

### 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.

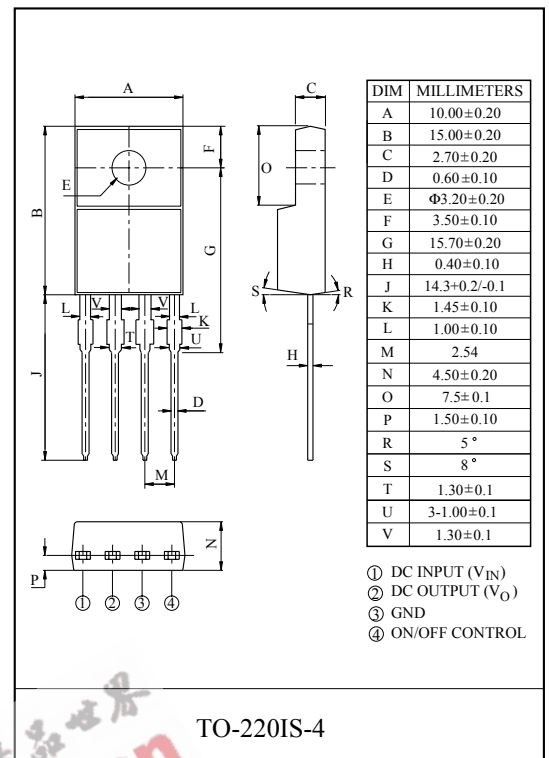
#### FEATURES

- 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
* KIA378R25PI	2.5	V
* KIA378R30PI	3.0	
* KIA378R33PI	3.3	
* KIA378R35PI	3.5	
* KIA378R37PI	3.7	

\* Note) \* : Under Development.



#### MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT	Remark
Input Voltage	$V_{IN}$	15	V	-
ON/OFF Control Voltage	$V_C$	15	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	-

# KIA378R25PI~KIA378R37PI

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Unless otherwise specified, I<sub>O</sub>=1.0A, Ta=25°C, Note1.)

CHARACTERISTIC		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	KIA378R25	V <sub>O</sub>	-	2.438	2.50	2.562	V
	KIA378R30		-	2.925	3.00	3.075	
	KIA378R33		-	3.220	3.30	3.380	
	KIA378R35		-	3.413	3.50	3.587	
	KIA378R37		-	3.608	3.70	3.792	
Load Regulation		Reg Load	I <sub>O</sub> =5mA ~ 3A	-	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> =3A	-	-	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 KIA378R25=4.2V

Note2) V<sub>IN</sub> of KIA378R25=3.2 ~ 10V

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

" KIA378R30=4.7V

" KIA378R30=3.7 ~ 10V

" KIA378R33=5.0V

" KIA378R33=4.0 ~ 10V

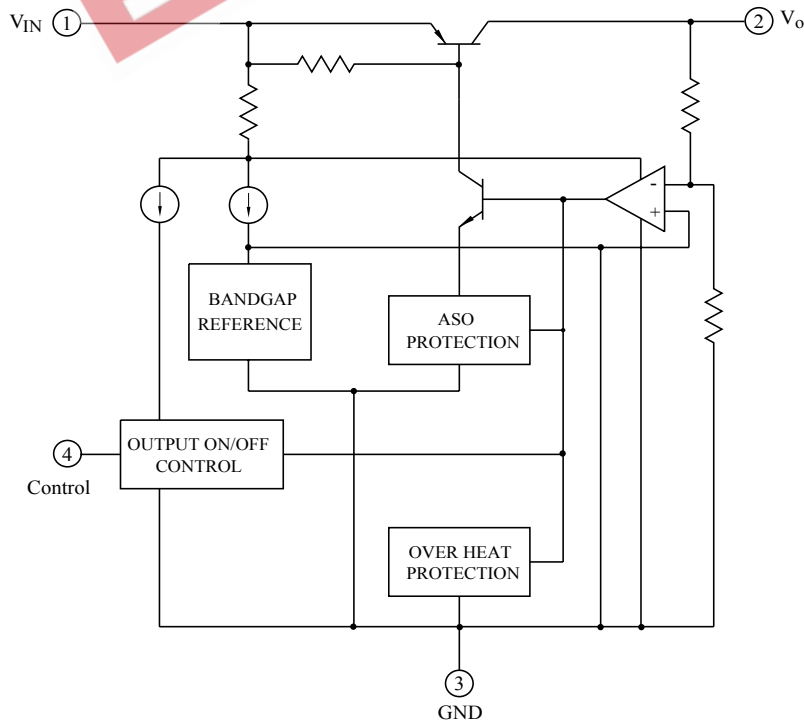
" KIA378R35=5.2V

" KIA378R35=4.2 ~ 10V

" KIA378R37=5.4V

" KIA378R37=4.4 ~ 10V

## BLOCK DIAGRAM



# KIA378R25PI~KIA378R37PI

Fig. 1 Standard Test Circuit

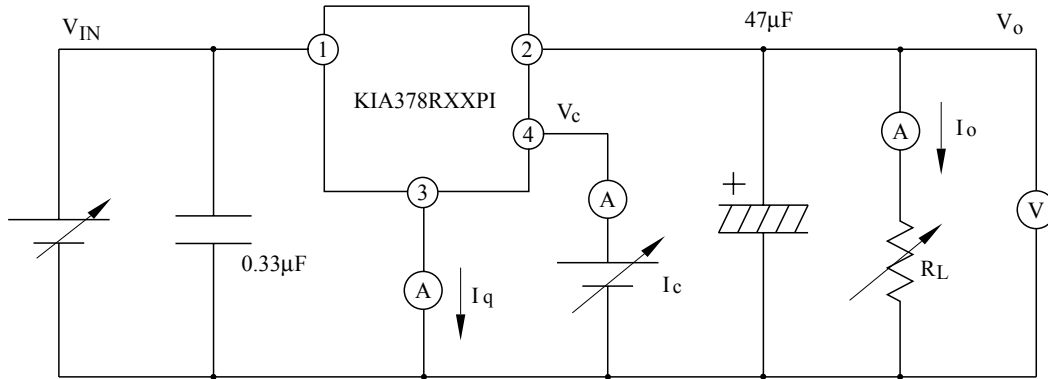


Fig. 1-2 Ripple Rejection Test Circuit

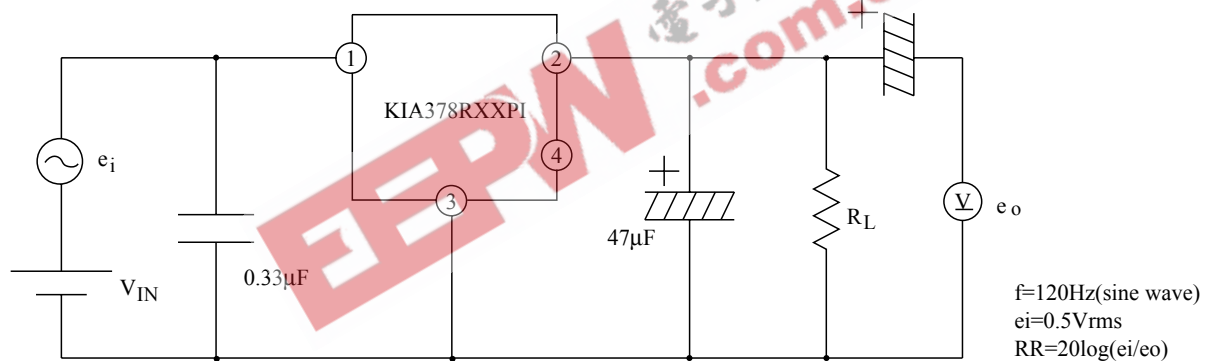
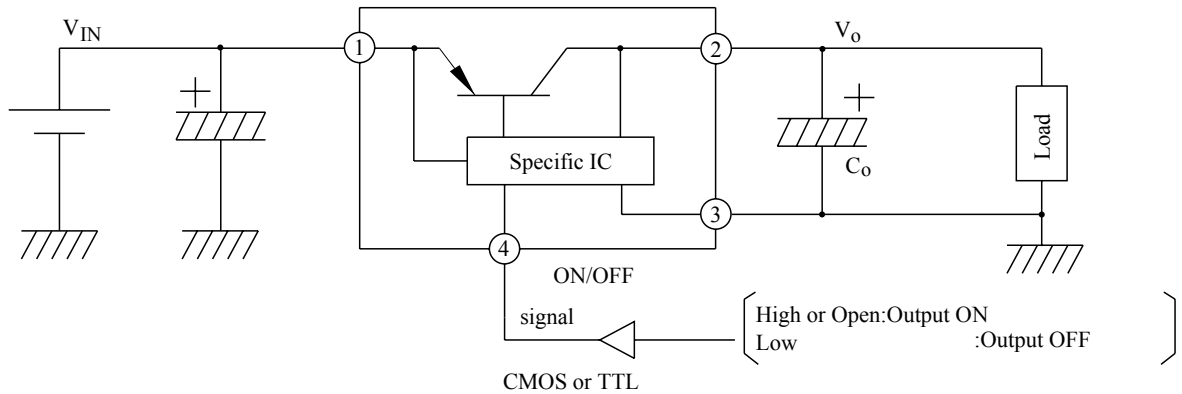
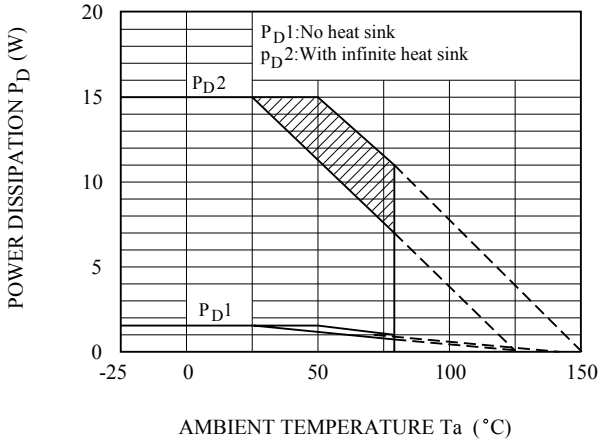


Fig. 2 Application Circuit for Standard



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Fig.3  $T_a - P_D$



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

Fig.4  $I_O - V_O$

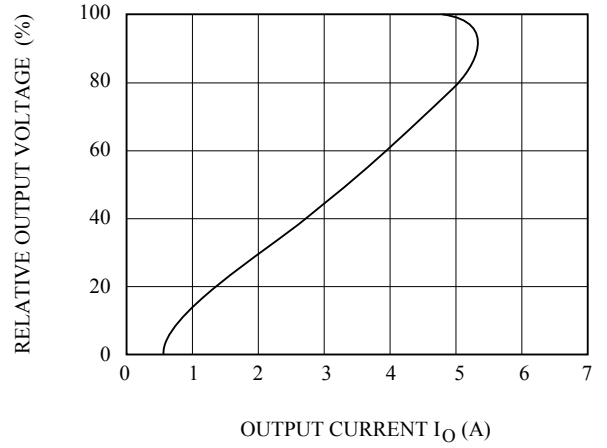


Fig.5-1  $T_j - \Delta V_O$  (KIA378R25)

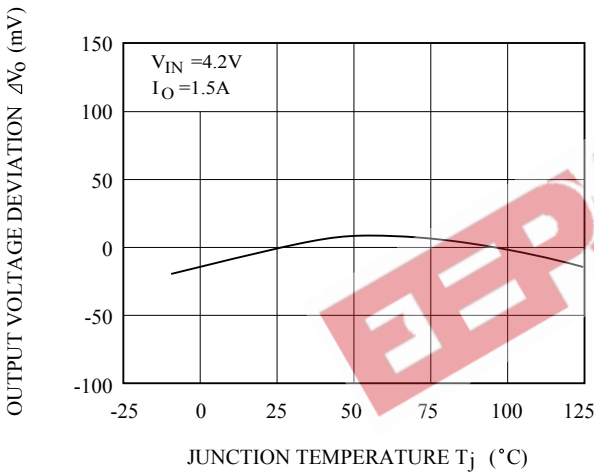


Fig.5-2  $T_j - \Delta V_O$  (KIA378R30)

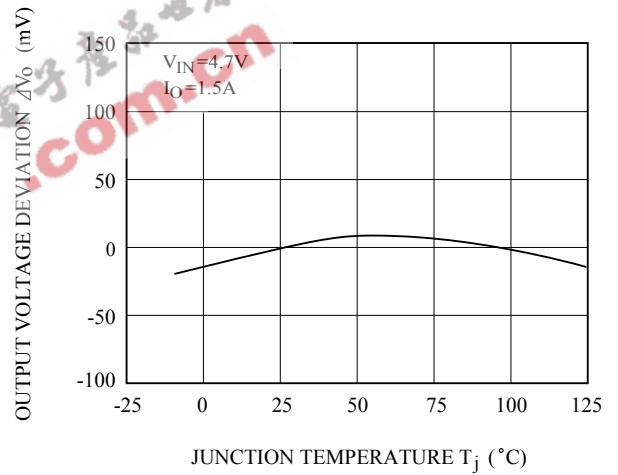


Fig.5-3  $T_j - \Delta V_O$  (KIA378R33)

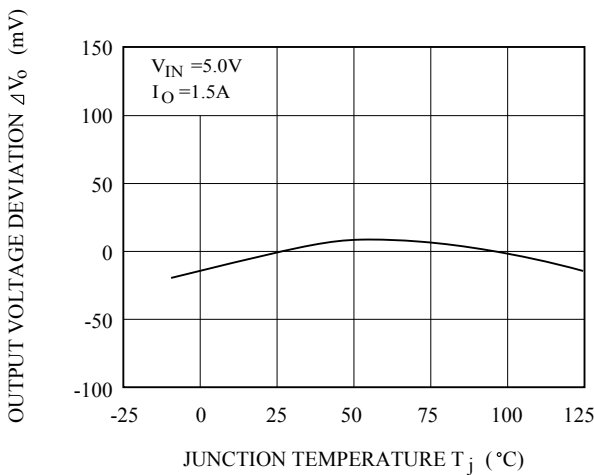
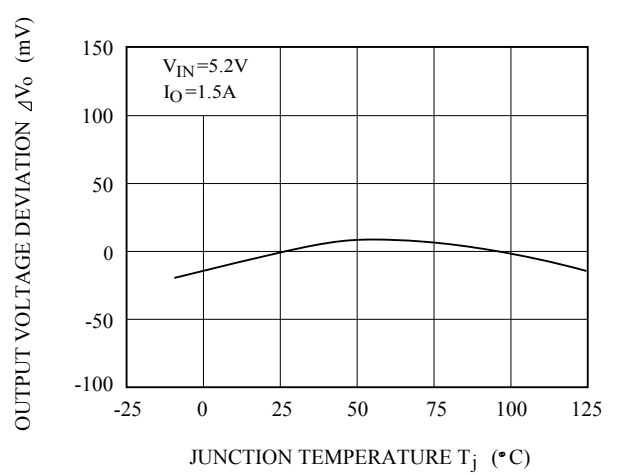


Fig.5-4  $T_j - \Delta V_O$  (KIA378R35)



# KIA378R25PI~KIA378R37PI

Fig.5-1  $T_j - \Delta V_o$  (KIA378R37)

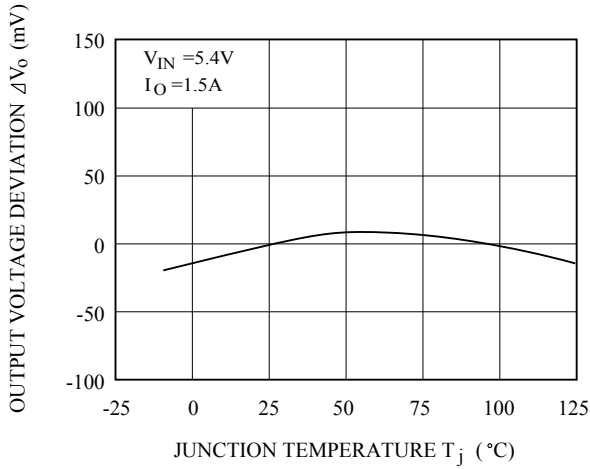


Fig.6  $T_j - V_D$

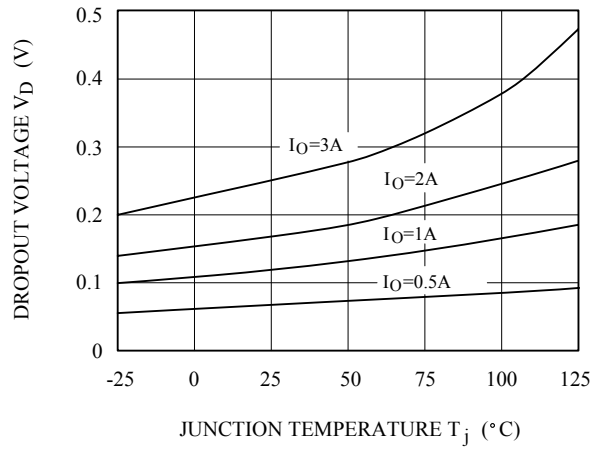


Fig.7  $T_j - I_q$

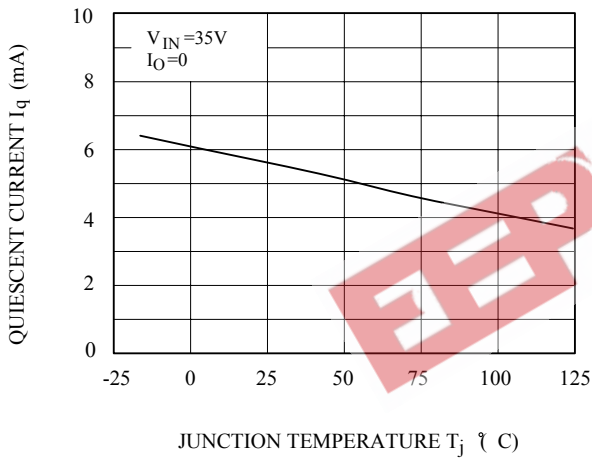


Fig.8-1  $f - RR$

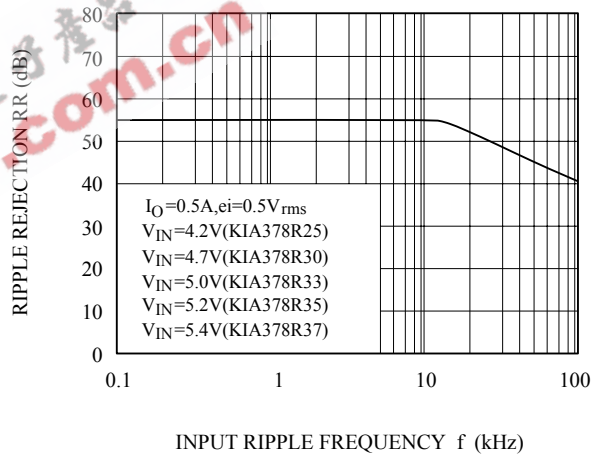


Fig.8-2  $I_O - RR$

