

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.

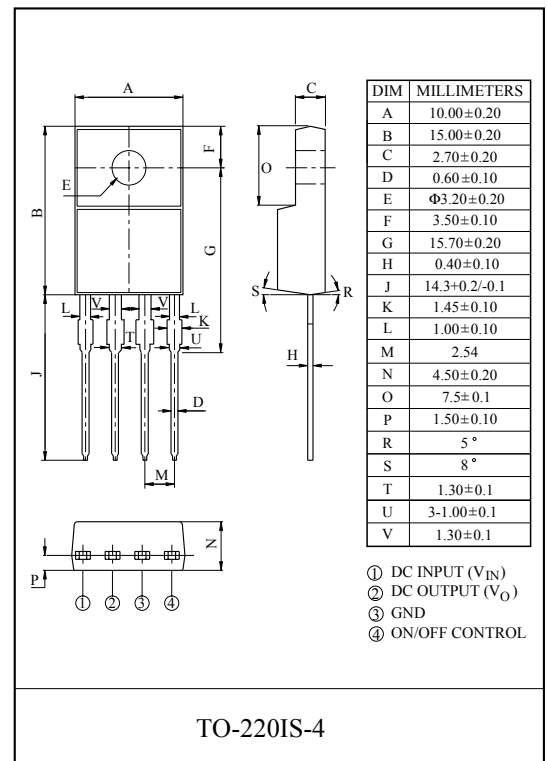
FEATURES

- 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 |
|---------------|-----------------------|------|
| * KIA378R05PI | 5 | V |
| * KIA378R06PI | 6 | |
| * KIA378R08PI | 8 | |
| * KIA378R09PI | 9 | |
| * KIA378R10PI | 10 | |
| * KIA378R12PI | 12 | |
| * KIA378R15PI | 15 | |

Note) * : Under Development.



MAXIMUM RATING (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 |
| Junction Temperature | T _j | 125 | °C | - |
| Operating Temperature | T _{opr} | -20~80 | °C | - |
| Storage Temperature | T _{stg} | -30~125 | °C | - |
| Soldering Temperature (10sec) | T _{sol} | 260 | °C | - |

KIA378R05PI~KIA378R15PI

ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Unless otherwise specified, I_O=1.0A, Ta=25°C, Note1.)

| CHARACTERISTIC | | SYMBOL | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|-----------|-------------------------------|---------------------------|-------|-------|-------|------|
| Output Voltage | KIA378R05 | V _O | - | 4.88 | 5.0 | 5.12 | V |
| | KIA378R06 | | - | 5.85 | 6.0 | 6.15 | |
| | KIA378R08 | | - | 7.80 | 8.0 | 8.2 | |
| | KIA378R09 | | - | 8.78 | 9.0 | 9.22 | |
| | KIA378R10 | | - | 9.75 | 10.0 | 10.25 | |
| | KIA378R12 | | - | 11.70 | 12.0 | 12.30 | |
| | KIA378R15 | | - | 14.70 | 15.0 | 15.30 | |
| Load Regulation | | Reg Load | I _O =5mA ~ 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 ~ 125°C | - | ±0.02 | ±0.05 | %/°C |
| Ripple Rejection | | R · 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 | 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 KIA378R05=7V

" KIA378R06=8V

" KIA378R08=10V

" KIA378R09=15V

" KIA378R10=16V

" KIA378R12=18V

" KIA378R15=21V

Note2) V_{IN} of KIA378R05=6 ~ 12V

" KIA378R06=7 ~ 15V

" KIA378R08=9 ~ 25V

" KIA378R09=10 ~ 25V

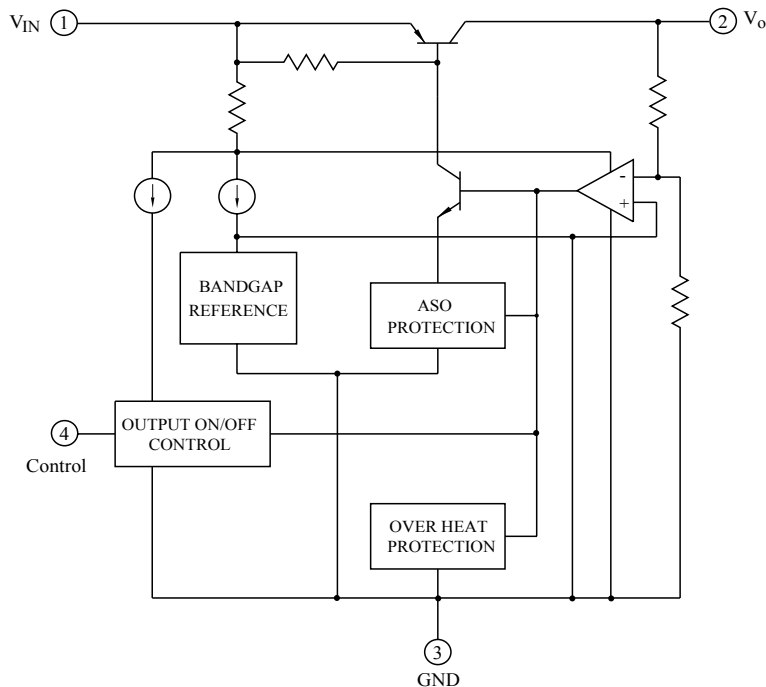
" KIA378R10=11 ~ 26V

" KIA378R12=13 ~ 29V

" KIA378R15=16 ~ 32V

Note3) At V_{IN}=0.95V_O

BLOCK DIAGRAM



KIA378R05PI~KIA378R15PI

Fig. 1 Standard Test Circuit

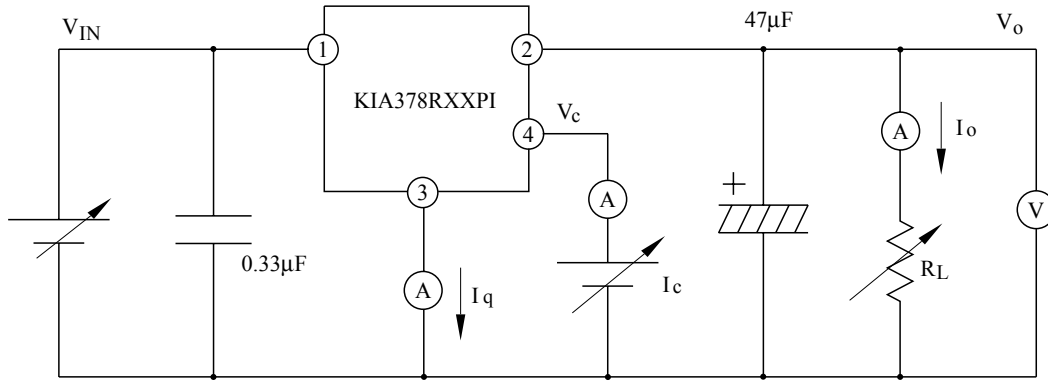


Fig. 1-2 Ripple Rejection Test Circuit

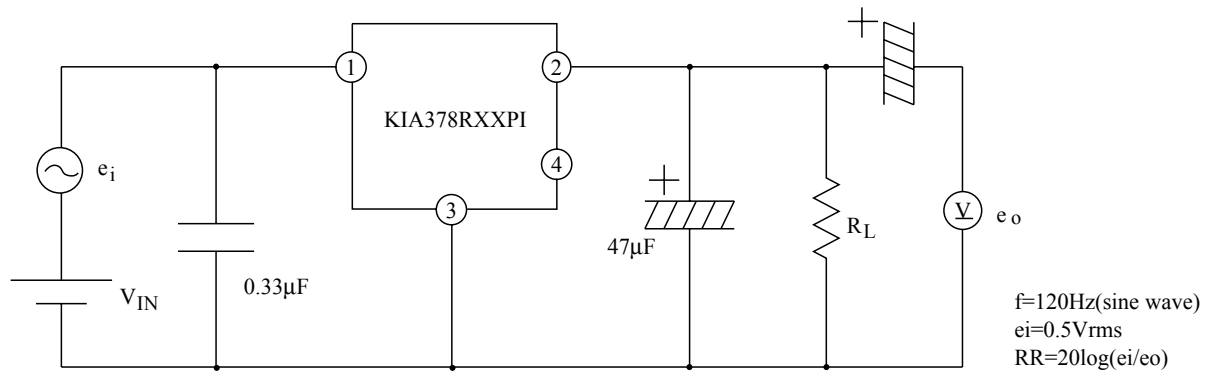
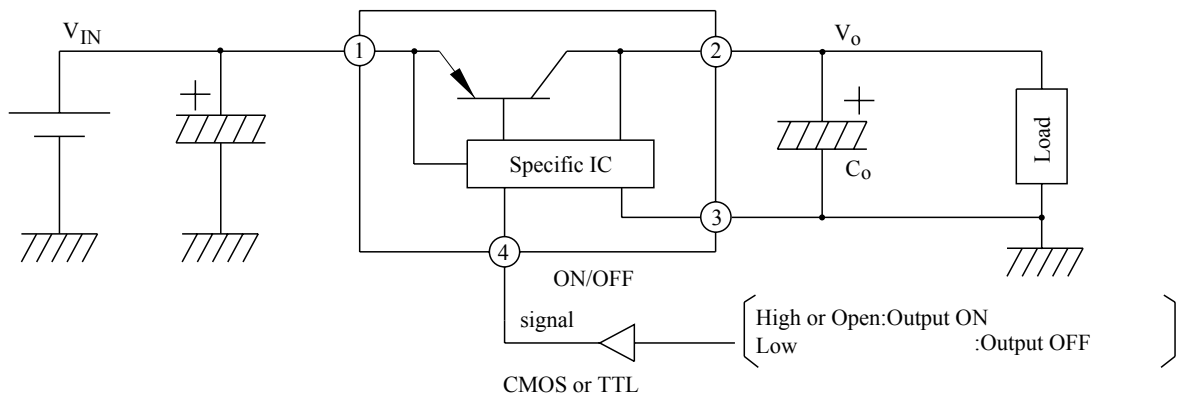
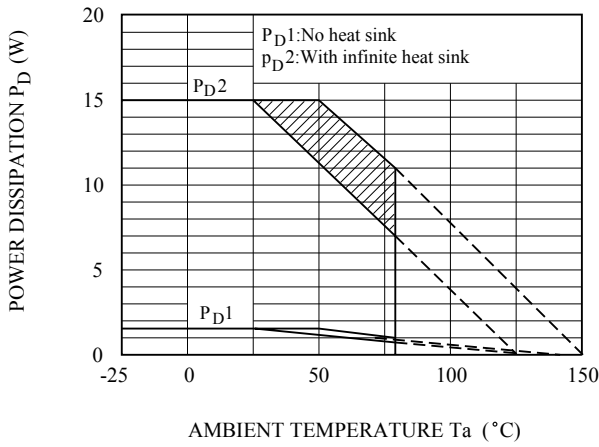


Fig. 2 Application Circuit for Standard



KIA378R05PI~KIA378R15PI

Fig.3 $T_a - P_D$



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

Fig.4 $I_O - V_O$

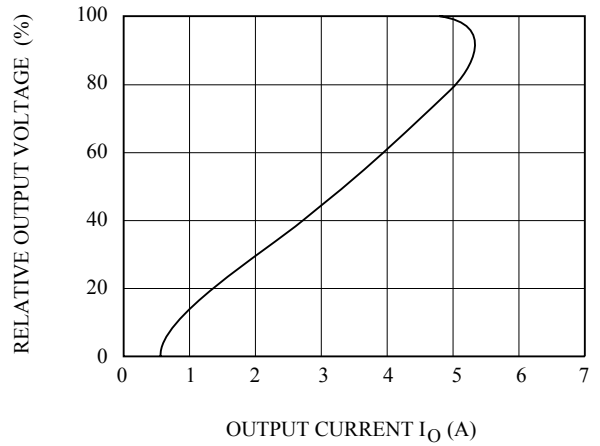


Fig.5-1 $T_j - \Delta V_O$ (KIA378R05)

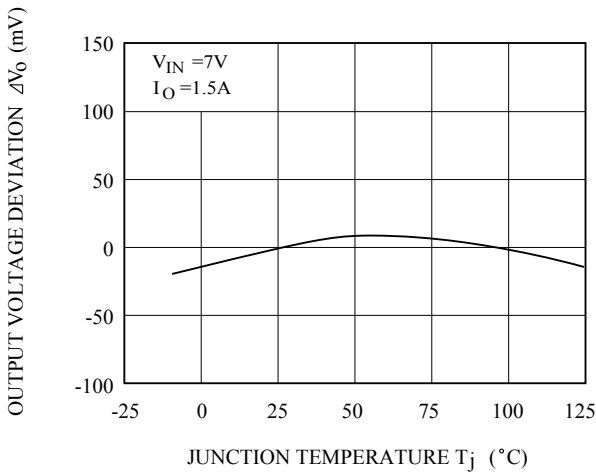


Fig.5-2 $T_j - \Delta V_O$ (KIA378R08)

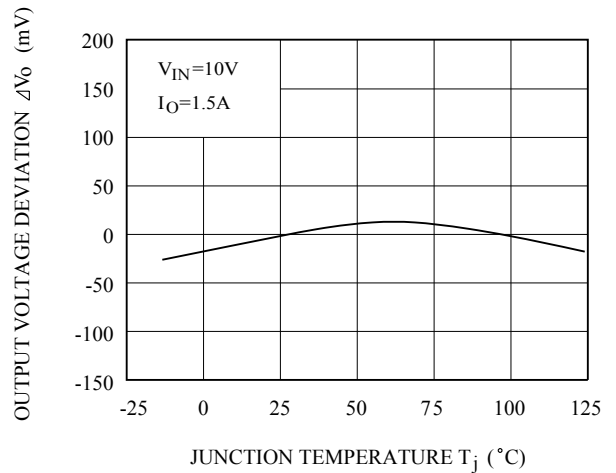


Fig.5-3 $T_j - \Delta V_O$ (KIA378R09)

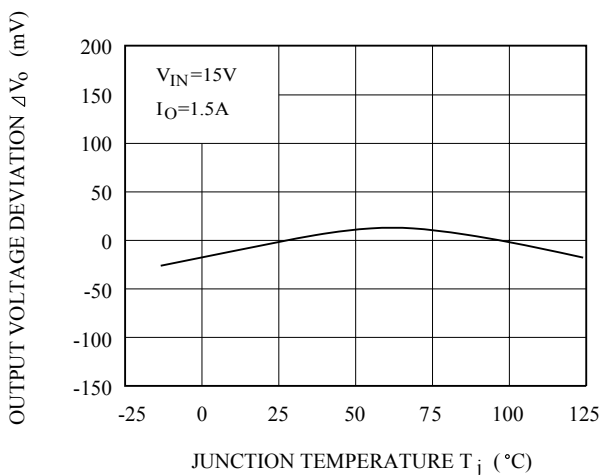
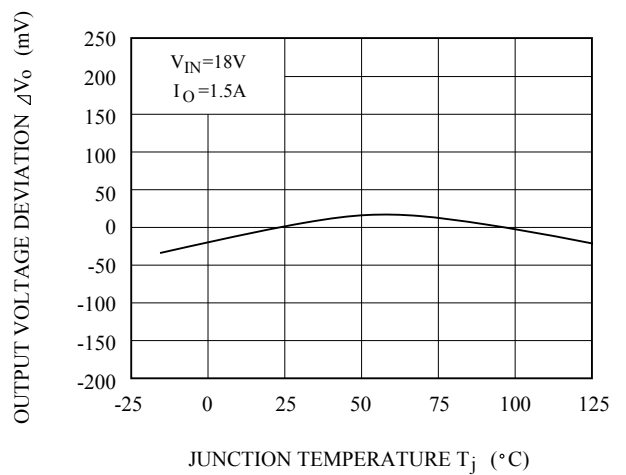


Fig.5-4 $T_j - \Delta V_O$ (KIA378R12)



KIA378R05PI~KIA378R15PI

Fig.5-5 $T_j - \Delta V_o$ (KIA378R15)

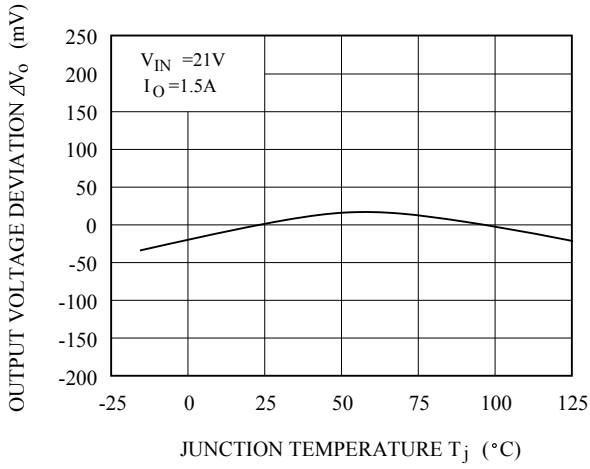


Fig.6-1 $V_{IN} - V_o$ (KIA378R05)

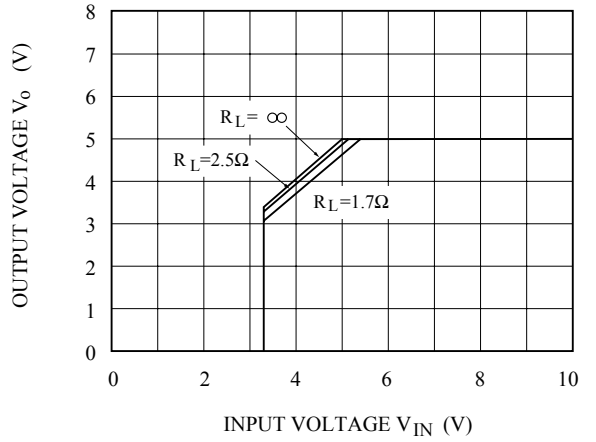


Fig.6-2 $V_{IN} - V_o$ (KIA378R08)

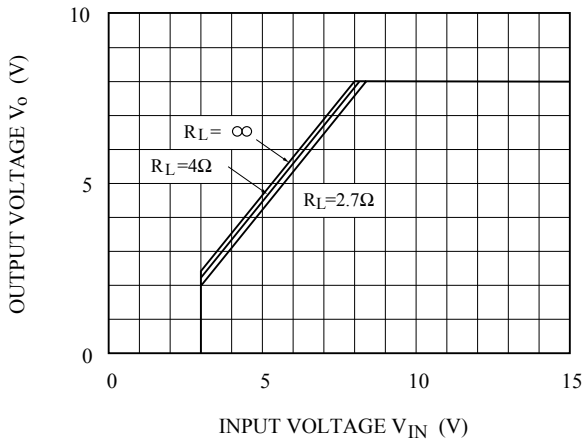


Fig.6-3 $V_{IN} - V_o$ (KIA378R09)

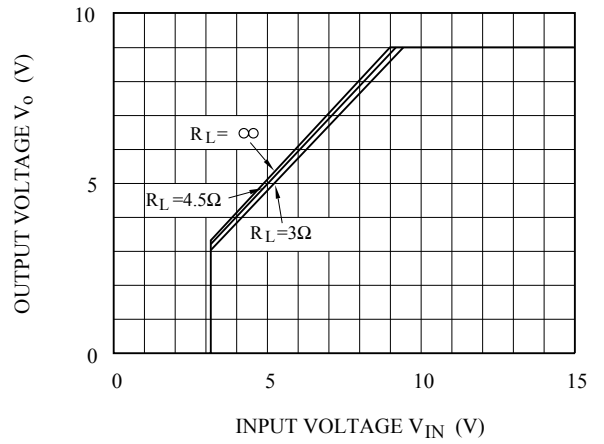


Fig.6-4 $V_{IN} - V_o$ (KIA378R12)

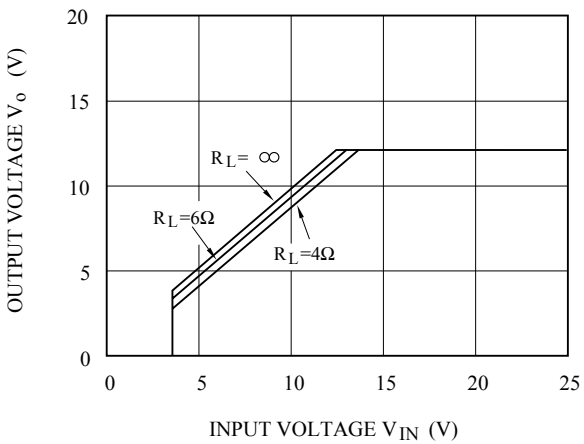
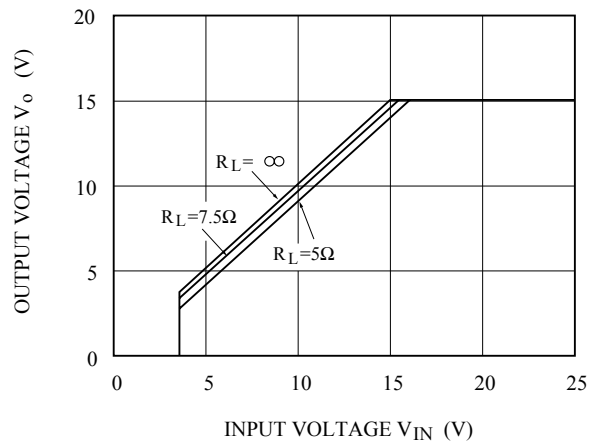


Fig.6-5 $V_{IN} - V_o$ (KIA378R15)



KIA378R05PI~KIA378R15PI

Fig.7-1 $V_{IN} - I_{BIAS}$ (KIA378R05)

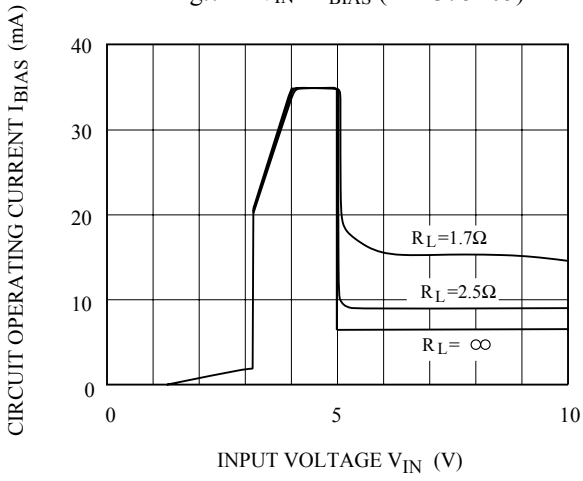


Fig.7-2 $V_{IN} - I_{BIAS}$ (KIA378R08)

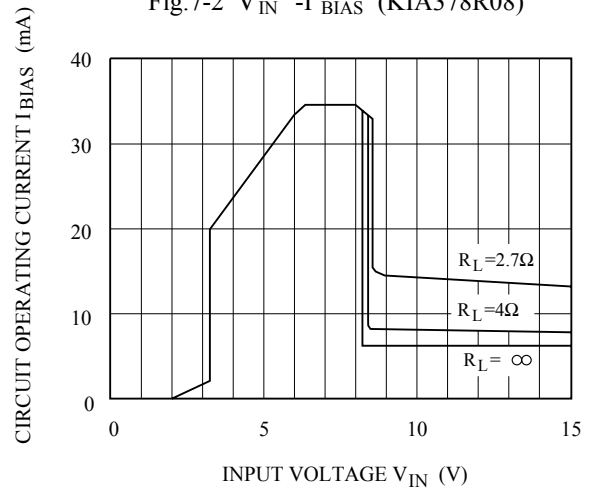


Fig.7-3 $V_{IN} - I_{BIAS}$ (KIA378R09)

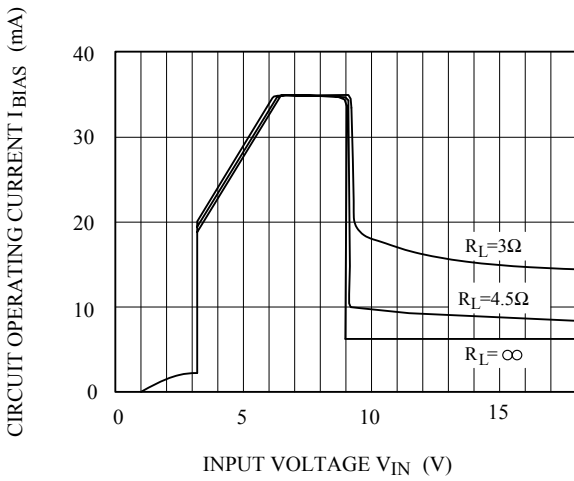


Fig.7-4 $V_{IN} - I_{BIAS}$ (KIA378R12)

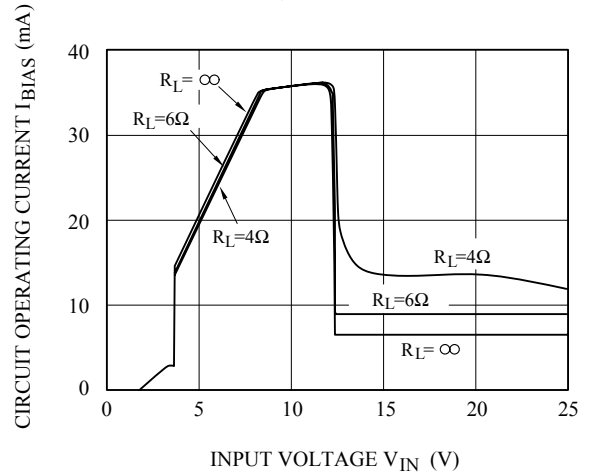


Fig.7-5 $V_{IN} - I_{BIAS}$ (KIA378R15)

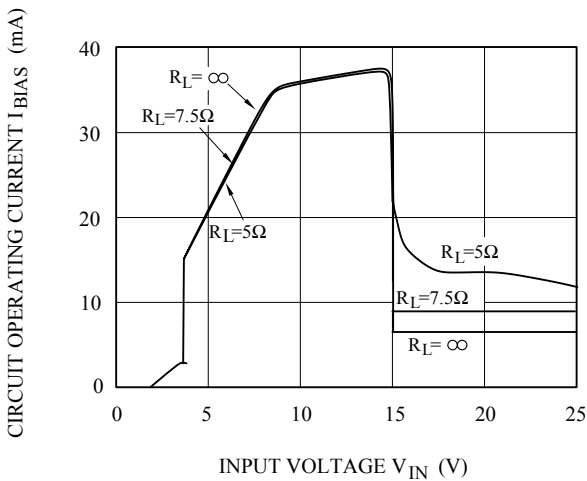
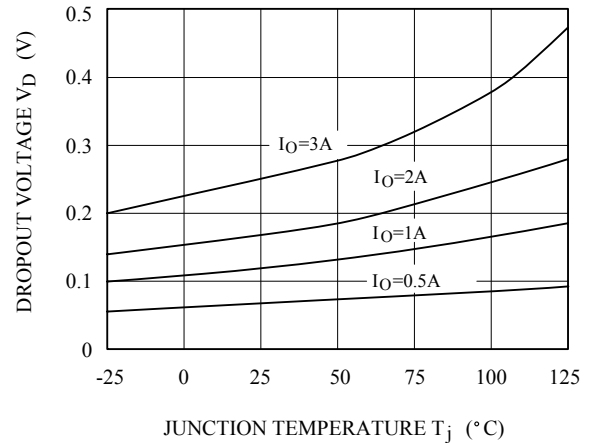


Fig.8 $T_j - V_D$



KIA378R05PI~KIA378R15PI

Fig.9 $T_j - I_q$

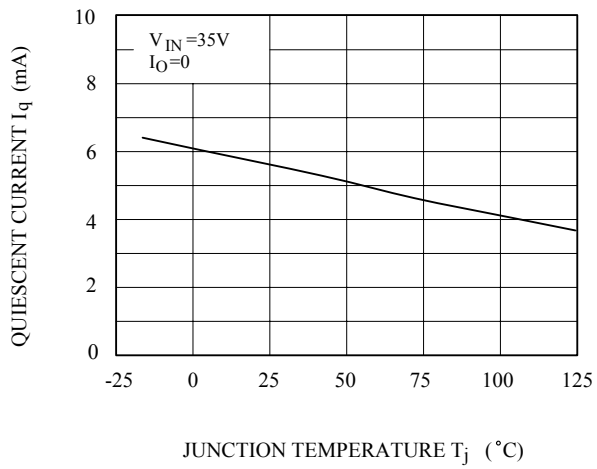


Fig. 10-1 $f - \text{RR}$

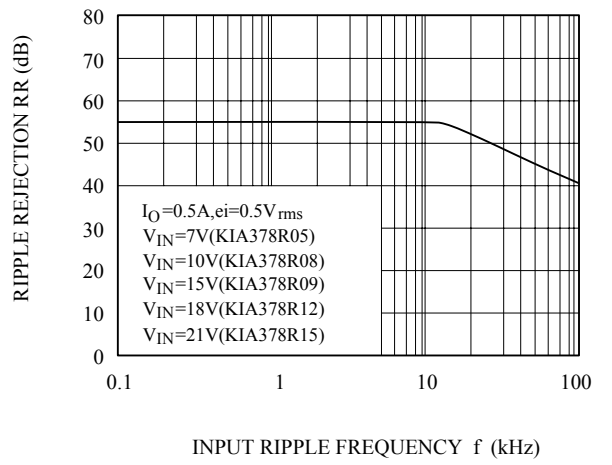


Fig.10-2 $I_O - \text{RR}$

