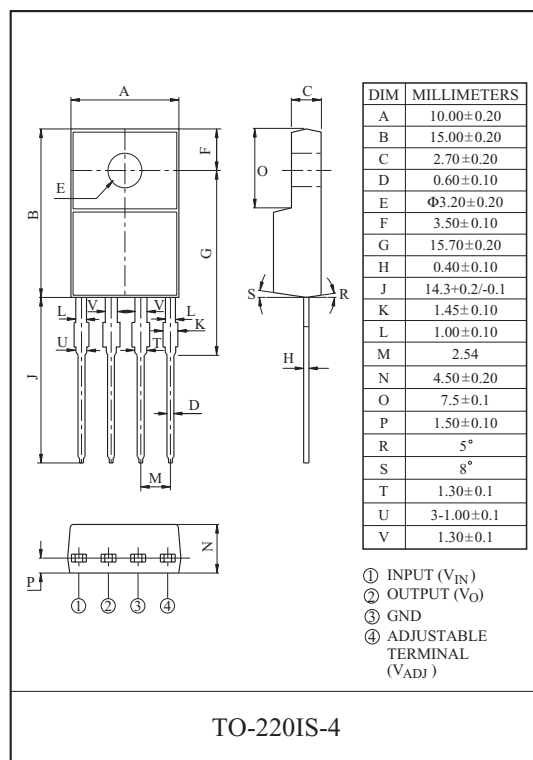


### 3A ADJUSTABLE LOW DROP VOLTAGE REGULATOR

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 ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT	Remark
Input Voltage	$V_{IN}$	35	V	-
Output Current	$I_{OUT}$	3	A	-
Power Dissipation 1	$P_{D1}$	1.5	W	No heatsink
Power Dissipation 2	$P_{D2}$	15	W	with heatsink
Operating Junction Temperature	$T_{J(opr)}$	-40~150	$^\circ\text{C}$	-
Storage Temperature	$T_{stg}$	-45~150	$^\circ\text{C}$	-
Soldering Temperature (10sec)	$T_{sol}$	260	$^\circ\text{C}$	-

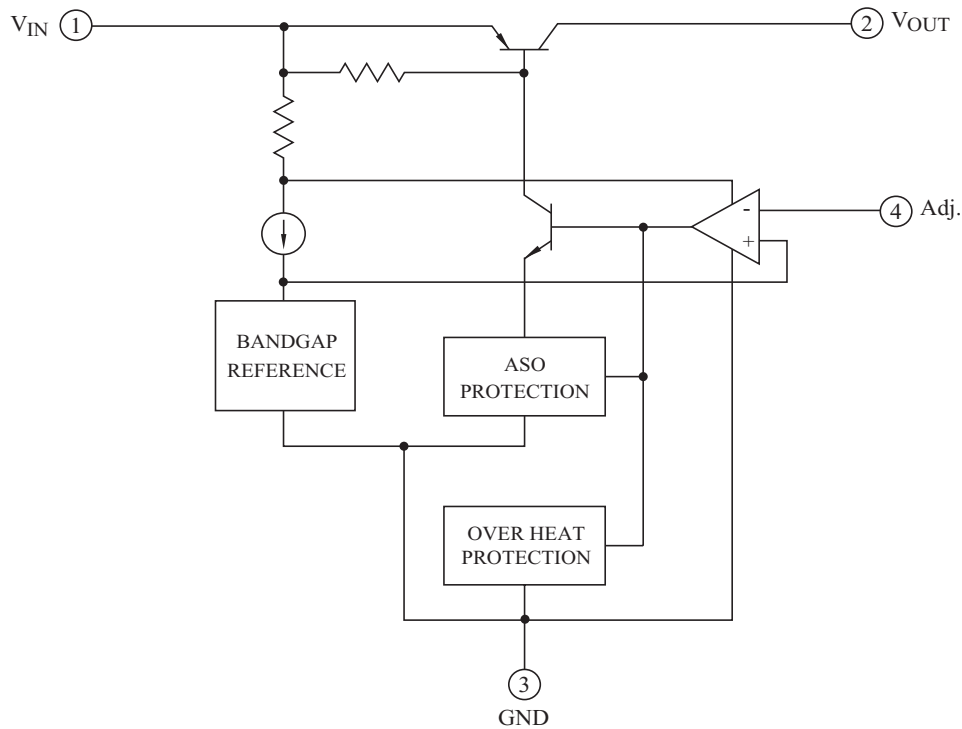
# KIA378R00PI

## ELECTRICAL CHARACTERISTICS

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

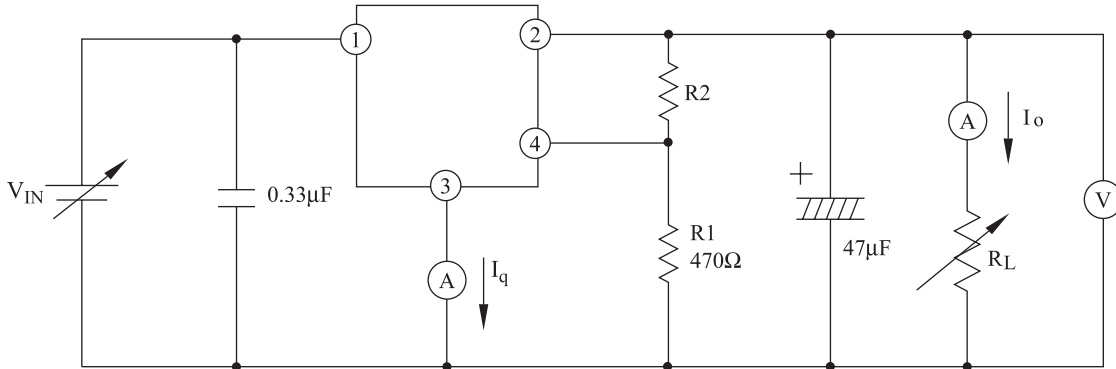
CHARACTERISTIC	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Input Voltage	$V_{IN}$	-	4.5	-	35	V	
Output Voltage	$V_O$	$R_2=84\ \Omega$ to $8.7k\ \Omega$	1.5	-	30	V	
Load Regulation	Reg Load	$I_O=5mA \sim 3A$	-	-	2.0	%	
Line Regulation	Reg Line	$V_{IN}=11V \sim 28V$	-	-	2.5	%	
Ripple Rejection	$R \cdot R$	$C_{ref}=0$	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



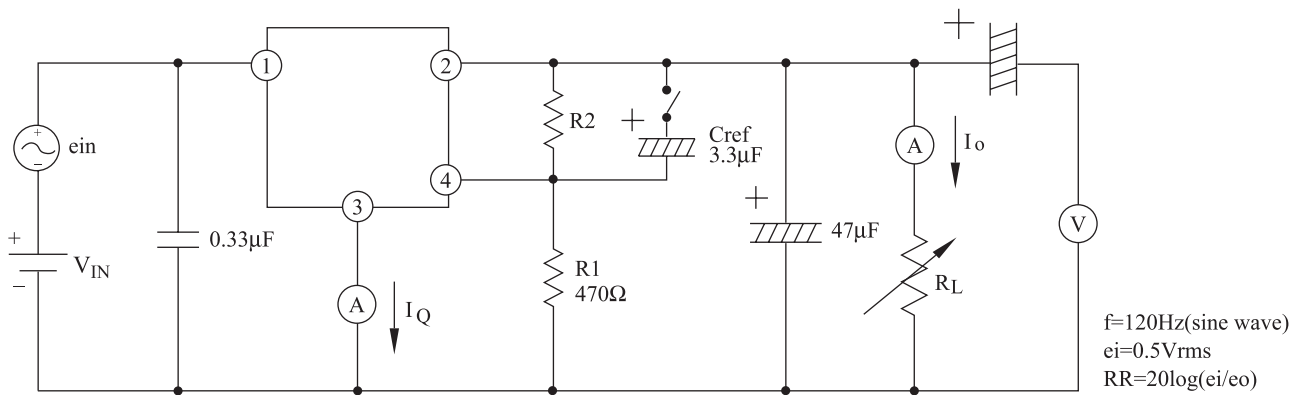
# KIA378R00PI

Fig. 1 Standard Test Circuit



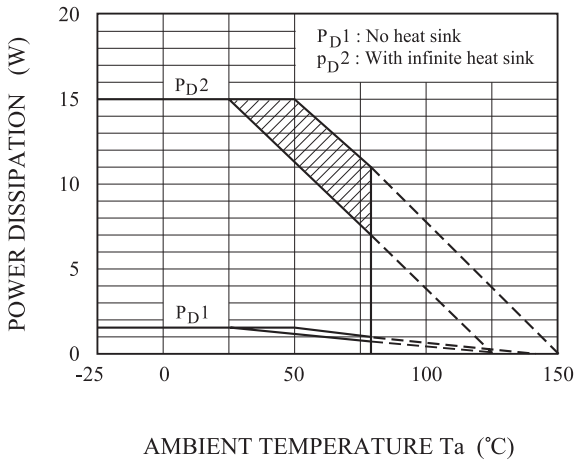
$$V_{OUT} = V_{ref} \times \left(1 + \frac{R2}{R1}\right) = 1.29 \times \left(1 + \frac{R2}{R1}\right)$$

Fig. 2 Ripple Rejection Circuit



# KIA378R00PI

Fig. 3  $T_a - P_D$



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

Fig.4  $I_O - V_O$

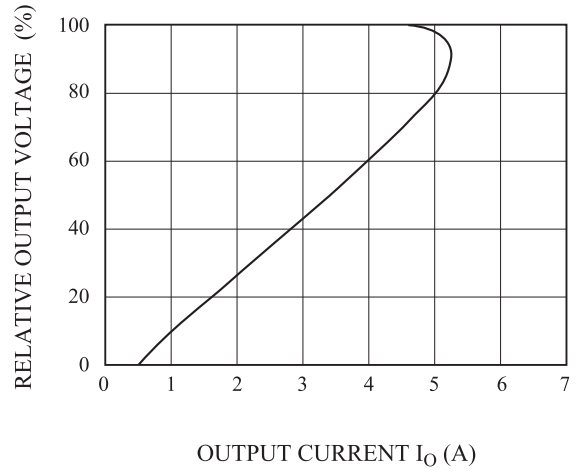


Fig.5  $T_j - \Delta V_O$

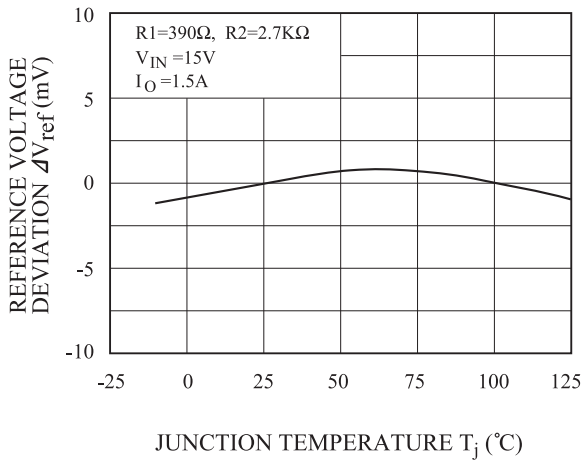


Fig. 6  $V_{IN} - V_O$

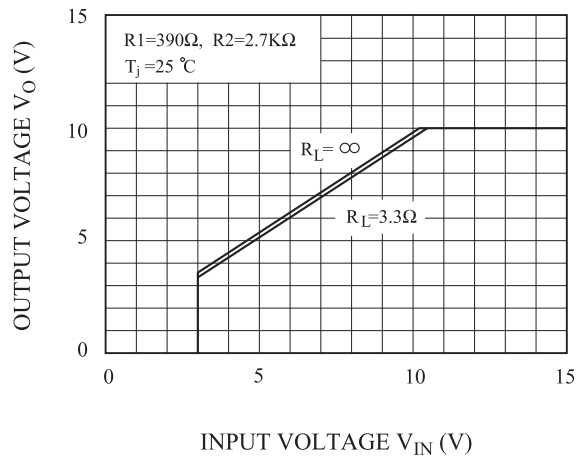


Fig.7  $T_j - V_D$

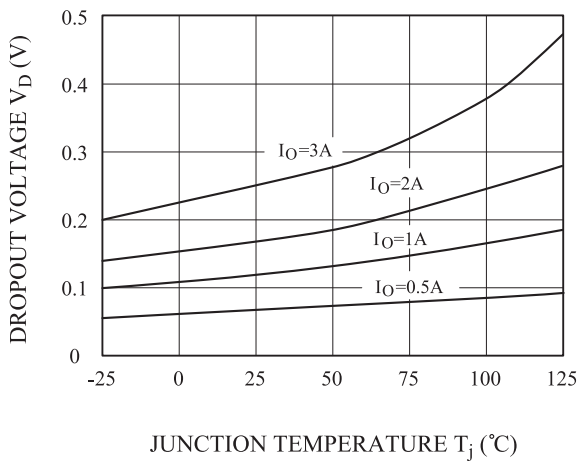
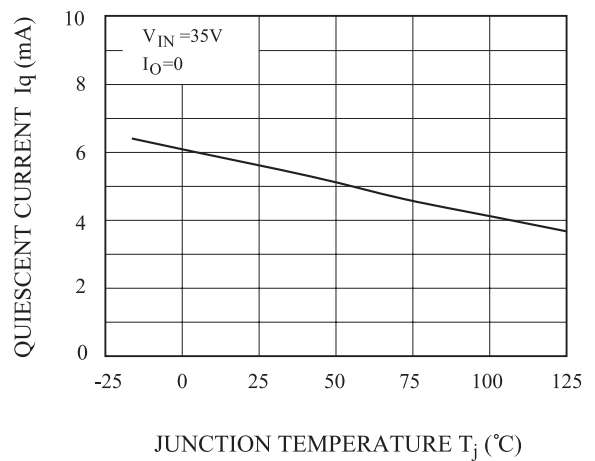


Fig. 8  $T_j - I_q$



# KIA378R00PI

Fig. 9 f - RR

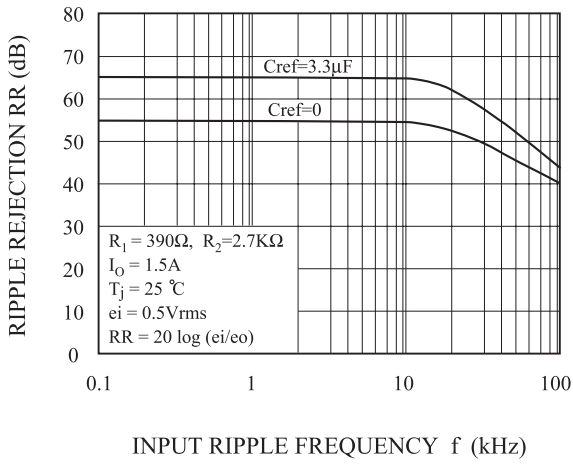


Fig. 10  $I_O$  - RR

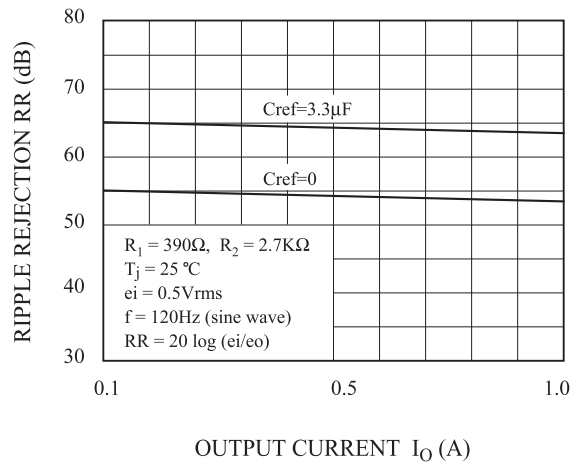


Fig.11  $V_{IN}$  -  $I_{Q(2)}$

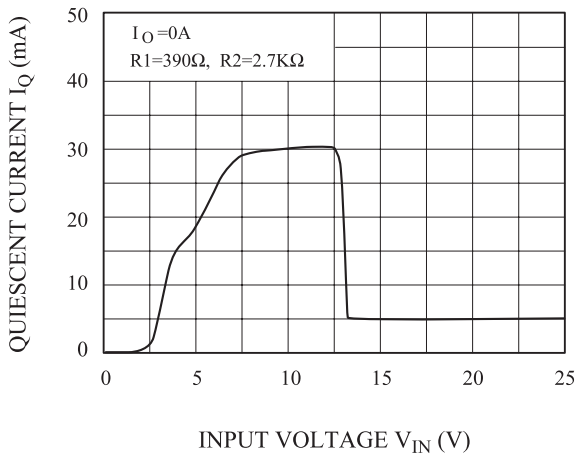
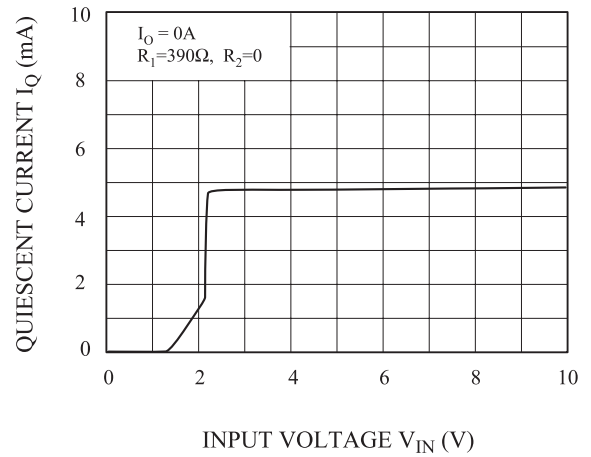


Fig.12  $V_{IN}$  -  $I_{Q(2)}$



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