

L78L15ACD13TR-TP

3-Terminal Voltage regulators

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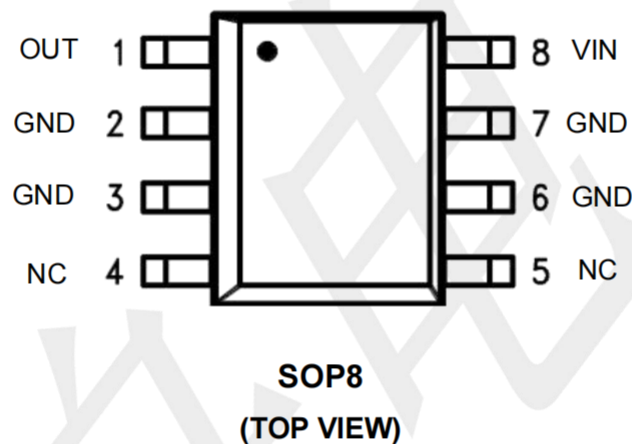
Features

- 3-Terminal regulators
- output current up to 200mA
- Compact package: SOP8
- internal thermal overload protection and short-circuit limiting

Applications

- HVAC Systems
- SMPS Post Regulation
- Test and Measurement Equipment
- Industrial Power Supplies

PIN CONFIGURATION



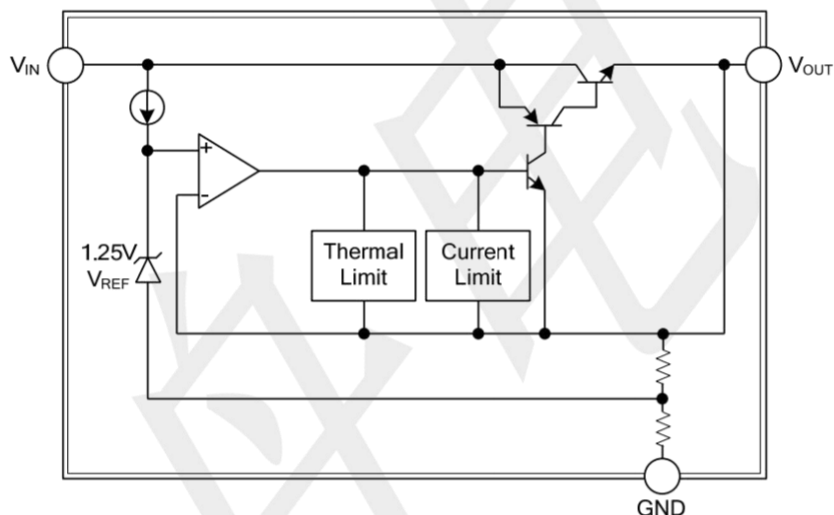
Pin Number	Pin Name	Pin Function
SOP8		
1	VOUT	Output of the Regulator
2	GND	Ground
3	GND	Ground
4	NC	No Internal Connection
5	NC	No Internal Connection
6	GND	Ground
7	GND	Ground
8	VIN	Input of Supply Voltage

Absolute Maximum Ratings

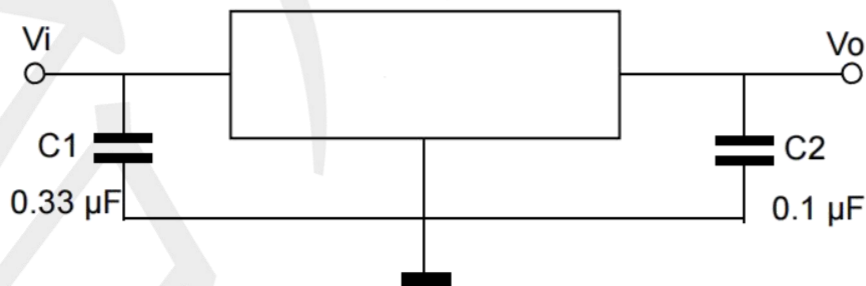
over operating free-air temperature range (unless otherwise noted)

Symbol	Parameter	Rating	UNIT
V _{IN}	Input voltage	30	V
I _{OUT}	output current	200	mA
T _J	Junction temperature	+150	°C
T _{OPR}	Operating Junction Temperature Range	-40~+125	°C
T _{stg}	Storage temperature range	-65~+150	°C

BLOCK DIAGRAM



Typical Application Circuit



Note:1 Required if the regulator is located far from the power supply filter.

2 Although no output capacitor is needed for stability, it does help transient response.

(If needed, use 0.1-μF, ceramic disc).

Electrical Characteristics

($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
DC Output Voltage	VO	$T_J=25^{\circ}\text{C}$	14.4	15	15.6	V
		$V_i=17.5\text{V}-30\text{V}$ $I_o=1\text{mA}-40\text{mA}$	14.25	15	15.75	V
		$I_o=1\text{mA}-70\text{mA}$ $V_i=30\text{V}$				V
Load Regulation	ΔV_o	$T_J=25^{\circ}\text{C}$ $I_o=1\text{mA}-200\text{mA}$	--	--	150	mV
		$T_J=25^{\circ}\text{C}$ $I_o=1\text{mA}-40\text{mA}$	--	--	75	mV
Line regulation	ΔV_o	$T_J=25^{\circ}\text{C}$ $V_i=17.5\text{V}-30\text{V}$	--	--	150	mV
		$T_J=25^{\circ}\text{C}$ $V_i=20\text{V}-30\text{V}$	--	--	150	mV
Quiescent Current	I_q	$T_J=25^{\circ}\text{C}$	--	3.8	6.5	mA
Quiescent Current Change	ΔI_q	$V_i=18\text{V}-30\text{V}$	--	--	1.5	mA
		$I_o=1\text{mA}-40\text{mA}$	--	--	0.1	mA
Output Noise Voltage	VN	$B=10\text{Hz}-100\text{KHz}$ $T_J=25^{\circ}\text{C}$	--	42	--	μV
Ripple Rejection	RR	$V_i=18\text{V}-30\text{V}$ $f=120\text{Hz}, T_J=25^{\circ}\text{C}$	40	49	--	dB
Dropout Voltage	VD	$T_J=25^{\circ}\text{C}$	--	1.7	--	V

Note: All characteristics are measured with a $0.33\text{-}\mu\text{F}$ capacitor from input to ground and a $0.1\text{-}\mu\text{F}$ capacitor from output to ground. All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques ($t_w \leq 10\text{ ms}$, duty cycle $\leq 5\%$).

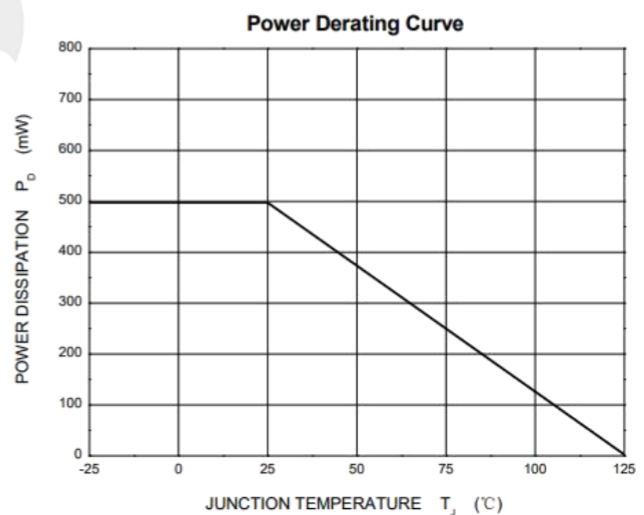
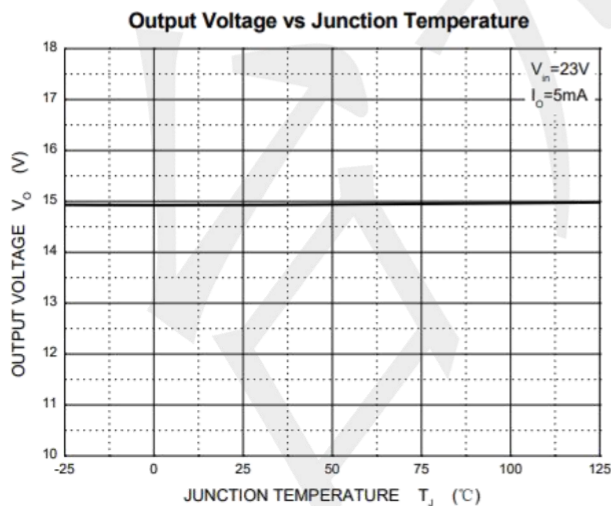
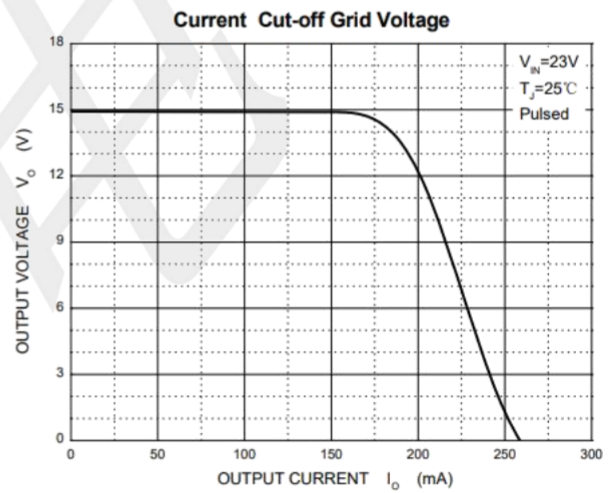
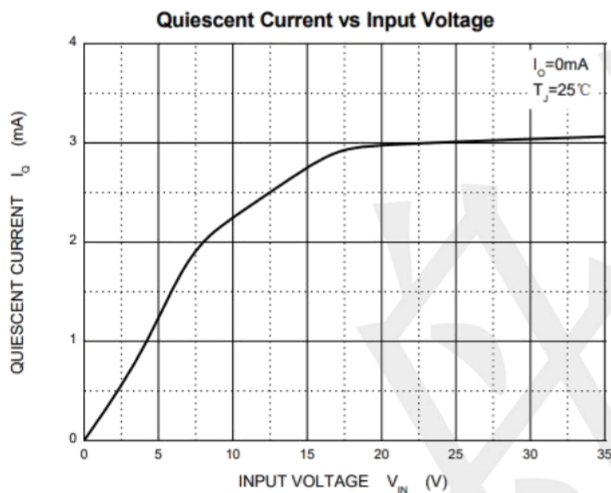
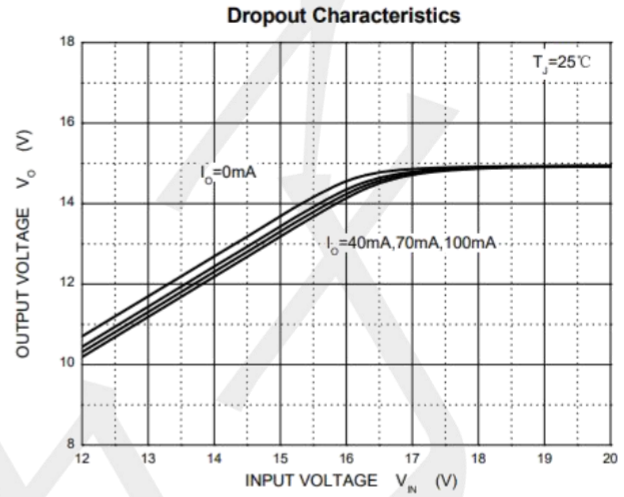
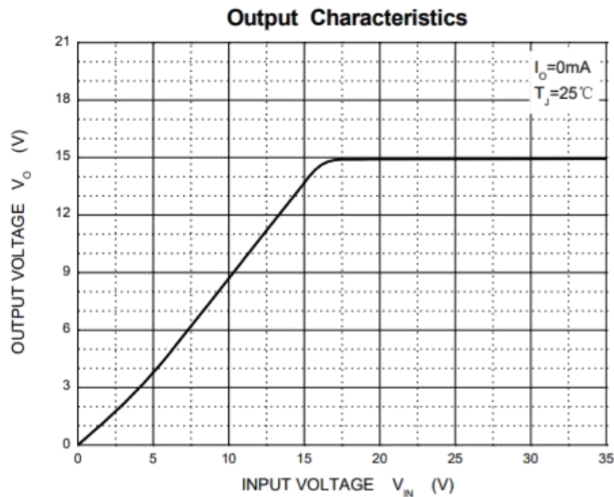
Output voltage changes due to changes in internal temperature must be taken into account separately.

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Typical Operating Characteristics (25 °C, unless otherwise noted)



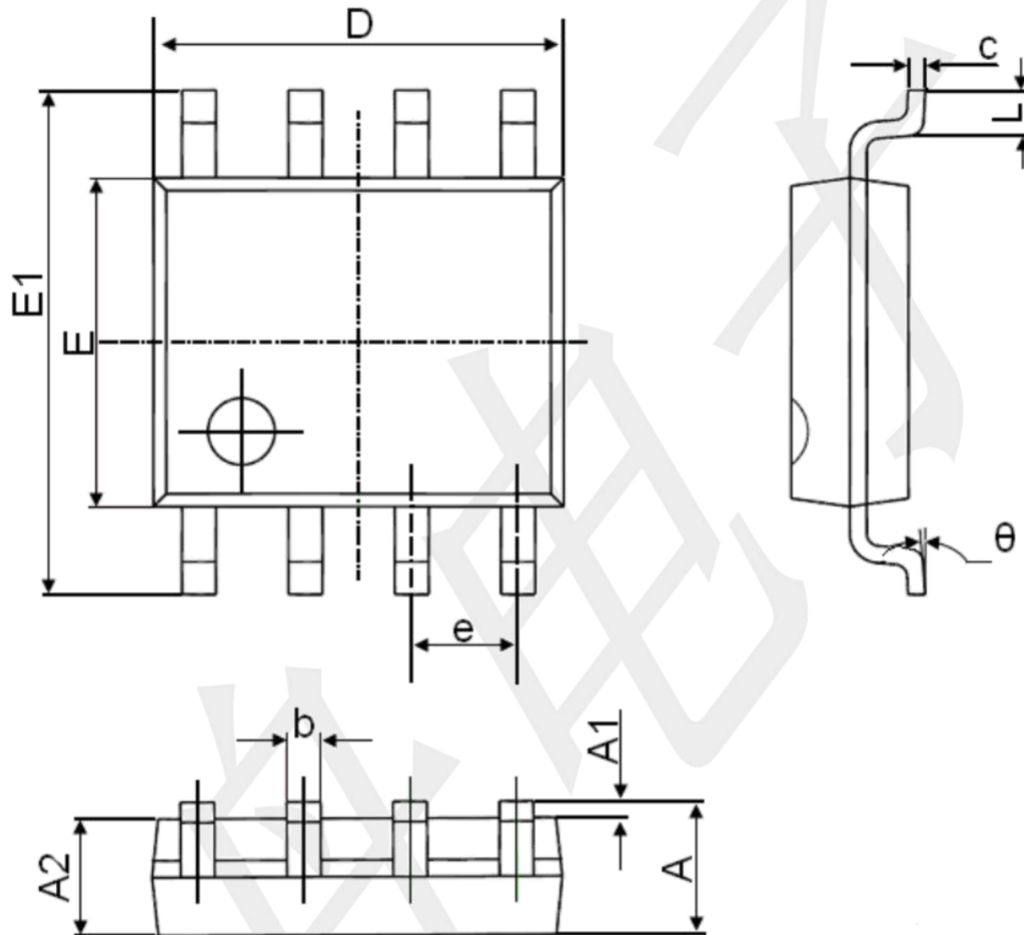
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Package Outline Dimensions (unit: mm)

SOP8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°