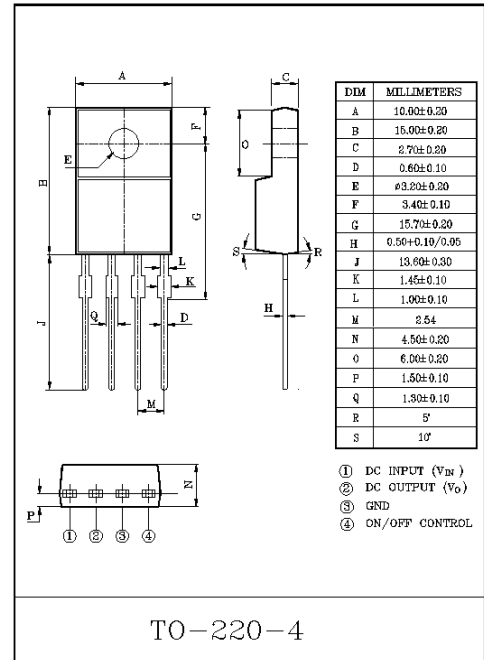


4 TERMINAL LOW DROP VOLTAGE REGULATOR

The KIA78R×× 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

- 1.0A Output Low Drop Voltage Regulator.
- Built in ON/OFF Control Terminal.
- Built in Over Current Protection, Over Heat Protection Function.



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT | Remark |
|-------------------------------|-----------|---------|------------------|---------------|
| Input Voltage | V_{IN} | 35 | V | - |
| ON/OFF Control Voltage | V_C | 35 | V | - |
| Output Current | I_o | 1 | A | - |
| Power Dissipation 1 | P_{d1} | 1.5 | W | No heatsink |
| Power Dissipation 2 | P_{d2} | 15 | W | with heatsink |
| Junction Temperature | T_j | 125 | $^\circ\text{C}$ | - |
| Operating Temperature | T_{opr} | -20~80 | $^\circ\text{C}$ | - |
| Storage Temperature | T_{stg} | -30~125 | $^\circ\text{C}$ | - |
| Soldering Temperature (10sec) | T_{sol} | 260 | $^\circ\text{C}$ | - |

KIA78R05PI ~ KIA78R15PI

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, $I_o=0.5A$, $T_a=25^{\circ}C$, Note1.)

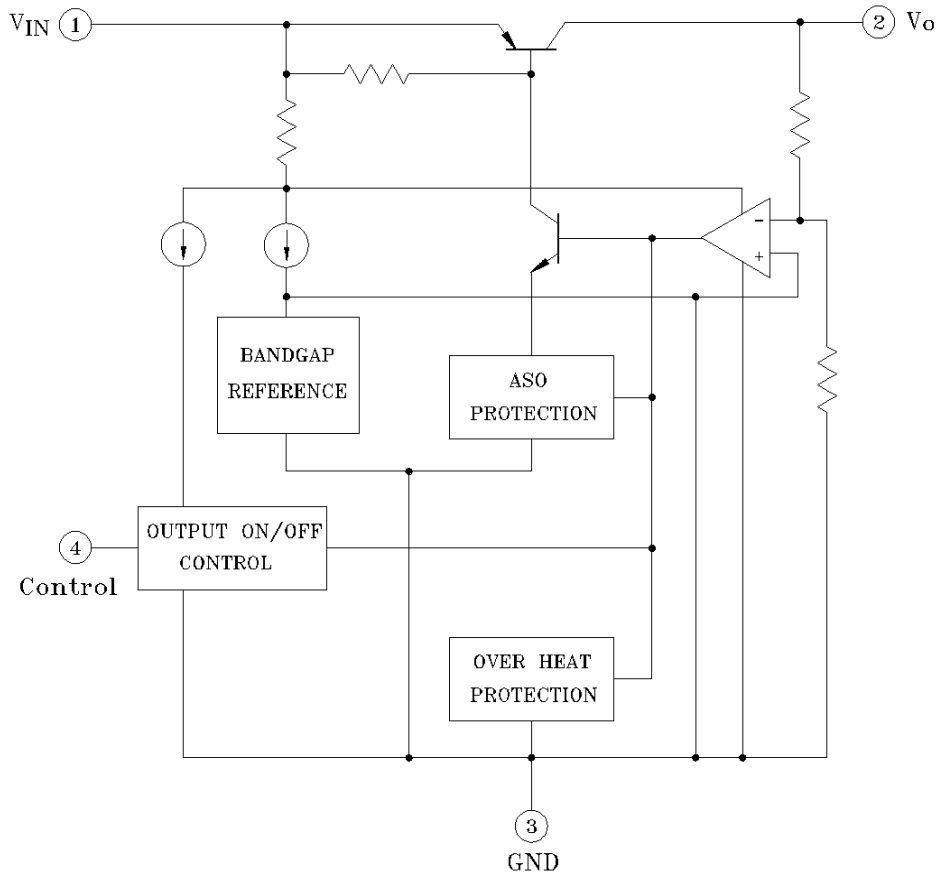
| CHARACTERISTIC | | SYMBOL | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|--------------|-------------------|------------|-------|------|---------|------|
| Output Voltage | KIA78R05 | V_o | - | 4.9 | 5.0 | 5.1 | V |
| | KIA78R09 | | - | 8.82 | 9.0 | 9.18 | |
| | KIA78R12 | | - | 11.76 | 12.0 | 12.24 | |
| | KIA78R15 | | - | 14.70 | 15.0 | 15.30 | |
| Load Regulation | Reg Load | $I_o=5mA \sim 1A$ | - | 0.1 | 2.0 | % | |
| Line Regulation | Reg Line | (Note 2) | - | 0.5 | 2.5 | % | |
| Ripple Rejection | R·R | | 55 | 65 | - | dB | |
| Drop Out Voltage | V_D | (Note 3) | - | - | 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 | μA | |
| 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 KIA78R05=7V
 " KIA78R09=15V
 " KIA78R12=18V
 " KIA78R15=21V

Note2) V_{IN} of KIA78R05=6~12V
 " KIA78R09=10~25V
 " KIA78R15=13~29V
 " KIA78R15=16~32V

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

BLOCK DIAGRAM



KIA78R05PI ~ KIA78R15PI

Fig. 1 Standard Test Circuit

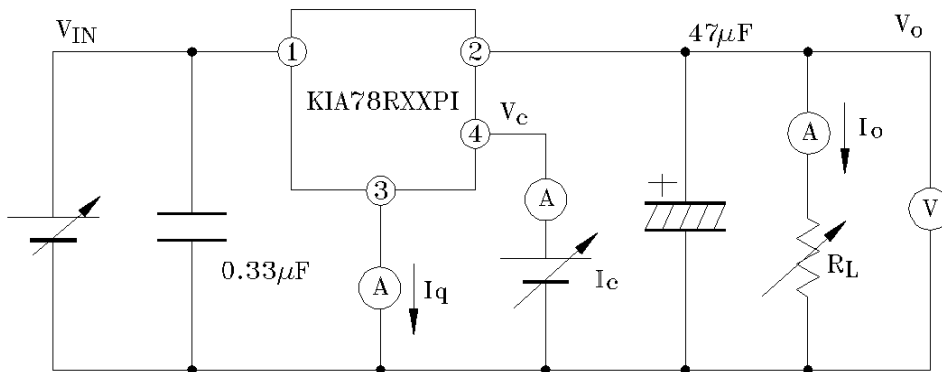


Fig. 1 Ripple Rejection Test Circuit

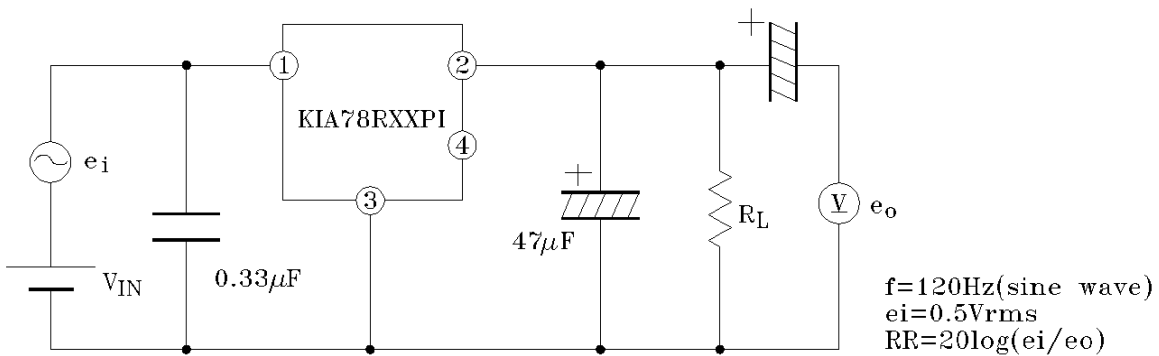
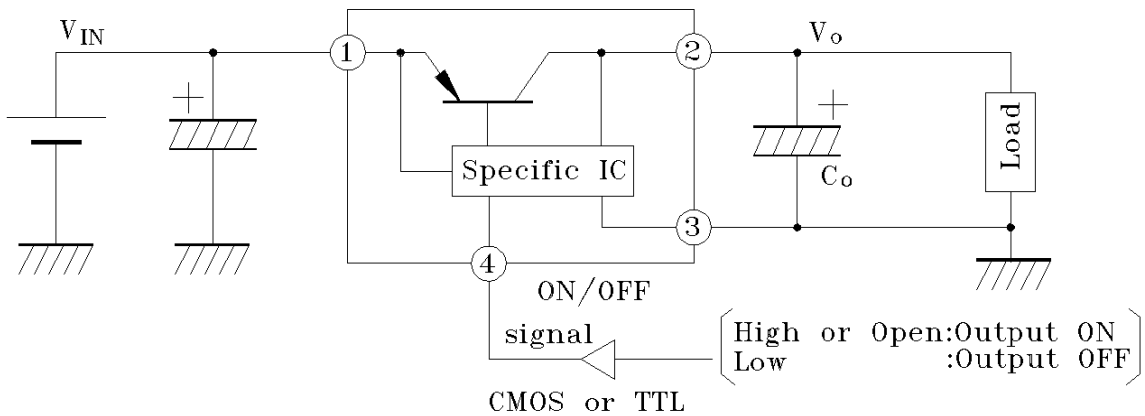
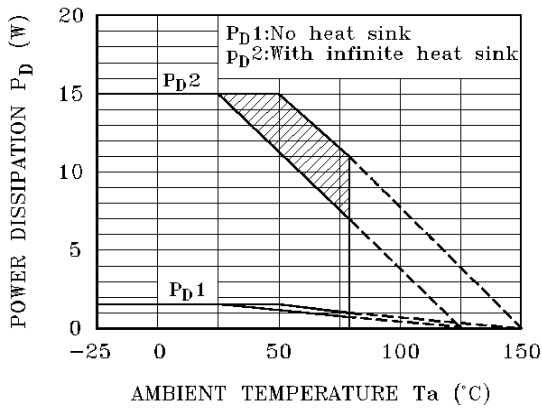


Fig. 11 Application Circuit for Standard



KIA78R05PI ~ KIA78R15PI

Fig.3 $T_a - P_D$



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

Fig.4 $I_o - V_o$

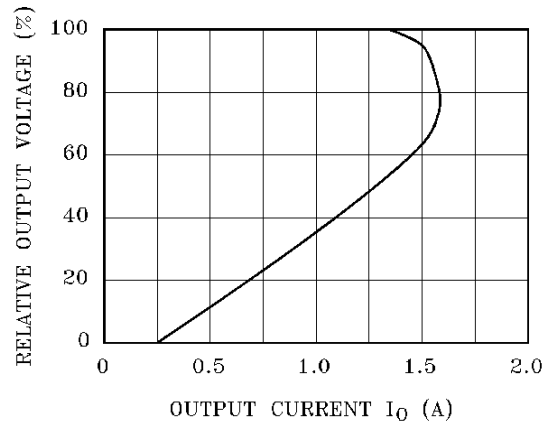


Fig.5-1 $T_j - \Delta V_o$ (KIA78R05)

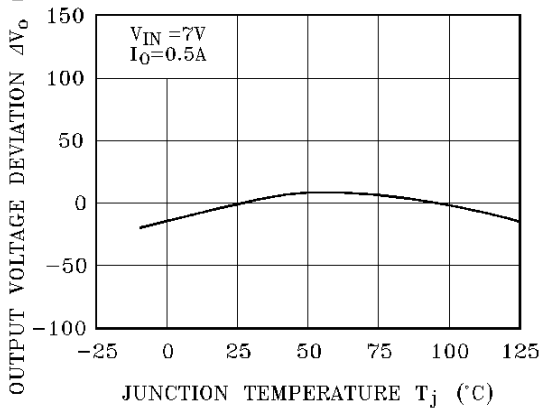


Fig.5-2 $T_j - \Delta V_o$ (KIA78R09)

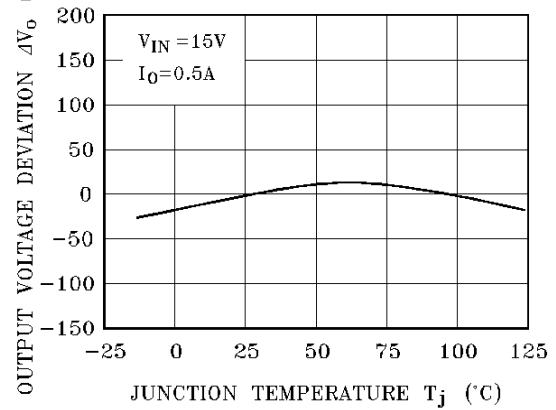


Fig.5-3 $T_j - \Delta V_o$ (KIA78R12)

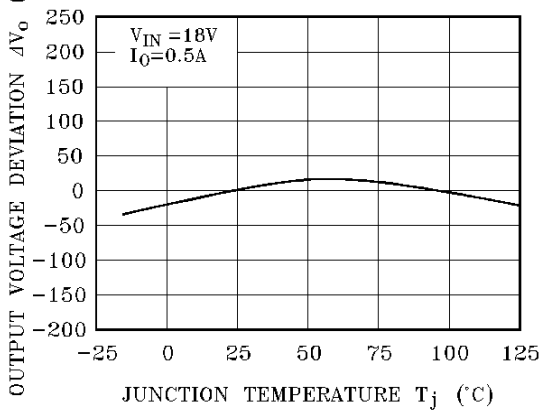
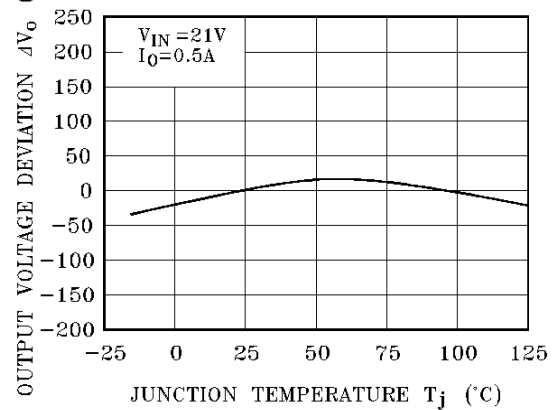


Fig.5-4 $T_j - \Delta V_o$ (KIA78R15)



KIA78R05PI ~ KIA78R15PI

Fig.6-1 $V_{IN} - V_o$ (KIA78R05)

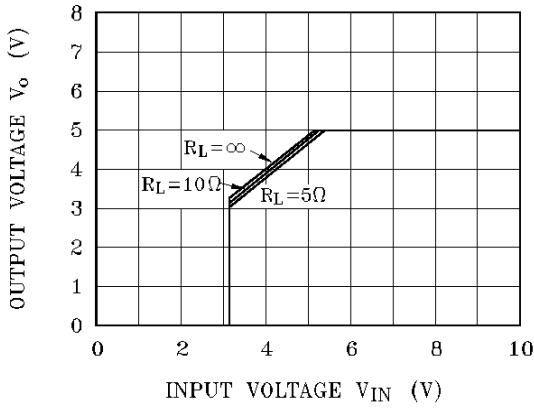


Fig.6-2 $V_{IN} - V_o$ (KIA78R09)

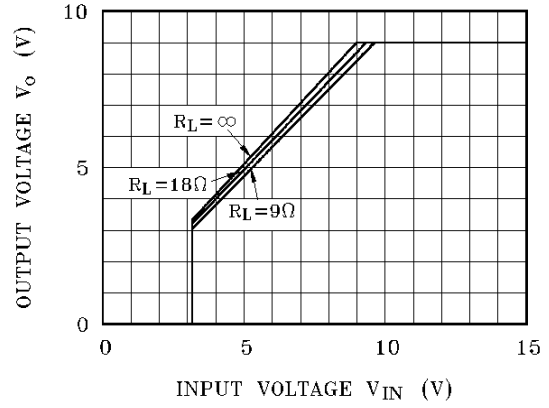


Fig.6-3 $V_{IN} - V_o$ (KIA78R12)

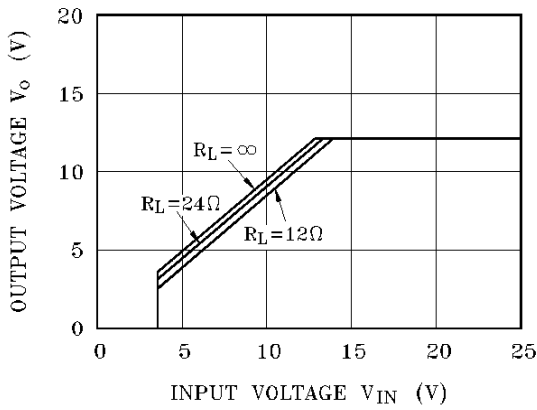


Fig.6-4 $V_{IN} - V_o$ (KIA78R15)

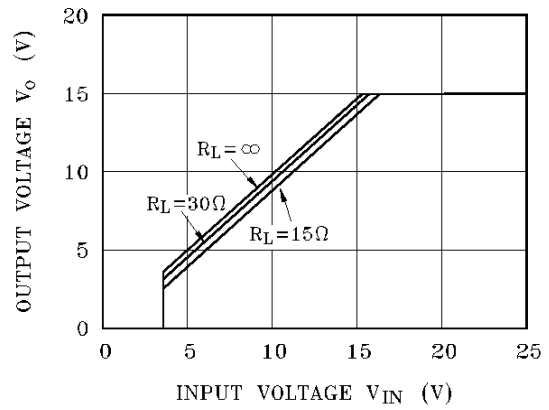


Fig.7-1 $V_{IN} - I_{BIAS}$ (KIA78R05)

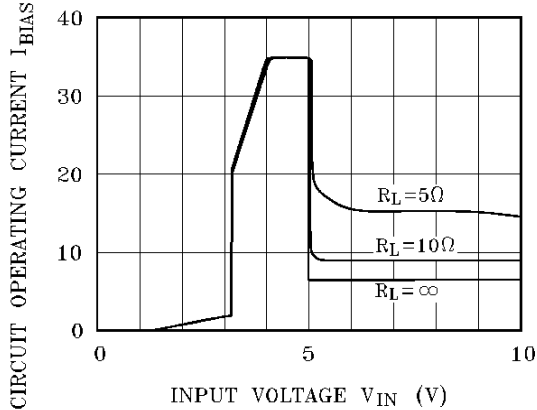
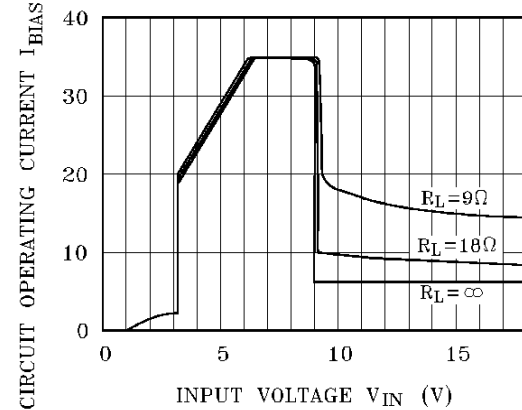


Fig.7-2 $V_{IN} - I_{BIAS}$ (KIA78R09)



KIA78R05PI~KIA78R15PI

