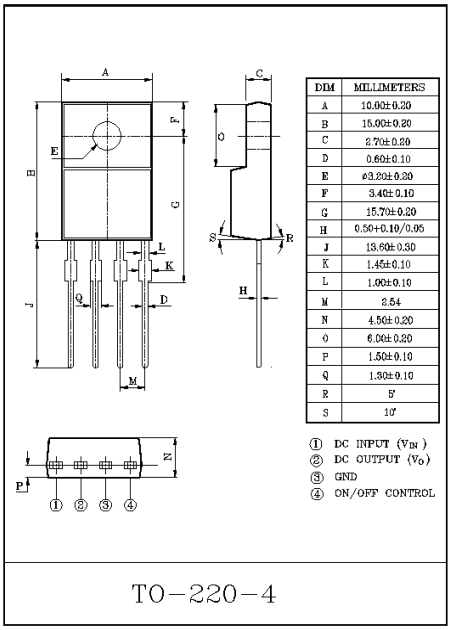
4 TERMINAL LOW DROP VOLTAGE REGULATOR

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.



DIM	MILLIMETERS
A	10.00±0.20
B	15.00±0.20
C	2.70±0.20
D	0.60±0.10
E	ø3.20±0.20
F	3.40±0.10
G	15.70±0.20
H	0.50+0.10/0.05
J	13.60±0.30
K	1.45±0.10
L	1.00±0.10
M	2.54
N	4.50±0.20
O	6.00±0.20
P	1.50±0.10
Q	1.30±0.10
R	5°
S	10°

TO-220-4

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 (Ta=25℃)

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	℃	-
Operating Temperature	T_{opr}	-20~80	℃	-
Storage Temperature	T_{stg}	-30~125	℃	-
Soldering Temperature (10sec)	T_{sol}	260	℃	-

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, I_O=0.5A, Ta=25℃, 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~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

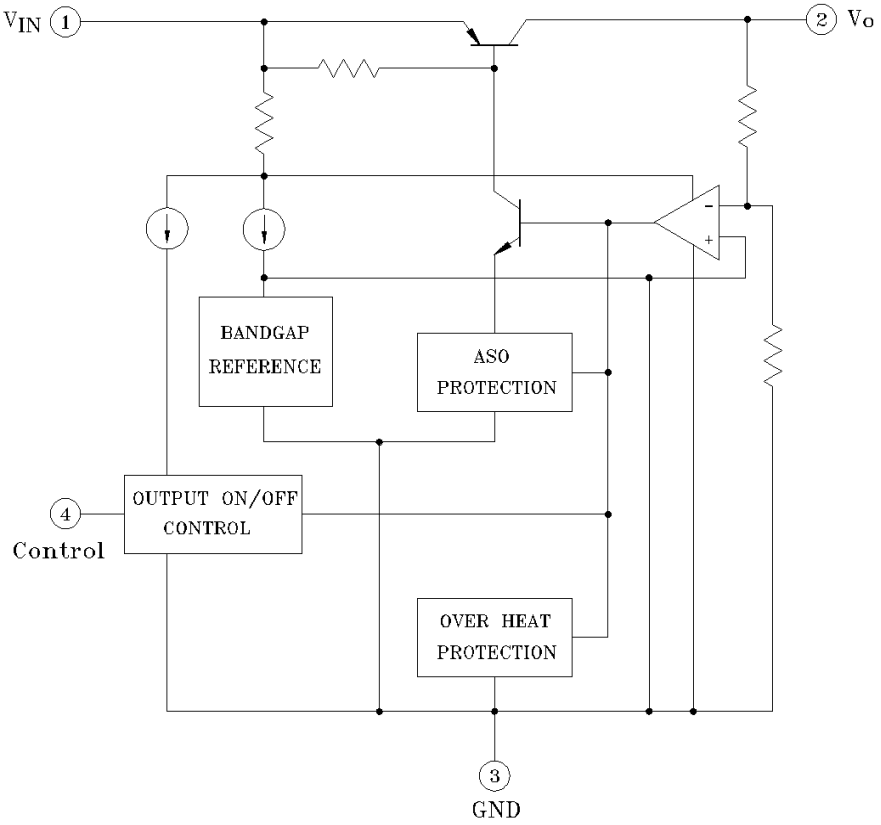


Fig. 1 Standard Test Circuit

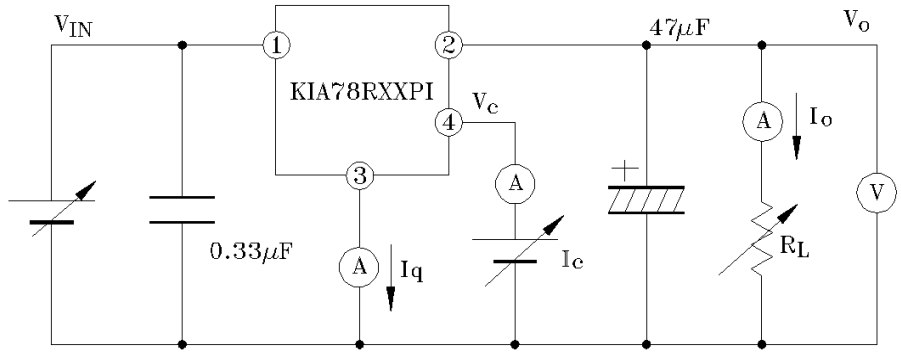


Fig. 1 Ripple Rejection Test Circuit

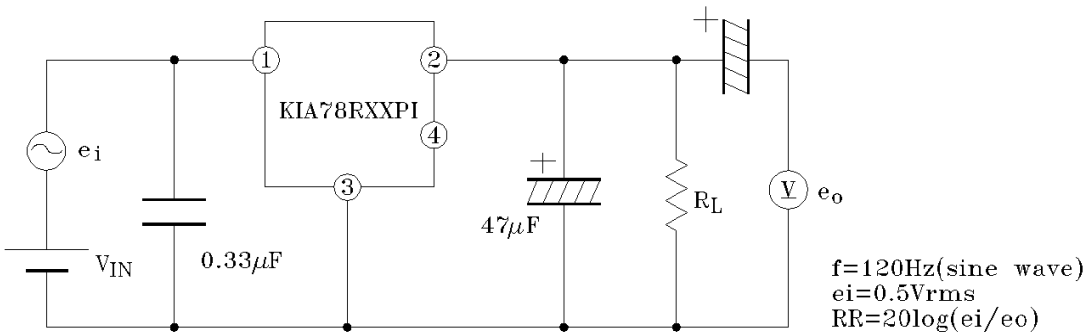


Fig. 11 Application Circuit for Standard

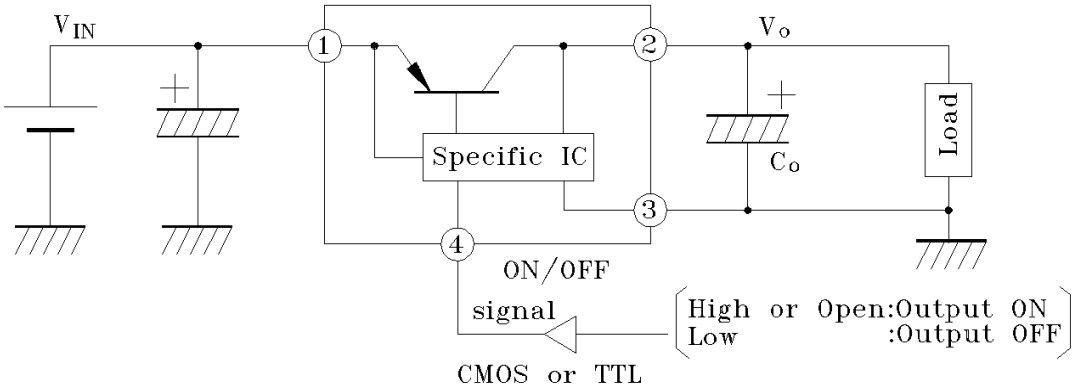
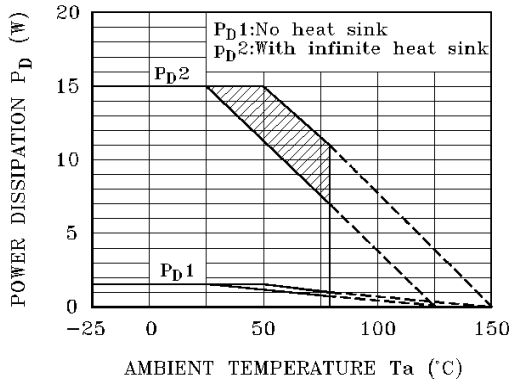


Fig.3 Ta – P_D



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

Fig.4 I_O – V_O

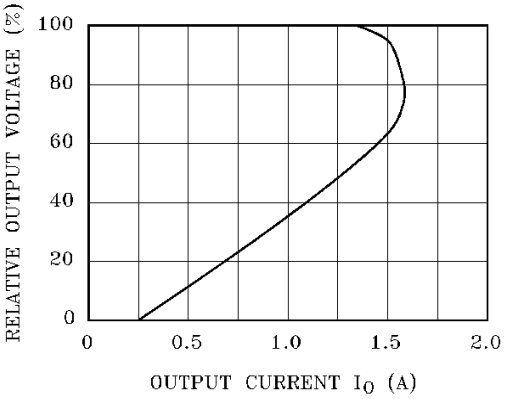


Fig.5-1 T_j – ΔV_o (KIA78R05)

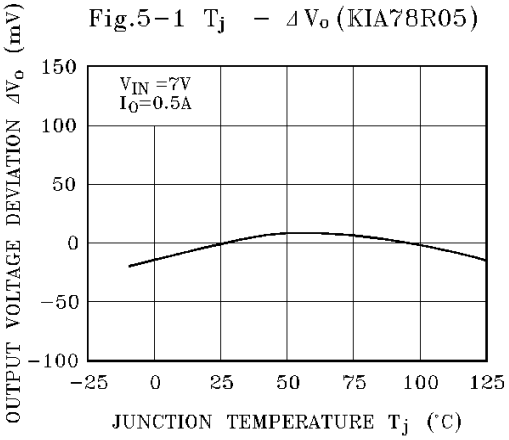


Fig.5-2 T_j – ΔV_o (KIA78R09)

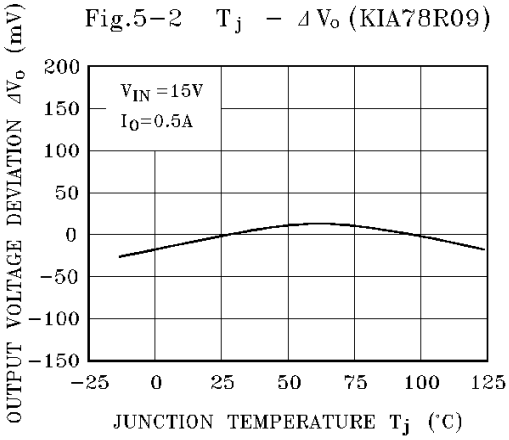


Fig.5-3 T_j – ΔV_o (KIA78R12)

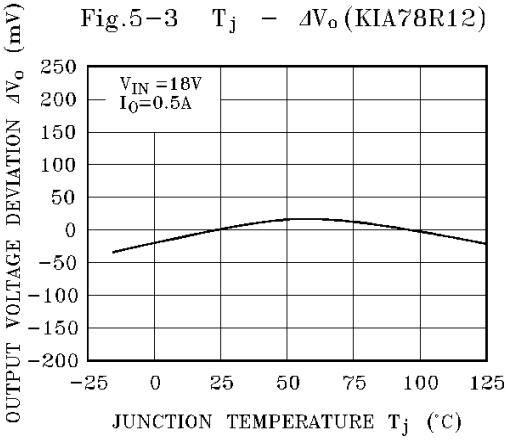


Fig.5-4 T_j – ΔV_o (KIA78R15)

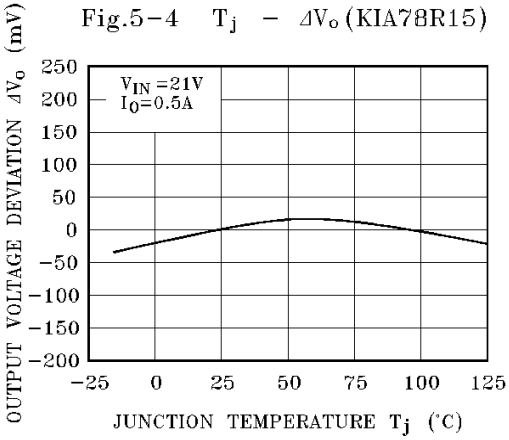


Fig.6-1 V_{IN} - V_o (KIA78R05)

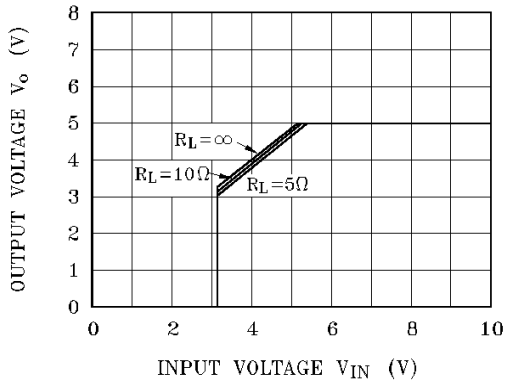


Fig.6-2 V_{IN} -V_o (KIA78R09)

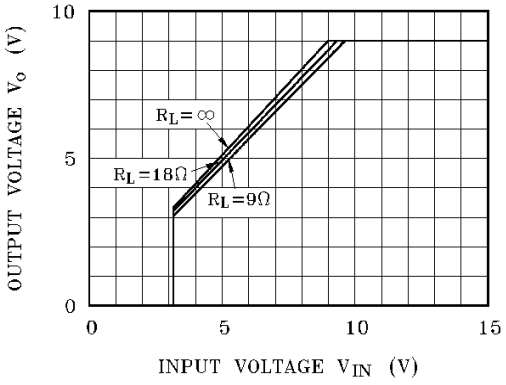


Fig.6-3 V_{IN} -V_o (KIA78R12)

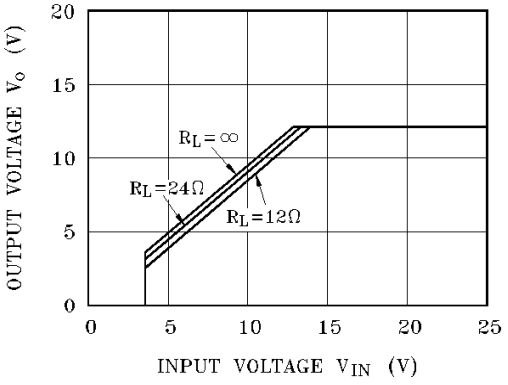


Fig.6-4 V_{IN} -V_o (KIA78R15)

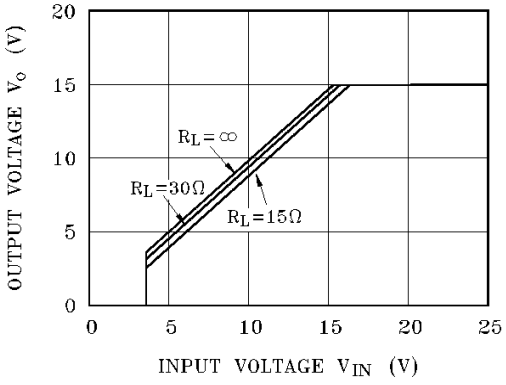


Fig.7-1 V_{IN} -I_{BIAS} (KIA78R05)

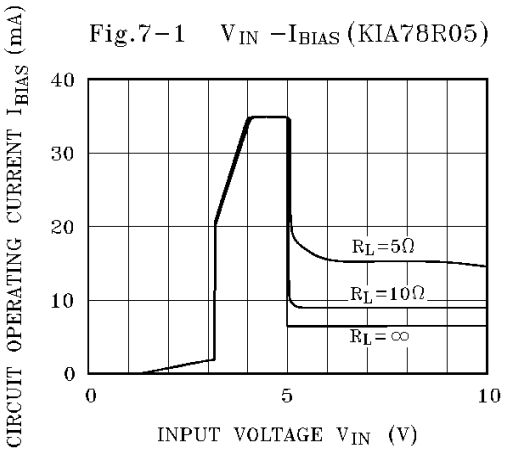


Fig.7-2 V_{IN} -I_{BIAS} (KIA78R09)

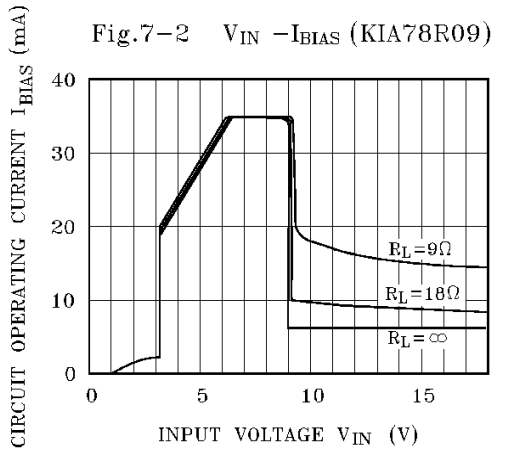


Fig.7-3 V_{IN} $-I_{BIAS}$ (KIA78R12)

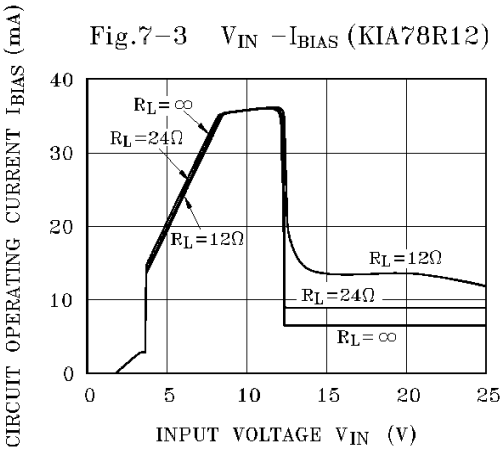


Fig.7-4 V_{IN} $-I_{BIAS}$ (KIA78R15)

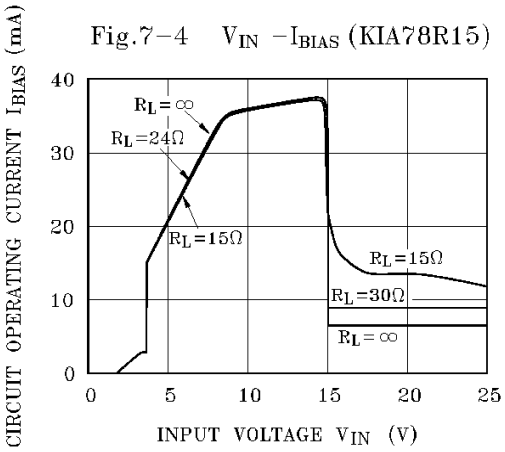


Fig.8 T_j - V_D

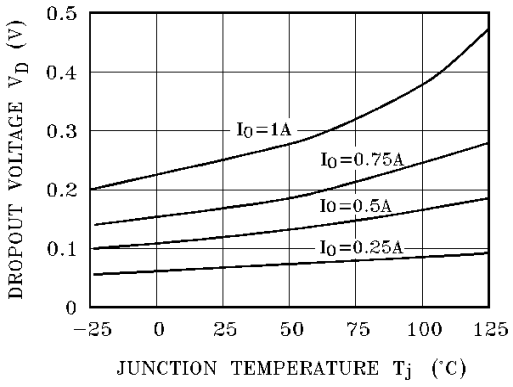


Fig.9 T_j - I_q

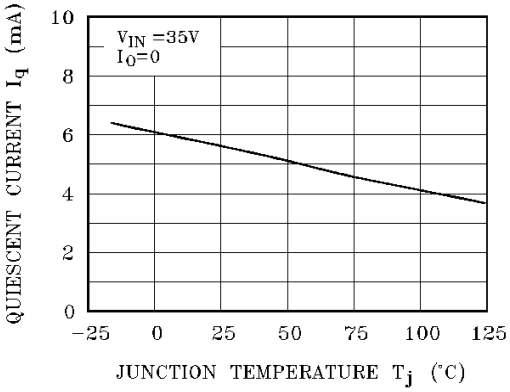


Fig.10-1 f - RR

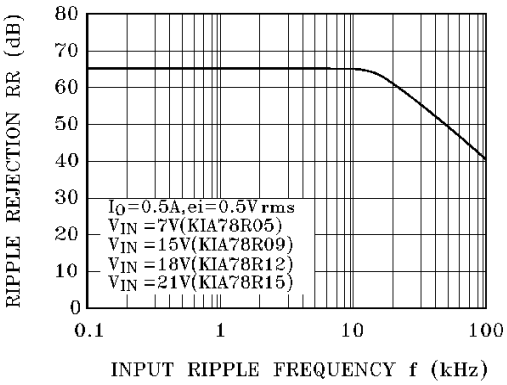


Fig.10-2 I_O - RR