

### 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-220 4 terminal lead full molded PKG. The Regulator has multi function such as over current protection, overheat protection and ON/OFF control.

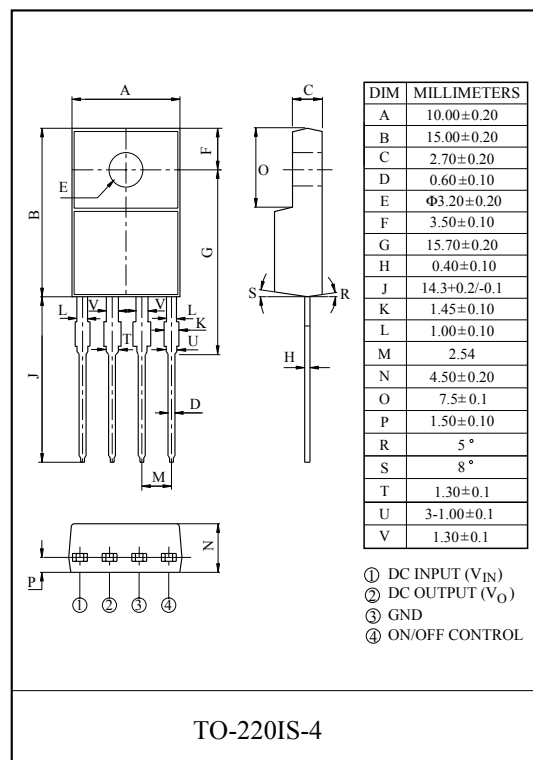
#### FEATURES

- 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    |
| * KIA378R30PI | 3.0                   |      |
| * KIA378R33PI | 3.3                   |      |
| * KIA378R35PI | 3.5                   |      |
| * KIA378R37PI | 3.7                   |      |

\* Note) \* : Under Development.



#### MAXIMUM RATING (Ta=25℃)

| CHARACTERISTIC                | SYMBOL           | RATING    | UNIT | Remark        |
|-------------------------------|------------------|-----------|------|---------------|
| Input Voltage                 | V <sub>IN</sub>  | 15        | V    | -             |
| ON/OFF Control Voltage        | V <sub>C</sub>   | 15        | V    | -             |
| Output Current                | I <sub>O</sub>   | 3         | A    | -             |
| Power Dissipation 1           | P <sub>d1</sub>  | 1.5       | W    | No heatsink   |
| Power Dissipation 2           | P <sub>d2</sub>  | 15        | W    | with heatsink |
| Junction Temperature          | T <sub>j</sub>   | 125       | ℃    | -             |
| Operating Temperature         | T <sub>opr</sub> | -20 ~ 80  | ℃    | -             |
| Storage Temperature           | T <sub>stg</sub> | -30 ~ 125 | ℃    | -             |
| Soldering Temperature (10sec) | T <sub>sol</sub> | 260       | ℃    | -             |

# KIA378R25PI~KIA378R37PI

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Unless otherwise specified, I<sub>O</sub>=1.0A, Ta=25°C, Note1.)

| CHARACTERISTIC                            |           | SYMBOL                        | CONDITIONS                | MIN.  | TYP.  | MAX.  | UNIT |
|-------------------------------------------|-----------|-------------------------------|---------------------------|-------|-------|-------|------|
| Output Voltage                            | KIA378R25 | V <sub>O</sub>                | -                         | 2.438 | 2.50  | 2.562 | V    |
|                                           | KIA378R30 |                               | -                         | 2.925 | 3.00  | 3.075 |      |
|                                           | KIA378R33 |                               | -                         | 3.220 | 3.30  | 3.380 |      |
|                                           | KIA378R35 |                               | -                         | 3.413 | 3.50  | 3.587 |      |
|                                           | KIA378R37 |                               | -                         | 3.608 | 3.70  | 3.792 |      |
| Load Regulation                           |           | Reg Load                      | I <sub>O</sub> =5mA ~ 3A  | -     | 0.1   | 2.0   | %    |
| Line Regulation                           |           | Reg Line                      | (Note 2)                  | -     | 0.5   | 2.5   | %    |
| Temperature Coefficient of Output Voltage |           | T <sub>C</sub> V <sub>O</sub> | T <sub>j</sub> =0 ~ 125°C | -     | ±0.02 | ±0.05 | %/°C |
| Ripple Rejection                          |           | R · R                         | -                         | 45    | 55    | -     | dB   |
| Drop Out Voltage                          |           | V <sub>D</sub>                | I <sub>O</sub> =3A        | -     | -     | 0.5   | V    |
| Output ON state for control Voltage       |           | V <sub>C(ON)</sub>            | -                         | 2.0   | -     | -     | V    |
| Output ON state for control Current       |           | I <sub>C(ON)</sub>            | V <sub>C</sub> =2.7V      | -     | -     | 20    | μA   |
| Output OFF state for control Voltage      |           | V <sub>C(OFF)</sub>           | -                         | -     | -     | 0.8   | V    |
| Output OFF state for control Current      |           | I <sub>C(OFF)</sub>           | V <sub>C</sub> =0.4V      | -     | -     | -0.4  | mA   |
| Quiescent Current                         |           | I <sub>Q</sub>                | I <sub>O</sub> =0         | -     | -     | 10    | mA   |

Note1) V<sub>IN</sub> of KIA378R25=4.2V

Note2) V<sub>IN</sub> of KIA378R25=3.2 ~ 10V

Note3) At V<sub>IN</sub>=0.95V<sub>O</sub>

" KIA378R30=4.7V

" KIA378R30=3.7 ~ 10V

" KIA378R33=5.0V

" KIA378R33=4.0 ~ 10V

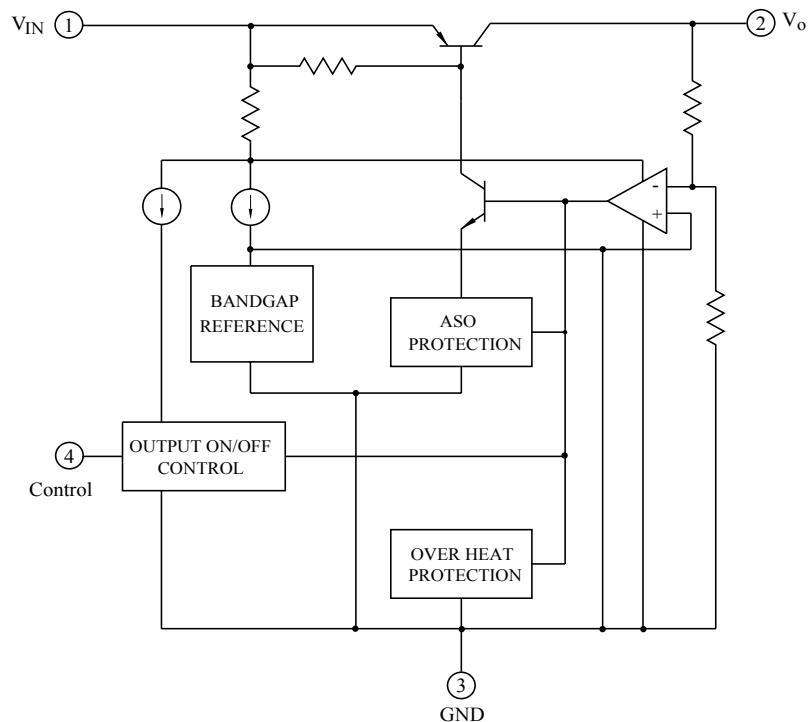
" KIA378R35=5.2V

" KIA378R35=4.2 ~ 10V

" KIA378R37=5.4V

" KIA378R37=4.4 ~ 10V

## BLOCK DIAGRAM



# KIA378R25PI~KIA378R37PI

Fig. 1 Standard Test Circuit

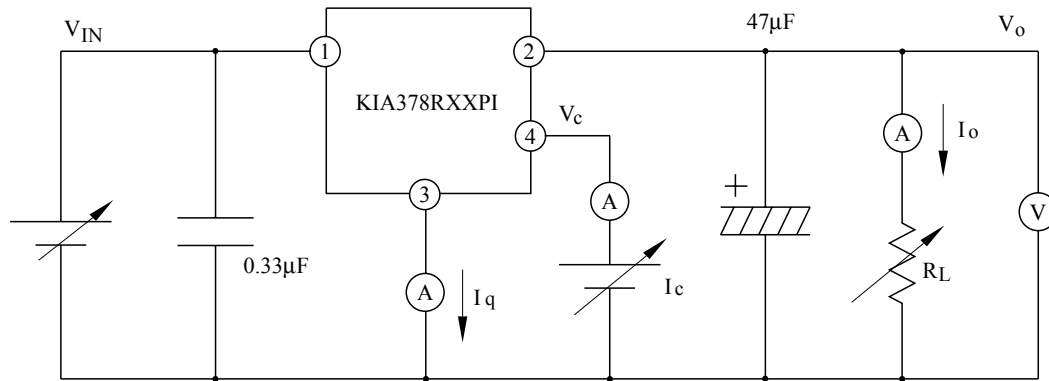


Fig. 1-2 Ripple Rejection Test Circuit

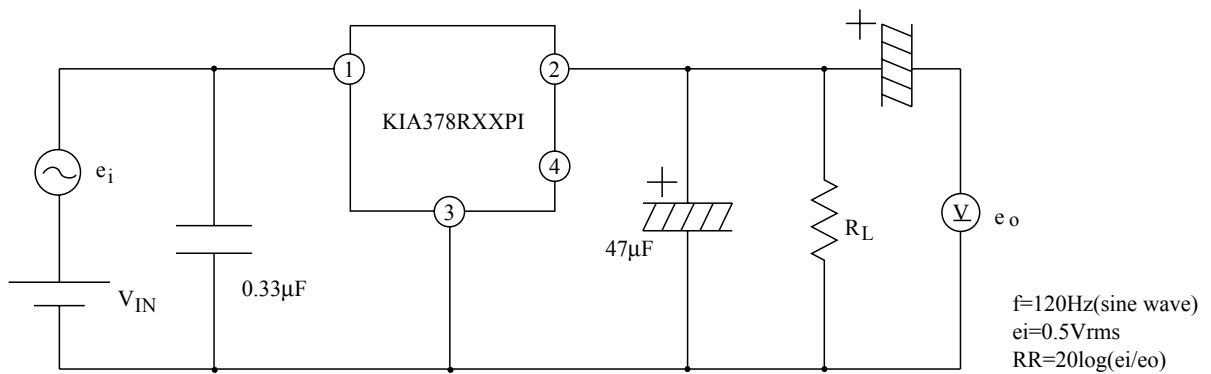
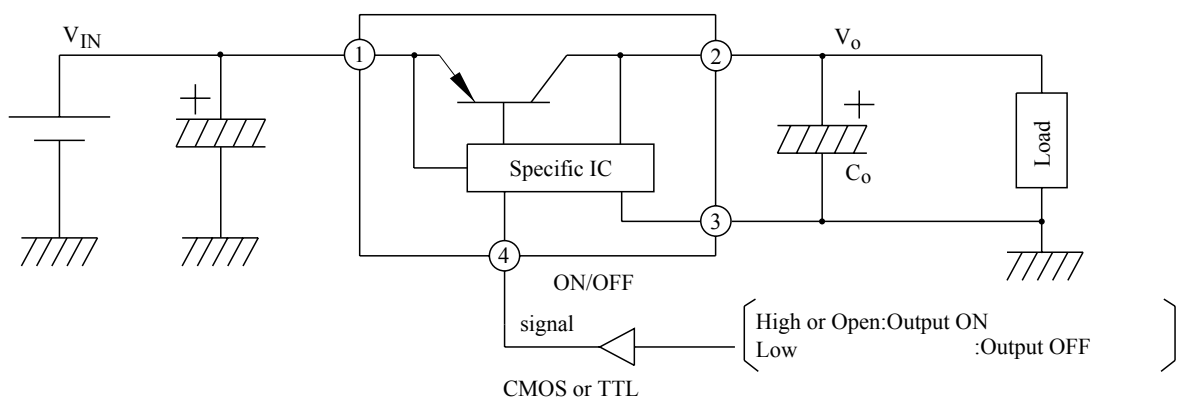
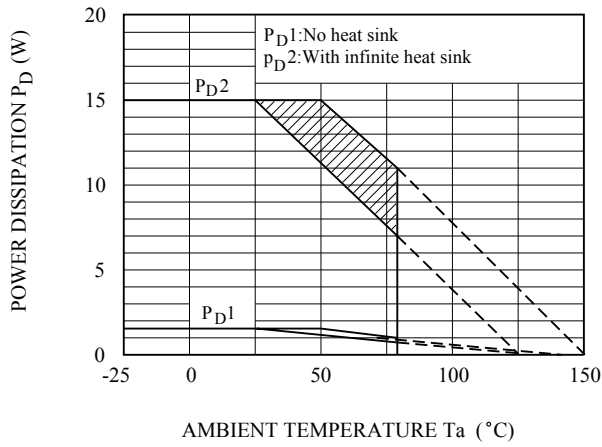


Fig. 2 Application Circuit for Standard



# KIA378R25PI~KIA378R37PI

Fig.3  $T_a - P_D$



Note) Oblique line portion : Overheat protection may operate in this area.

Fig.4  $I_O - V_O$

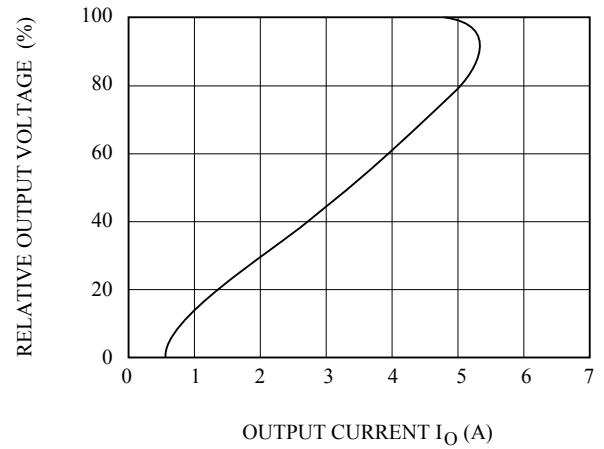


Fig.5-1  $T_j - \Delta V_O$  (KIA378R25)

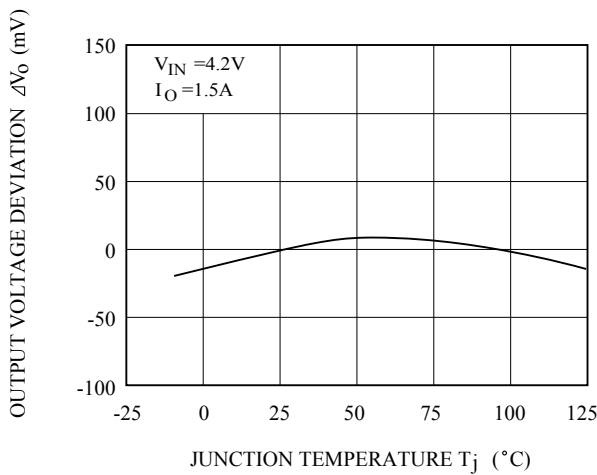


Fig.5-2  $T_j - \Delta V_O$  (KIA378R30)

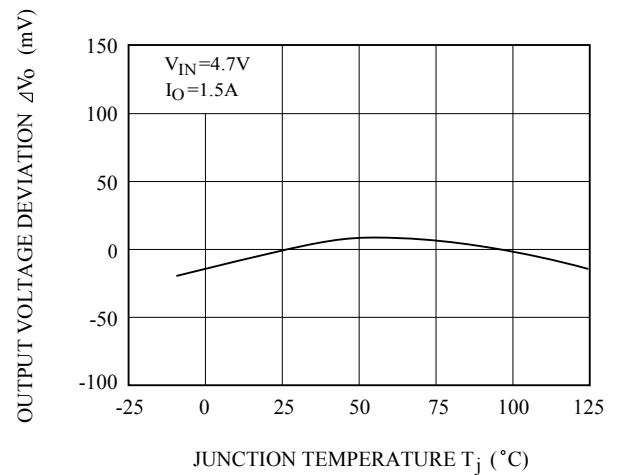


Fig.5-3  $T_j - \Delta V_O$  (KIA378R33)

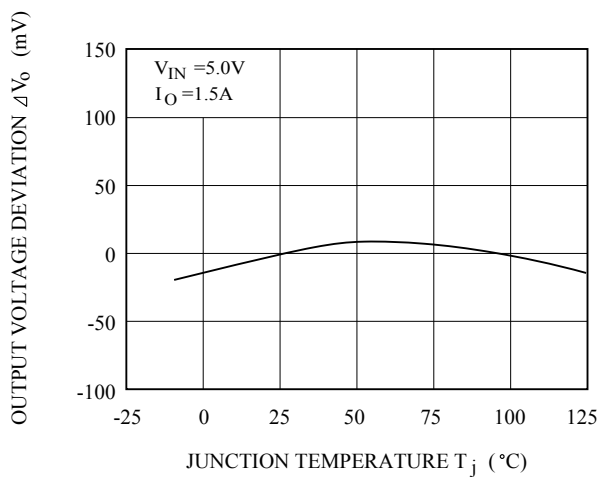
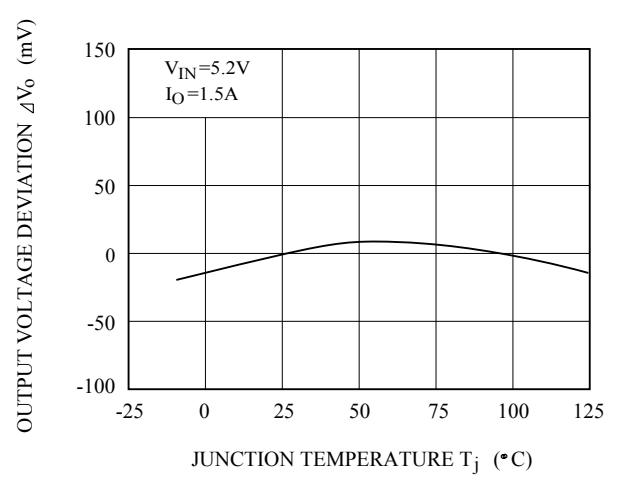


Fig.5-4  $T_j - \Delta V_O$  (KIA378R35)



# KIA378R25PI~KIA378R37PI

Fig.5-1  $T_j - \Delta V_o$  (KIA378R37)

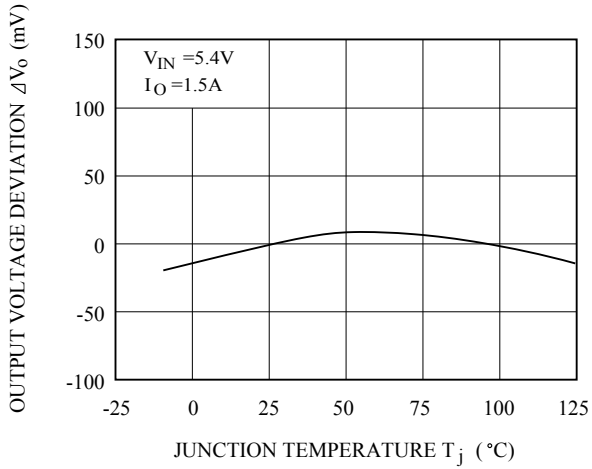


Fig.6  $T_j - V_D$

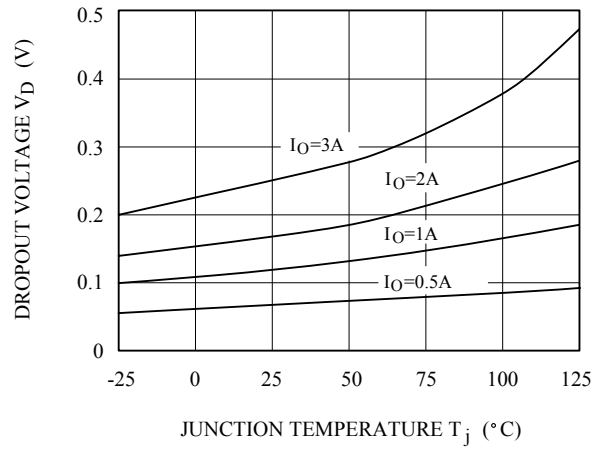


Fig.7  $T_j - I_q$

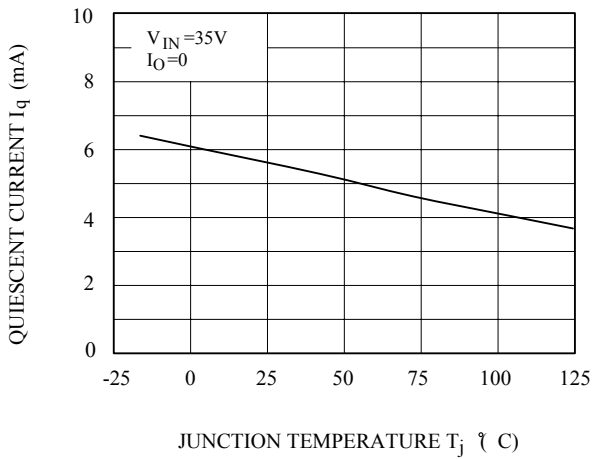


Fig.8-1  $f - RR$

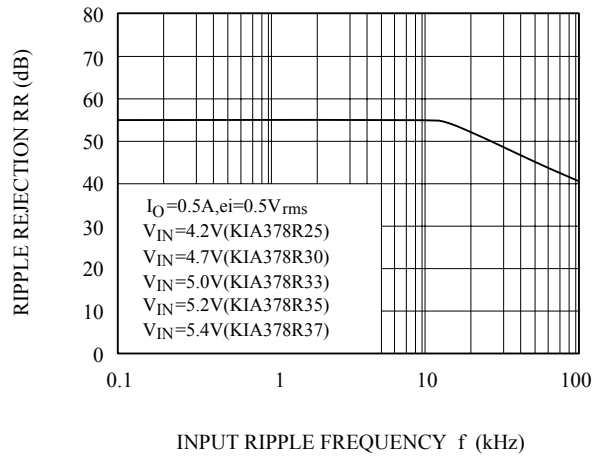


Fig.8-2  $I_O - RR$

