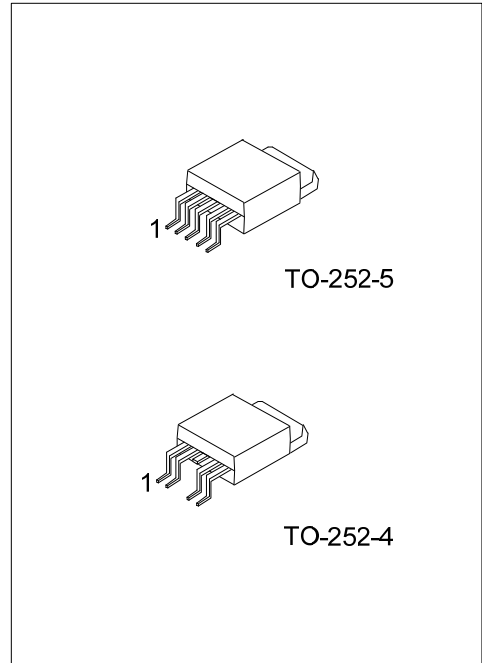
VOLTAGE REGULATOR

■ DESCRIPTION

The UTC **R200LD10** shows a high current, high accuracy, low-dropout voltage. The features are: low dropout voltage, very low ground current. Cause the series have been designed for high current loads, so they are also used in lower current, extremely low dropout-critical systems (in which their tiny dropout voltage and ground current values are important attributes).

■ FEATURES

- * Built-in ON/OFF function,
- * Over current protection function,
- * ASO protection function
- * Overheat protection function
- * 0.3A / 3.3V(R1=2KΩ)
Output low dropout voltage regulator

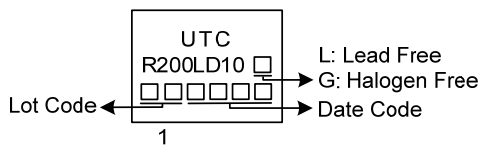


■ ORDERING INFORMATION

| Ordering Number | | Package | Packing |
|-----------------|-----------------|----------|---------------------------|
| Lead Free | Halogen Free | | |
| R200LD10L-TN4-L | R200LD10G-TN4-L | TO-252-4 | Tape Reel (Reserve Feed) |
| R200LD10L-TN4-R | R200LD10G-TN4-R | TO-252-4 | Tape Reel (Standard Feed) |
| R200LD10L-TN4-T | R200LD10G-TN4-T | TO-252-4 | Tube |
| R200LD10L-TN5-R | R200LD10G-TN5-R | TO-252-5 | Tape Reel |
| R200LD10L-TN5-T | R200LD10G-TN5-T | TO-252-5 | Tube |

| | |
|--|---|
| <p>R200LD10G-TN4-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p> | <p>(1) R: Tape Reel (Standard Feed), T: Tube L: Tape Reel (Reserve Feed) (2) TN4: TO-252-4, TN5: TO-252-5 (3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|--|---|

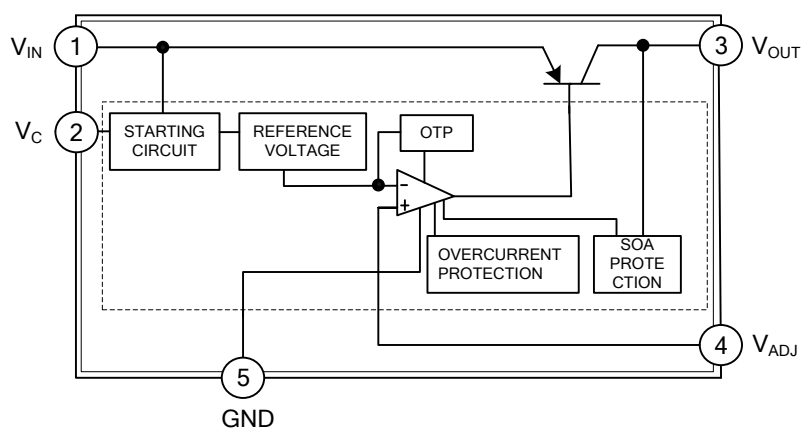
■ MARKING



■ PIN DESCRIPTIONS

| PIN NO. | PIN NAME | PIN FUNCTION |
|---------|-----------|--|
| 1 | V_{IN} | DC Input Voltage. |
| 2 | V_C | On/Off Control |
| 3 | V_{OUT} | DC Output Voltage. (Thermal Pad Connected to V_{OUT}) |
| 4 | V_{ADJ} | Output Voltage Adjustment |
| 5 | GND | Ground |

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|-----------|------------|------------------|
| Input Voltage (Note 2) | V_{IN} | 24 | V |
| ON/OFF Control Terminal Voltage (Note 2) | V_C | 24 | V |
| Output Adjustment Pin Voltage (Note 2) | V_{ADJ} | 5 | V |
| Output Current | I_{OUT} | 1 | A |
| Power Dissipation (with infinite heat sink) | P_D | 8 | W |
| Junction Temperature | T_J | +150 | $^\circ\text{C}$ |
| Operating Temperature | T_{OPR} | -40 ~ +85 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -40 ~ +150 | $^\circ\text{C}$ |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. All are open except GND and applicable terminals.

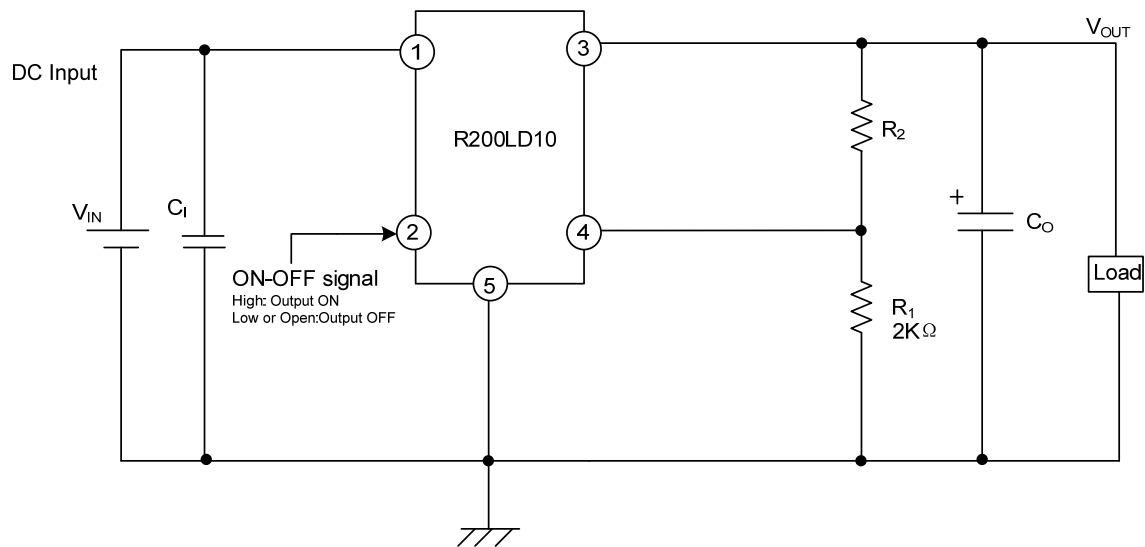
■ ELECTRICAL CHARACTERISTICS

($V_{IN}=5\text{V}$, $V_{OUT}=3.3\text{ V}(R_1=2\text{k}\Omega)$, $I_{OUT}=0.3\text{A}$, $V_C=2.7\text{V}$, $T_J=25^\circ\text{C}$, $C_I=0.33\mu\text{F}$, $C_O=10\mu\text{F}$, unless otherwise specified)

| PARAMETER | SYMBOL | CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------------------------------|---|-------|-----------|-------|---------------|
| Input Voltage | V_{IN} | | 3.5 | | 24 | V |
| Output Voltage | V_{OUT} | | 3.0 | | 20 | V |
| Load Regulation | $\Delta V_{OUT}/\Delta I_{OUT}$ | $I_{OUT} = 5\text{mA} \sim 1\text{A}$ | | | 1.0 | % |
| Line Regulation | $\Delta V_{OUT}/\Delta V_{IN}$ | $V_{IN} = 4 \sim 10\text{V}$, $I_{OUT}=5\text{mA}$ | | | 1.0 | |
| Ripple Rejection | RR | Refer to Fig 3 | | 60 | | dB |
| Dropout Voltage | V_D | $V_{IN}=3.5\text{V}$ | | | 0.5 | V |
| Reference Voltage | V_{REF} | | 2.583 | 2.65 | 2.717 | |
| Temperature Coefficient of Reference Voltage | $T_C V_{REF}$ | $T_J = 0 \sim 125^\circ\text{C}$, $I_{OUT} = 5\text{mA}$ | | ± 1.0 | | % |
| On-State Voltage for Control | $V_{C(ON)}$ | (Note) | 2.0 | | | V |
| On-State Current for Control | $I_{C(ON)}$ | | | | 200 | μA |
| On-State Voltage for Control | $V_{C(OFF)}$ | $I_{OUT}=0\text{A}$ | | | 0.8 | V |
| On-State Current for Control | $I_{C(OFF)}$ | $I_{OUT}=0\text{A}$, $V_C=0.4\text{V}$ | | | -2 | μA |
| Quiescent Current | I_Q | $I_{OUT}=0\text{A}$ | | | 8 | mA |
| Output Off-State Consumption Current | I_{QS} | $V_C=0.4\text{V}$ | | | 5 | μA |

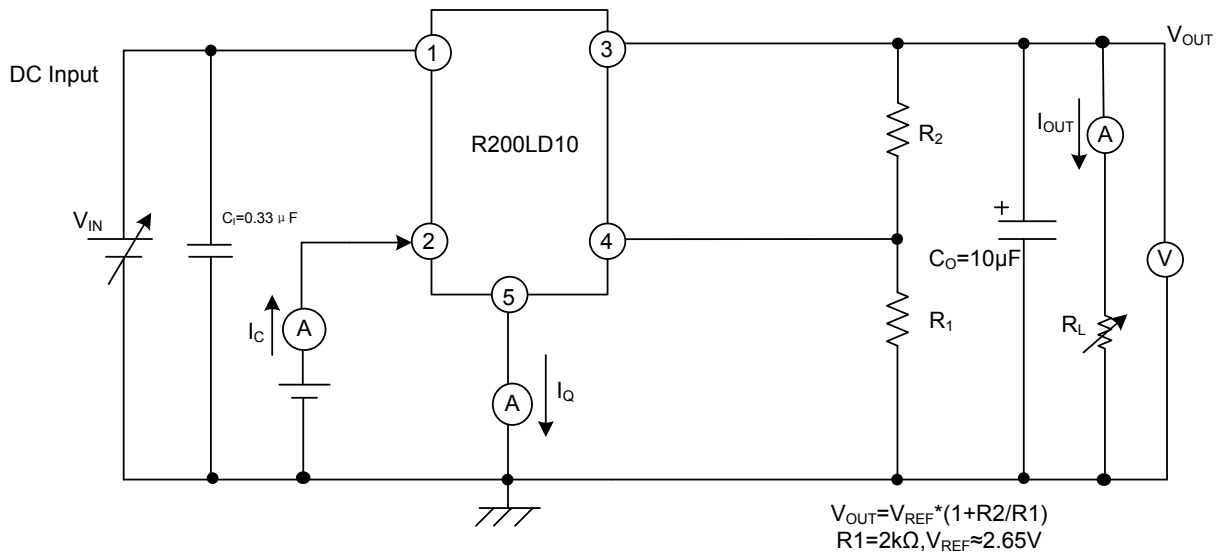
Note: In case of V_C pin, output voltage turns OFF.

■ TYPICAL APPLICATION CIRCUIT

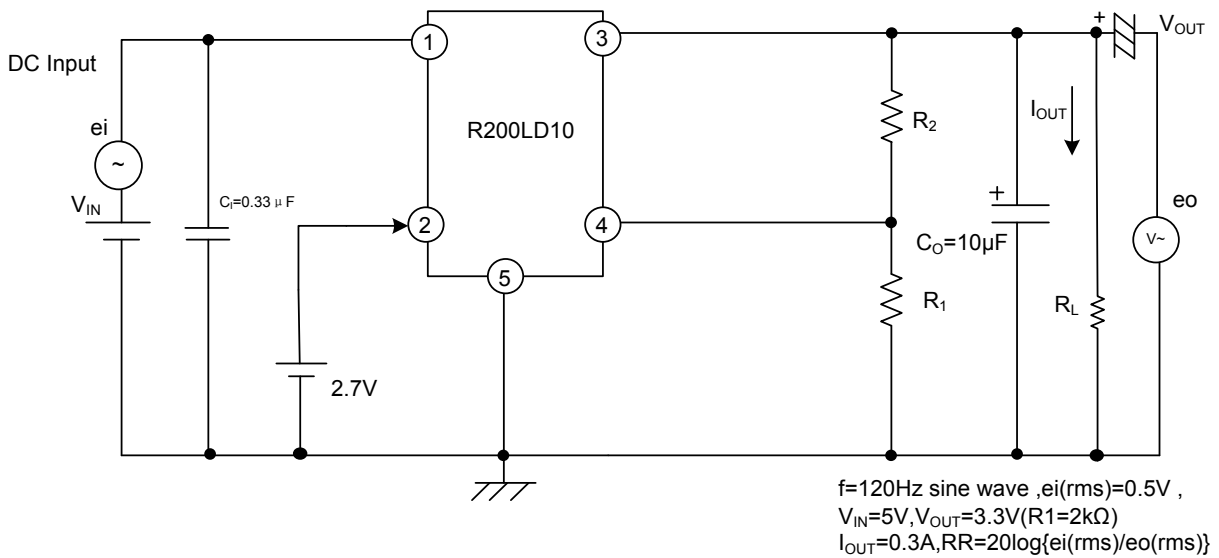


■ TEST CIRCUIT

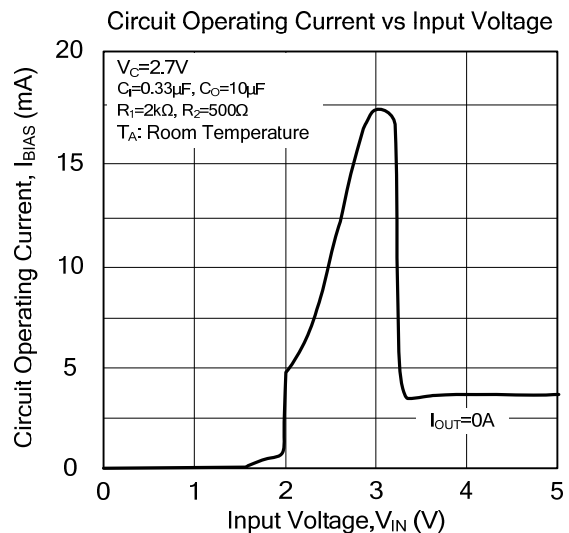
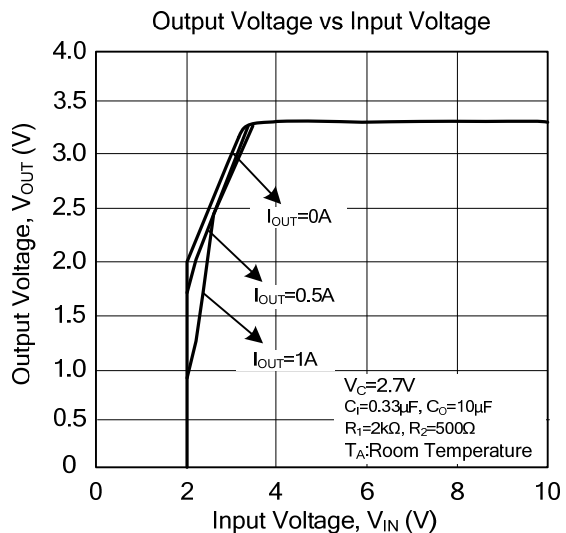
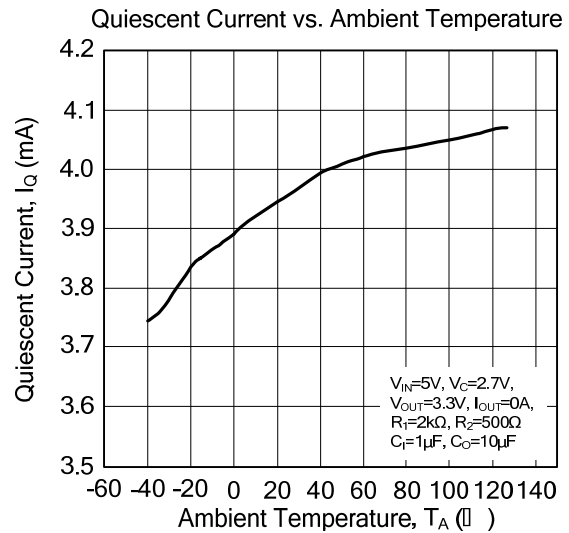
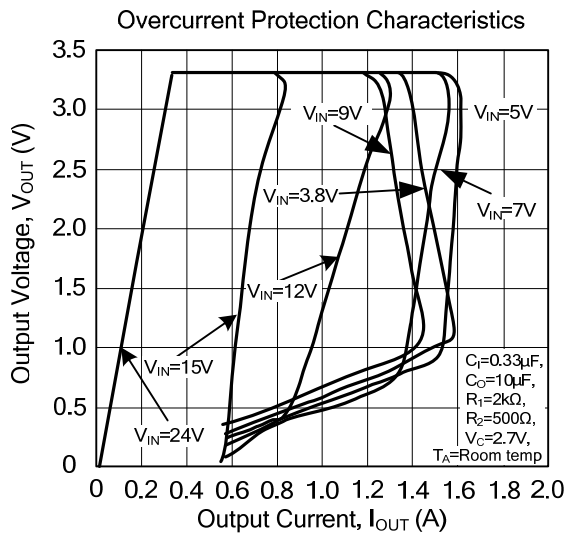
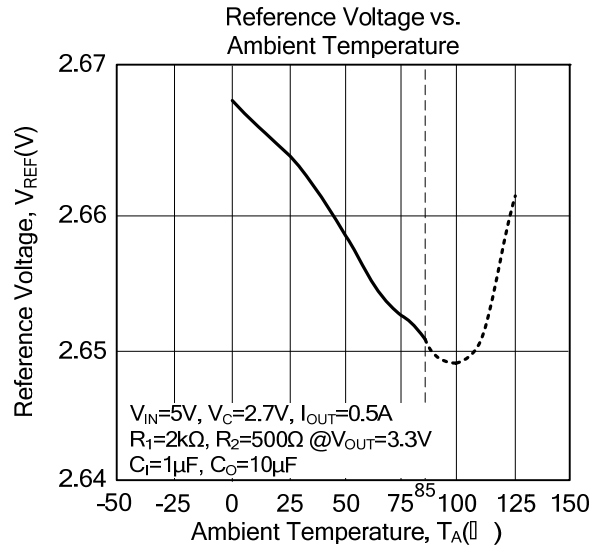
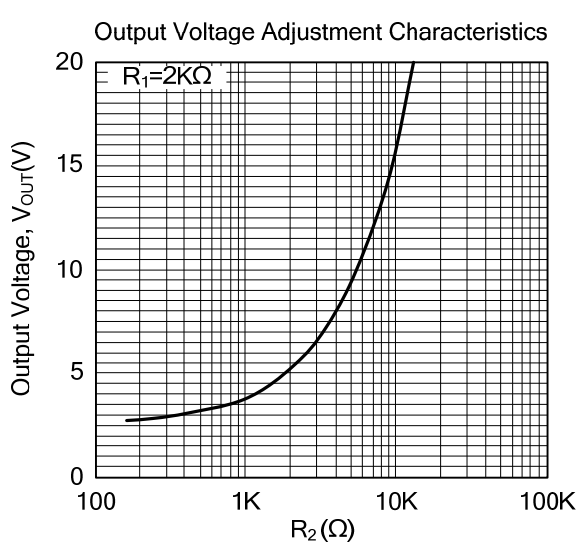
For Standard Measuring Circuit of Regulation Portion



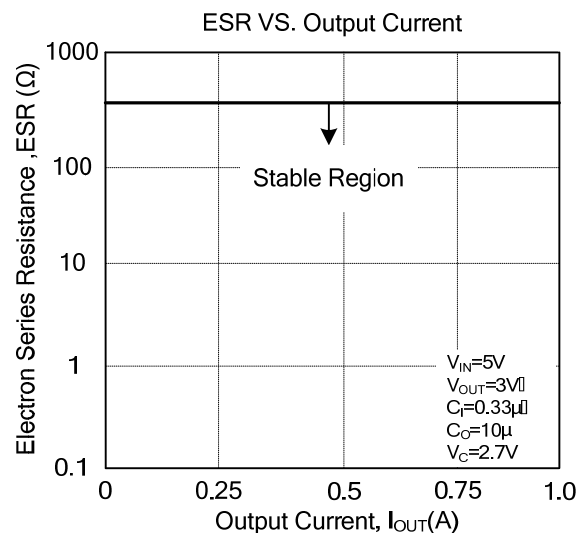
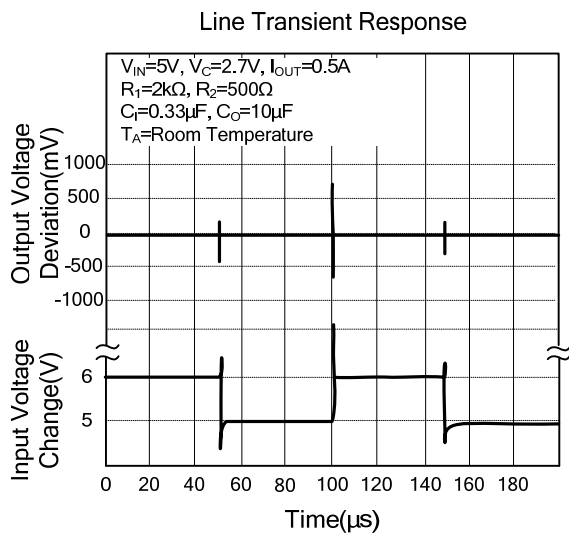
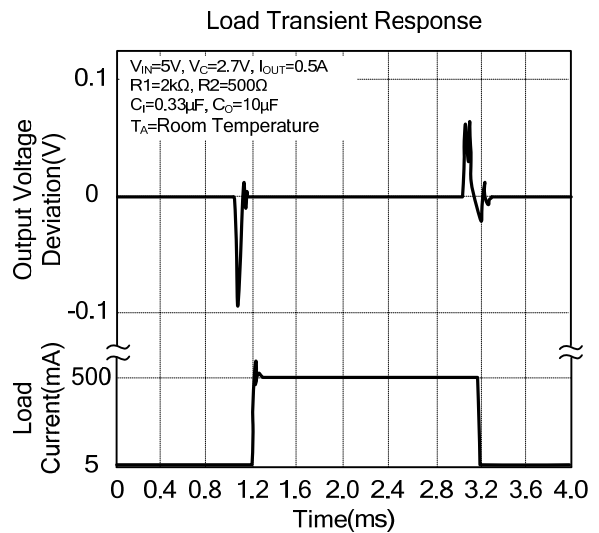
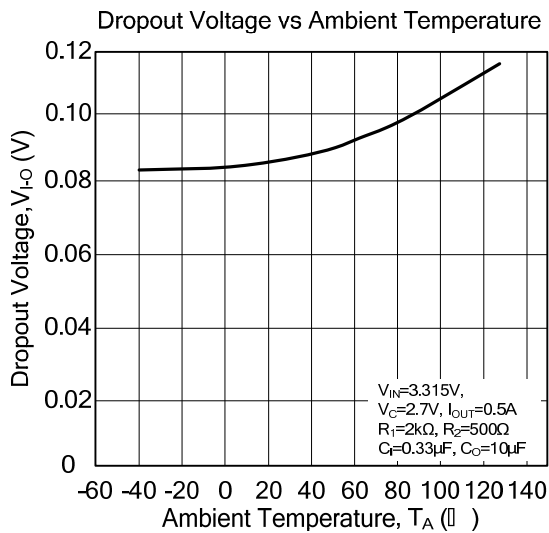
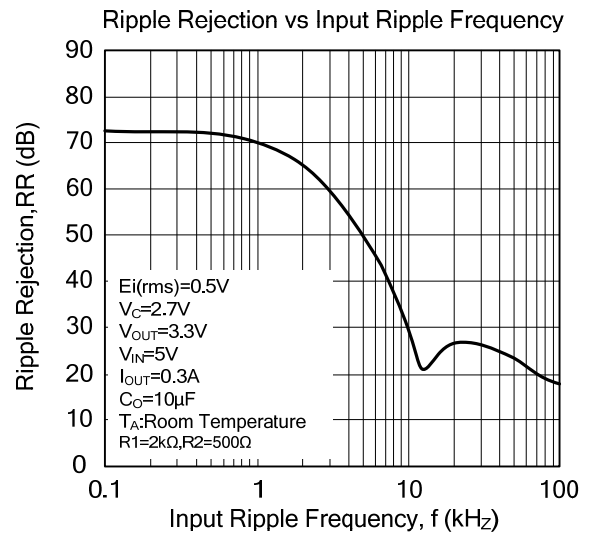
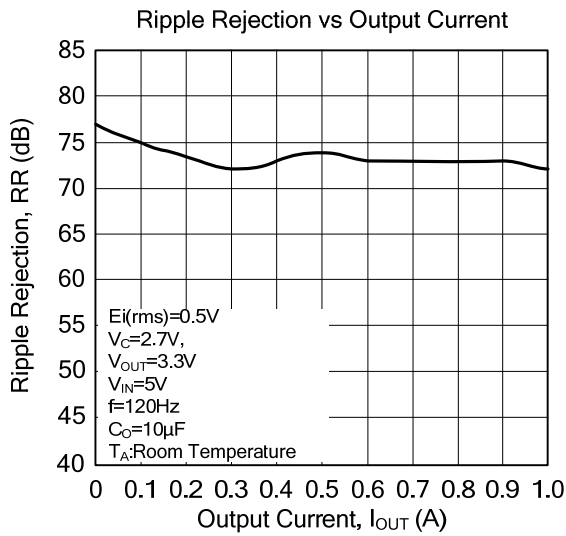
For Standard Measuring Circuit of Ripple Rejection Critical Rate



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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