

# 78L13

## 3-Terminal positive voltage regulator

### Features

- Internal short-circuit current limiting
- Internal thermal overload protection
- Maximum output current of 100 mA ( $T_j = 25^\circ\text{C}$ )



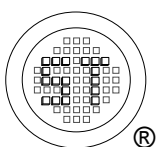
1. Output 2. Common 3. Input  
TO-92 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Input Voltage	$V_{IN}$	35	V
Power Dissipation	$P_{tot}$	800	mW
Operating Temperature	$T_{opr}$	- 30 to + 75	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Electrical Characteristics (Unless otherwise specified, $V_{IN} = 21\text{ V}$ , $I_{OUT} = 40\text{ mA}$ , $C_{IN} = 0.33\ \mu\text{F}$ , $C_{OUT} = 0.1\ \mu\text{F}$ , $T_j = 25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit
Output Voltage	$V_{OUT}$	12.45	13	13.55	V
Input Regulation $16\text{ V} \leq V_{IN} \leq 28\text{ V}$ $17\text{ V} \leq V_{IN} \leq 28\text{ V}$	Reg. line	-	125 105	270 225	mV
Load Regulation $1\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$ $1\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	Reg. load	-	22 11	120 60	mV
Output Voltage $16\text{ V} \leq V_{IN} \leq 28\text{ V}$ $1\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	$V_{OUT}$	12.54	-	13.86	V
Output Voltage $V_{IN} = 21\text{ V}$ $1\text{ mA} \leq I_{OUT} \leq 70\text{ mA}$	$V_{OUT}$	12.54	-	13.86	V
Quiescent Current	$I_B$	-	3.2	6.5	mA
Quiescent Current Change $17\text{ V} \leq V_{IN} \leq 28\text{ V}$ $1\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	$\Delta I_B$	-	-	1.5 0.1	mA
Output Noise Voltage at $T_a = 25^\circ\text{C}$ , $10\text{ Hz} \leq f \leq 100\text{ KHz}$	$V_{NO}$	-	90	-	$\mu\text{V}$
Ripple Rejection at $f = 100\text{ Hz}$ , $17\text{ V} \leq V_{IN} \leq 27\text{ V}$ , $T_j = 25^\circ\text{C}$	RR	34	41	-	dB
Dropout Voltage at $T_j = 25^\circ\text{C}$	$ V_{IN} - V_{OUT} $	-	1.7	-	V
Average Temperature Coefficient of Output Voltage at $I_{OUT} = 5\text{ mA}$	$TC_{VO}$	-	1.2	-	$\text{mV}/^\circ\text{C}$



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