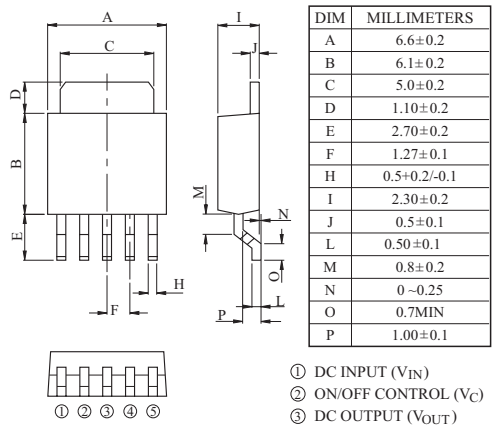
5 TERMINAL LOW DROPOUT VOLTAGE REGULATOR

The KIA78R×× series are Low Dropout Voltage Regulator suitable for various electronic equipments. It provides constant voltage power source with DPAK-5 terminal surface mount type PKG.

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



DIM	MILLIMETERS
A	6.6±0.2
B	6.1±0.2
C	5.0±0.2
D	1.10±0.2
E	2.70±0.2
F	1.27±0.1
H	0.5+0.2/-0.1
I	2.30±0.2
J	0.5±0.1
L	0.50±0.1
M	0.8±0.2
N	0 ~0.25
O	0.7MIN
P	1.00±0.1

① DC INPUT (V_{IN})
② ON/OFF CONTROL (V_C)
③ DC OUTPUT (V_{OUT})
④ N.C
⑤ GND
Heat Sink is Common to ⑤ GND

DPAK-5

FEATURES

- 1.0A Output Low Dropout Voltage Regulator.
- Built in ON/OFF Control Terminal.
- Built in Over Current Protection, Over Heat Protection Function.

LINE UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
KIA78R05F	5	V
KIA78R06F	6	
KIA78R08F	8	
KIA78R09F	9	
KIA78R10F	10	
KIA78R12F	12	
KIA78R15F	15	
KIA78R25F	2.5	
KIA78R33F	3.3	
KIA78R35F	3.5	

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	1	A	-
Power Dissipation 1	P_{D1}	1.3	W	No Heatsink
Power Dissipation 2	P_{D2}	13	W	Infinite Heatsink
Junction Temperature	T_j	150	℃	-
Operating Temperature	T_{opr}	-20~80	℃	-
Storage Temperature	T_{stg}	-30~150	℃	-
Soldering Temperature (10sec)	T_{sol}	260	℃	-

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, I_O=0.5A, Ta=25℃, Note1.)

CHARACTERISTIC		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	KIA78R05F	V_O	-	4.88	5.0	5.12	V
	KIA78R06F		-	5.85	6.0	6.15	
	KIA78R08F		-	7.80	8.0	8.2	
	KIA78R09F		-	8.78	9.0	9.22	
	KIA78R10F		-	9.75	10.0	10.25	
	KIA78R12F		-	11.70	12.0	12.30	
	KIA78R15F		-	14.70	15.0	15.30	
	KIA78R25F		-	2.438	2.50	2.562	
	KIA78R33F		-	3.220	3.30	3.380	
	KIA78R35F		-	3.413	3.50	3.587	
Load Regulation		Reg Load	5mA≤I_{OUT}≤1A	-	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=1A, V_{IN}=0.95 V_{OUT}	-	-	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 KIA78R05=7V
" KIA78R06=8V
" KIA78R08=10V
" KIA78R09=15V
" KIA78R10=16V
" KIA78R12=18V
" KIA78R15=21V
" KIA78R25=4.2V
" KIA78R33=5.0V
" KIA78R35=5.2V

Note2) V_{IN} of KIA78R05=6~12V
" KIA78R06=7~15V
" KIA78R08=9~25V
" KIA78R09=10~25V
" KIA78R10=11~26V
" KIA78R12=13~29V
" KIA78R15=16~32V
" KIA78R25=3.2~10V
" KIA78R33=4.0~10V
" KIA78R35=4.2~10V

BLOCK DIAGRAM

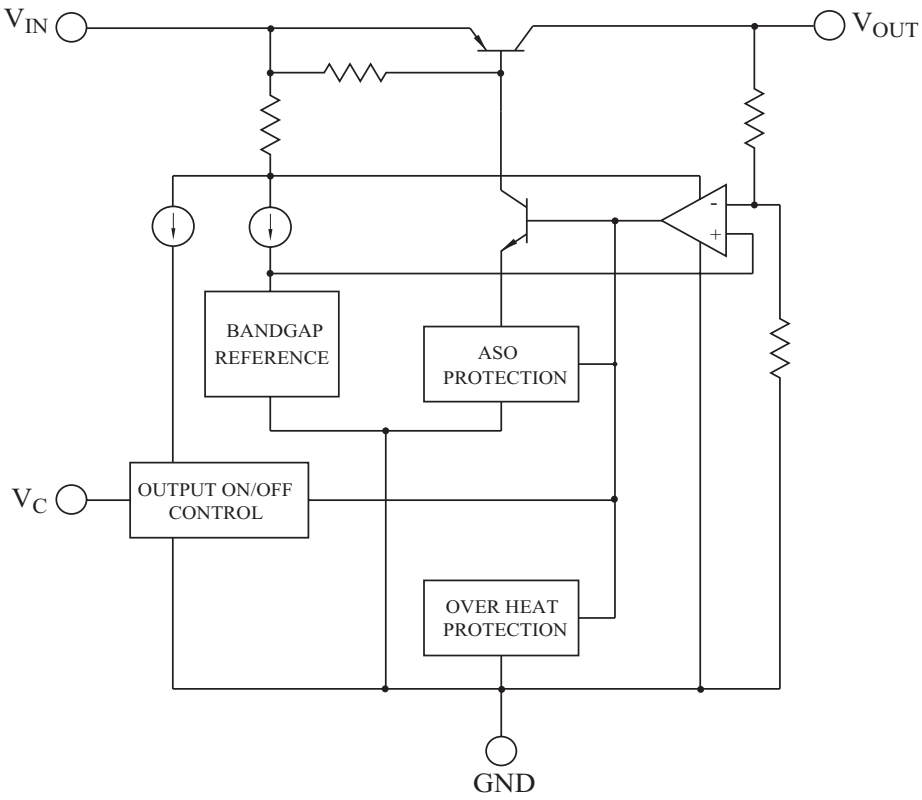


Fig. 1 Standard Test Circuit

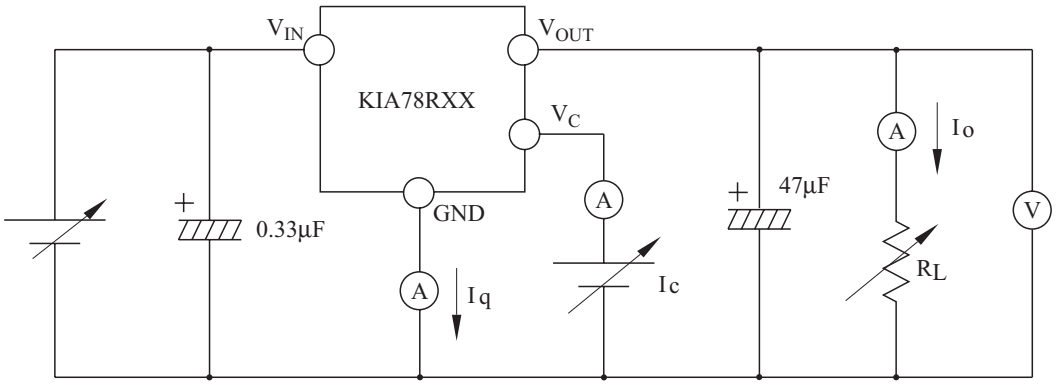


Fig. 2 Ripple Rejection Test Circuit

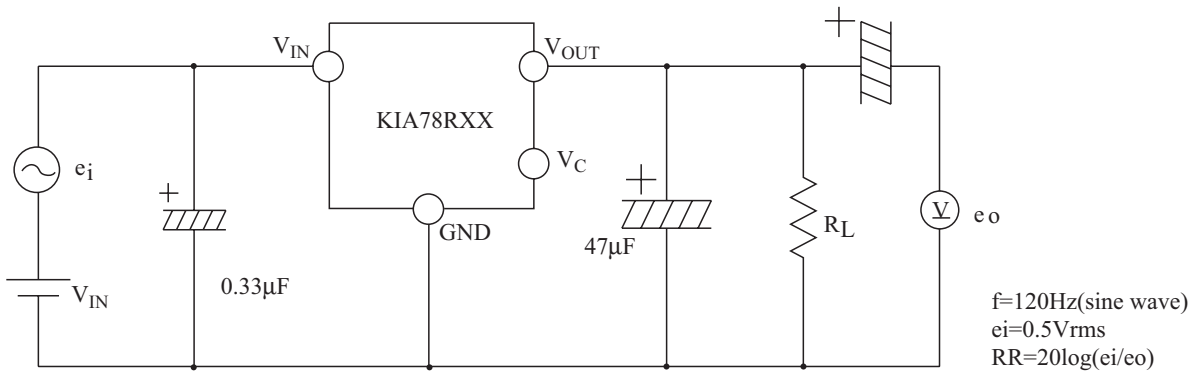


Fig. 3 Application Circuit for Standard

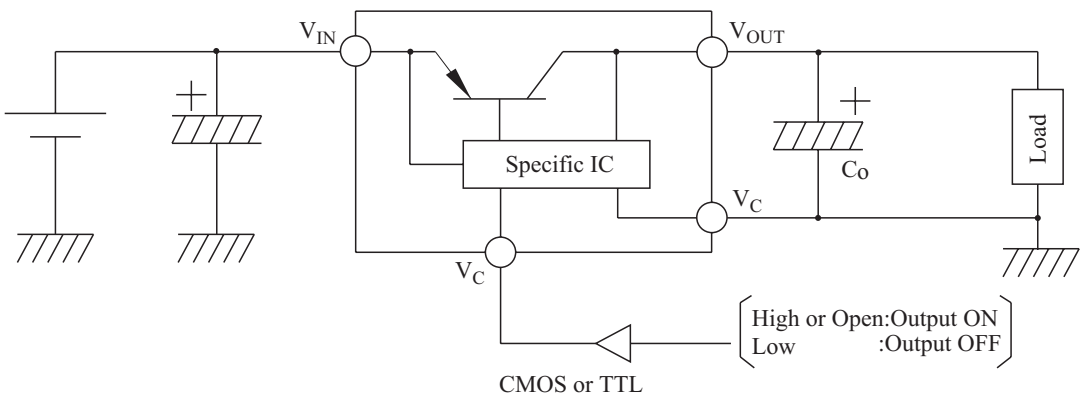


Fig. 4 P_D - Ta (DPAK-5)

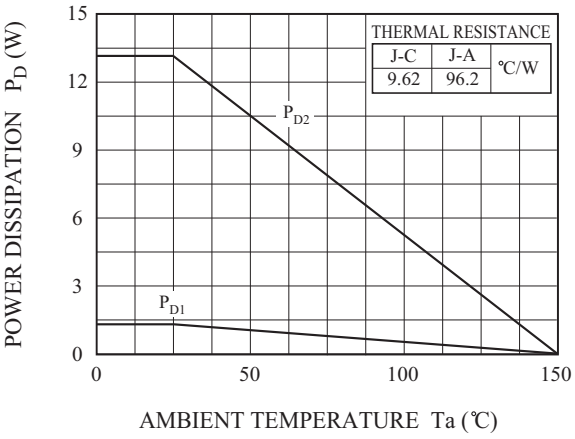


Fig. 5 V_{OUT} - I_{OUT}

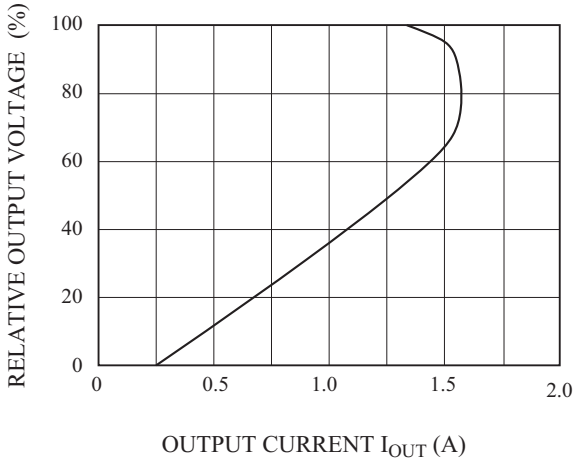


Fig. 6 ΔV_O - T_j

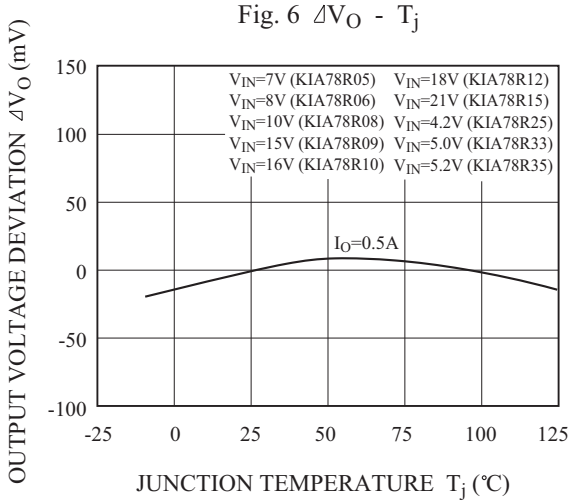


Fig. 7 V_D - T_j

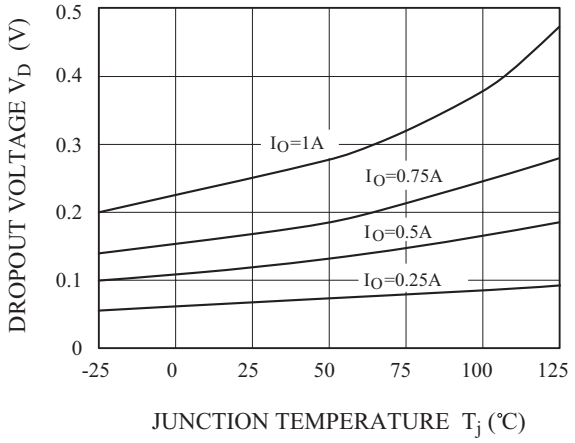


Fig. 8 I_q - T_j

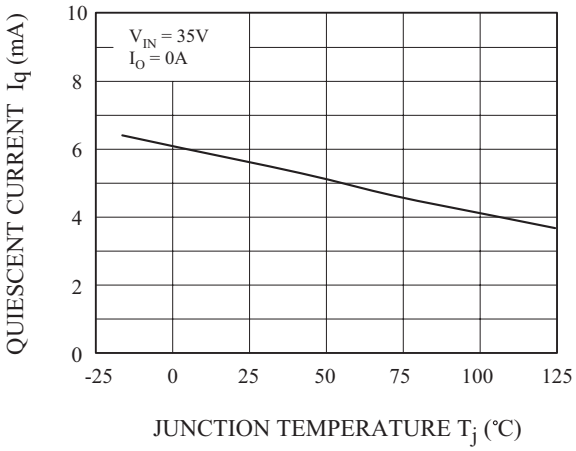


Fig. 9 R.R - f

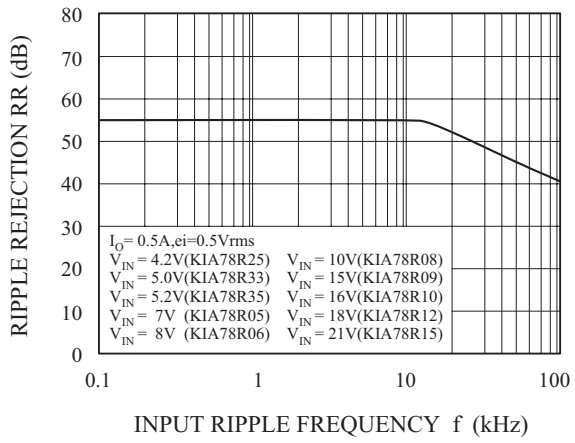


Fig. 10 R.R - I_{OUT}

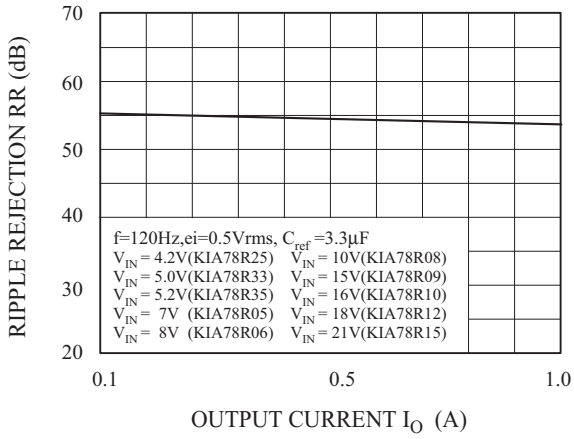


Fig. 11 V_{OUT} - V_{IN} (KIA78R33)

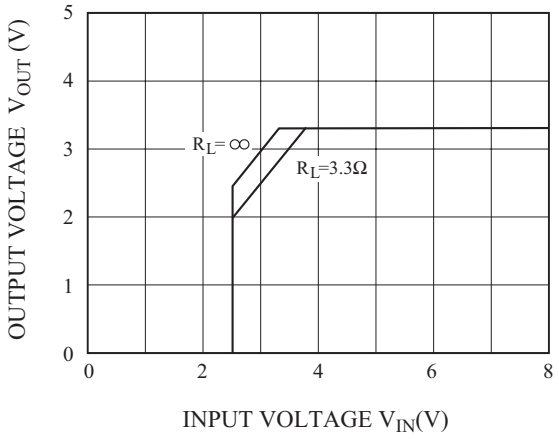


Fig. 12 V_{OUT} - V_{IN} (KIA78R05)

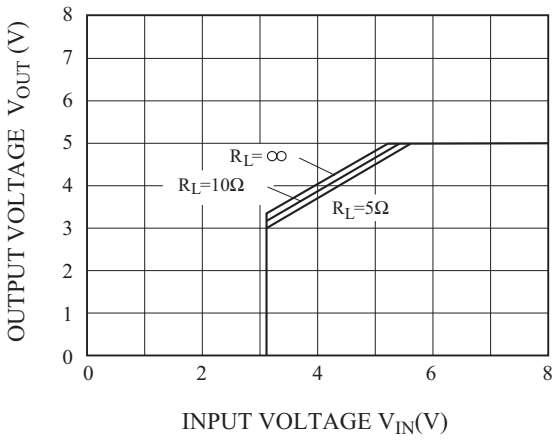


Fig. 13 V_{OUT} - V_{IN} (KIA78R06)

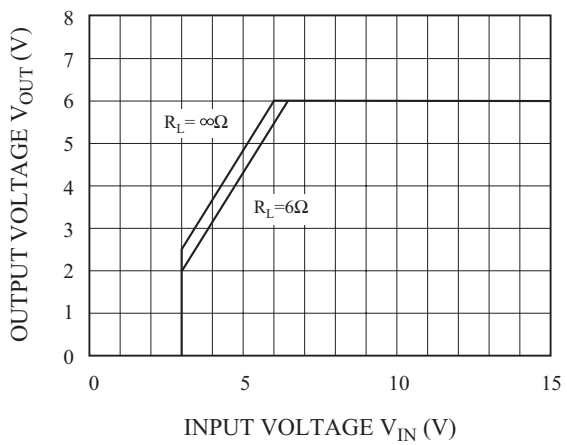


Fig. 14 V_{OUT} - V_{IN} (KIA78R08)

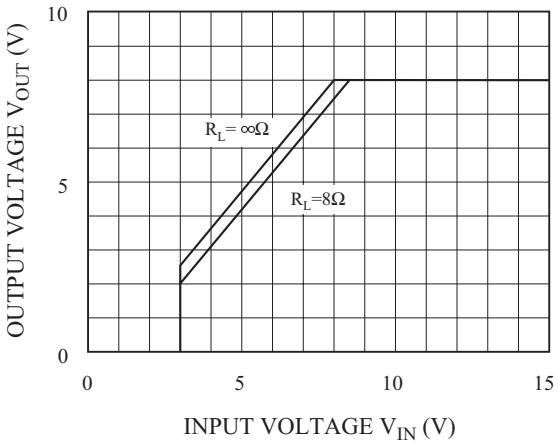


Fig. 15 V_{OUT} - V_{IN} (KIA78R09)

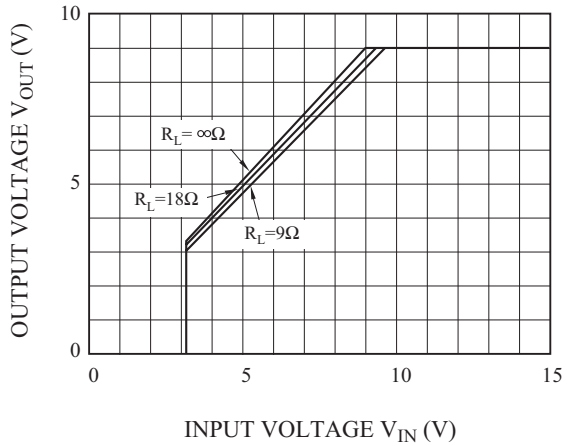


Fig. 16 V_{OUT} - V_{IN} (KIA78R10)

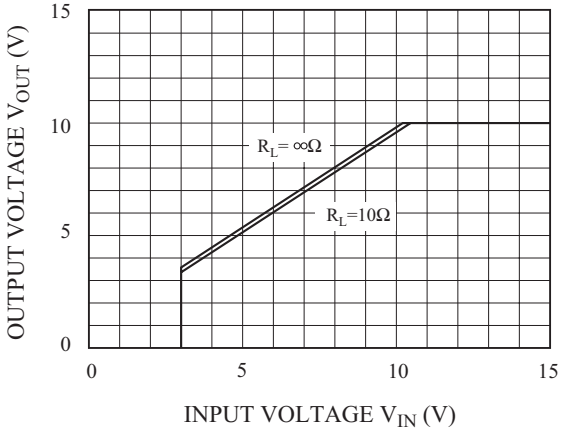


Fig. 17 V_{OUT} - V_{IN} (KIA78R12)

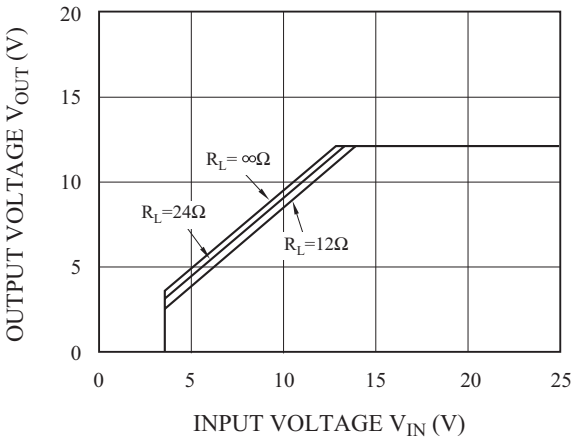


Fig. 18 V_{OUT} - V_{IN} (KIA78R15)

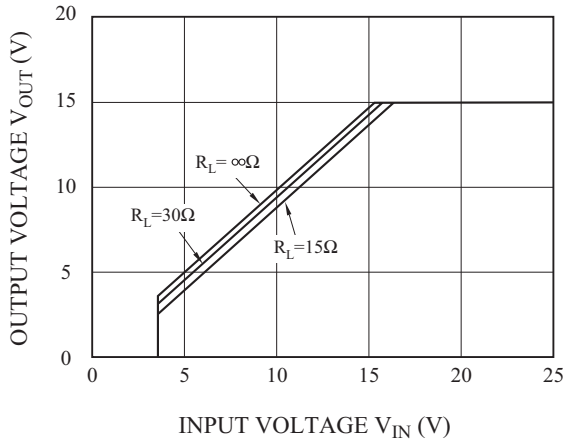


Fig. 19 I_{BIAS} - V_{IN} (KIA78R33)

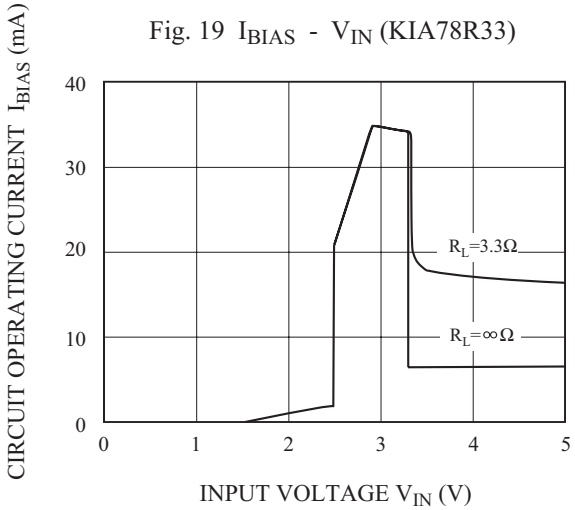


Fig. 20 I_{BIAS} - V_{IN} (KIA78R05)

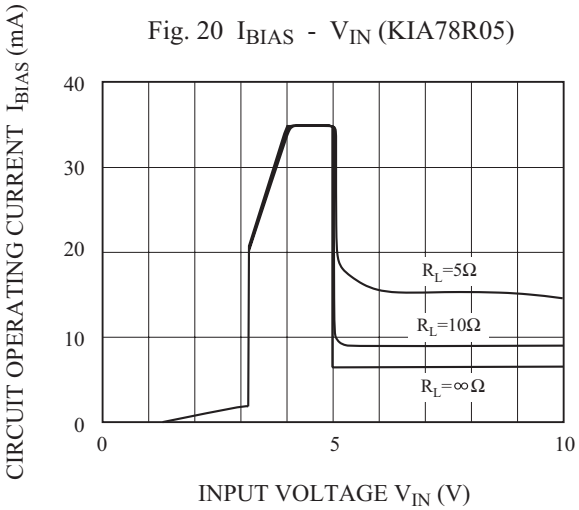


Fig. 21 I_{BIAS} - V_{IN} (KIA78R06)

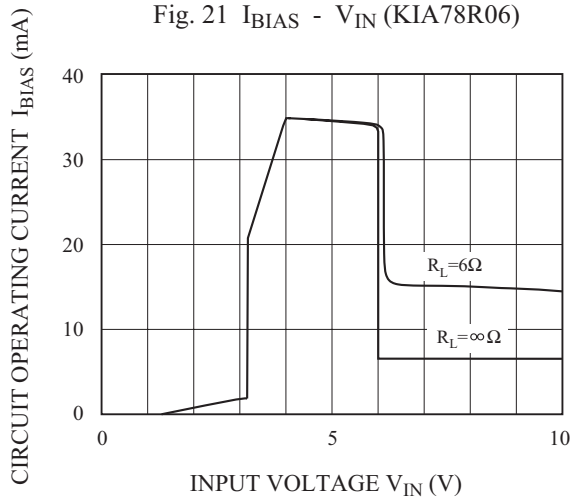


Fig. 22 I_{BIAS} - V_{IN} (KIA78R08)

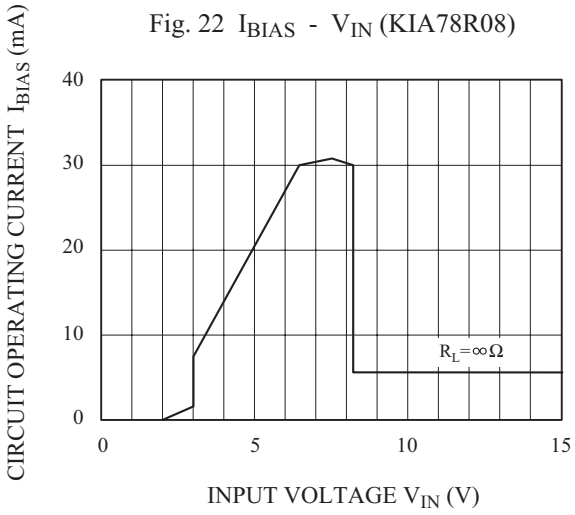


Fig. 23 I_{BIAS} - V_{IN} (KIA78R09)

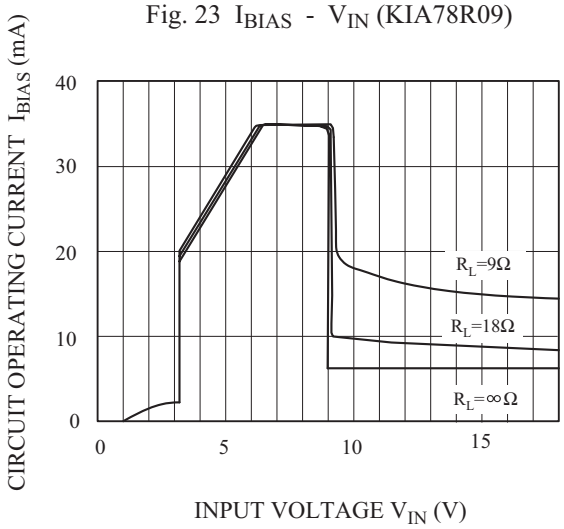


Fig. 24 I_{BIAS} - V_{IN} (KIA78R10)

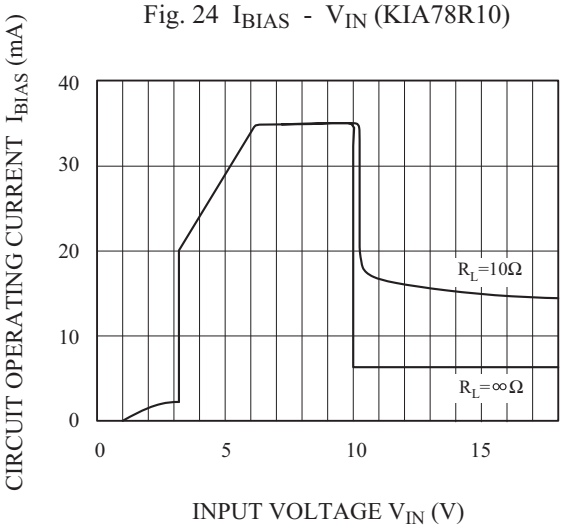


Fig. 25 I_{BIAS} - V_{IN} (KIA78R12)

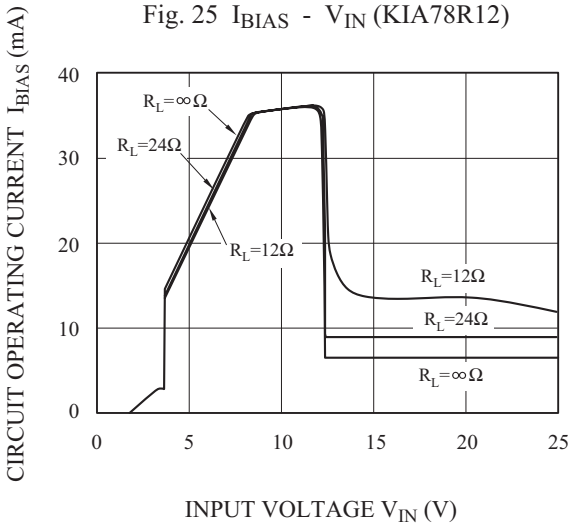


Fig. 26 I_{BIAS} - V_{IN} (KIA78R15)