

## 4 TERMINAL 2A OUTPUT LOW DROP VOLTAGE REGULATOR

The KIA278R × × 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 package. The Regulator has multi function such as over current protection, overheat protection and ON/OFF control.

### FEATURES

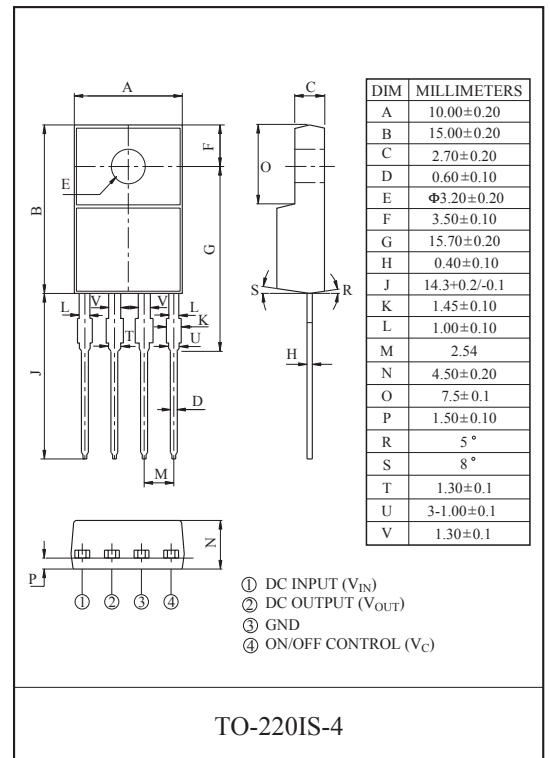
- 2.0A Output Low Drop Voltage Regulator.
- Built in ON/OFF Control Terminal.
- Built in Over Current Protection, Over Heat Protection Function.
- Suffix U : Qualified to AEC-Q100.  
ex) KIA278R\*\*PI-U/PU

### LINE UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
KIA278R25PI	2.5	V
KIA278R33PI	3.3	
KIA278R35PI	3.5	
KIA278R05PI	5	
KIA278R06PI	6	
KIA278R08PI	8	
KIA278R09PI	9	
KIA278R10PI	10	
KIA278R12PI	12	
KIA278R15PI	15	

### MAXIMUM RATINGS (Ta=25°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	with heatsink
Operating Junction Temperature	$T_{J(opr)}$	-40 ~ 150	°C	-
Storage Temperature	$T_{stg}$	-45 ~ 150	°C	-
Soldering Temperature (10sec)	$T_{sol}$	260	°C	-



# KIA278R05PI~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	-	2.438	2.50	2.562	V
	KIA278R33	-	3.22	3.30	3.38	
	KIA278R35	-	2.413	3.50	3.587	
	KIA278R05	-	4.88	5.0	5.12	
	KIA278R06	-	5.85	6.0	6.15	
	KIA278R08	-	7.80	8.0	8.2	
	KIA278R09	-	8.78	9.0	9.22	
	KIA278R10	-	9.75	10.0	10.25	
	KIA278R12	-	11.70	12.0	12.30	
KIA278R15	-	14.70	15.0	15.30		
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
Drop Out 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

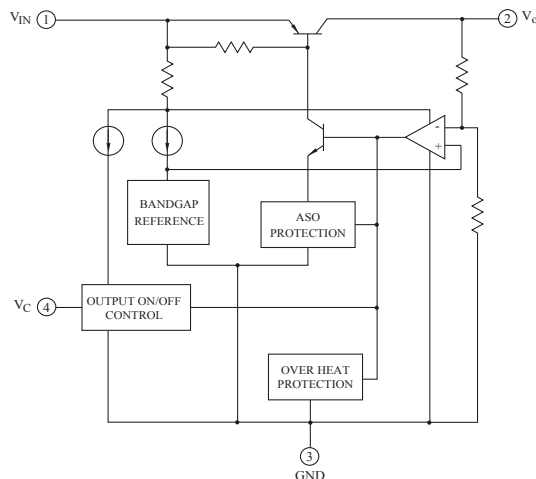
Note2)  $V_{IN}$  of KIA278R25=3.2 ~ 10V

Note3) At  $V_{IN}=0.95V_O$

- " KIA278R33=5.0V
- " KIA278R35=5.2V
- " KIA278R05=7V
- " KIA278R06=8V
- " KIA278R08=10V
- " KIA278R09=15V
- " KIA278R10=16V
- " KIA278R12=18V
- " KIA278R15=21V

- " KIA278R33=4.0 ~ 10V
- " KIA278R35=4.2 ~ 10V
- " KIA278R05=6 ~ 12V
- " KIA278R06=7 ~ 15V
- " KIA278R08=9 ~ 25V
- " KIA278R09=10 ~ 25V
- " KIA278R10=11 ~ 26V
- " KIA278R12=13 ~ 29V
- " KIA278R15=16 ~ 32V

## BLOCK DIAGRAM



# KIA278R05PI~KIA278R35PI

Fig. 1 Standard Test Circuit

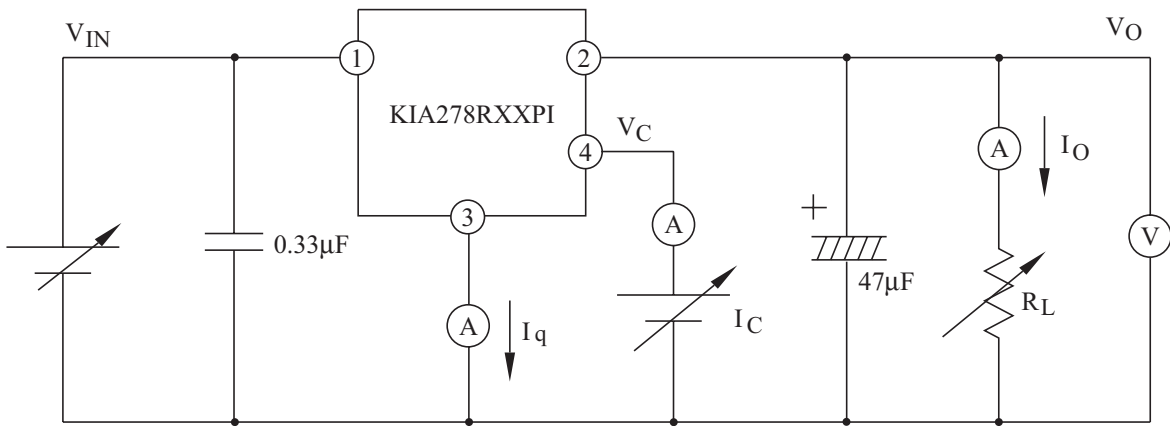


Fig. 2 Ripple Rejection Test Circuit

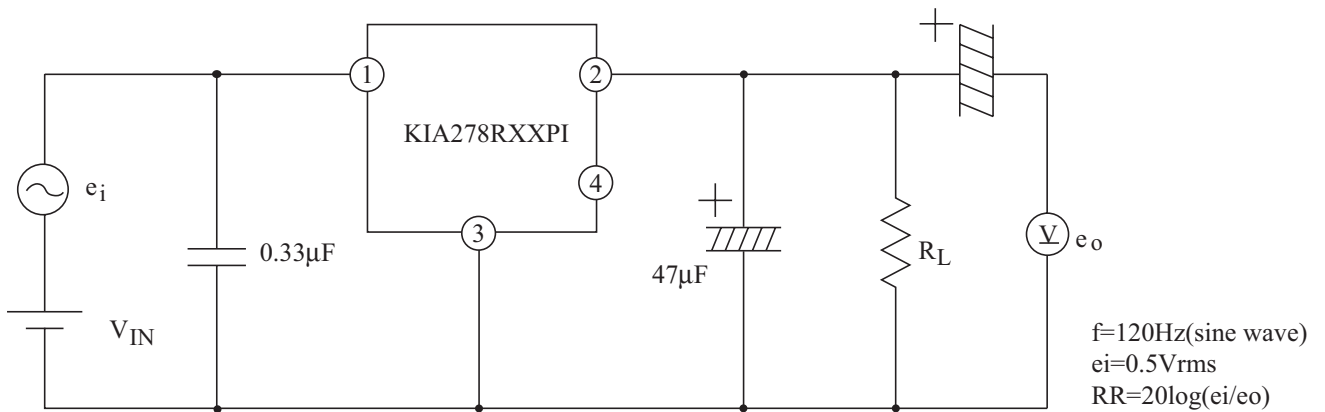
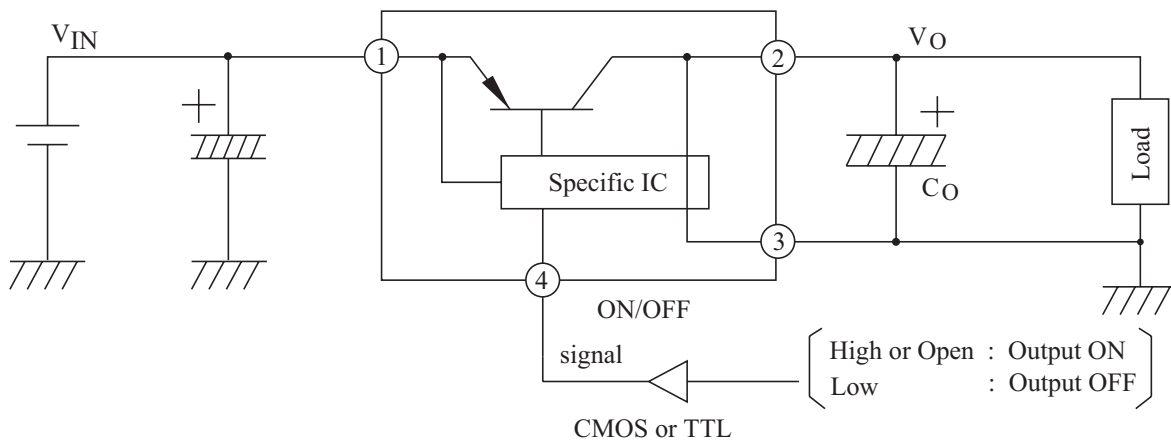


Fig. 3 Application Circuit for Standard



# KIA278R05PI~KIA278R35PI

Fig.4  $P_D - T_a$

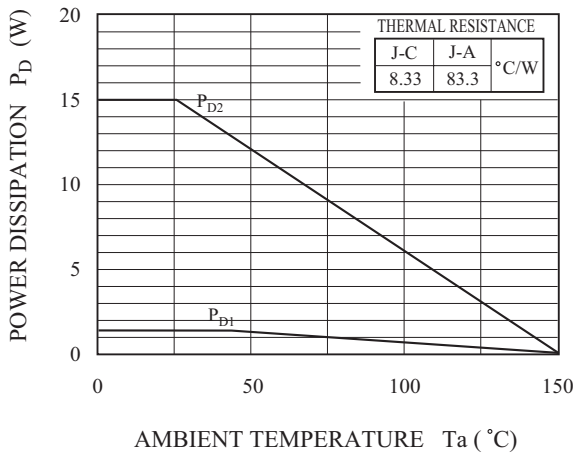


Fig.5  $I_O - V_O$

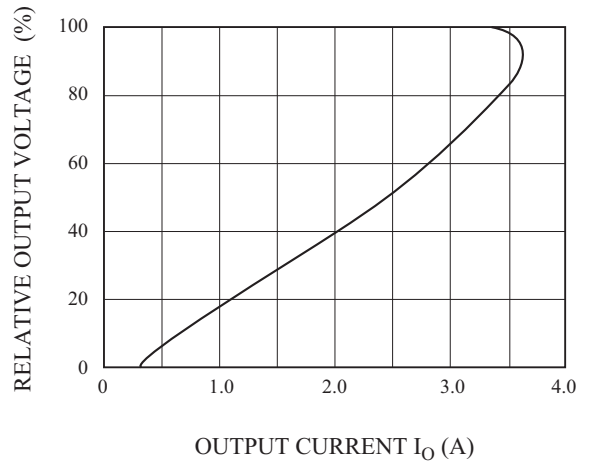


Fig. 6  $\Delta V_O - T_j$

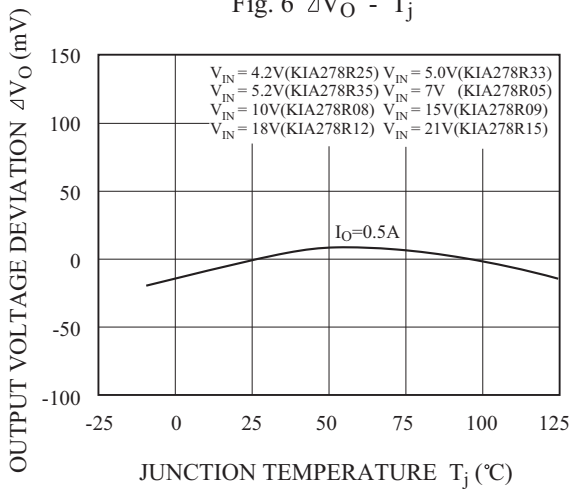


Fig.7  $V_{IN} - V_O$  (KIA278R05)

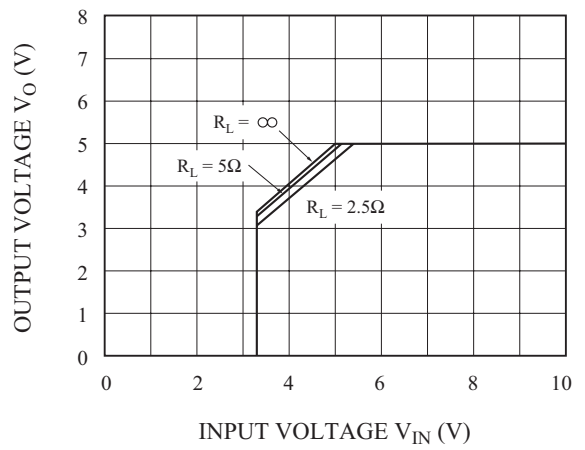


Fig.8  $V_{IN} - V_O$  (KIA278R08)

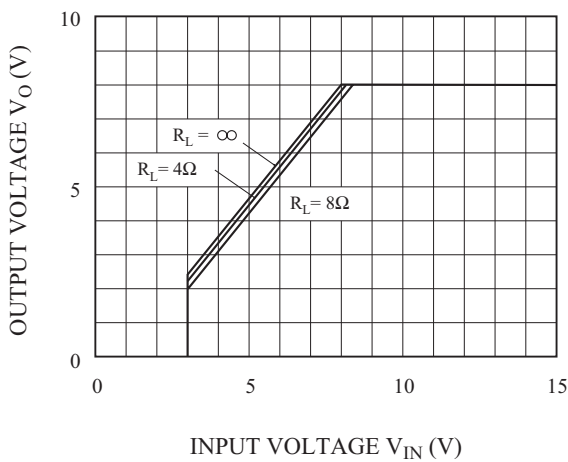
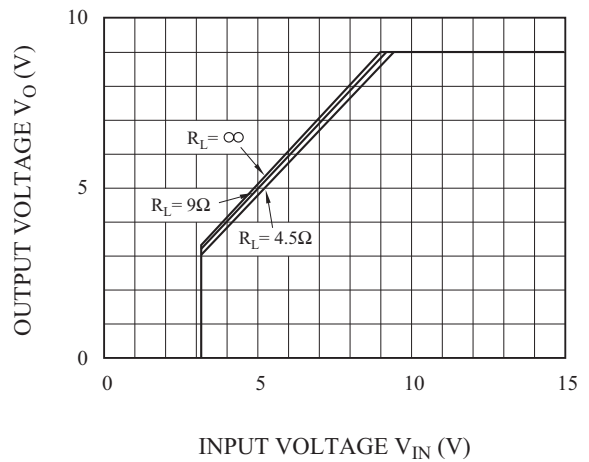


Fig.9  $V_{IN} - V_O$  (KIA278R09)



# KIA278R05PI~KIA278R35PI

Fig.10  $V_{IN} - V_O$  (KIA278R12)

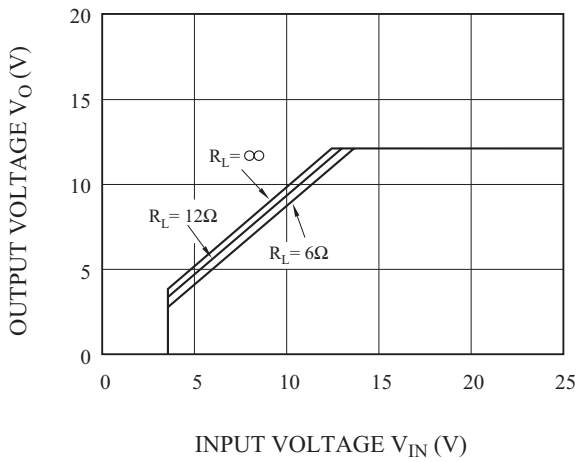


Fig.11  $V_{IN} - V_O$  (KIA278R15)

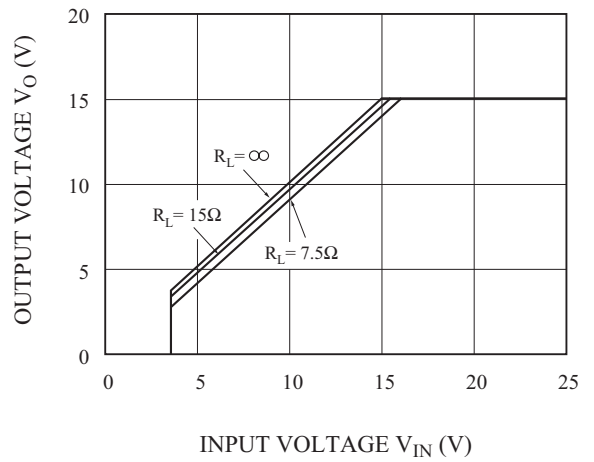


Fig.12  $V_{IN} - I_{BIAS}$  (KIA278R05)

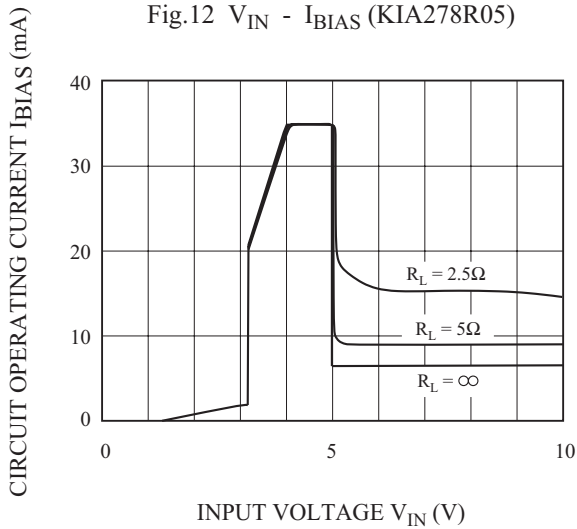


Fig.13  $V_{IN} - I_{BIAS}$  (KIA278R08)

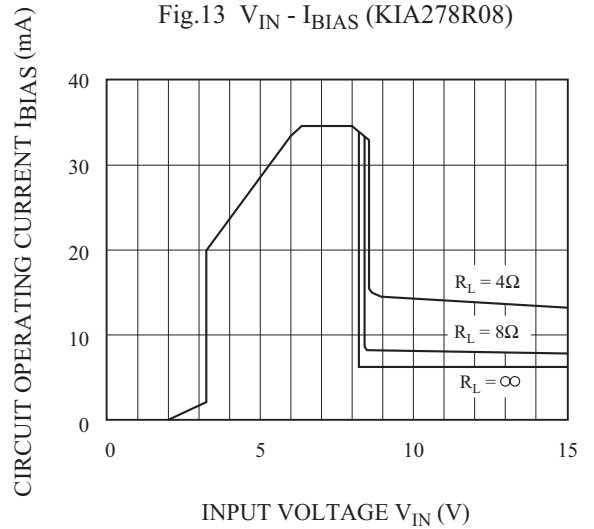


Fig.14  $V_{IN} - I_{BIAS}$  (KIA278R09)

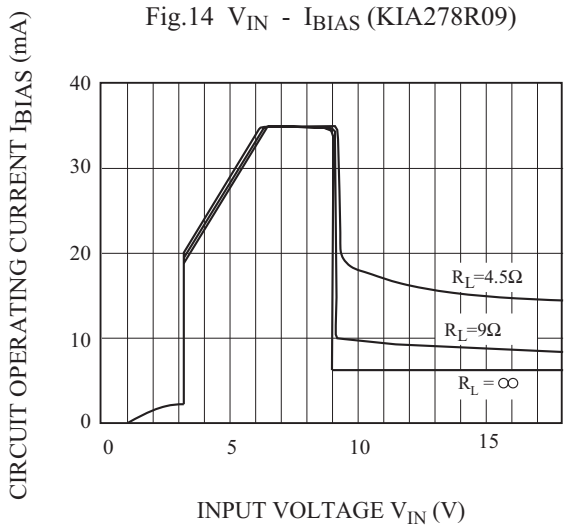
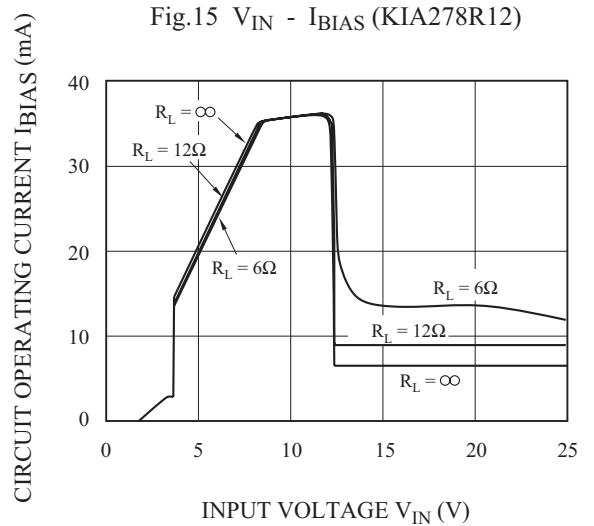


Fig.15  $V_{IN} - I_{BIAS}$  (KIA278R12)



# KIA278R05PI~KIA278R35PI

Fig.16  $V_{IN} - I_{BIAS}$  (KIA278R15)

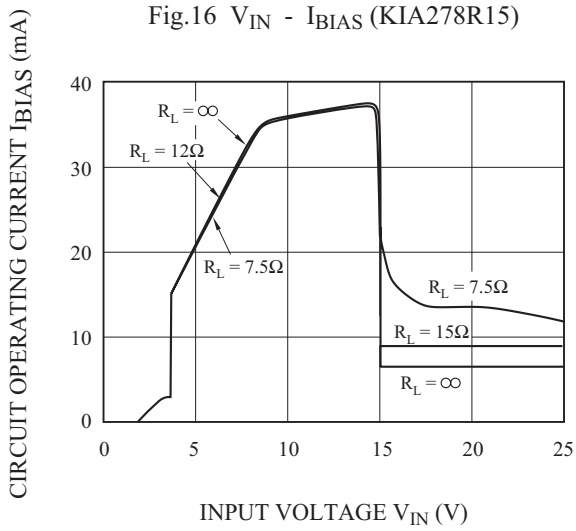


Fig.17  $T_j - V_D$

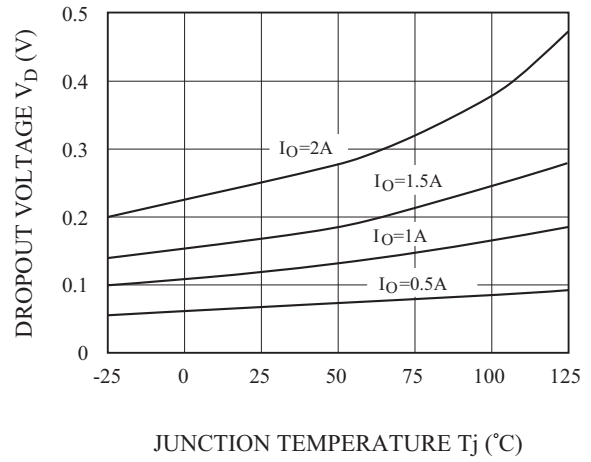


Fig.18  $T_j - I_q$

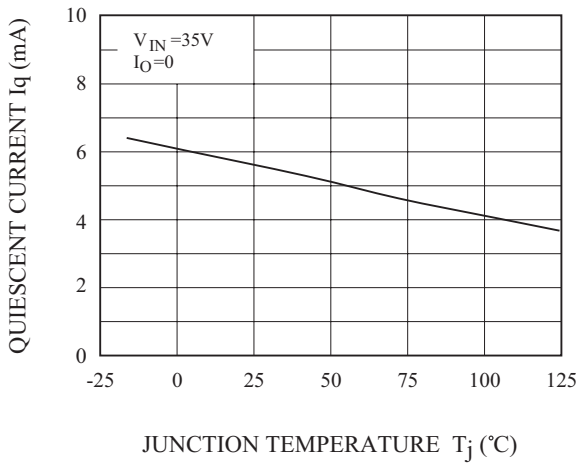


Fig. 19 R.R - f

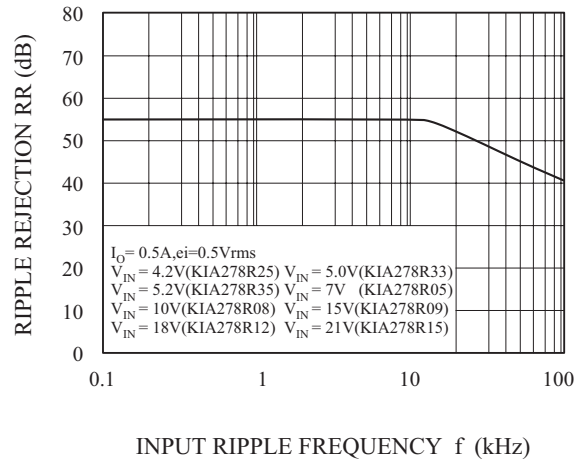


Fig.20  $I_O - RR$

