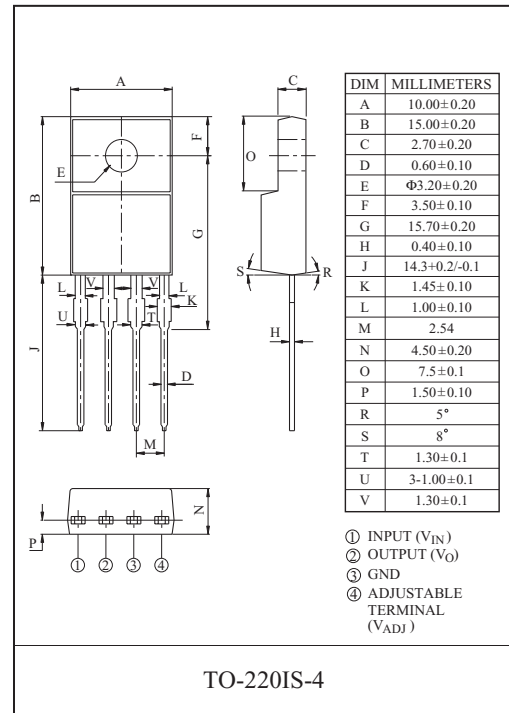


### 3A ADJUSTABLE LOW DROP VOLTAGE REGULATOR

The KIA378R00PI is a 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.

#### FEATURES

- Adjustable Output Voltage (Range : 1.5~30V)
- 3A Output Low Drop Voltage Regulator.
- Built in Over Current Protection, Over Heat Protection Function.



#### MAXIMUM RATINGS (T<sub>a</sub>=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT	Remark
Input Voltage	V <sub>IN</sub>	35	V	-
Output Current	I <sub>OUT</sub>	3	A	-
Power Dissipation 1	P <sub>D1</sub>	1.5	W	No heatsink
Power Dissipation 2	P <sub>D2</sub>	15	W	with heatsink
Operating Junction Temperature	T <sub>J(opr)</sub>	-40~150	°C	-
Storage Temperature	T <sub>stg</sub>	-45~150	°C	-
Soldering Temperature (10sec)	T <sub>sol</sub>	260	°C	-

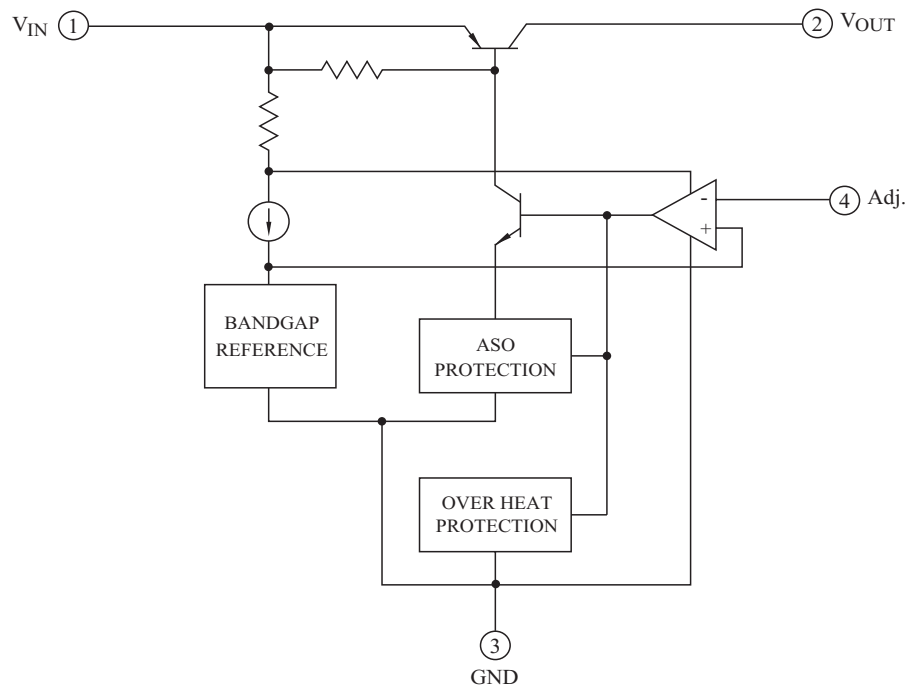
# KIA378R00PI

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $V_{IN}=15V$ ,  $V_O=10V$ ,  $I_O=1.5A$ ,  $R_1=390\ \Omega$  (Note1 :  $V_{IN}=0.95V_{out}$ ))

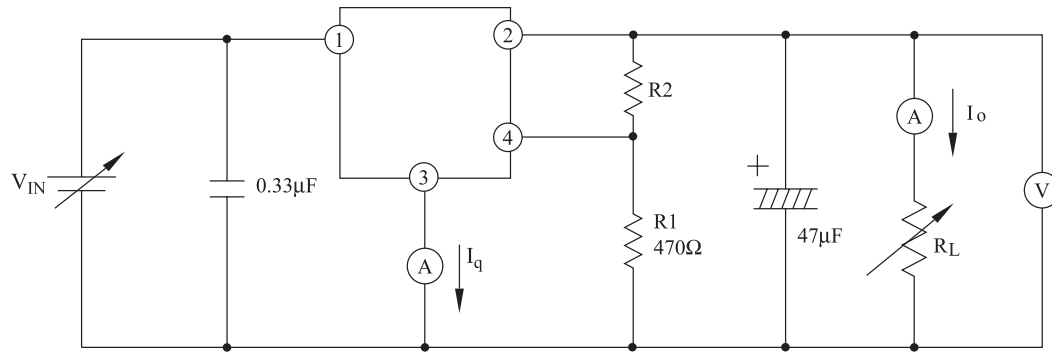
CHARACTERISTIC	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Input Voltage	$V_{IN}$	-	4.5	-	35	V	
Output Voltage	$V_O$	$R_2=84\ \Omega$ to $8.7k\ \Omega$	1.5	-	30	V	
Load Regulation	Reg Load	$I_O=5mA \sim 3A$	-	-	2.0	%	
Line Regulation	Reg Line	$V_{IN}=11V \sim 28V$	-	-	2.5	%	
Ripple Rejection	R · R	$C_{ref}=0$	Refer to Fig.2	45	55	-	dB
		$C_{ref}=3.3\ \mu F$		55	65	-	
Reference Voltage	$V_{ref}$	-	1.26	1.29	1.32	V	
Temperature coefficient of reference Voltage	$T_C V_{ref}$	$T_j=0 \sim 125\ ^\circ C$	-	$\pm 1.0$	-	%	
DropOut Voltage	$V_D$	$I_O=3A$ (Note1)	-	-	0.5	V	
Quiescent Current	$I_Q$	$I_O=0A$	-	-	10	mA	

## BLOCK DIAGRAM



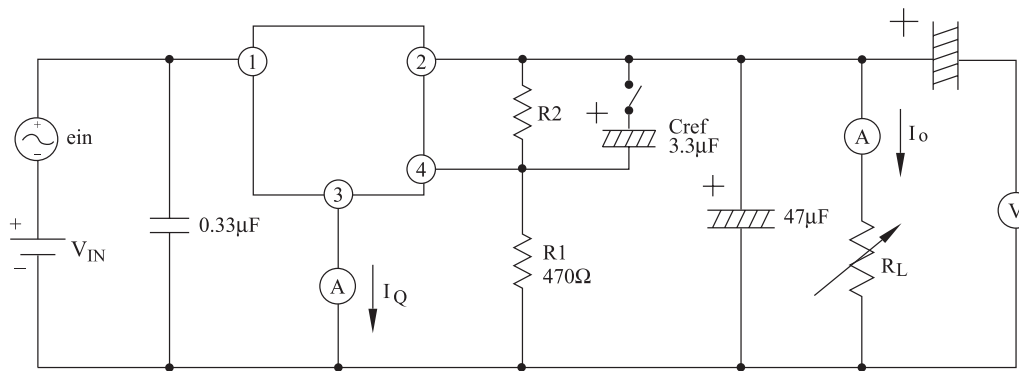
# KIA378R00PI

Fig. 1 Standard Test Circuit



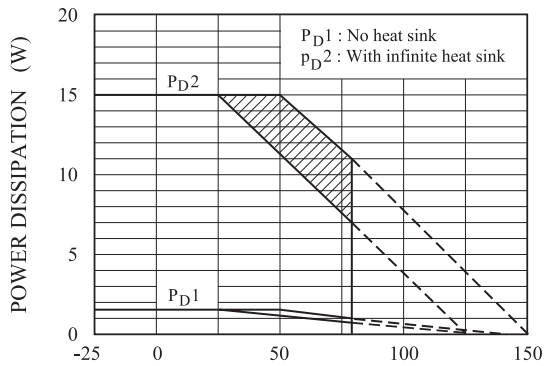
$$V_{OUT} = V_{ref} \times \left(1 + \frac{R2}{R1}\right) = 1.29 \times \left(1 + \frac{R2}{R1}\right)$$

Fig. 2 Ripple Rejection Circuit



f=120Hz(sine wave)  
 ei=0.5Vrms  
 RR=20log(ei/eo)

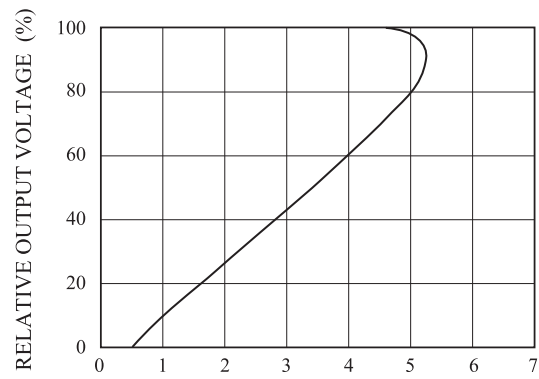
Fig. 3  $T_a - P_D$



AMBIENT TEMPERATURE  $T_a$  (°C)

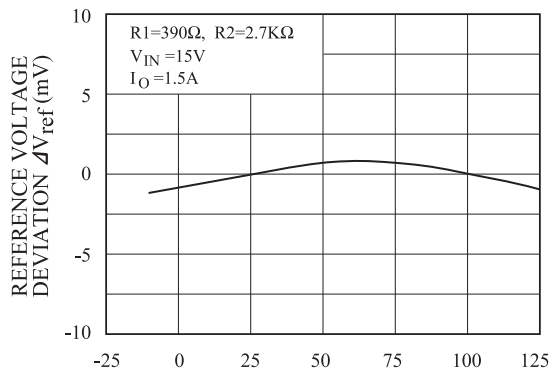
Note) Oblique line portion : Overheat protection may operate in this area.

Fig.4  $I_O - V_O$



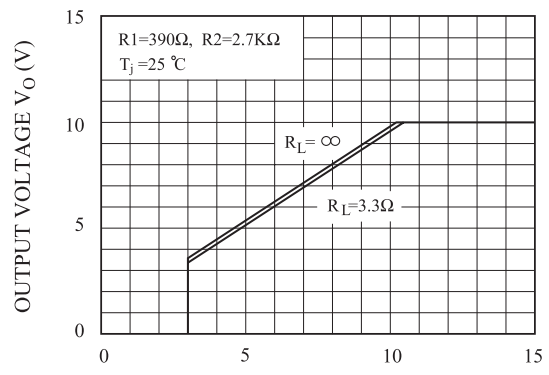
OUTPUT CURRENT  $I_O$  (A)

Fig.5  $T_j - \Delta V_O$



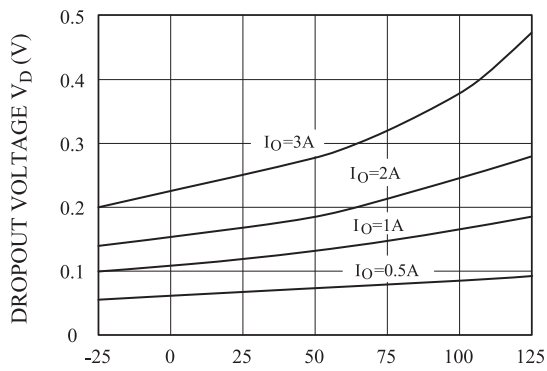
JUNCTION TEMPERATURE  $T_j$  (°C)

Fig. 6  $V_{IN} - V_O$



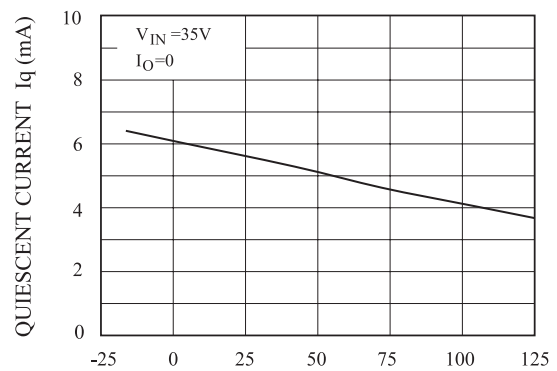
INPUT VOLTAGE  $V_{IN}$  (V)

Fig.7  $T_j - V_D$



JUNCTION TEMPERATURE  $T_j$  (°C)

Fig. 8  $T_j - I_q$



JUNCTION TEMPERATURE  $T_j$  (°C)

Fig. 9  $f - RR$

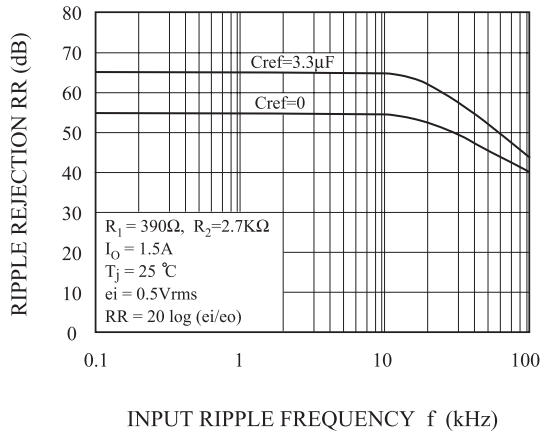


Fig. 10  $I_O - RR$

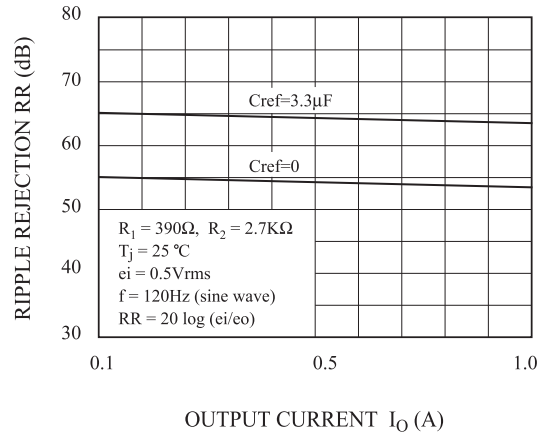


Fig. 11  $V_{IN} - I_{Q(2)}$

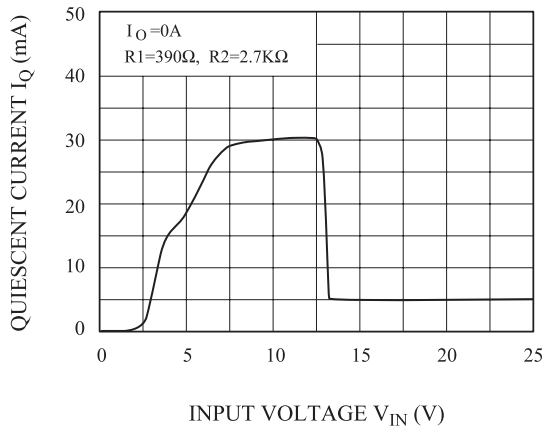


Fig. 12  $V_{IN} - I_{Q(2)}$

