

### 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.

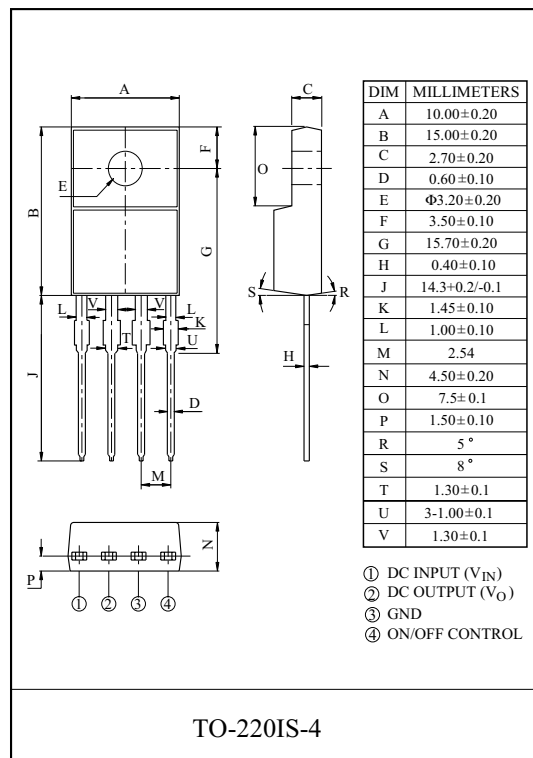
#### FEATURES

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

#### LINE UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
* KIA78R25PI	2.5	V
* KIA78R30PI	3.0	
KIA78R33PI	3.3	
* KIA78R35PI	3.5	
* KIA78R37PI	3.7	

Note) \* : Under development



#### MAXIMUM RATING (Ta=25°C)

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>	1	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	°C	-
Operating Temperature	T <sub>opr</sub>	-20 ~ 80	°C	-
Storage Temperature	T <sub>stg</sub>	-30 ~ 125	°C	-
Soldering Temperature (10sec)	T <sub>sol</sub>	260	°C	-

# KIA78R25PI~KIA78R37PI

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Unless otherwise specified, I<sub>O</sub>=0.5A, Ta=25°C, Note1.)

CHARACTERISTIC		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	KIA78R25	V <sub>O</sub>	-	2.438	2.50	2.562	V
	KIA78R30		-	2.925	3.00	3.075	
	KIA78R33		-	3.220	3.30	3.380	
	KIA78R35		-	3.413	3.50	3.587	
	KIA78R37		-	3.608	3.70	3.792	
Load Regulation		Reg Load	I <sub>O</sub> =5mA ~1A	-	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> =1A	-	-	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 KIA78R25=4.2V

" KIA78R30=4.7V

" KIA78R33=5.0V

" KIA78R35=5.2V

" KIA78R37=5.4V

Note2) V<sub>IN</sub> of KIA78R25=3.2 ~10V

" KIA78R30=3.7 ~10V

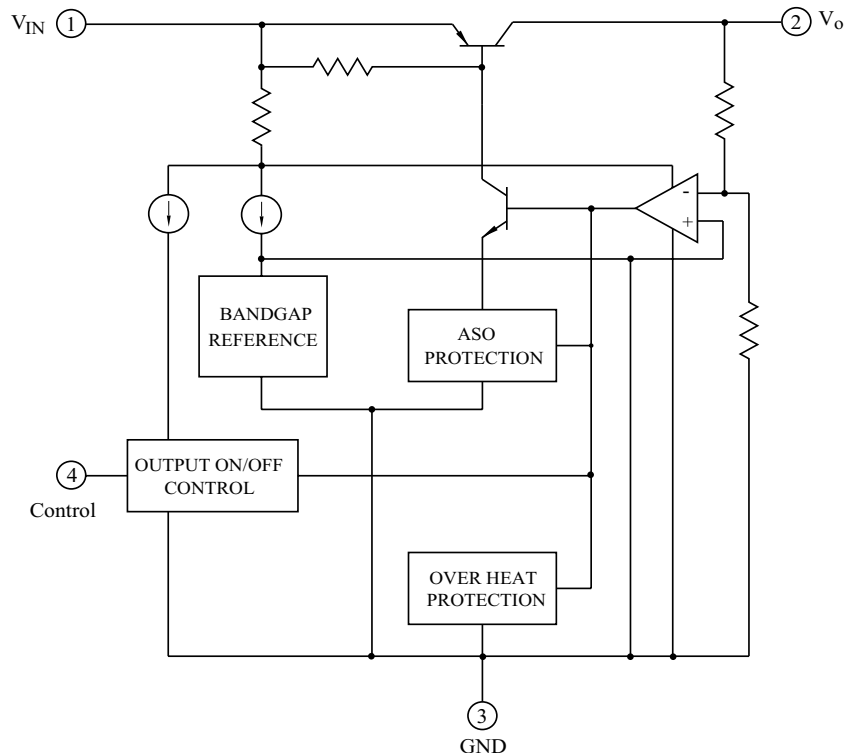
" KIA78R33=4.0 ~10V

" KIA78R35=4.2 ~10V

" KIA78R37=4.4 ~10V

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

## BLOCK DIAGRAM



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Fig. 1 Standard Test Circuit

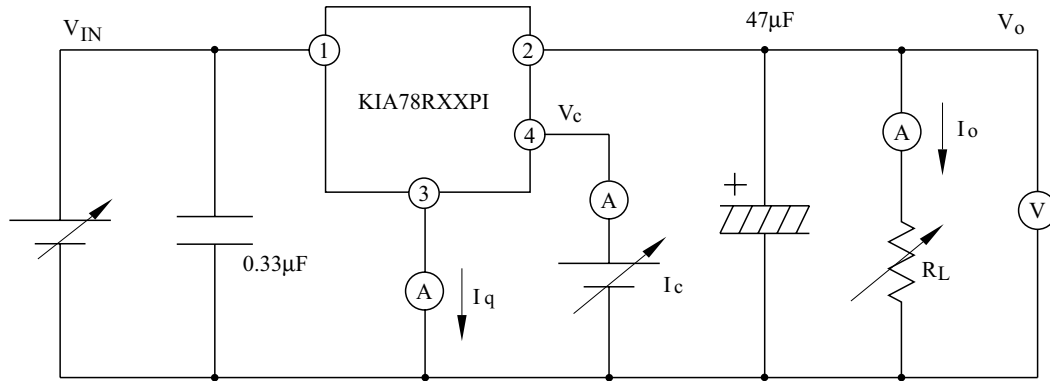


Fig. 1-2 Ripple Rejection Test Circuit

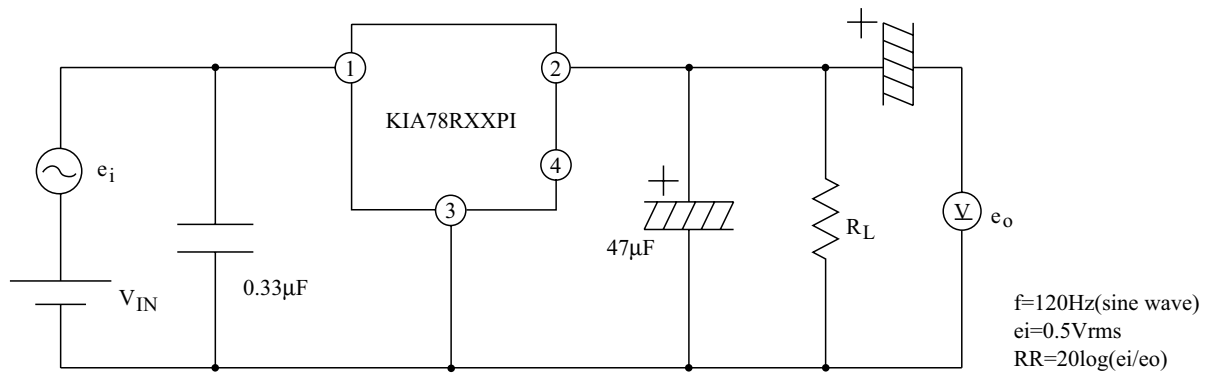
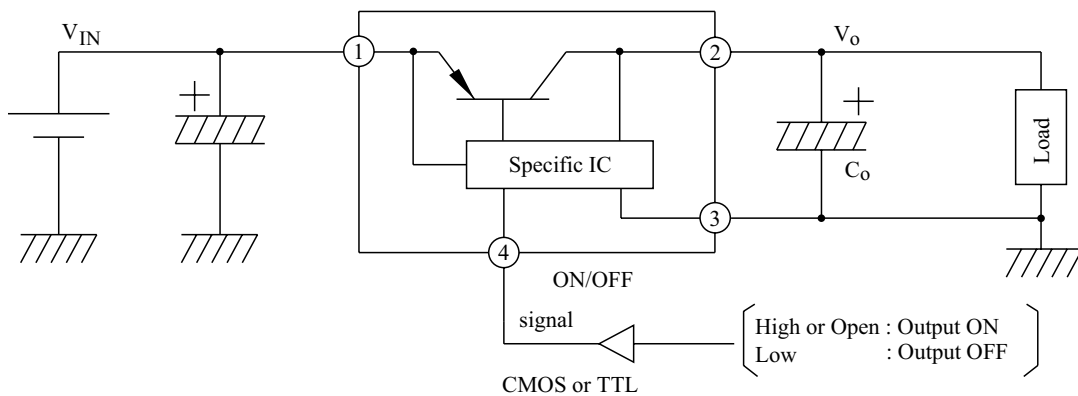
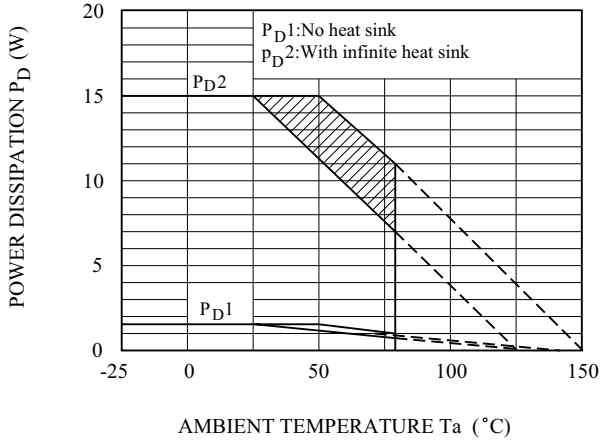


Fig. 2 Application Circuit for Standard



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Fig.3  $T_a - P_D$



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

Fig.4  $I_O - V_O$

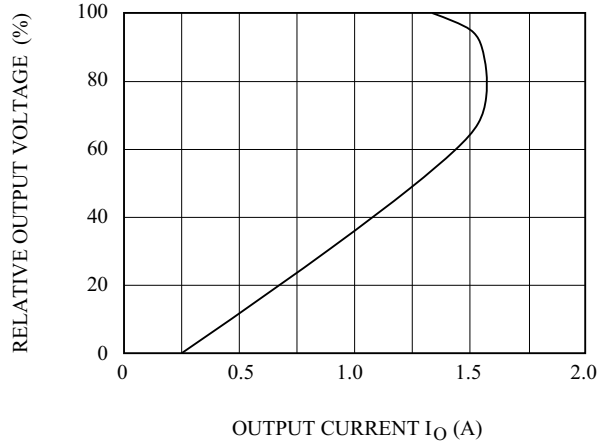


Fig.5-1  $T_j - \Delta V_O$  (KIA78R25)

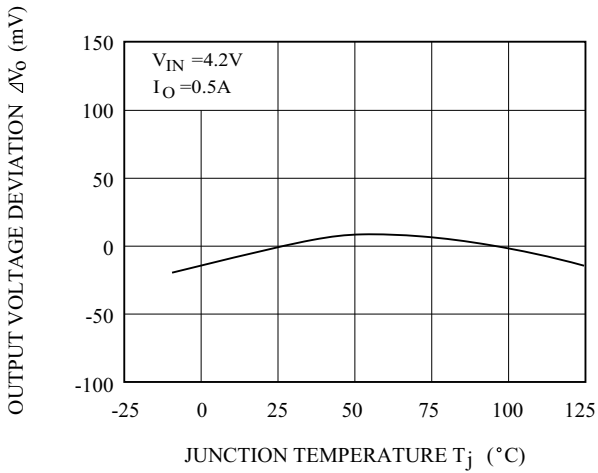


Fig.5-2  $T_j - \Delta V_O$  (KIA78R30)

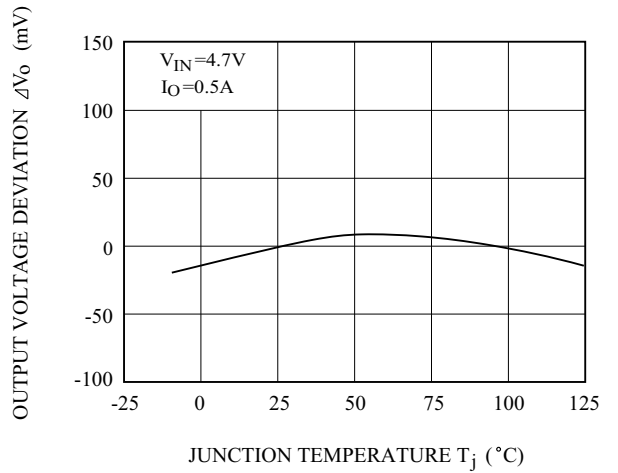


Fig.5-3  $T_j - \Delta V_O$  (KIA78R33)

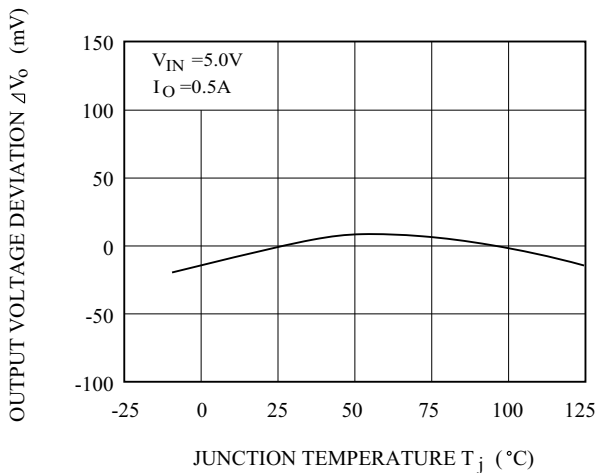
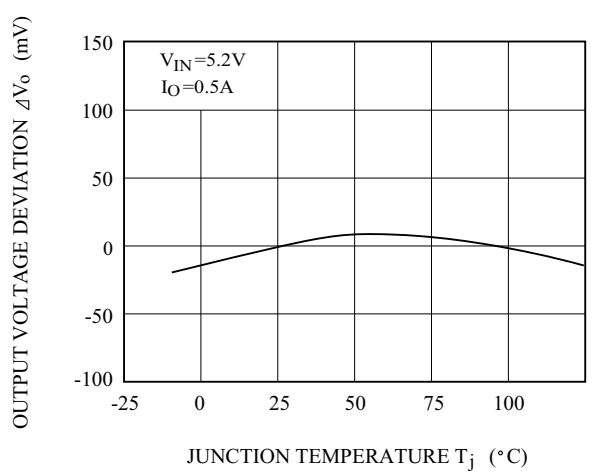


Fig.5-4  $T_j - \Delta V_O$  (KIA78R35)



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Fig.5-5  $T_j - \Delta V_o$  (KIA78R37)

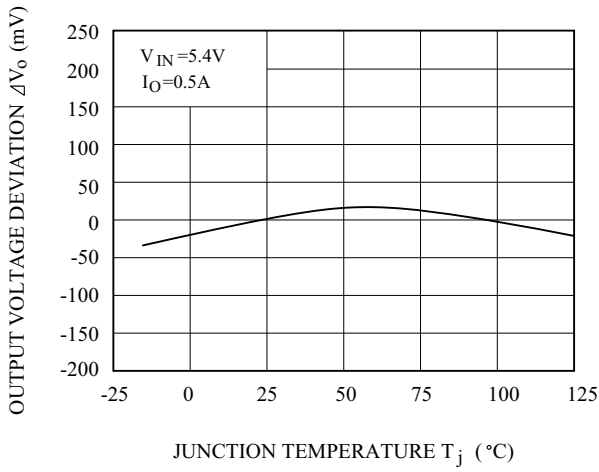


Fig.6  $T_j - V_D$

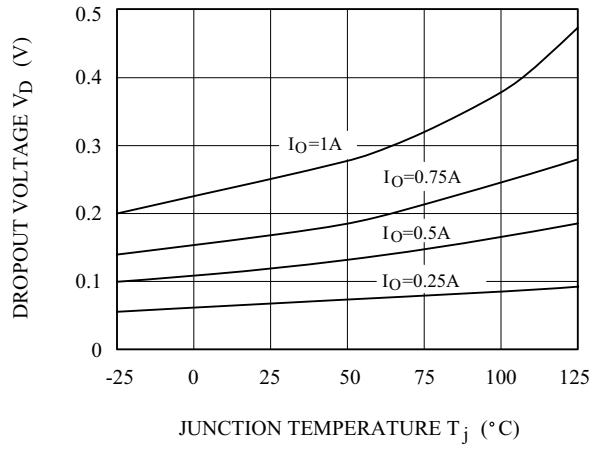


Fig.7  $T_j - I_q$

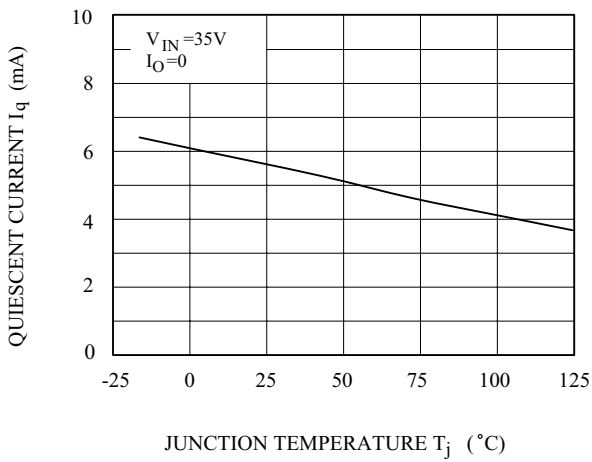


Fig.8-1  $f - \text{RR}$

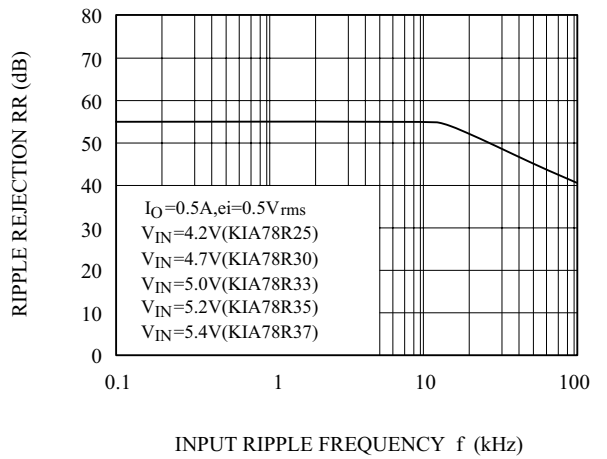


Fig.10-2  $I_O - \text{RR}$

