

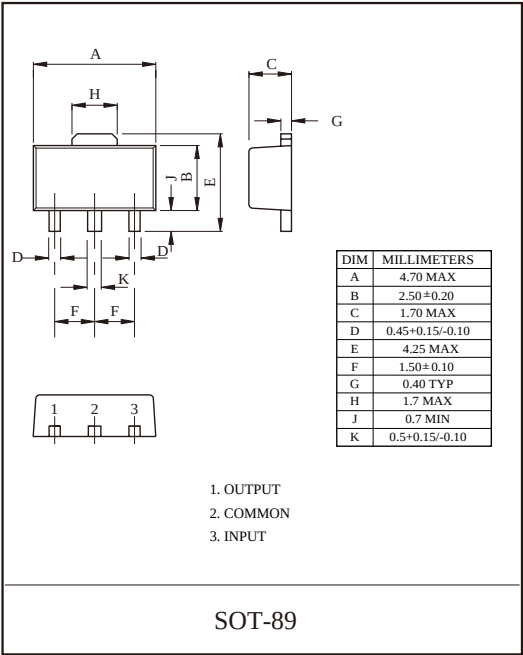


Three Terminal Positive Voltage Regulators
(Vout=3.3V)

Features

- Best Suited to Power Supply for TTL, C²-MOS.
- No External Part Needed.
- Built-in Thermal Protective Circuit.
- Max. Output Current 100mA (T_j=25 °C).

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V _{IN}	25	V
Power Dissipation	P _D	500	mW
Operating Junction Temperature	T _j	- 0 ~ 150	°C
Storage Temperature	T _{stg}	- 65 ~ 150	°C





FR78L33F

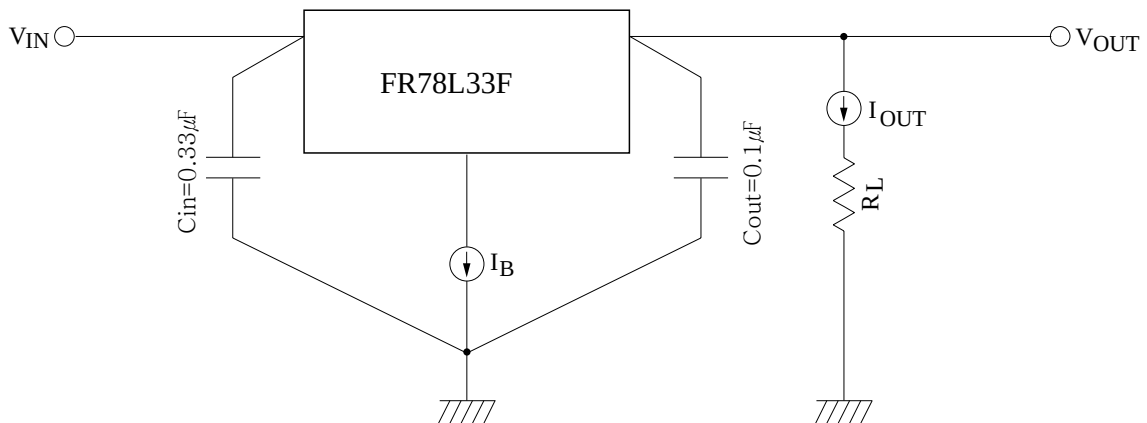
Electrical Characteristics

FR78L33F

(Unless otherwise specified, $V_{IN}=8.3V$, $I_{OUT}=40mA$, $C_{IN}=0.33\mu F$, $C_{OUT}=0.1\mu F$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$)

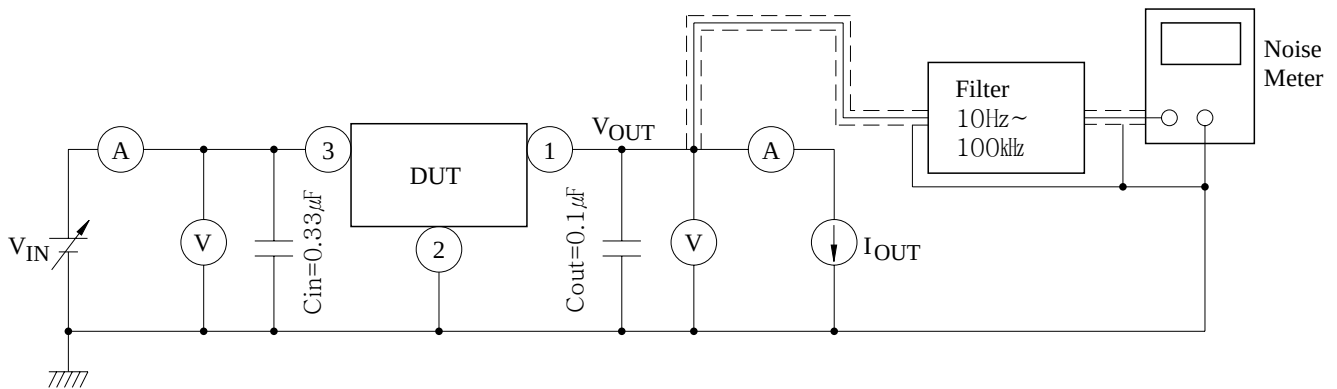
Characteristics	Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	1	$T_j=25^{\circ}C$	3.168	3.3	3.432	V
			$5.8V \leq V_{IN} \leq 20V$, $1.0mA \leq I_{OUT} \leq 40mA$	3.135	3.3	3.465	V
			$1.0mA \leq I_{OUT} \leq 70mA$	3.135	3.3	3.465	
Line Regulation	Reg line	1	$T_j=25^{\circ}C$				mV
			$5.8V \leq V_{IN} \leq 20V$	-	32	150	
			$6.3V \leq V_{IN} \leq 20V$	-	26	100	
Load Regulation	Reg load	1	$T_j=25^{\circ}C$				mV
			$1.0mA \leq I_{OUT} \leq 150mA$	-	25	100	
			$1.0mA \leq I_{OUT} \leq 40mA$	-	8	30	
Quiescent Current	I_B	1	$T_j=25^{\circ}C$	-	3.8	6.0	mA
			$T_j=125^{\circ}C$	-	-	5.5	
Quiescent Current Change	ΔI_B	1	$6.3V \leq V_{IN} \leq 20V$	-	-	1.5	mA
			$1.0mA \leq I_{OUT} \leq 40mA$	-	-	0.1	
Output Noise Voltage	V_{NO}	1	$T_a=25^{\circ}C$, $10Hz \leq f \leq 100kHz$	-	42	-	μV_{rms}
Ripple Rejection Ratio	RR	2	$f=120Hz$, $6.3V \leq V_{IN} \leq 16.3V$, $T_j=25^{\circ}C$	41	49	-	dB
Dropout Voltage	V_D	1	$T_j=25^{\circ}C$, $I_{OUT}=100mA$	-	2.5	-	V

Test Circuit / Standard Application Circuit



Test Circuit

1. V_{OUT} , R_{reg} - line, R_{reg} - load, I_B , ΔI_B , V_{NO} , V_D



2. RR

$$e_i = 1V_{p-p}$$

$$f = 120Hz$$

$$l \leq 30cm$$

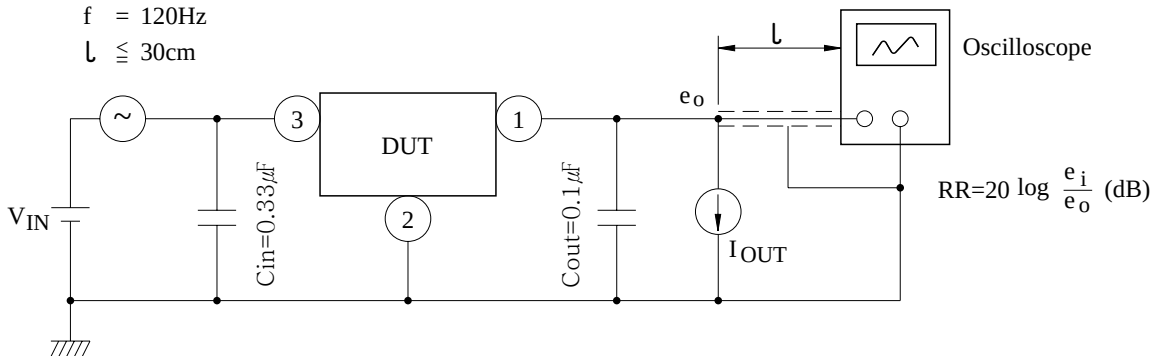


Fig. 4

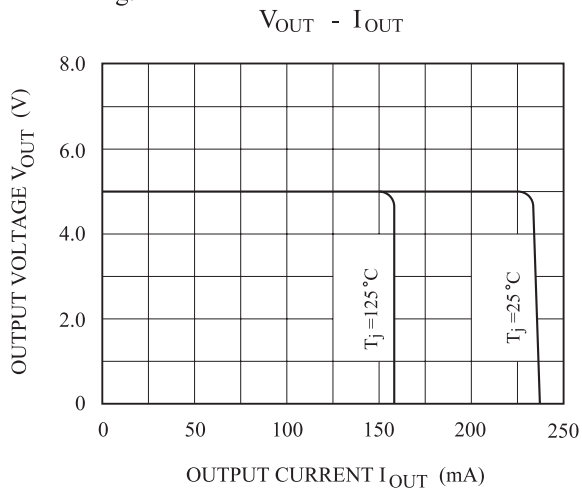


Fig. 5

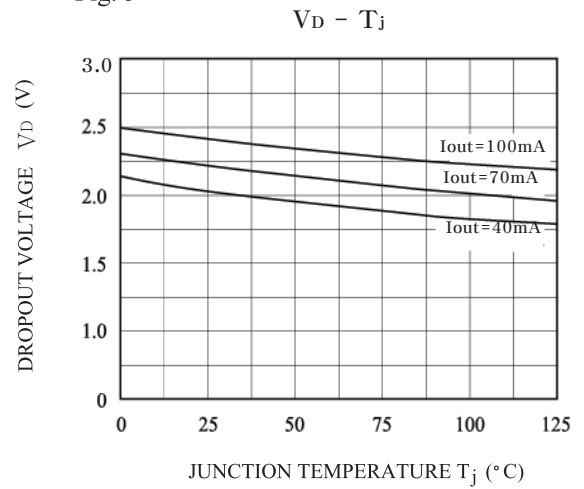


Fig. 6

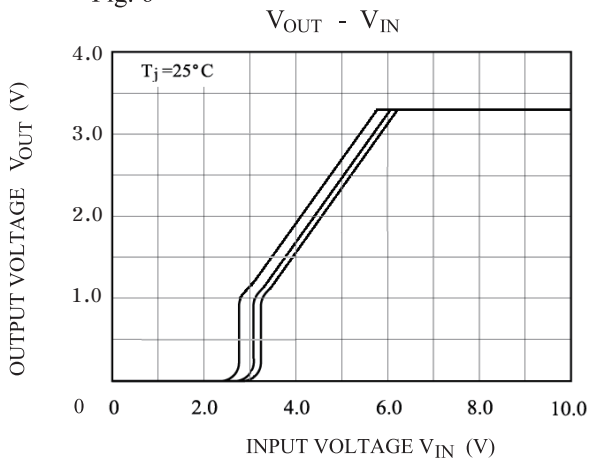


Fig. 7

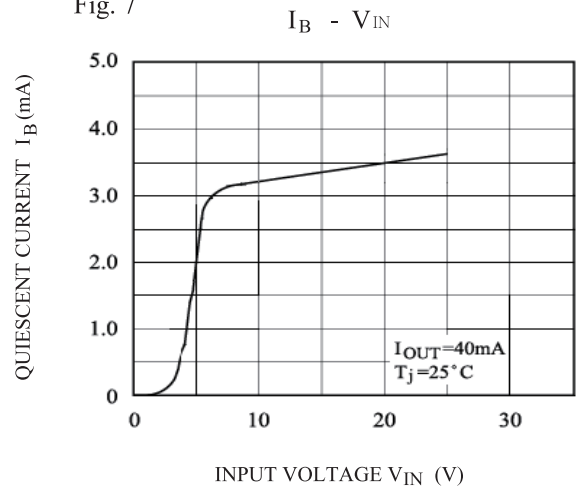


Fig. 8

