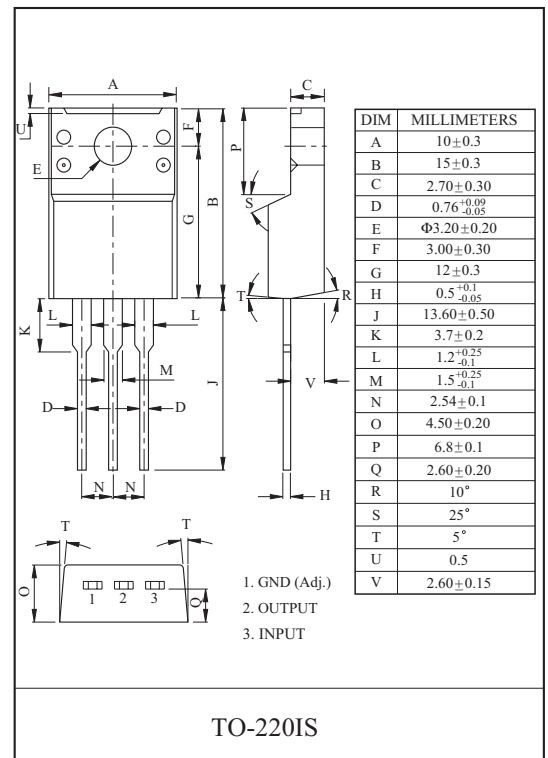


### LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR

The KIA1117API × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version ( $V_{ref}=1.25V$ )

#### FEATURES

- Low Dropout Voltage : 1.1V/Typ. ( $I_{out}=1.0A$ )
- Very Low Quiescent Current : 2.5mA/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability :  $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- A Minimum of 10 $\mu F$  for stability
- Available in  $\pm 2\%$ (at 25 °C)
- High Ripple Rejection : 80dB/Typ
- Temperature Range : -30 °C ~ 125 °C



#### LINE UP

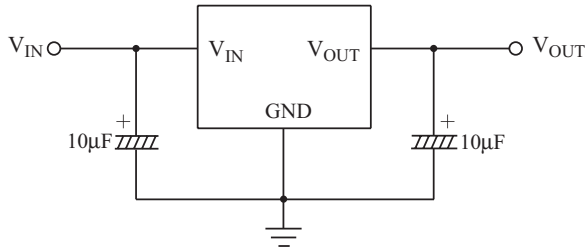
| ITEM         | OUTPUT VOLTAGE (V)   | PACKAGE        |
|--------------|----------------------|----------------|
| KIA1117API00 | Adjustable (1.25~8V) | API : TO-220IS |
| KIA1117API15 | 1.5                  |                |
| KIA1117API18 | 1.8                  |                |
| KIA1117API25 | 2.5                  |                |
| KIA1117API28 | 2.85                 |                |
| KIA1117API33 | 3.3                  |                |
| KIA1117API50 | 5.0                  |                |

#### MAXIMUM RATINGS (Ta=25 °C)

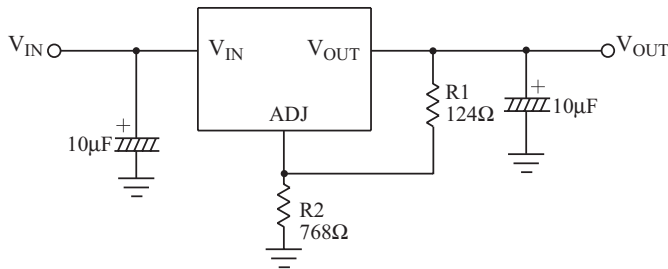
| CHARACTERISTIC                             | SYMBOL    | RATING    | UNIT |
|--------------------------------------------|-----------|-----------|------|
| Input Voltage                              | $V_{IN}$  | 10        | V    |
| Output Current                             | $I_{OUT}$ | 1.0       | A    |
| Power Dissipation 1<br>(No Heatsink)       | $P_{D1}$  | 2.0       | W    |
| Power Dissipation 2<br>(Infinite Heatsink) | $P_{D2}$  | 20.8      | W    |
| Operating Temperature                      | $T_{opr}$ | -30 ~ 125 | °C   |
| Storage Temperature                        | $T_{stg}$ | -55 ~ 150 | °C   |

# KIA1117API00~KIA1117API50

**Fig.1 Application Circuit-1 (Fixed-Type)**

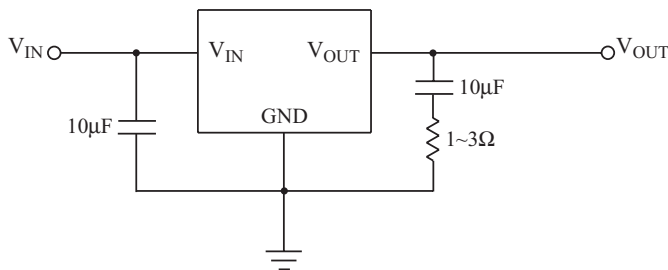


**Fig.2 Application Circuit-2 (Adjustable-Type)**



$$V_{OUT} = V_{REF} (1 + R2/R1) + I_{ADJ} \cdot R2$$

**Fig.3 Application Circuit-3 (With MLCC)**



- When using a ceramic capacitor, set an additional series resistor 1~3 Ω for stability.

## ELECTRICAL CHARACTERISTICS

**KIA1117API00** (Unless otherwise specified,  $T_j=25^\circ\text{C}$ )

| CHARACTERISTIC             | SYMBOL      | TEST CONDITIONS                                                                                    | MIN.                  | TYP.      | MAX.                  | UNIT  |
|----------------------------|-------------|----------------------------------------------------------------------------------------------------|-----------------------|-----------|-----------------------|-------|
| Output Voltage             | $V_{OUT1}$  | $V_{IN}=V_{OUT}+1.5\text{V}$ , $I_{OUT}=10\text{mA}$ , $T_j=25^\circ\text{C}$                      | $V_{OUT} \times 0.98$ | $V_{OUT}$ | $V_{OUT} \times 1.02$ | V     |
|                            | $V_{OUT2}$  | $10\text{mA} \leq I_{OUT} \leq 1\text{A}$ , $V_{OUT}+1.5\text{V} \leq V_{IN} \leq 10\text{V}$      | $V_{OUT} \times 0.97$ | $V_{OUT}$ | $V_{OUT} \times 1.03$ |       |
| Line Regulation            | Reg Line    | $V_{OUT}+1.5\text{V} \leq V_{IN} \leq 10\text{V}$ , $I_{OUT}=10\text{mA}$                          | -                     | 1         | 10                    | mV    |
| Load Regulation            | Reg Load    | $10\text{mA} \leq I_{OUT} \leq 1\text{A}$ , $V_{IN}=V_{OUT}+2.0\text{V}$                           | -                     | 0.5       | 1                     | %     |
| Quiescent Current          | $I_{B1}$    | $V_{IN}=V_{OUT}+1.25\text{V}$ , $I_{OUT}=0\text{A}$                                                | -                     | 2.5       | 5                     | mA    |
|                            | $I_{B2}$    | $V_{IN}=10\text{V}$ , $I_{OUT}=0\text{A}$                                                          | -                     | 2.5       | 5                     |       |
| Adjustable Pin Current     | $I_{ADJ}$   | $V_{IN}=V_{OUT}+1.5\text{V}$                                                                       | -                     | 35        | -                     | µA    |
| Minimum Load Current       | $I_{MIN}$   | $V_{IN}=V_{OUT}+1.5\text{V}$                                                                       | 10                    | -         | -                     | mA    |
| Output Noise Voltage       | $V_{NO}$    | $V_{IN}=V_{OUT}+1.25\text{V}$ , $I_{OUT}=40\text{mA}$ ,<br>$10\text{Hz} \leq f \leq 10\text{kHz}$  | -                     | 100       | -                     | µVrms |
| Sort Circuit Current Limit | $I_{SC}$    | $V_{IN}=V_{OUT}+2.0\text{V}$                                                                       | 1.1                   | -         | -                     | A     |
| Ripple Rejection           | $R \cdot R$ | $I_{OUT}=40\text{mA}$ , $f=120\text{Hz}$ , $V_{ripple}=1\text{Vp-p}$<br>$V_{IN}=V_{OUT}+3\text{V}$ | 60                    | 80        | -                     | dB    |
| Dropout Voltage            | $V_D$       | $I_{OUT}=1\text{A}$ , $V_{IN}=0.95V_{OUT}$                                                         | -                     | 1.1       | 1.4                   | V     |
| Temperature Stability      | $TCV_O$     | $V_{IN}=V_{OUT}+1.5\text{V}$ , $I_{OUT}=10\text{mA}$ , $T_j=-30 \sim 125$                          | -                     | 0.5       | -                     | %     |

# KIA1117API00~KIA1117API50

## ELECTRICAL CHARACTERISTICS

**KIA1117API15** (Unless otherwise specified, Tj=25 °C)

| CHARACTERISTIC             | SYMBOL            | TEST CONDITIONS                                                                                      | MIN.                    | TYP.             | MAX.                    | UNIT  |
|----------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|------------------|-------------------------|-------|
| Output Voltage             | V <sub>OUT1</sub> | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=25 °C                            | V <sub>OUT</sub> × 0.98 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.02 | V     |
|                            | V <sub>OUT2</sub> | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V                         | V <sub>OUT</sub> × 0.97 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.03 |       |
| Line Regulation            | Reg Line          | V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V, I <sub>OUT</sub> =10mA                               | -                       | 1                | 10                      | mV    |
| Load Regulation            | Reg Load          | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                | -                       | 0.5              | 1                       | %     |
| Quiescent Current          | I <sub>B1</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =0A                                       | -                       | 2.5              | 5                       | mA    |
|                            | I <sub>B2</sub>   | V <sub>IN</sub> =10V, I <sub>OUT</sub> =0A                                                           | -                       | 2.5              | 5                       |       |
| Output Noise Voltage       | V <sub>NO</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =40mA,<br>10Hz ≤ f ≤ 10kHz                | -                       | 100              | -                       | μVrms |
| Sort Circuit Current Limit | I <sub>SC</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                                              | 1.1                     | -                | -                       | A     |
| Ripple Rejection           | R · R             | I <sub>OUT</sub> =40mA, f=120Hz, V <sub>ripple</sub> =1Vp-p<br>V <sub>IN</sub> =V <sub>OUT</sub> +3V | 60                      | 80               | -                       | dB    |
| Dropout Voltage            | V <sub>D</sub>    | I <sub>OUT</sub> =1A, V <sub>IN</sub> =0.95V <sub>OUT</sub>                                          | -                       | 1.1              | 1.4                     | V     |
| Temperature Stability      | TCV <sub>O</sub>  | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=-30~125                          | -                       | 0.5              | -                       | %     |

## ELECTRICAL CHARACTERISTICS

**KIA1117API18** (Unless otherwise specified, Tj=25 °C)

| CHARACTERISTIC             | SYMBOL            | TEST CONDITIONS                                                                                      | MIN.                    | TYP.             | MAX.                    | UNIT  |
|----------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|------------------|-------------------------|-------|
| Output Voltage             | V <sub>OUT1</sub> | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=25 °C                            | V <sub>OUT</sub> × 0.98 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.02 | V     |
|                            | V <sub>OUT2</sub> | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V                         | V <sub>OUT</sub> × 0.97 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.03 |       |
| Line Regulation            | Reg Line          | V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V, I <sub>OUT</sub> =10mA                               | -                       | 1                | 10                      | mV    |
| Load Regulation            | Reg Load          | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                | -                       | 0.5              | 1                       | %     |
| Quiescent Current          | I <sub>B1</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =0A                                       | -                       | 2.5              | 5                       | mA    |
|                            | I <sub>B2</sub>   | V <sub>IN</sub> =10V, I <sub>OUT</sub> =0A                                                           | -                       | 2.5              | 5                       |       |
| Output Noise Voltage       | V <sub>NO</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =40mA,<br>10Hz ≤ f ≤ 10kHz                | -                       | 100              | -                       | μVrms |
| Sort Circuit Current Limit | I <sub>SC</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                                              | 1.1                     | -                | -                       | A     |
| Ripple Rejection           | R · R             | I <sub>OUT</sub> =40mA, f=120Hz, V <sub>ripple</sub> =1Vp-p<br>V <sub>IN</sub> =V <sub>OUT</sub> +3V | 60                      | 80               | -                       | dB    |
| Dropout Voltage            | V <sub>D</sub>    | I <sub>OUT</sub> =1A, V <sub>IN</sub> =0.95V <sub>OUT</sub>                                          | -                       | 1.1              | 1.4                     | V     |
| Temperature Stability      | TCV <sub>O</sub>  | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=-30~125                          | -                       | 0.5              | -                       | %     |

# KIA1117API00~KIA1117API50

## ELECTRICAL CHARACTERISTICS

**KIA1117API25** (Unless otherwise specified, T<sub>j</sub>=25 °C)

| CHARACTERISTIC             | SYMBOL            | TEST CONDITIONS                                                                                      | MIN.                    | TYP.             | MAX.                    | UNIT              |
|----------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|------------------|-------------------------|-------------------|
| Output Voltage             | V <sub>OUT1</sub> | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, T <sub>j</sub> =25 °C               | V <sub>OUT</sub> × 0.98 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.02 | V                 |
|                            | V <sub>OUT2</sub> | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V                         | V <sub>OUT</sub> × 0.97 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.03 |                   |
| Line Regulation            | Reg Line          | V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V, I <sub>OUT</sub> =10mA                               | -                       | 1                | 10                      | mV                |
| Load Regulation            | Reg Load          | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                | -                       | 0.5              | 1                       | %                 |
| Quiescent Current          | I <sub>B1</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =0A                                       | -                       | 2.5              | 5                       | mA                |
|                            | I <sub>B2</sub>   | V <sub>IN</sub> =10V, I <sub>OUT</sub> =0A                                                           | -                       | 2.5              | 5                       |                   |
| Output Noise Voltage       | V <sub>NO</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =40mA,<br>10Hz ≤ f ≤ 10kHz                | -                       | 100              | -                       | μV <sub>rms</sub> |
| Sort Circuit Current Limit | I <sub>SC</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                                              | 1.1                     | -                | -                       | A                 |
| Ripple Rejection           | R · R             | I <sub>OUT</sub> =40mA, f=120Hz, V <sub>ripple</sub> =1Vp-p<br>V <sub>IN</sub> =V <sub>OUT</sub> +3V | 60                      | 80               | -                       | dB                |
| Dropout Voltage            | V <sub>D</sub>    | I <sub>OUT</sub> =1A, V <sub>IN</sub> =0.95V <sub>OUT</sub>                                          | -                       | 1.1              | 1.4                     | V                 |
| Temperature Stability      | TCV <sub>O</sub>  | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, T <sub>j</sub> =-30~125             | -                       | 0.5              | -                       | %                 |

## ELECTRICAL CHARACTERISTICS

**KIA1117API28** (Unless otherwise specified, T<sub>j</sub>=25 °C)

| CHARACTERISTIC             | SYMBOL            | TEST CONDITIONS                                                                                      | MIN.                    | TYP.             | MAX.                    | UNIT              |
|----------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|------------------|-------------------------|-------------------|
| Output Voltage             | V <sub>OUT1</sub> | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, T <sub>j</sub> =25 °C               | V <sub>OUT</sub> × 0.98 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.02 | V                 |
|                            | V <sub>OUT2</sub> | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V                         | V <sub>OUT</sub> × 0.97 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.03 |                   |
| Line Regulation            | Reg Line          | V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V, I <sub>OUT</sub> =10mA                               | -                       | 1                | 10                      | mV                |
| Load Regulation            | Reg Load          | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                | -                       | 0.5              | 1                       | %                 |
| Quiescent Current          | I <sub>B1</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =0A                                       | -                       | 2.5              | 5                       | mA                |
|                            | I <sub>B2</sub>   | V <sub>IN</sub> =10V, I <sub>OUT</sub> =0A                                                           | -                       | 2.5              | 5                       |                   |
| Output Noise Voltage       | V <sub>NO</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =40mA,<br>10Hz ≤ f ≤ 10kHz                | -                       | 100              | -                       | μV <sub>rms</sub> |
| Sort Circuit Current Limit | I <sub>SC</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                                              | 1.1                     | -                | -                       | A                 |
| Ripple Rejection           | R · R             | I <sub>OUT</sub> =40mA, f=120Hz, V <sub>ripple</sub> =1Vp-p<br>V <sub>IN</sub> =V <sub>OUT</sub> +3V | 60                      | 80               | -                       | dB                |
| Dropout Voltage            | V <sub>D</sub>    | I <sub>OUT</sub> =1A, V <sub>IN</sub> =0.95V <sub>OUT</sub>                                          | -                       | 1.1              | 1.4                     | V                 |
| Temperature Stability      | TCV <sub>O</sub>  | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, T <sub>j</sub> =-30~125             | -                       | 0.5              | -                       | %                 |

# KIA1117API00~KIA1117API50

## ELECTRICAL CHARACTERISTICS

**KIA1117API33** (Unless otherwise specified, Tj=25 °C)

| CHARACTERISTIC             | SYMBOL            | TEST CONDITIONS                                                                                      | MIN.                    | TYP.             | MAX.                    | UNIT  |
|----------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|------------------|-------------------------|-------|
| Output Voltage             | V <sub>OUT1</sub> | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=25 °C                            | V <sub>OUT</sub> × 0.98 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.02 | V     |
|                            | V <sub>OUT2</sub> | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V                         | V <sub>OUT</sub> × 0.97 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.03 |       |
| Line Regulation            | Reg Line          | V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V, I <sub>OUT</sub> =10mA                               | -                       | 1                | 10                      | mV    |
| Load Regulation            | Reg Load          | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                | -                       | 0.5              | 1                       | %     |
| Quiescent Current          | I <sub>B1</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =0A                                       | -                       | 2.5              | 5                       | mA    |
|                            | I <sub>B2</sub>   | V <sub>IN</sub> =10V, I <sub>OUT</sub> =0A                                                           | -                       | 2.5              | 5                       |       |
| Output Noise Voltage       | V <sub>NO</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =40mA,<br>10Hz ≤ f ≤ 10kHz                | -                       | 100              | -                       | μVrms |
| Sort Circuit Current Limit | I <sub>SC</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                                              | 1.1                     | -                | -                       | A     |
| Ripple Rejection           | R · R             | I <sub>OUT</sub> =40mA, f=120Hz, V <sub>ripple</sub> =1Vp-p<br>V <sub>IN</sub> =V <sub>OUT</sub> +3V | 60                      | 80               | -                       | dB    |
| Dropout Voltage            | V <sub>D</sub>    | I <sub>OUT</sub> =1A, V <sub>IN</sub> =0.95V <sub>OUT</sub>                                          | -                       | 1.1              | 1.4                     | V     |
| Temperature Stability      | TCV <sub>O</sub>  | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=-30~125                          | -                       | 0.5              | -                       | %     |

## ELECTRICAL CHARACTERISTICS

**KIA1117API50** (Unless otherwise specified, Tj=25 °C)

| CHARACTERISTIC             | SYMBOL            | TEST CONDITIONS                                                                                      | MIN.                    | TYP.             | MAX.                    | UNIT  |
|----------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|------------------|-------------------------|-------|
| Output Voltage             | V <sub>OUT1</sub> | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=25 °C                            | V <sub>OUT</sub> × 0.98 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.02 | V     |
|                            | V <sub>OUT2</sub> | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V                         | V <sub>OUT</sub> × 0.97 | V <sub>OUT</sub> | V <sub>OUT</sub> × 1.03 |       |
| Line Regulation            | Reg Line          | V <sub>OUT</sub> +1.5V ≤ V <sub>IN</sub> ≤ 10V, I <sub>OUT</sub> =10mA                               | -                       | 1                | 10                      | mV    |
| Load Regulation            | Reg Load          | 10mA ≤ I <sub>OUT</sub> ≤ 1A, V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                | -                       | 0.5              | 1                       | %     |
| Quiescent Current          | I <sub>B1</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =0A                                       | -                       | 2.5              | 5                       | mA    |
|                            | I <sub>B2</sub>   | V <sub>IN</sub> =10V, I <sub>OUT</sub> =0A                                                           | -                       | 2.5              | 5                       |       |
| Output Noise Voltage       | V <sub>NO</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +1.25V, I <sub>OUT</sub> =40mA,<br>10Hz ≤ f ≤ 10kHz                | -                       | 100              | -                       | μVrms |
| Sort Circuit Current Limit | I <sub>SC</sub>   | V <sub>IN</sub> =V <sub>OUT</sub> +2.0V                                                              | 1.1                     | -                | -                       | A     |
| Ripple Rejection           | R · R             | I <sub>OUT</sub> =40mA, f=120Hz, V <sub>ripple</sub> =1Vp-p<br>V <sub>IN</sub> =V <sub>OUT</sub> +3V | 60                      | 80               | -                       | dB    |
| Dropout Voltage            | V <sub>D</sub>    | I <sub>OUT</sub> =1A, V <sub>IN</sub> =0.95V <sub>OUT</sub>                                          | -                       | 1.1              | 1.4                     | V     |
| Temperature Stability      | TCV <sub>O</sub>  | V <sub>IN</sub> =V <sub>OUT</sub> +1.5V, I <sub>OUT</sub> =10mA, Tj=-30~125                          | -                       | 0.5              | -                       | %     |

Fig. 3  $V_D - I_{OUT}$

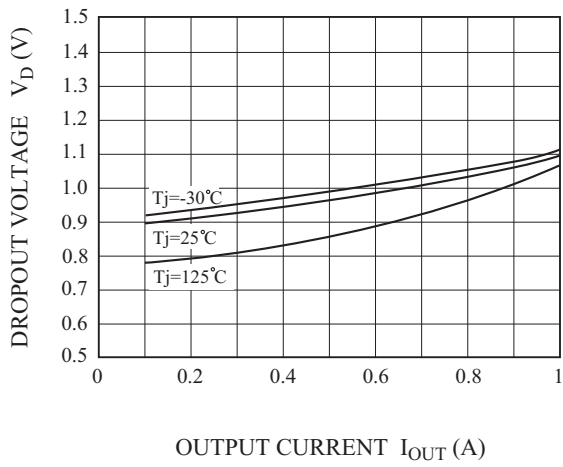


Fig. 4  $V_{OUT}(\text{CHANGE}) - T_j$

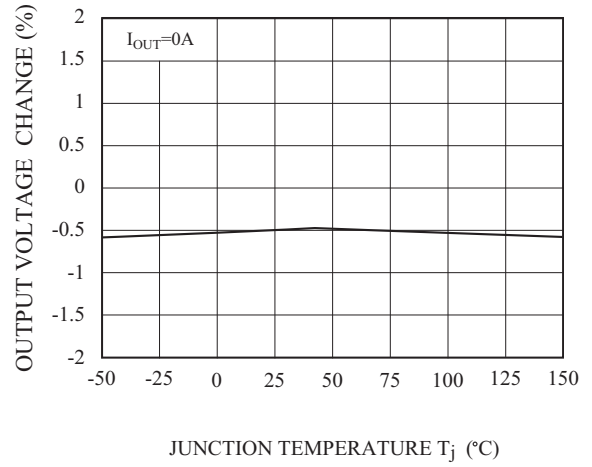


Fig. 5 LINE REGULATION

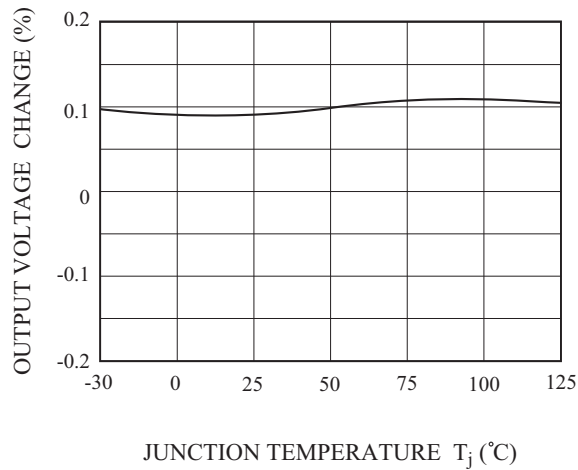


Fig. 4 LOAD REGULATION

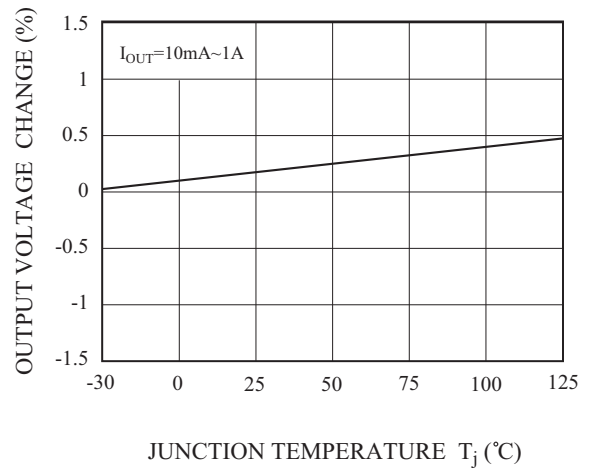


Fig.7  $I_Q - T_j$

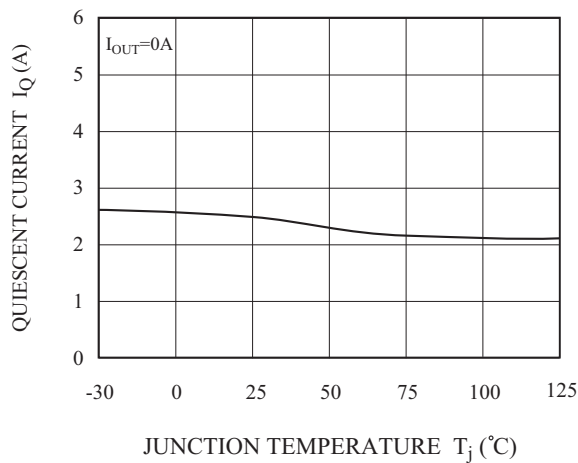


Fig.8 R.R - f

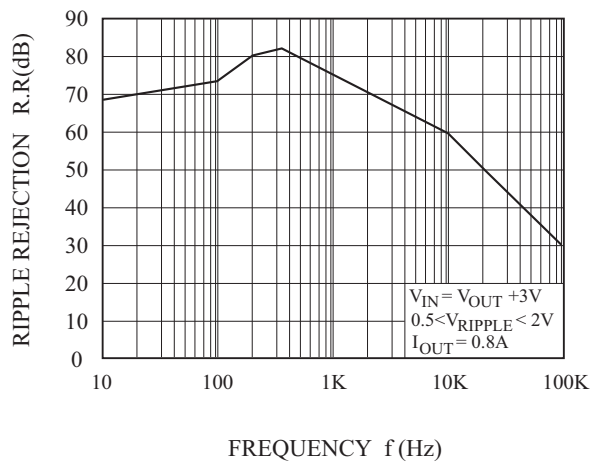


Fig.9  $P_D$  -  $T_a$  (API-Type : TO-220IS)

