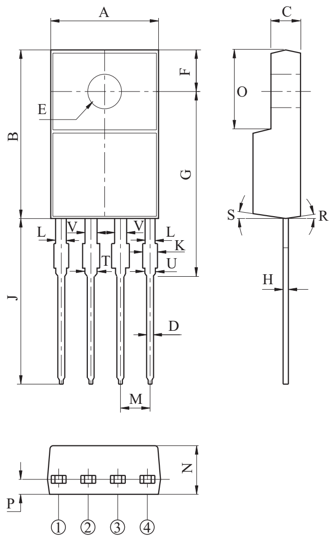
4 TERMINAL 3A OUTPUT LOW DROP VOLTAGE REGULATOR

The KIA378R × × Series are Low Drop Voltage Regulator suitable for various electronic equipments.
It provides constant voltage power source with TO-220IS-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.



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 ON/OFF CONTROL

TO-220IS-4

LINE UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
KIA378R05PI	5	V
KIA378R06PI	6	
KIA378R08PI	8	
KIA378R09PI	9	
KIA378R10PI	10	
KIA378R12PI	12	
KIA378R15PI	15	

MAXIMUM RATINGS (Ta=25 ℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT	Remark
Input Voltage	V_{IN}	35	V	-
ON/OFF Control Voltage	V_C	35	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
Operating Junction Temperature	$T_{J(opr)}$	-40 ~ 150	℃	-
Storage Temperature	T_{stg}	-45～150	℃	-
Soldering Temperature (10sec)	T_{sol}	260	℃	-

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, I_O=1.0A, Ta=25℃, Note1.)

CHARACTERISTIC		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	KIA378R05	V_O	-	4.88	5.0	5.12	V
	KIA378R06		-	5.85	6.0	6.15	
	KIA378R08		-	7.80	8.0	8.2	
	KIA378R09		-	8.78	9.0	9.22	
	KIA378R10		-	9.75	10.0	10.25	
	KIA378R12		-	11.70	12.0	12.30	
	KIA378R15		-	14.70	15.0	15.30	
Load Regulation		Reg Load	I_O=5mA ~3A	-	0.1	2.0	%
Line Regulation		Reg Line	(Note 2)	-	0.5	2.5	%
Temperature Coefficient of Output Voltage		T_CV_O	Tj=0 ~125℃	-	±0.02	±0.05	%/℃
Ripple Rejection		R・R	-	45	55	-	dB
Drop Out Voltage		V_D	I_O=3A	-	-	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	μA
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 KIA378R05=7V
" KIA378R06=8V
" KIA378R08=10V
" KIA378R09=15V
" KIA378R10=16V
" KIA378R12=18V
" KIA378R15=21V

Note2) V_{IN} of KIA378R05=6～12V
" KIA378R06=7～15V
" KIA378R08=9～25V
" KIA378R09=10～25V
" KIA378R10=11～26V
" KIA378R12=13～29V
" KIA378R15=16～32V

Note3) At V_{IN}=0.95V_O

BLOCK DIAGRAM

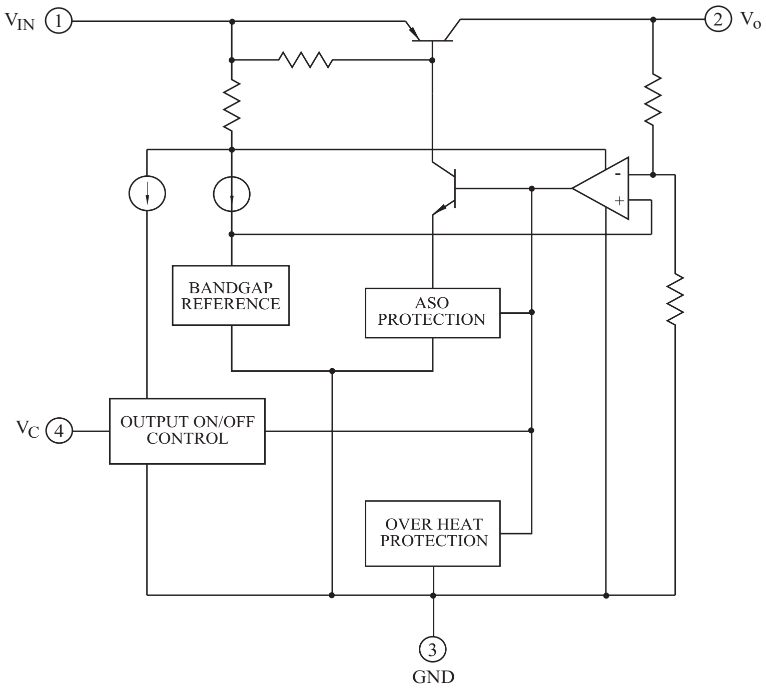


Fig. 1 Standard Test Circuit

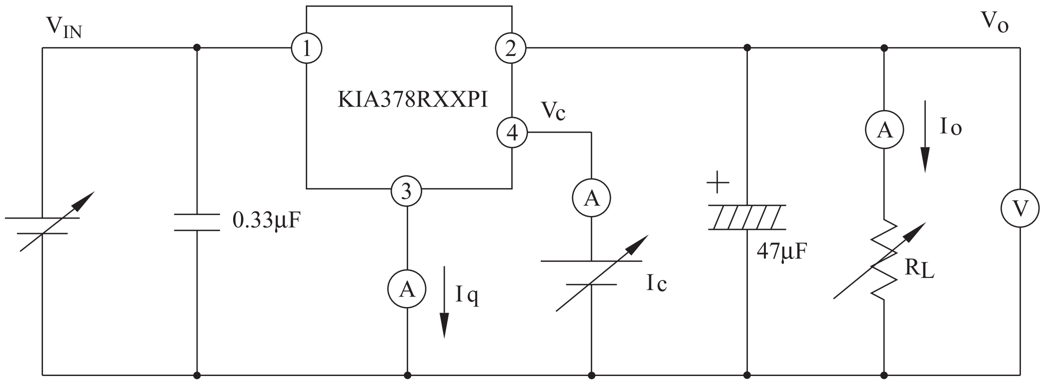


Fig. 1-2 Ripple Rejection Test Circuit

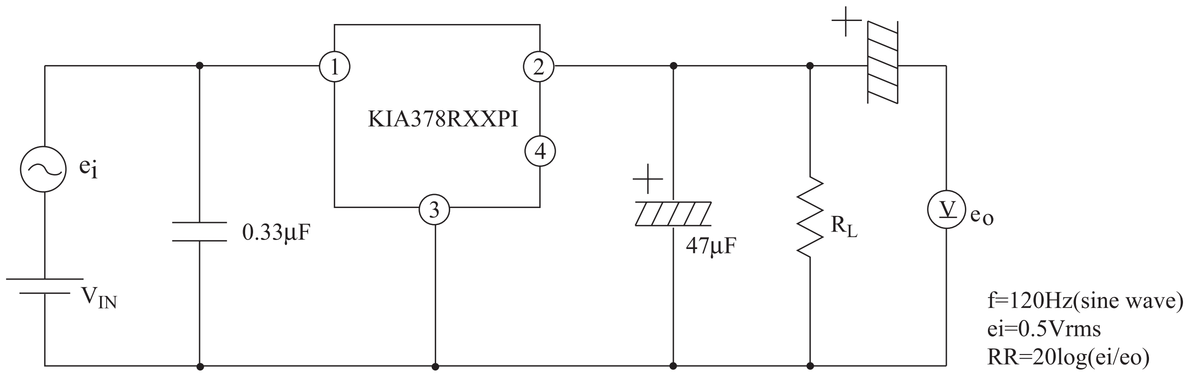


Fig. 2 Application Circuit for Standard

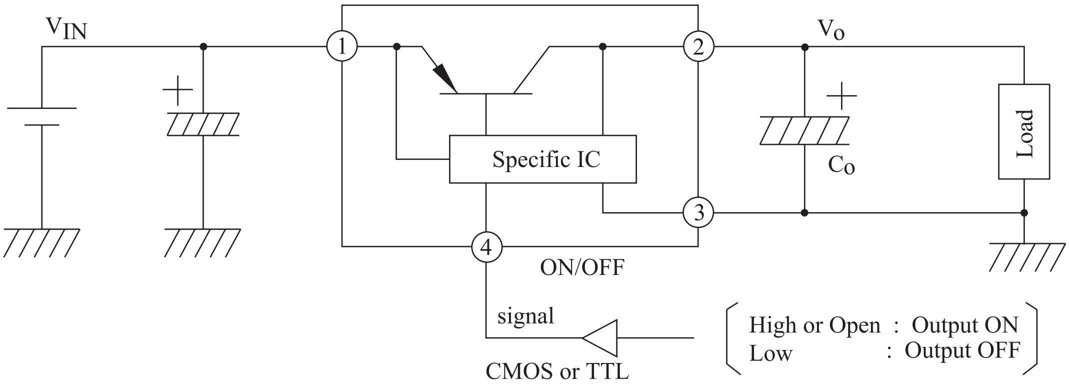
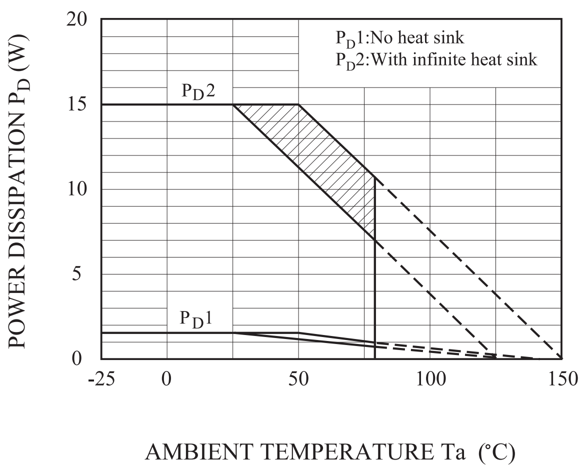


Fig.3 Ta - PD



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

Fig.4 I_O - V_O

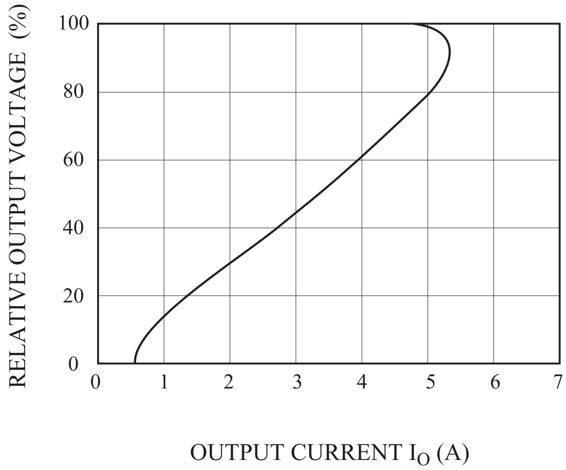


Fig.5-1 T_j - ΔV_O (KIA378R05)

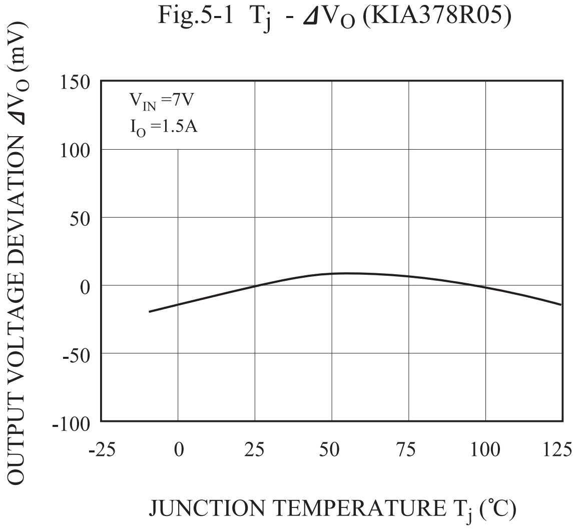


Fig.5-2 T_j - ΔV_O (KIA378R08)

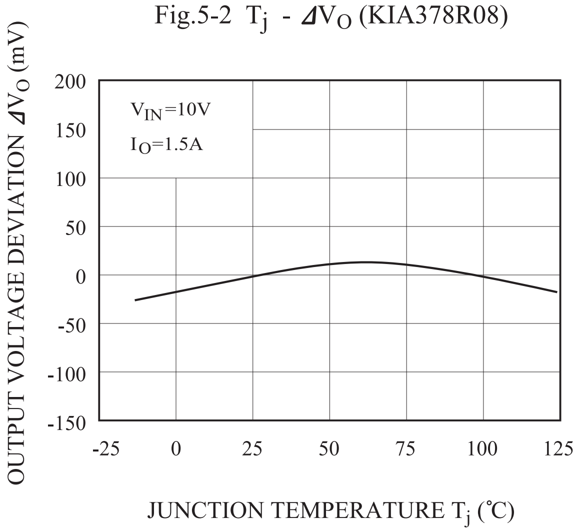


Fig.5-3 T_j - ΔV_O (KIA378R09)

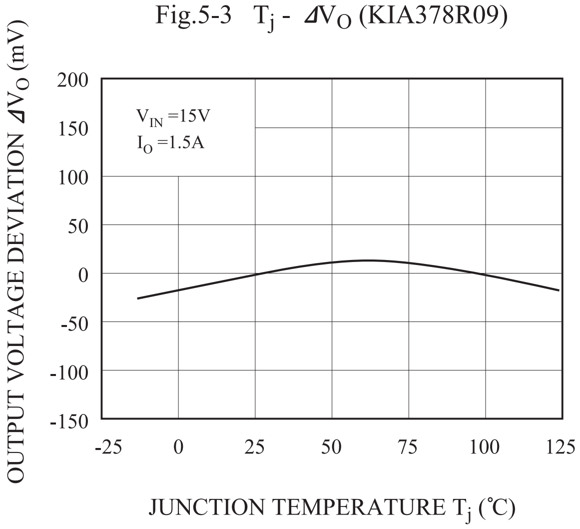


Fig.5-4 T_j - ΔV_O (KIA378R12)

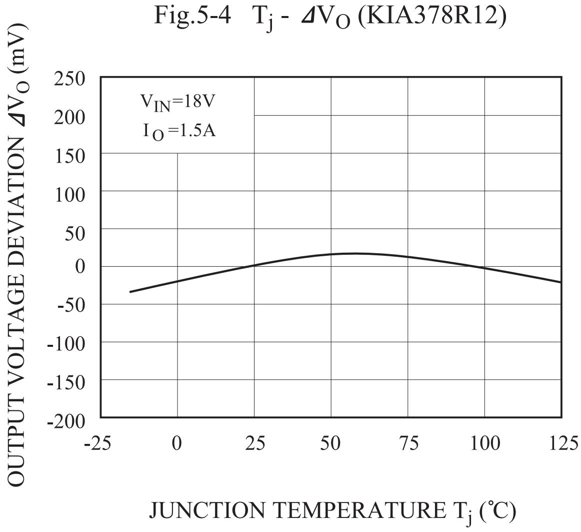


Fig.5-5 T_j - ΔV_O (KIA378R15)

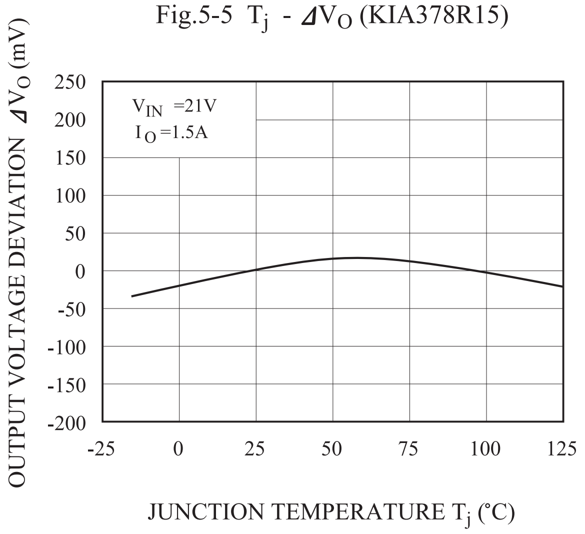


Fig.6-1 V_{IN} - V_O (KIA378R05)

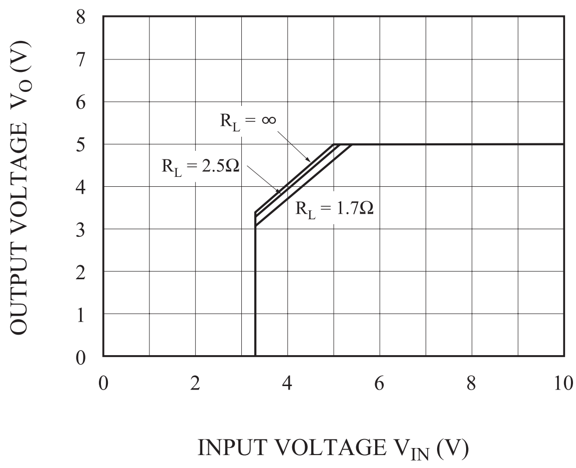


Fig.6-2 V_{IN} - V_O (KIA378R08)

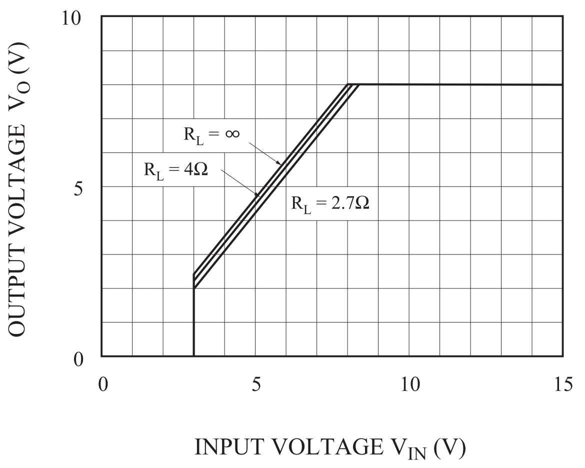


Fig.6-3 V_{IN} - V_O (KIA378R09)

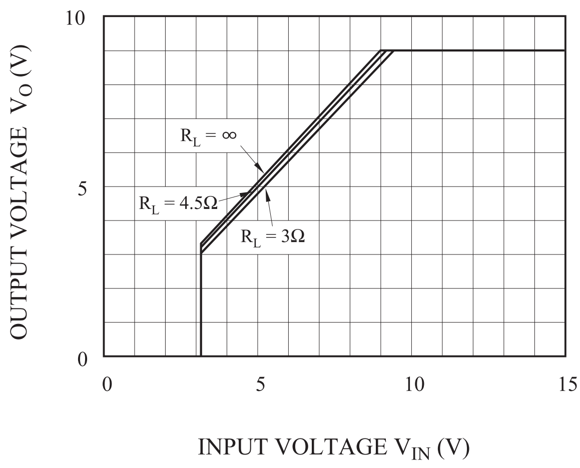


Fig.6-4 V_{IN} - V_O (KIA378R12)

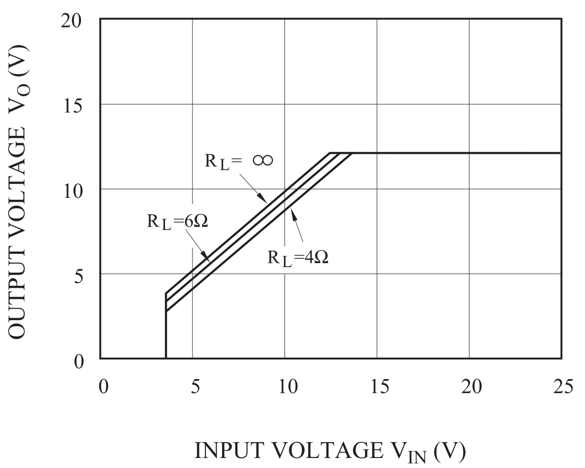


Fig.6-5 V_{IN} - V_O (KIA378R15)

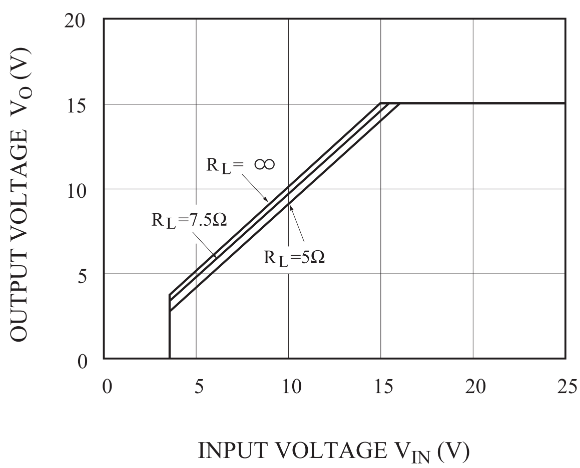


Fig.7-1 V_{IN} - I_{BIAS} (KIA378R05)

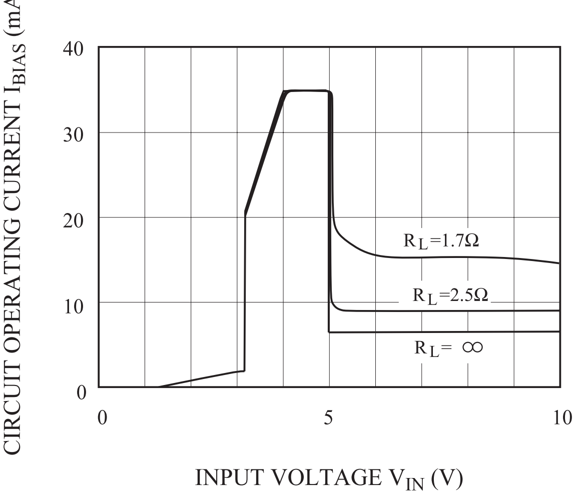


Fig.7-2 V_{IN} - I_{BIAS} (KIA378R08)

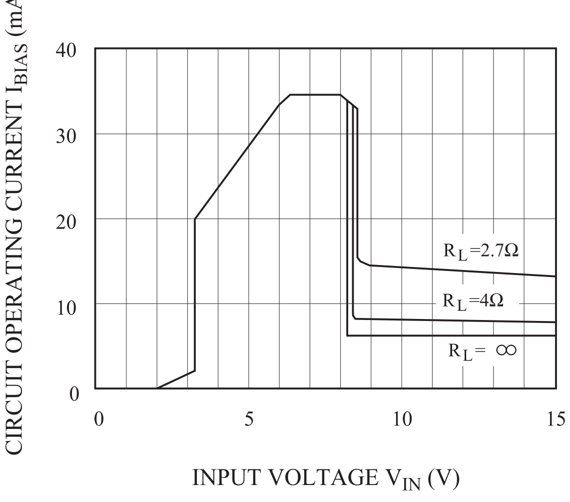


Fig.7-3 V_{IN} - I_{BIAS} (KIA378R09)

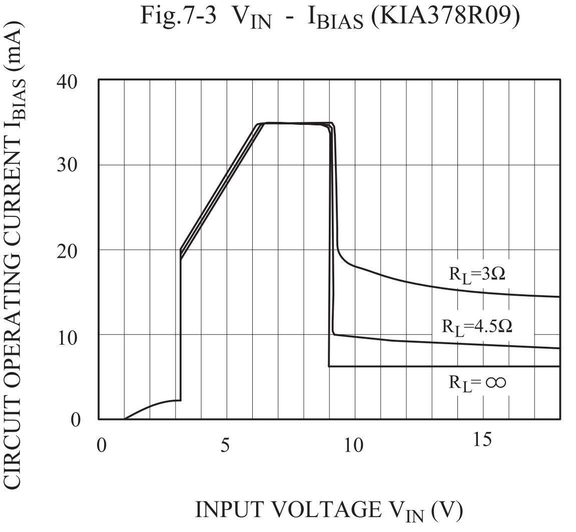


Fig.7-4 V_{IN} - I_{BIAS} (KIA378R12)

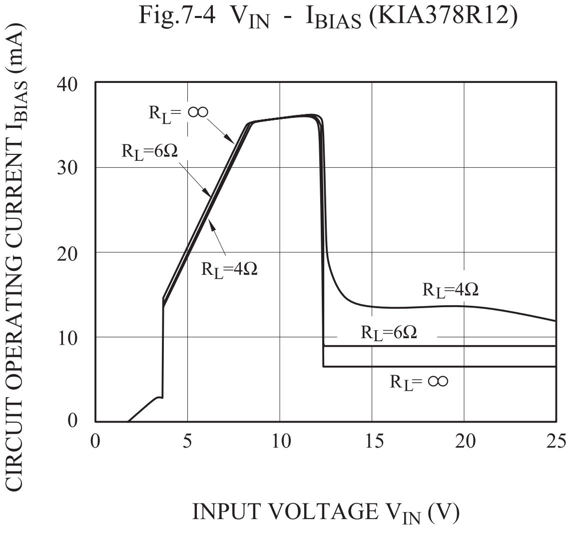


Fig.7-5 V_{IN} - I_{BIAS} (KIA378R15)

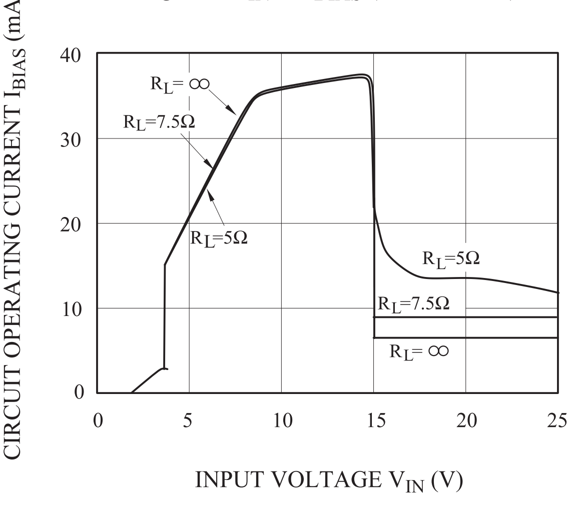


Fig.8 T_j - V_D

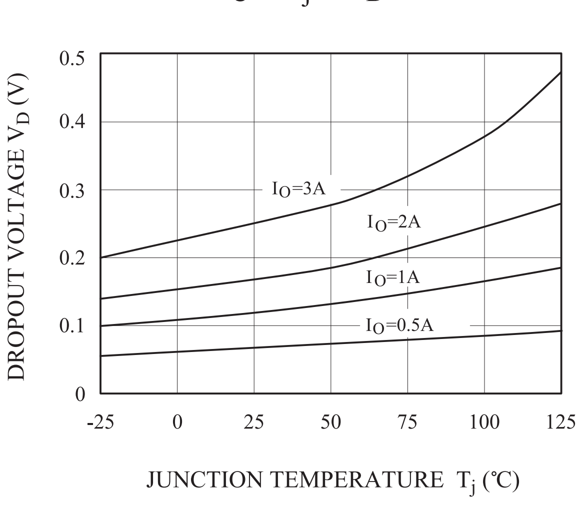


Fig.9 T_j - I_q

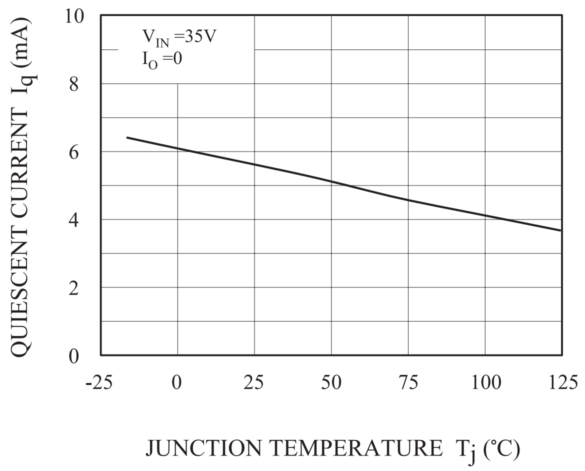


Fig. 10-1 f - RR

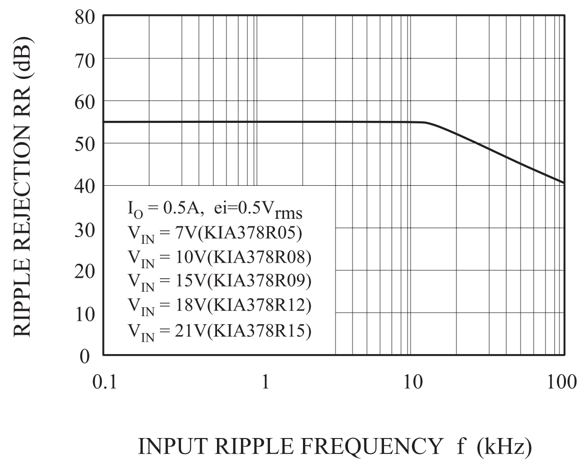


Fig.10-2 I_O - RR