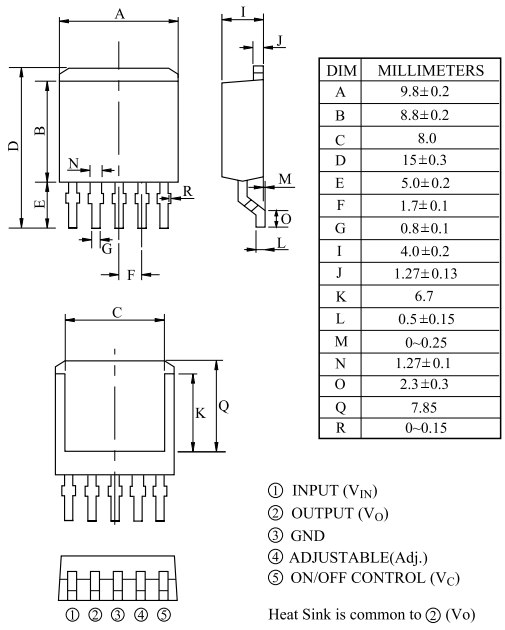
2A ADJUSTABLE OUTPUT LOW DROP VOLTAGE REGULATOR WITH OUTPUT ON/OFF CONTROL FUNCTION. [Low Quiescent Current Type]

FEATURES

· 2.0A Output Low Drop Voltage Regulator.
· Very Low Dropout Voltage : 0.5V/Max. (I_{OUT}=2.0A)
· Built in ON/OFF Control Terminal. (Active High)
· Built in Over Current, Over Heat Protection Function, ASO Proteection Functions.
· Low Quiescent Current (Output OFF mode) : 0.5μA(Typ.)
· Adjustable Output Voltage Type : V_{OUT}=1.5~10V
· Low Voltage Operation : Vopr(min.)=2.35V.

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage		V_{IN}	10	V
ON/OFF Control Voltage		V_C	10	V
Output Adjustment Terminal Voltage		V_{ADJ}	5	V
Output Current		I_{OUT}	2.0	A
Power Dissipation 1 (No heatsink)	PI	P_{D1}	1.5	W
	FB		2.0	
Power Dissipation 2 (Infinite Heatsink)	PI	P_{D2}	15	W
	FB		35	
Junction Temperature		T_j	150	℃
Operating Temperature		T_{opr}	-20～80	℃
Storage Temperature		T_{stg}	-30～125	℃

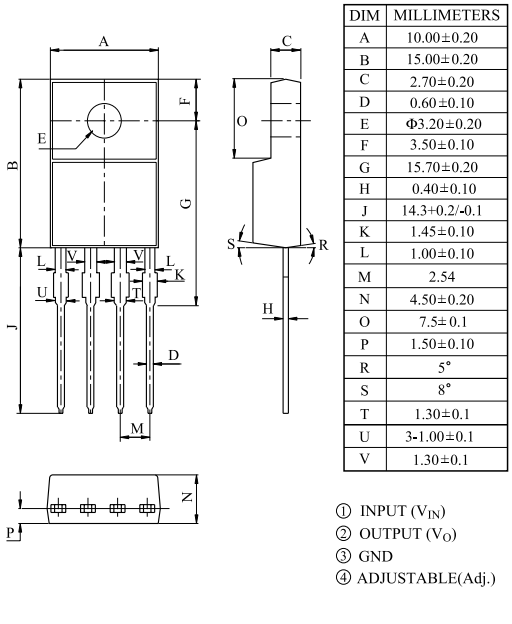


DIM	MILLIMETERS
A	9.8±0.2
B	8.8±0.2
C	8.0
D	15±0.3
E	5.0±0.2
F	1.7±0.1
G	0.8±0.1
I	4.0±0.2
J	1.27±0.13
K	6.7
L	0.5±0.15
M	0~0.25
N	1.27±0.1
O	2.3±0.3
Q	7.85
R	0~0.15

① INPUT (V_{IN})
② OUTPUT (V_O)
③ GND
④ ADJUSTABLE(Adj.)
⑤ ON/OFF CONTROL (V_C)

Heat Sink is common to ② (Vo)

D^2PAK-5



DIM	MILLIMETERS
A	10.00±0.20
B	15.00±0.20
C	2.70±0.20
D	0.60±0.10
E	Φ3.20±0.20
F	3.50±0.10
G	15.70±0.20
H	0.40±0.10
J	14.3+0.2/-0.1
K	1.45±0.10
L	1.00±0.10
M	2.54
N	4.50±0.20
O	7.5± 0.1
P	1.50±0.10
R	5°
S	8°
T	1.30±0.1
U	3-1.00±0.1
V	1.30±0.1

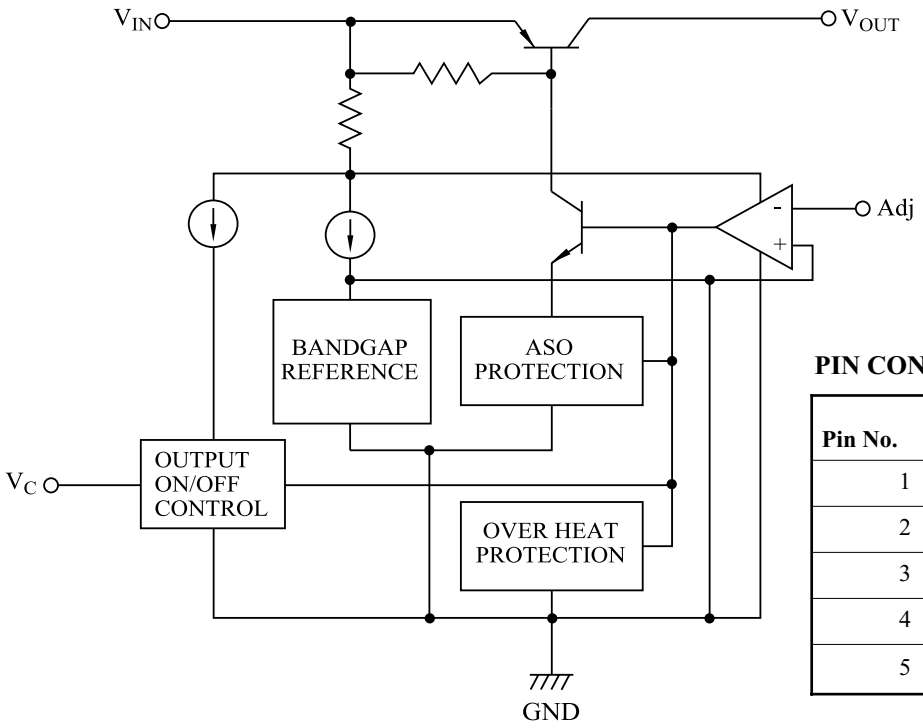
① INPUT (V_{IN})
② OUTPUT (V_O)
③ GND
④ ADJUSTABLE(Adj.)

TO-220IS-4

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{IN}=5V, V_O=3.3V, I_O=1A, R_1=1kΩ, Tj=25℃)

CHARACTERISTIC	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage	V_{IN}	-	2.35	-	10	V
Output Voltage	V_{OUT}	-	1.5	-	10	V
Reference Voltage	V_{ref}	-	1.22	1.25	1.28	V
Load Regulation	Reg Load	I_O=5mA~2A	-	0.2	2.0	%
Line Regulation	Reg Line	V_{IN}=V_{OUT}+1 to 8.5V, I_O=5mA	-	0.2	1.0	%
Temperature Coefficient of Output Votage	T_CV_O	Tj=0～125℃, I_O=5mA	-	±1.0	±20	%
Ripple Rejection	R · R	I_{OUT}=0.3A, f=120Hz, V_{ripple}=0.5Vrms, V_{IN}=5V, V_O=3V	45	60	-	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	-	-	200	μA
Output OFF state for control Voltage	$V_{C(OFF)}$	I_O=0	-	-	0.8	V
Output OFF state for control Current	$I_{C(OFF)}$	V_C=0.4V	-	-	2.0	μA
Quiescent Current	I_Q	I_O=0	-	1	2	mA
Quiescent Current (OFF Mode)	$I_{Q(OFF)}$	V_C=0.4V	-	0.1	5	μA

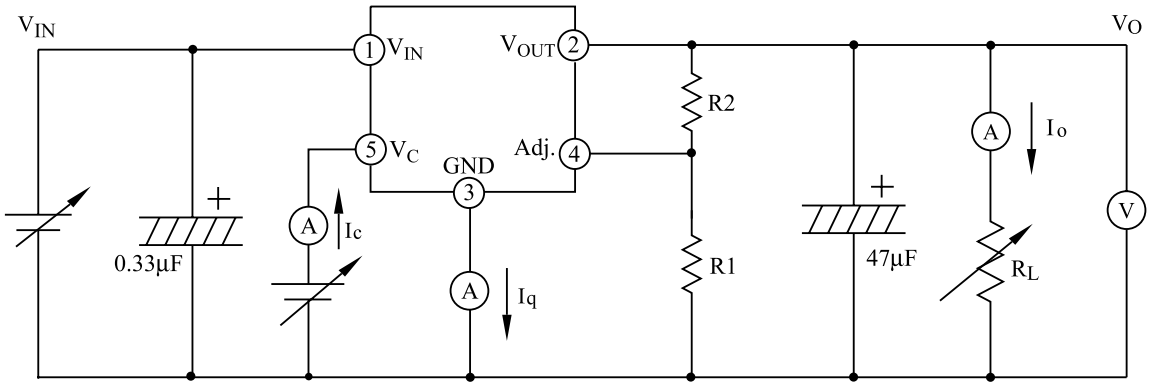
BLOCK DIAGRAM



PIN CONNECTION

Item / Pin No.	KIA278R000PI (TO-220IS-4)	KIA278R000FP (D²PAK-5)
1	V_{IN}	V_{IN}
2	V_{OUT}	V_{OUT}
3	GND	GND
4	Adj	Adj
5	-	V_C

Fig. 1 Test Circuit



(1) V_{OUT} = Vref $\times(1+R_2/R_1)$, (R_1=1kΩ, Vref=1.25V)

(2) ⑤ Pin (V_C) Terminal is only for KIA278R000FP (D^2PAK-5)

Fig. 2 Ripple Rejection Circuit

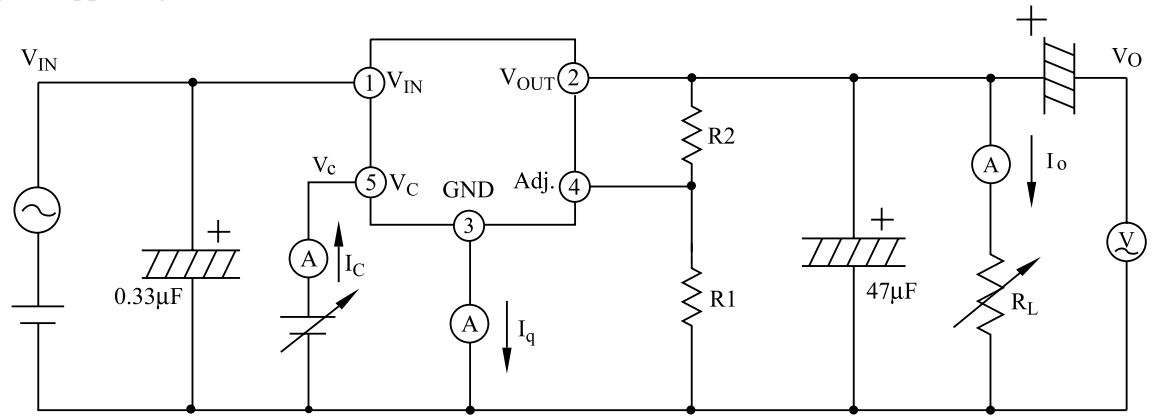
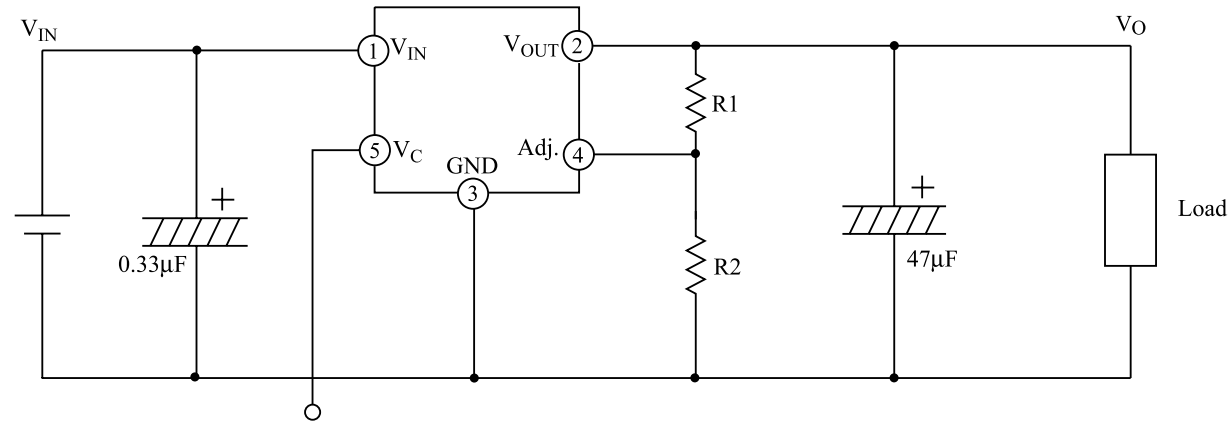


Fig. 3 Application Circuit for Standard



(1) ON/OFF Signal [High : Output ON]

[Low/Open : Output OFF]

(2) V_{OUT} = Vref $\times(1+R_1/R_2)$, (R_1=1kΩ, Vref=1.25V)

(3) ⑤ Pin (V_C) Terminal is only for KIA278R000FP (D^2PAK-5)

Fig. 4 I_O - V_O

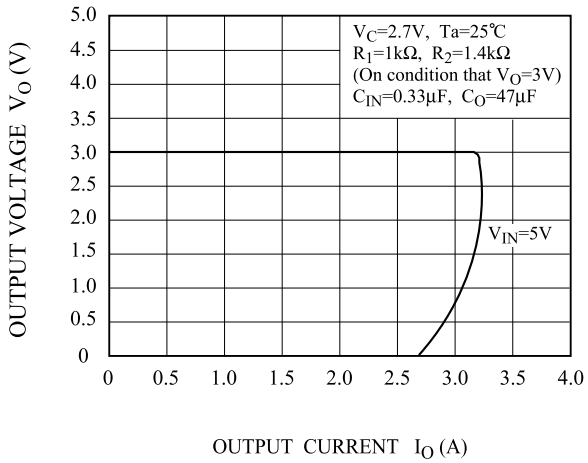


Fig. 5 Ta - ΔV_{ref}

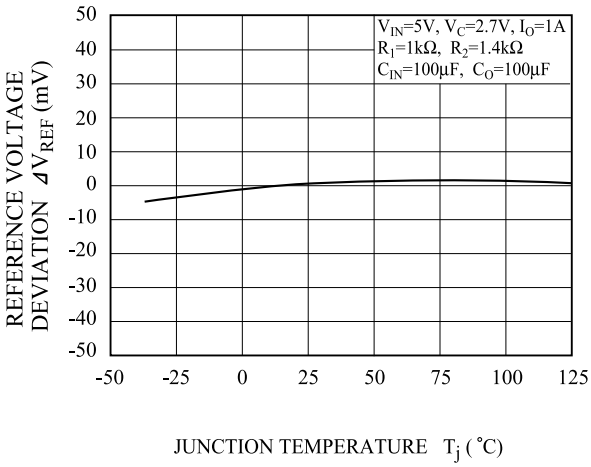


Fig. 6 V_{IN} - V_O

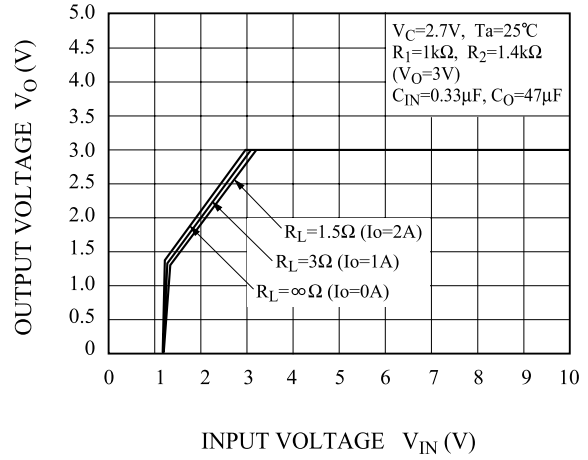


Fig. 7 V_{IN} - I_{BIAS}

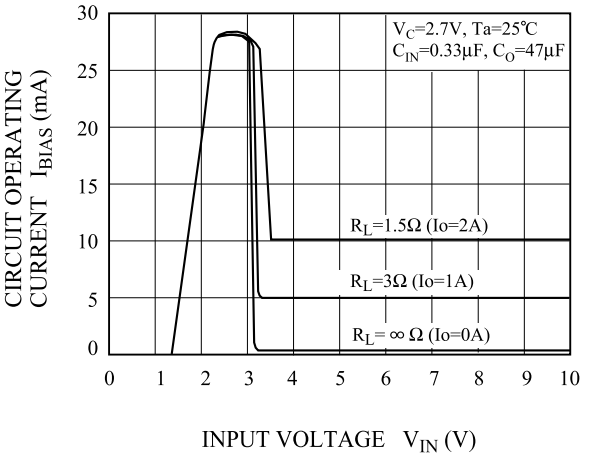


Fig. 8 T_j - V_D

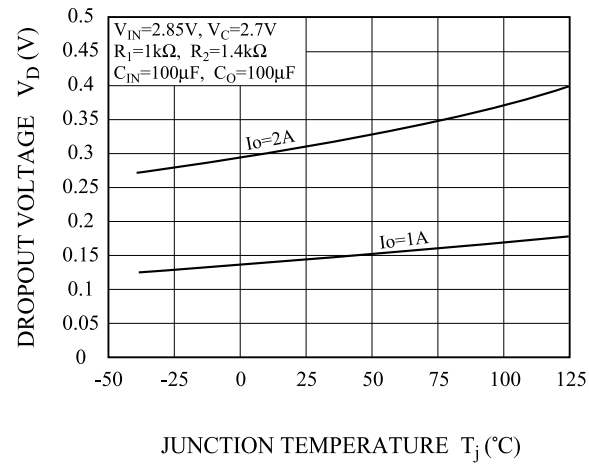


Fig. 9 T_j - V_Q

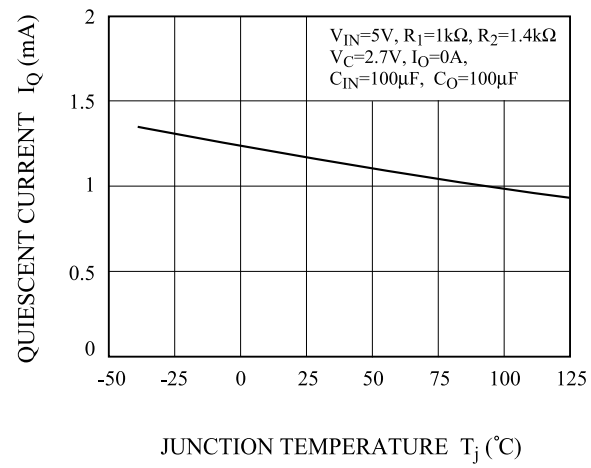


Fig.10 f_{IN} - R.R

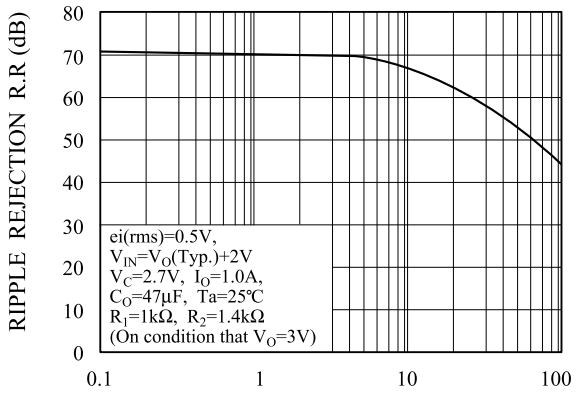


Fig. 11 V_{IN} - R.R

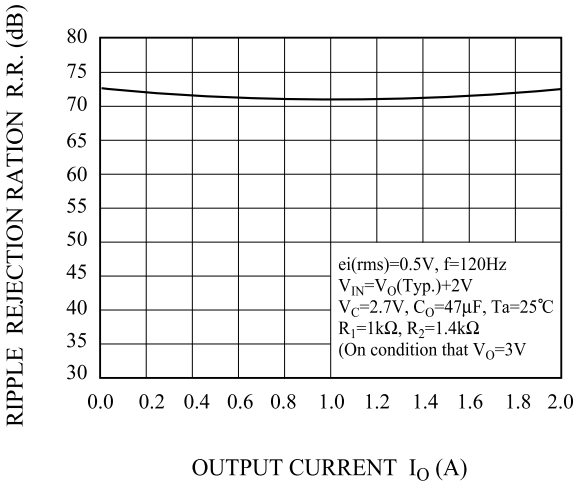


Fig. 12 P_D - Ta (FP-Type : D^2PAK-5)

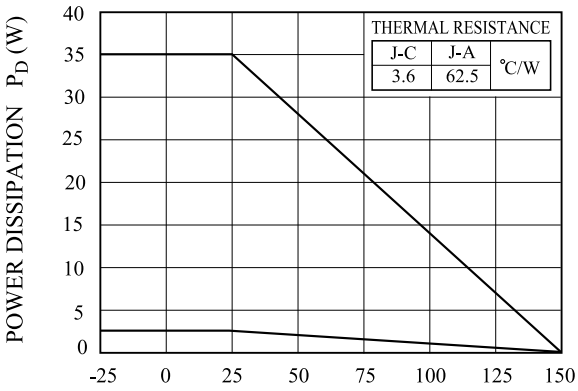


Fig.13 P_D - Ta (PI-Type : TO-220IS-4)