

### 4 TERMINAL 2A OUTPUT LOW DROPOUT VOLTAGE REGULATOR

The KIA278R × × Series are Low Dropout Voltage Regulator suitable for various electronic equipments. It provides constant voltage power source with TO-220-4 terminal lead full molded PKG.

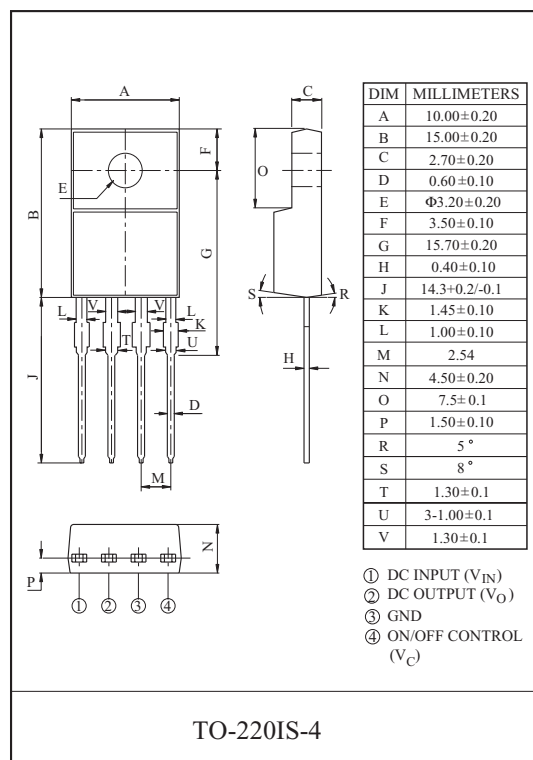
The Regulator has multi function such as over current protection, overheat protection and ON/OFF control.

#### FEATURES

- 2.0A Output Low Dropout Voltage Regulator.
- Built in ON/OFF Control Terminal.
- Built in Over Current Protection, Over Heat Protection Function.

#### LINE UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
KIA278R25PI	2.5	V
KIA278R33PI	3.3	
KIA278R35PI	3.5	



#### 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	$I_O$	2	A	-
Power Dissipation 1	$P_{D1}$	1.5	W	No Heatsink
Power Dissipation 2	$P_{D2}$	15	W	Infinite Heatsink
Operating Junction Temperature	$T_{J(\text{opr})}$	-40 ~ 150	°C	-
Storage Temperature	$T_{\text{stg}}$	-45 ~ 150	°C	-
Soldering Temperature (10sec)	$T_{\text{sol}}$	260	°C	-

# KIA278R25PI~KIA278R35PI

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $I_O=1.0A$ ,  $T_a=25^\circ C$ , Note1.)

CHARACTERISTIC		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	KIA278R25	$V_O$	-	2.438	2.50	2.562	V
	KIA278R33		-	3.220	3.30	3.380	
	KIA278R35		-	3.413	3.50	3.587	
Load Regulation		Reg Load	$I_O=5mA \sim 2A$	-	0.1	2.0	%
Line Regulation		Reg Line	(Note 2)	-	0.5	2.5	%
Temperature Coefficient of Output Voltage		$T_C V_O$	$T_j=0 \sim 125^\circ C$	-	$\pm 0.02$	$\pm 0.05$	%/ $^\circ C$
Ripple Rejection		$R \cdot R$	-	45	55	-	dB
Dropout Voltage		$V_D$	$I_O=2A$	-	-	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 KIA278R25=4.2V    Note2)  $V_{IN}$  of KIA278R25=3.2~10V    Note3) At  $V_{IN}=0.95V_O$

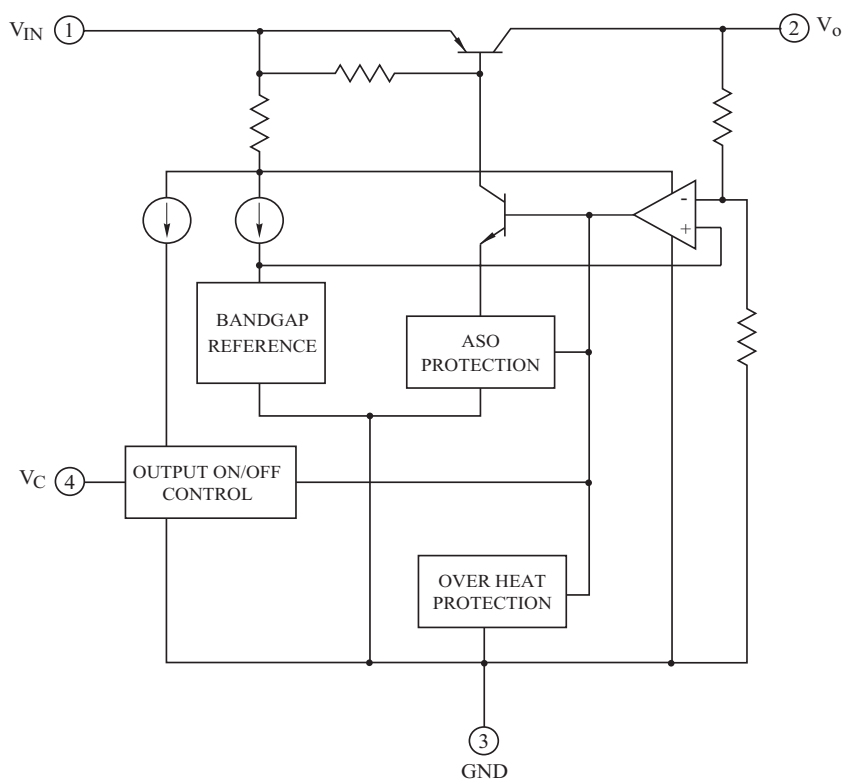
" KIA278R33=5.0V

" KIA278R33=4.0~10V

" KIA278R35=5.2V

" KIA278R35=4.2~10V

## BLOCK DIAGRAM



# KIA278R25PI~KIA278R35PI

Fig. 1 Standard Test Circuit

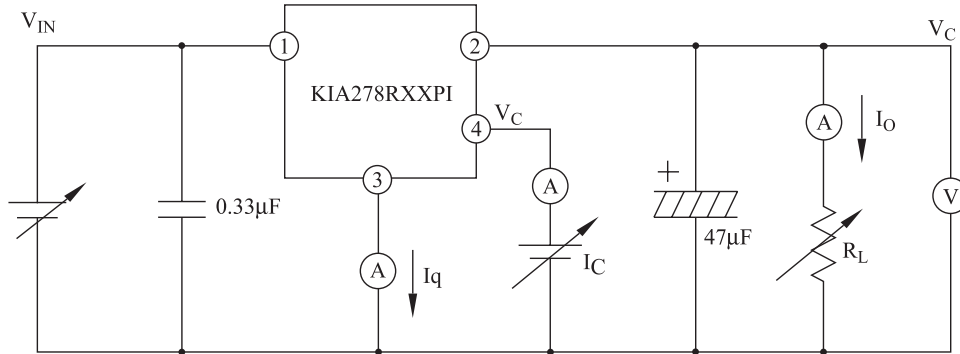


Fig. 2 Ripple Rejection Test Circuit

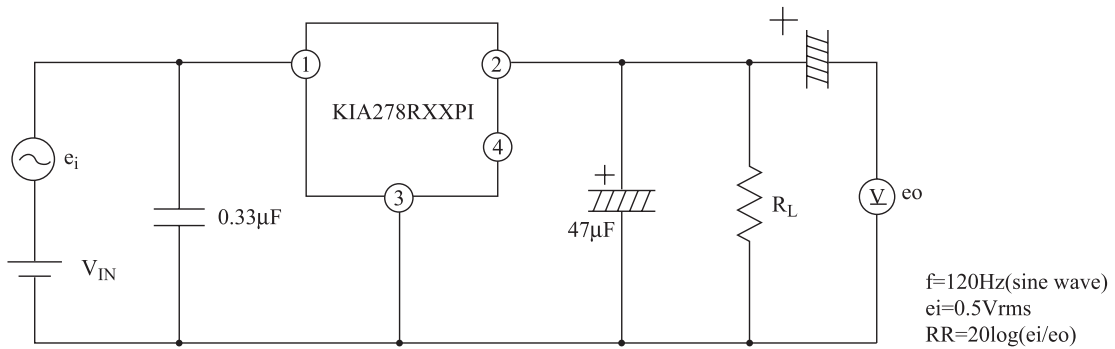
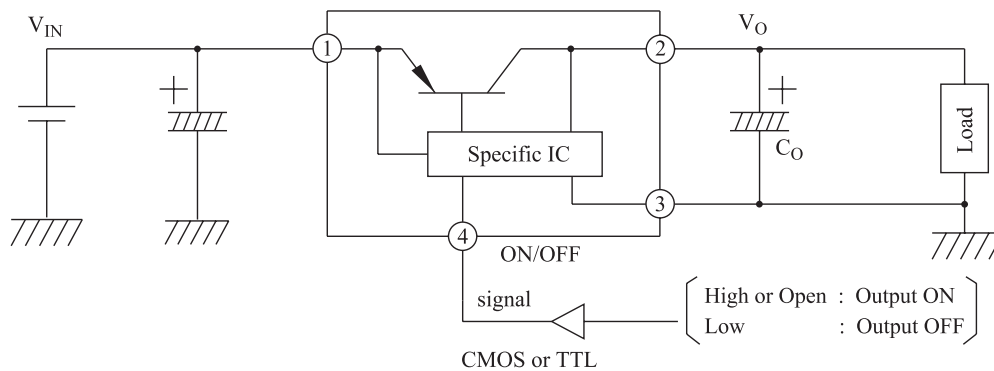
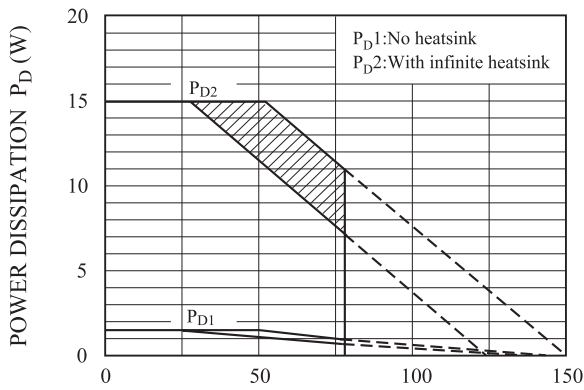


Fig. 3 Application Circuit for Standard



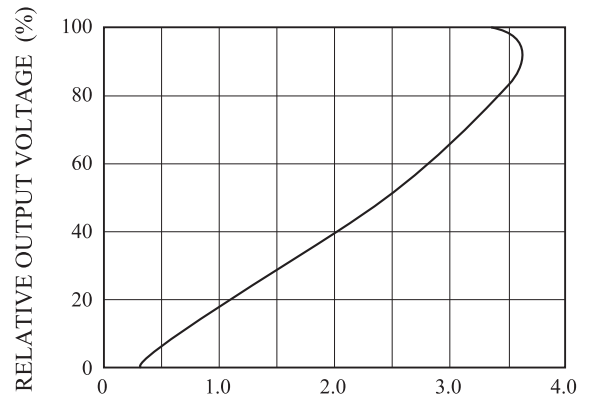
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Fig.4  $T_a - P_D$



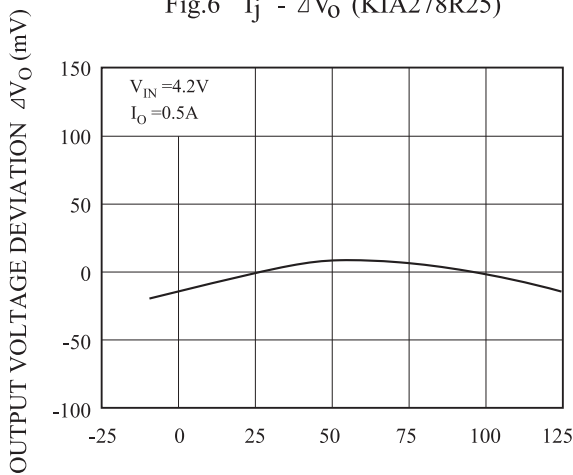
AMBIENT TEMPERATURE  $T_a$  (°C)  
 Note) Oblique line portion : Overheat protection may operate in this area.

Fig.5  $I_O - V_O$



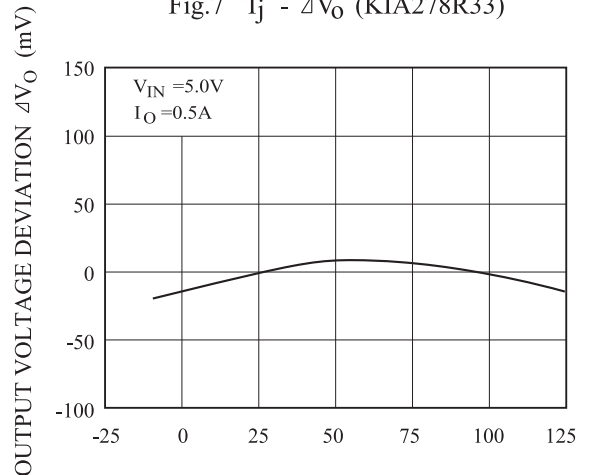
OUTPUT CURRENT  $I_O$  (A)

Fig.6  $T_j - \Delta V_O$  (KIA278R25)



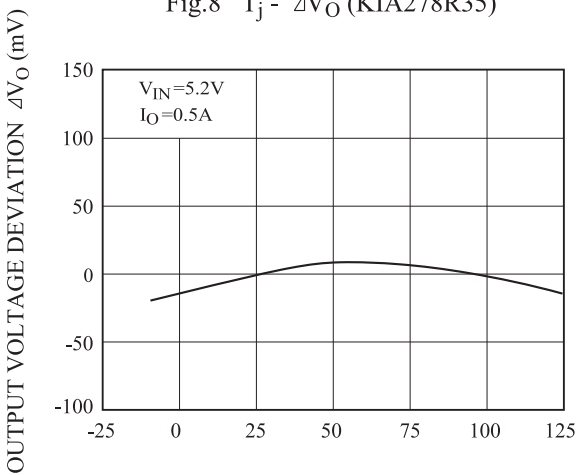
JUNCTION TEMPERATURE  $T_j$  (°C)

Fig.7  $T_j - \Delta V_O$  (KIA278R33)



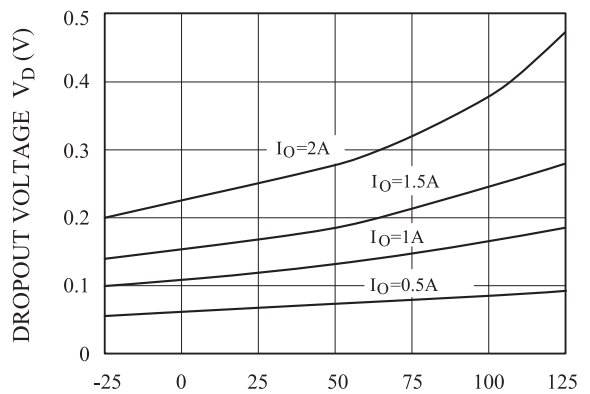
JUNCTION TEMPERATURE  $T_j$  (°C)

Fig.8  $T_j - \Delta V_O$  (KIA278R35)



JUNCTION TEMPERATURE  $T_j$  (°C)

Fig.9  $T_j - V_D$



JUNCTION TEMPERATURE  $T_j$  (°C)

# KIA278R25PI~KIA278R35PI

Fig.10  $T_j - I_q$

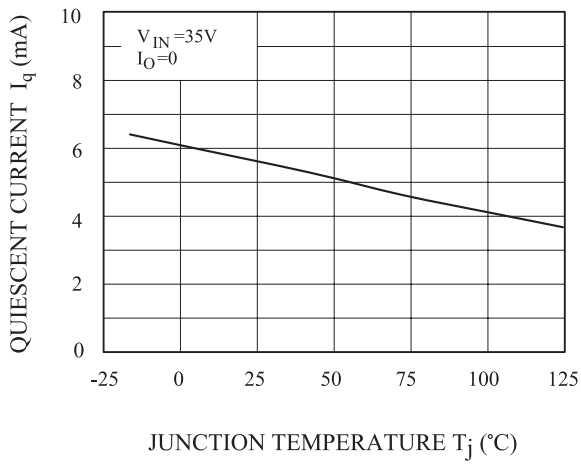


Fig.11  $f - RR$

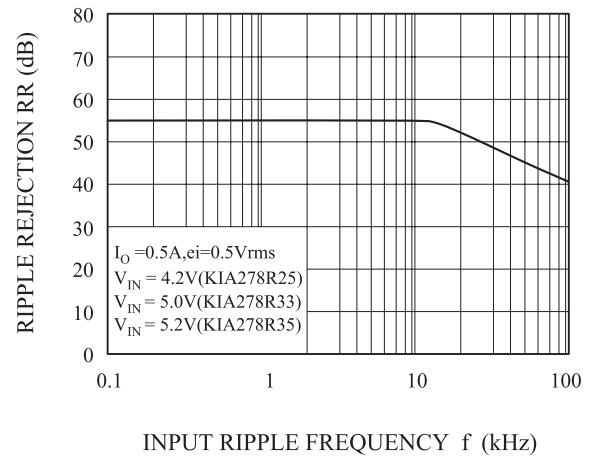
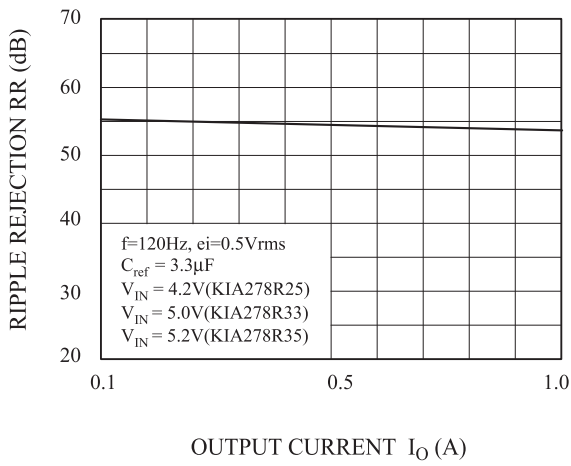


Fig.12  $I_O - RR$



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