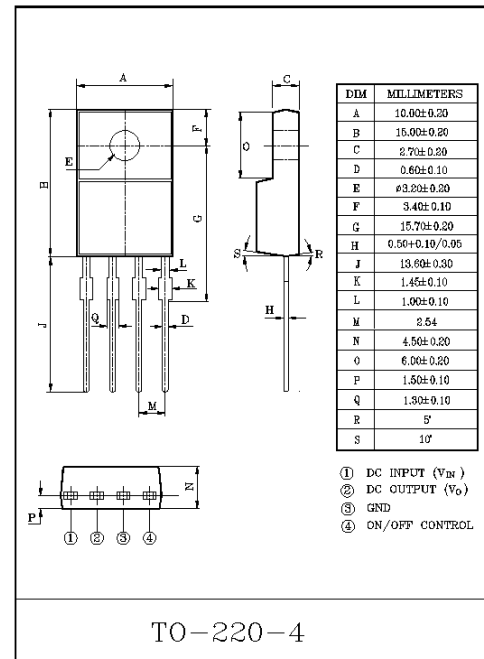


**4 TERMINAL LOW DROP VOLTAGE REGULATOR**

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	$^\circ\text{C}$	-

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## 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	$\mu A$	
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 KIA78R05=7V

" KIA78R09=15V

" KIA78R12=18V

" KIA78R15=21V

Note2)  $V_{IN}$  of KIA78R05=6~12V

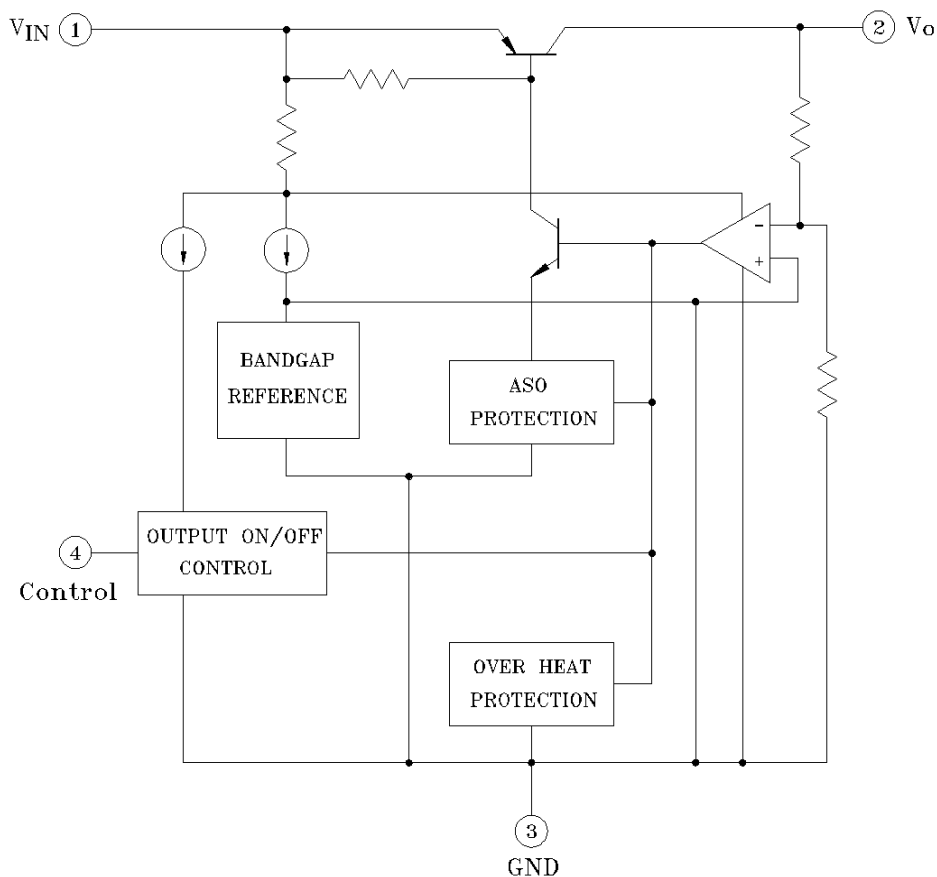
" KIA78R09=10~25V

" KIA78R15=13~29V

" KIA78R15=16~32V

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

## BLOCK DIAGRAM



# KIA78R05PI ~ KIA78R15PI

Fig. 1 Standard Test Circuit

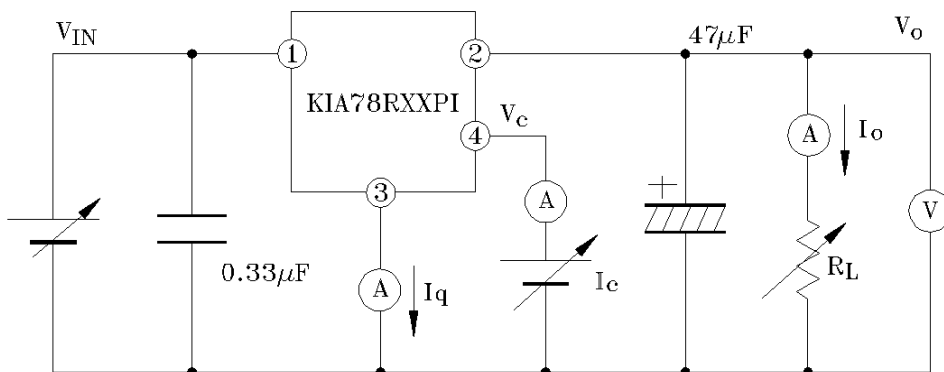


Fig. 1 Ripple Rejection Test Circuit

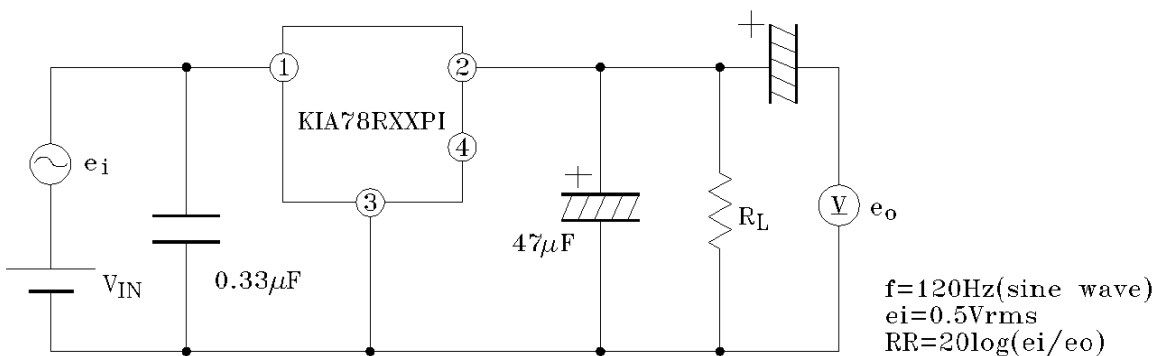
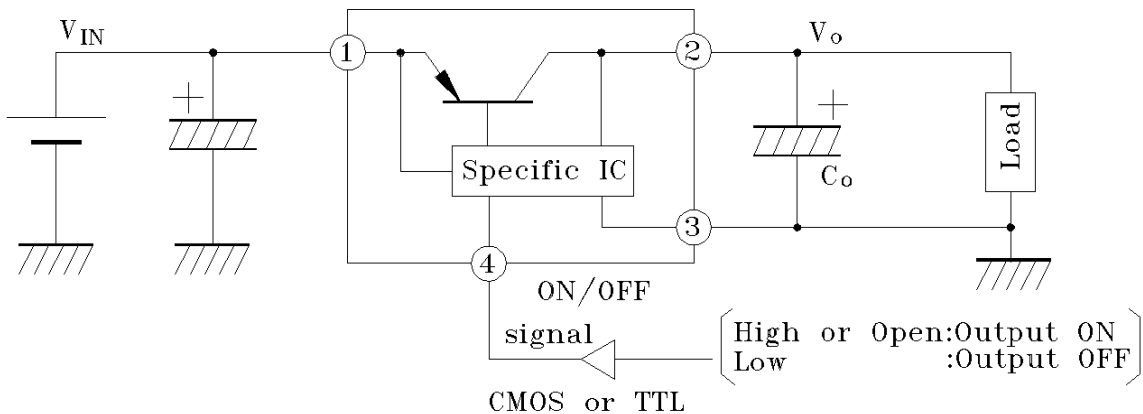
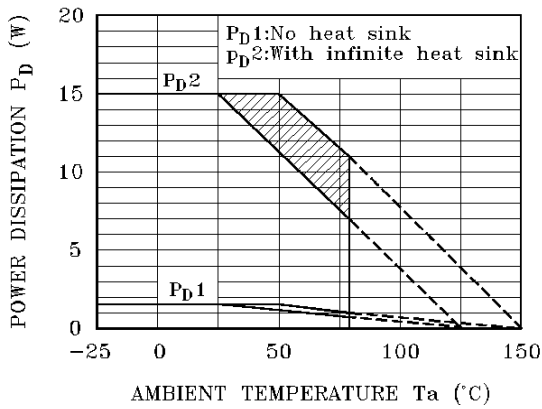


Fig. 11 Application Circuit for Standard



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Fig.3  $T_a - P_D$



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

Fig.4  $I_o - V_o$

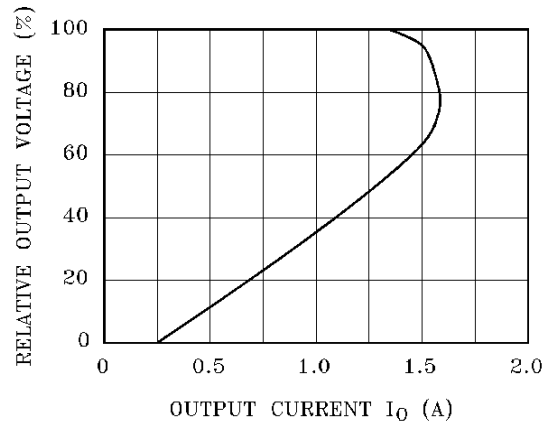


Fig.5-1  $T_j - \Delta V_o$  (KIA78R05)

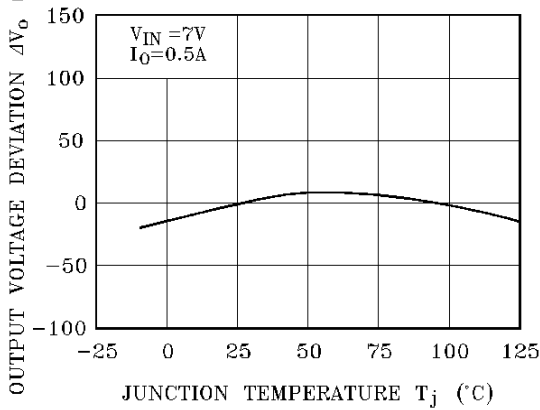


Fig.5-2  $T_j - \Delta V_o$  (KIA78R09)

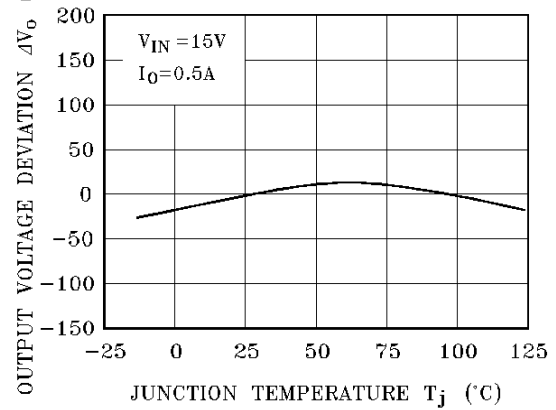


Fig.5-3  $T_j - \Delta V_o$  (KIA78R12)

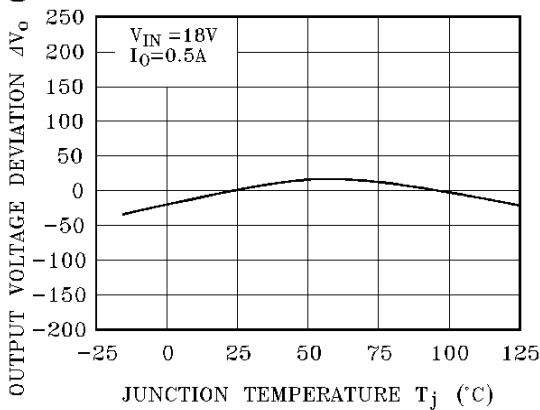
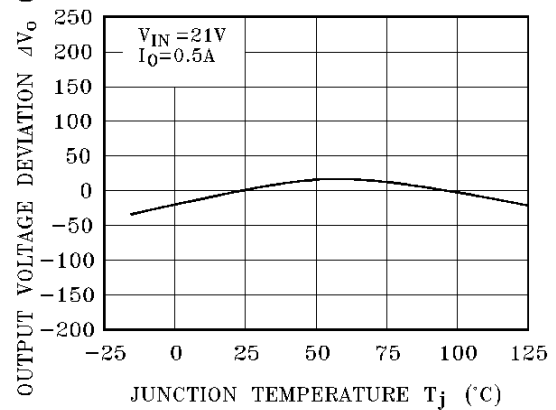


Fig.5-4  $T_j - \Delta V_o$  (KIA78R15)



# KIA78R05PI ~ KIA78R15PI

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

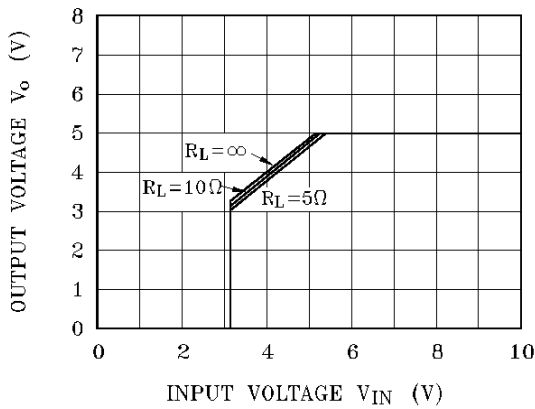


Fig.6-2  $V_{IN} - V_o$  (KIA78R09)

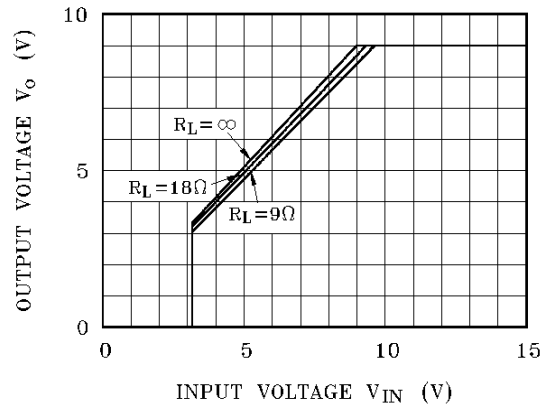


Fig.6-3  $V_{IN} - V_o$  (KIA78R12)

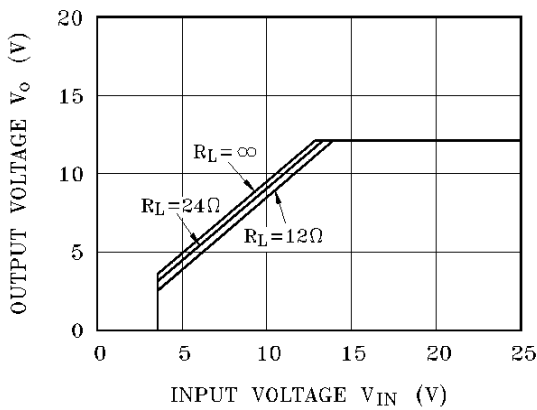


Fig.6-4  $V_{IN} - V_o$  (KIA78R15)

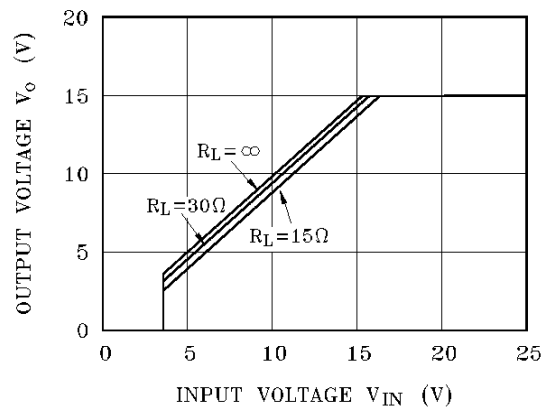


Fig.7-1  $V_{IN} - I_{BIAS}$  (KIA78R05)

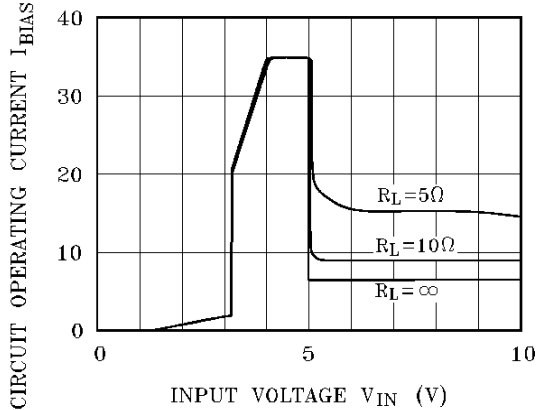
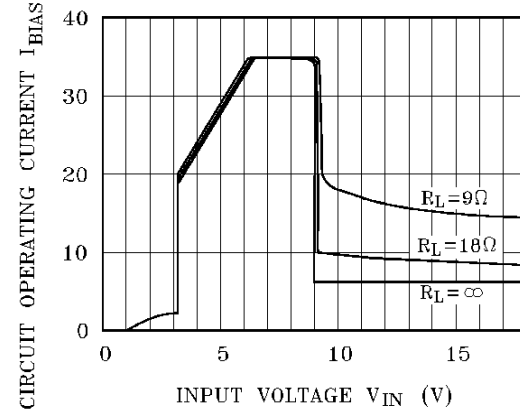


Fig.7-2  $V_{IN} - I_{BIAS}$  (KIA78R09)



# KIA78R05PI ~ KIA78R15PI

