

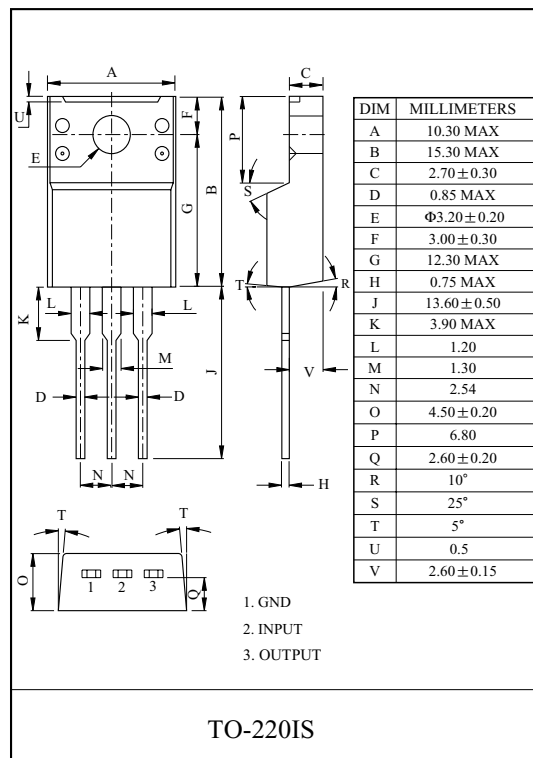
1A THREE TERMINAL NEGATIVE VOLTAGE REGULATORS -12V.

FEATURES

- Suitable for C-MOS, TTL, and the other digital IC power supply.
- Internal thermal overload protecting.
- Internal short circuit current limiting.
- Output current in excess of 1.0A.

LINE-UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
KIA7912F/PI	-12	

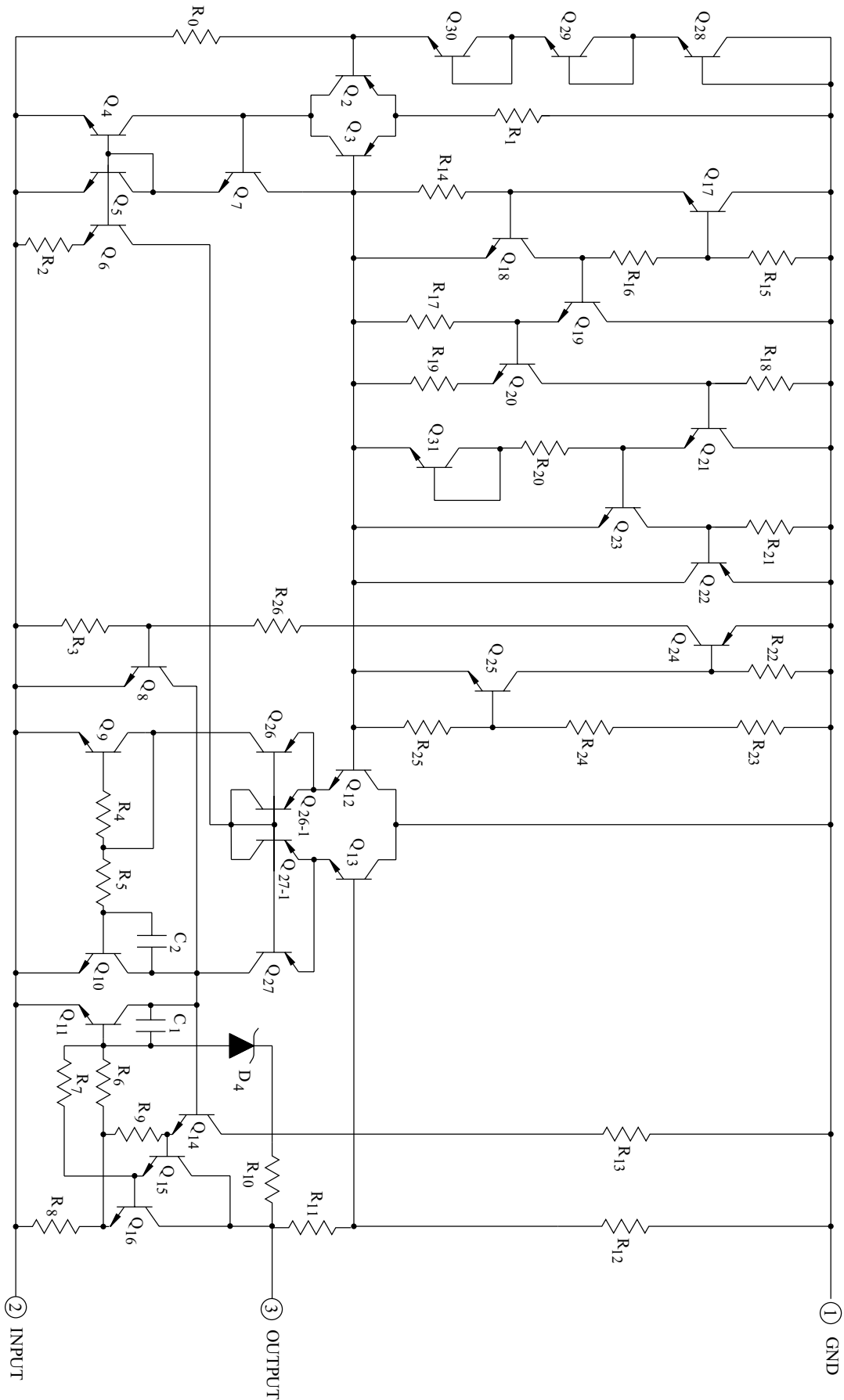


MAXIMUM RATINGS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	-35	V
Power Dissipation-1 (No Heatsink)	PI	P_{D1}	2.0 W
Power Dissipation-2 (Infinite Heatsink)	PI	P_{D2}	20.8 W
Operating Junction Temperature	T_j	-30 150	
Operating Temperature	T_{opr}	-30 75	
Storage Temperature	T_{stg}	-55 150	

KIA7912PI

EQUIVALENT CIRCUIT



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ELECTRICAL CHARACTERISTICS

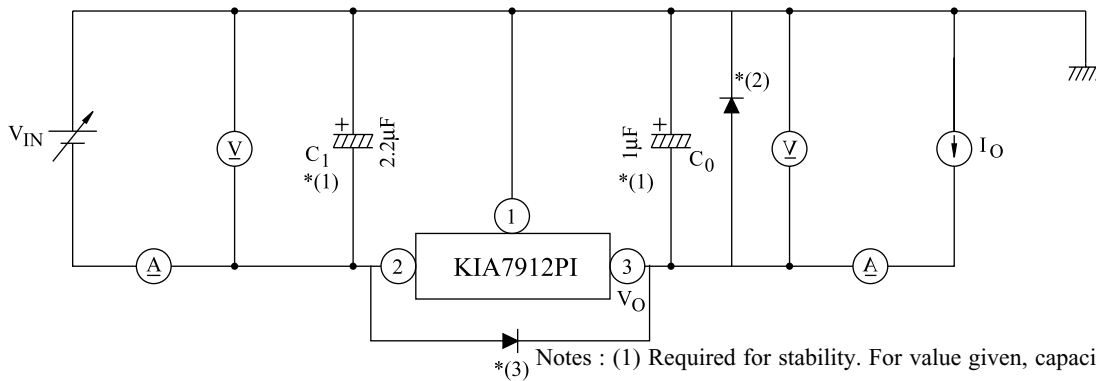
KIA7912F/PI

(Unless otherwise specified, $V_{IN}=-18V$, $I_{OUT}=500mA$, $\theta = 125$, $T_j = 125$, $C_{IN}=2.2 \mu F$, $C_{OUT}=1 \mu F$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	V_{OUT}	Fig.1	$T_j=25$	-12.5	-12	-11.5	V	
Input Regulation	Reg line	Fig.1	$T_j=25$	-22V V_{IN} -16V	-	6	120	mV
				-30V V_{IN} -14.5V	-	12	240	
Load Regulation	Reg load	Fig.1	$T_j=25$	5mA I_{OUT} 1.5A	-	12	240	mV
				250mA I_{OUT} 750mA	-	4	120	
Output Voltage	V_{OUT}	Fig.1	-27V V_{IN} -15.5V 5mA I_{OUT} 1.0A	-12.6	-12	-11.4	V	
Quiescent Current	I_B	Fig.1	$T_j=25$	-	3	6	mA	
Quiescent Current Change	Line	Fig.1	$T_j=25$	-30V V_{IN} -15V	-	0.1	1.0	mA
	Load			5mA I_{OUT} 1.0A	-	0.05	0.5	
Output Noise Voltage	V_{NO}	Fig.2	$T_a=25$, 10Hz f 100kHz	-	200	-	μV_{rms}	
Ripple Rejection Ratio	RR	Fig.3	$f=120Hz$, $I_{OUT}=20mA$,	54	60	-	dB	
Short Circuit Current Limit	I_{SC}	Fig.1	$T_j=25$	-	1.9	-	A	
Average Temperature Coefficient of Output Voltage	T_{CVO}	Fig.1	$I_{OUT}=5mA$	-	-0.8	-	mV/	
Dropout Voltage	V_D	Fig.1	$T_j=25$, $I_{OUT}=1A$	-	2.0	-	V	

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Fig.1 Standard Application Circuit & Protection Circuit



Notes : (1) Required for stability. For value given, capacitor must be solid tantalum.

If aluminium electrolytics are used, at least

ten times value shown should be selected. C_1 is required if regulator is located an appreciable distance from power supply filter.

(2) This diode is used to protect the regulator from output polarity reversals before input voltage is supplied.

(3) To improve transient response. If large output capacitors are used, a high current diode from input to output

Fig.2 V_{NO} Test Circuit

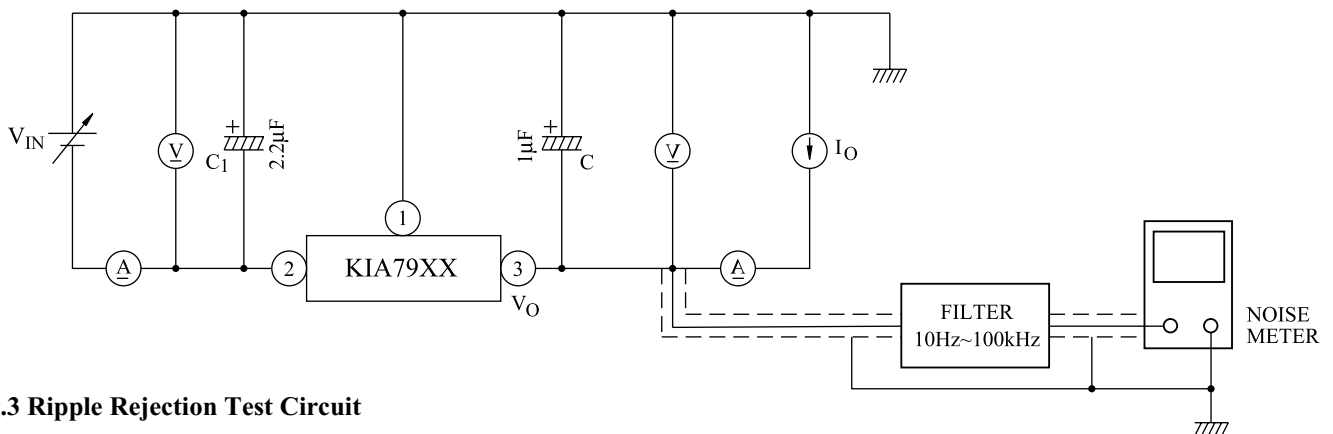
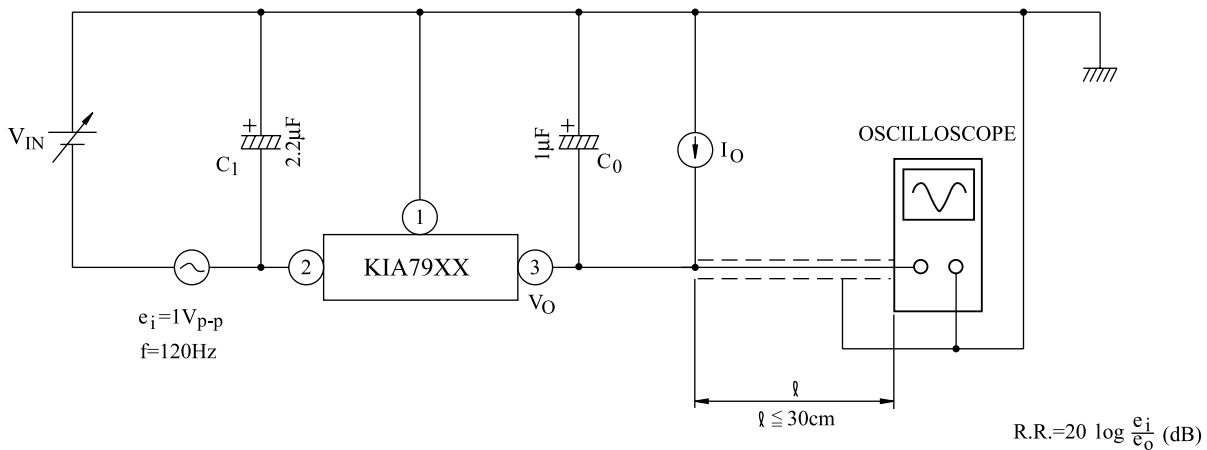


Fig.3 Ripple Rejection Test Circuit



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Fig. 4

$I_B - T_j$

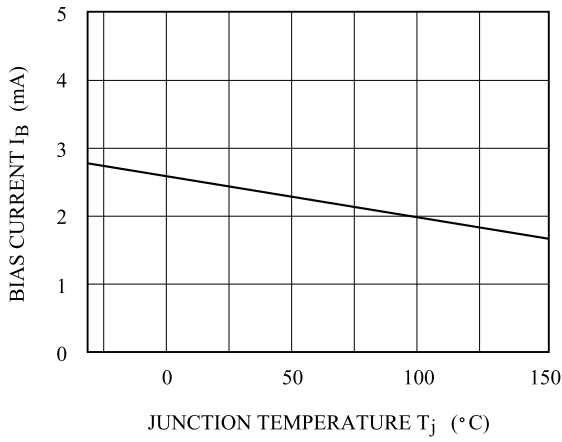


Fig. 5

$V_{OUT} - T_j$

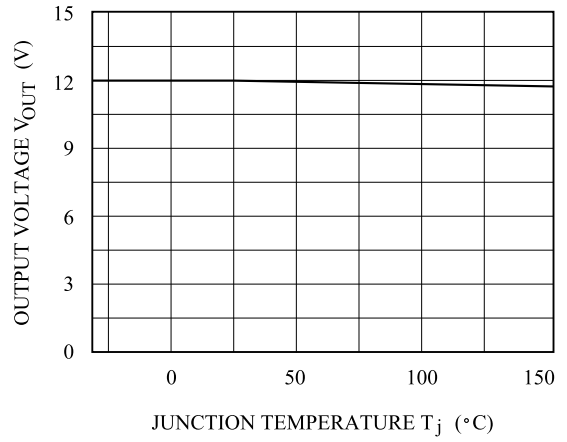


Fig. 6

$RR - I_{OUT}$

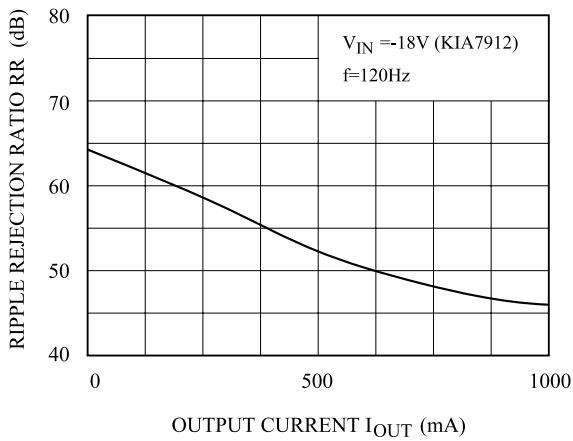


Fig. 7

$I_{SC} - V_{IN}$

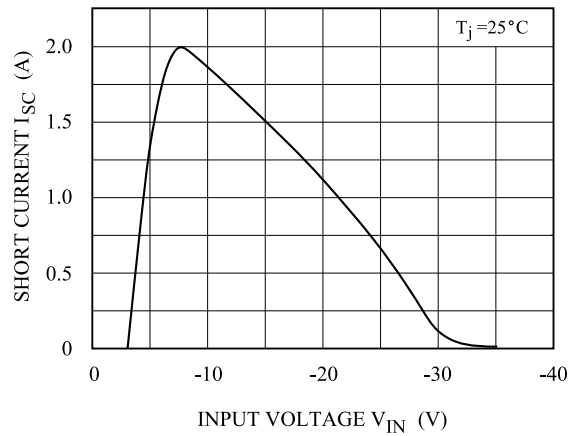


Fig. 8

$V_D - T_j$

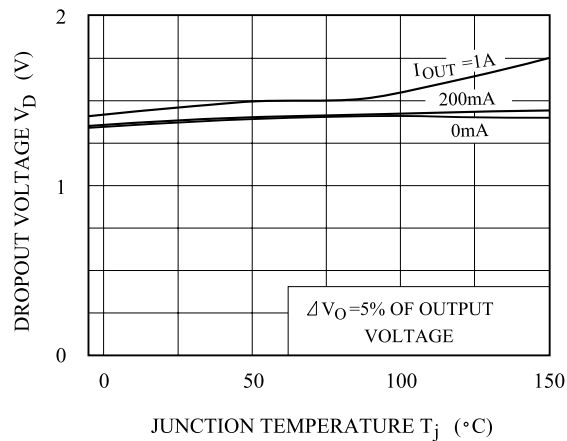


Fig. 9

$P_D - T_a$ (PI-Type : TO-220IS)

