

**4 TERMINAL 3A OUTPUT LOW DROP  
VOLTAGE REGULATOR**

The KIA378R × × Series are Low Drop Voltage Regulator suitable for various electronic equipments.

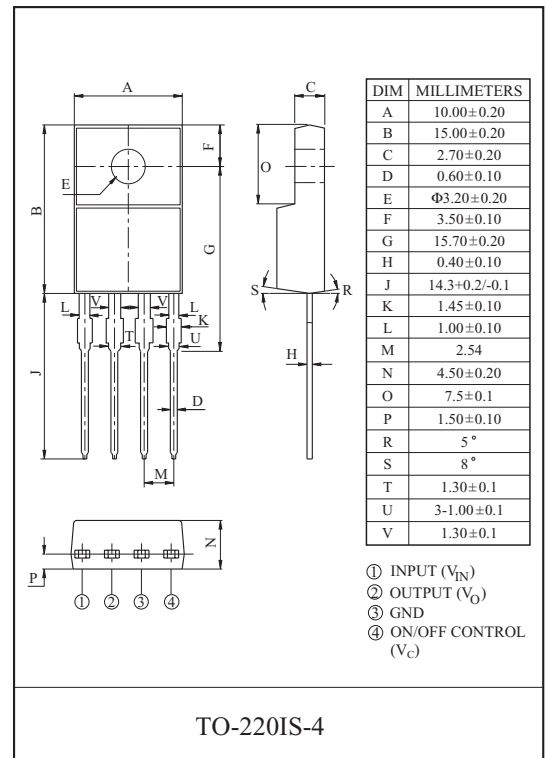
It provides constant voltage power source with TO-220IS-4 terminal lead full molded PKG. The Regulator has multi-function such as over current protection, overheat protection and ON/OFF control.

**FEATURES**

- 3.0A Output Low Drop Voltage Regulator.
- Built in ON/OFF Control Terminal.
- Built in Over Current Protection, Over Heat Protection Function.

**LINE UP**

| ITEM        | OUTPUT VOLTAGE (Typ.) | UNIT |
|-------------|-----------------------|------|
| KIA378R25PI | 2.5                   | V    |
| KIA378R33PI | 3.3                   |      |
| KIA378R35PI | 3.5                   |      |

**MAXIMUM RATINGS (Ta=25 °C)**

| CHARACTERISTIC                 | SYMBOL       | RATING   | UNIT | Remark        |
|--------------------------------|--------------|----------|------|---------------|
| Input Voltage                  | $V_{IN}$     | 35       | V    | -             |
| ON/OFF Control Voltage         | $V_C$        | 35       | V    | -             |
| Output Current                 | $I_O$        | 3        | A    | -             |
| Power Dissipation 1            | $P_{d1}$     | 1.5      | W    | No heatsink   |
| Power Dissipation 2            | $P_{d2}$     | 15       | W    | with heatsink |
| Operating Junction Temperature | $T_{J(opr)}$ | -40~150  | °C   | -             |
| Storage Temperature            | $T_{stg}$    | -45 ~150 | °C   | -             |
| Soldering Temperature (10sec)  | $T_{sol}$    | 260      | °C   | -             |

# KIA378R25PI~KIA378R35PI

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $I_O=1.0A$ ,  $T_a=25^\circ C$ , Note1.)

| CHARACTERISTIC                            |           | SYMBOL       | CONDITIONS               | MIN.  | TYP.       | MAX.       | UNIT          |
|-------------------------------------------|-----------|--------------|--------------------------|-------|------------|------------|---------------|
| Output Voltage                            | KIA378R25 | $V_O$        | -                        | 2.438 | 2.50       | 2.562      | V             |
|                                           | KIA378R33 |              | -                        | 3.220 | 3.30       | 3.380      |               |
|                                           | KIA378R35 |              | -                        | 3.413 | 3.50       | 3.587      |               |
| Load Regulation                           |           | Reg Load     | $I_O=5mA \sim 3A$        | -     | 0.1        | 2.0        | %             |
| Line Regulation                           |           | Reg Line     | (Note 2)                 | -     | 0.5        | 2.5        | %             |
| Temperature Coefficient of Output Voltage |           | $T_C V_O$    | $T_j=0 \sim 125^\circ C$ | -     | $\pm 0.02$ | $\pm 0.05$ | %/ $^\circ C$ |
| Ripple Rejection                          |           | $R \cdot R$  | -                        | 45    | 55         | -          | dB            |
| Drop Out Voltage                          |           | $V_D$        | $I_O=3A$                 | -     | -          | 0.5        | V             |
| Output ON state for control Voltage       |           | $V_{C(ON)}$  | -                        | 2.0   | -          | -          | V             |
| Output ON state for control Current       |           | $I_{C(ON)}$  | $V_C=2.7V$               | -     | -          | 20         | $\mu A$       |
| Output OFF state for control Voltage      |           | $V_{C(OFF)}$ | -                        | -     | -          | 0.8        | V             |
| Output OFF state for control Current      |           | $I_{C(OFF)}$ | $V_C=0.4V$               | -     | -          | -0.4       | mA            |
| Quiescent Current                         |           | $I_Q$        | $I_O=0$                  | -     | -          | 10         | mA            |

Note1)  $V_{IN}$  of KIA378R25=4.2V

" KIA378R33=5.0V

" KIA378R35=5.2V

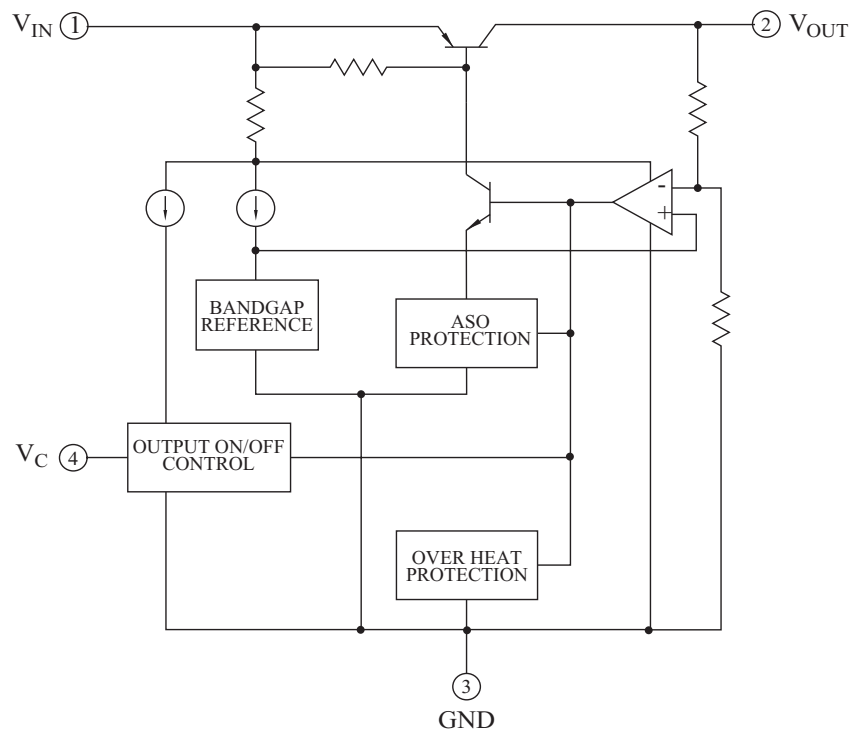
Note2)  $V_{IN}$  of KIA378R25=3.2 ~ 10V

" KIA378R33=4.0 ~ 10V

" KIA378R35=4.2 ~ 10V

Note3) At  $V_{IN}=0.95V_{out}$

## BLOCK DIAGRAM



# KIA378R25PI~KIA378R35PI

Fig. 1 Standard Test Circuit

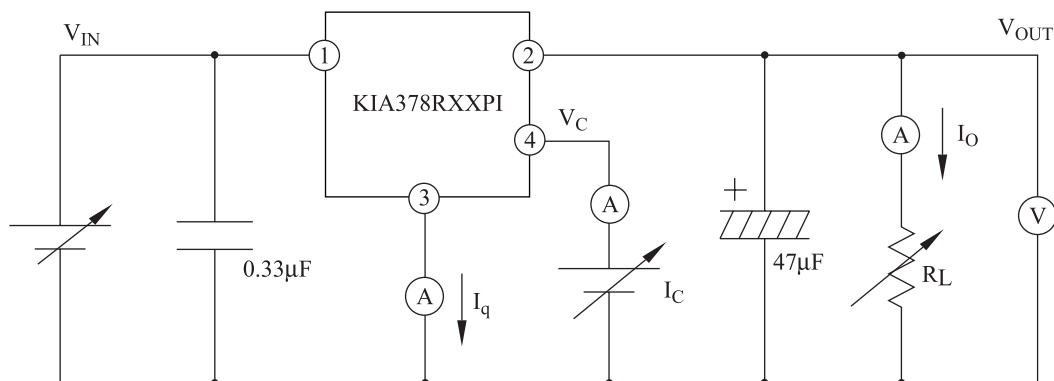


Fig. 1-2 Ripple Rejection Test Circuit

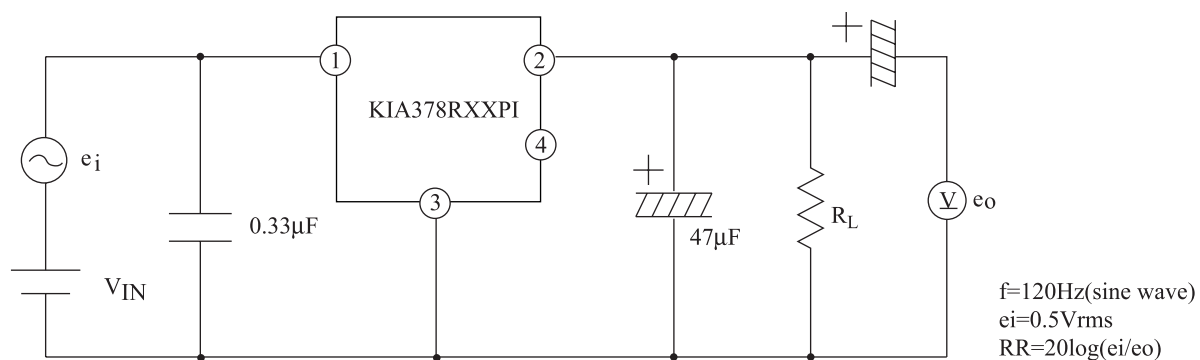


Fig. 2 Application Circuit for Standard

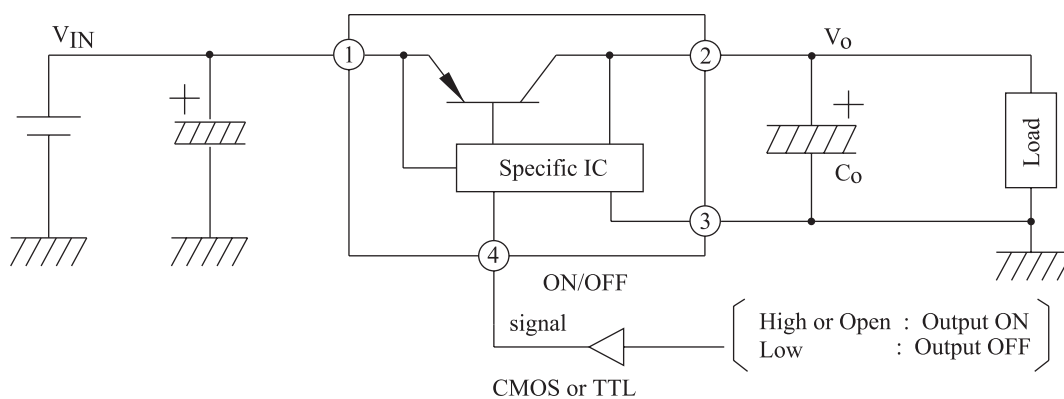


Fig.3  $T_a - P_D$

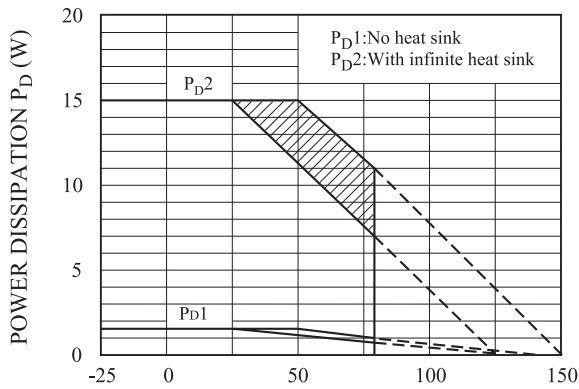


Fig.4  $I_O - V_O$

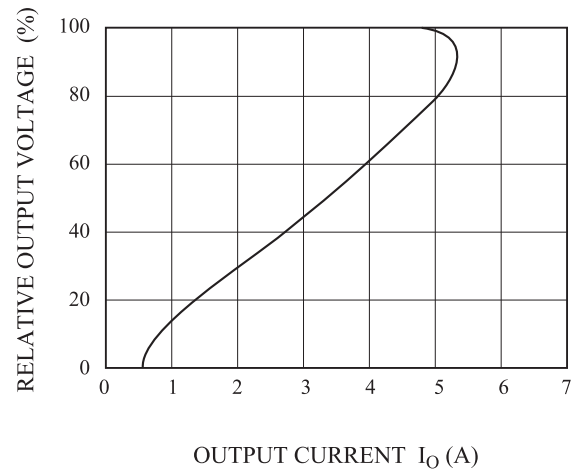


Fig.5-1  $T_j - \Delta V_O$  (KIA378R25)

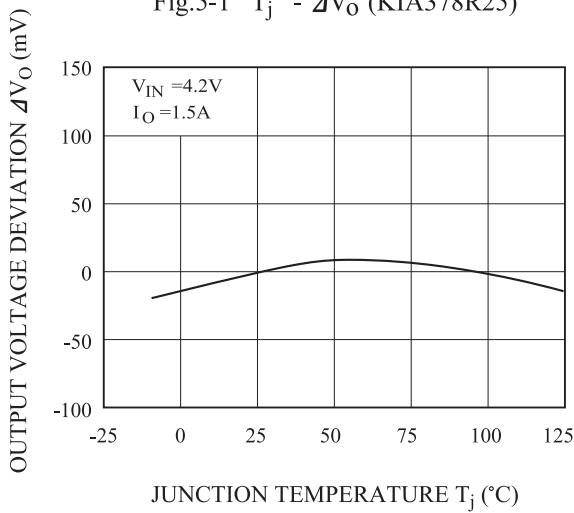


Fig.5-3  $T_j - \Delta V_O$  (KIA378R33)

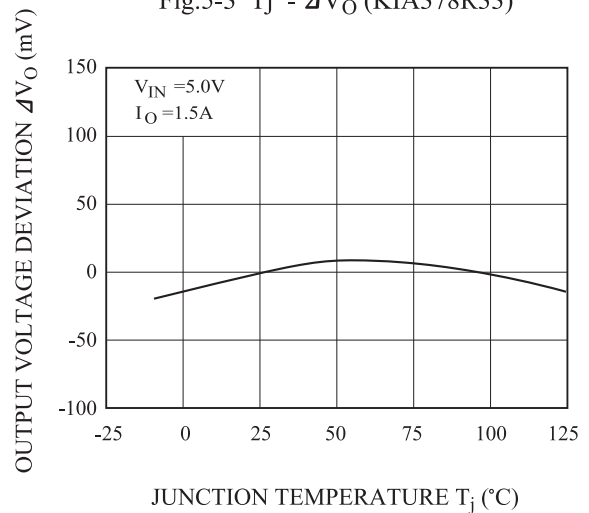


Fig.5-4  $T_j - \Delta V_O$  (KIA378R35)

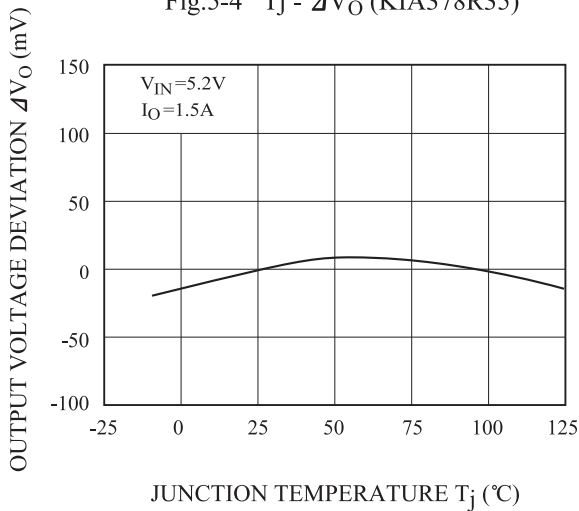
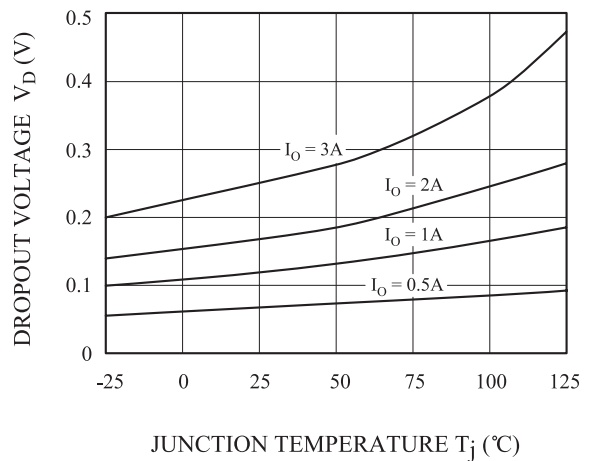


Fig.6  $T_j - V_D$



# KIA378R25PI~KIA378R35PI

Fig.7  $T_j - I_q$

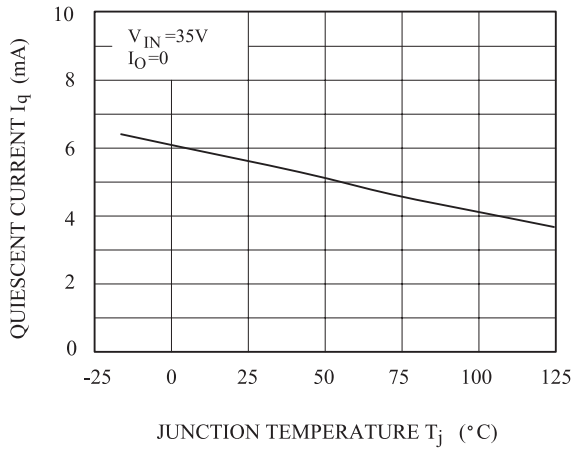


Fig.8-1  $f - RR$

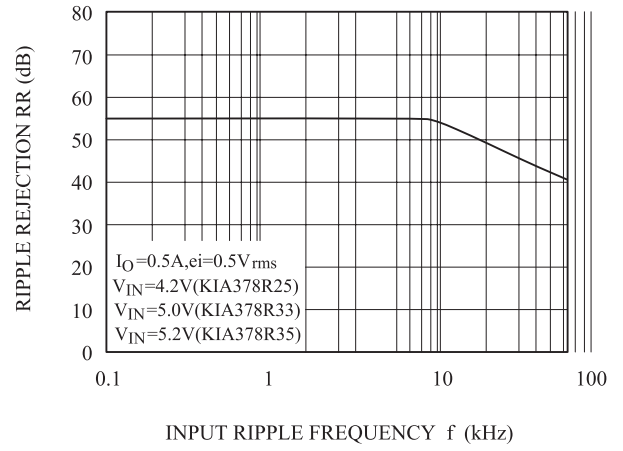


Fig.8-2  $I_O - RR$

