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TP78L15S8

3-Terminal Voltage regulators

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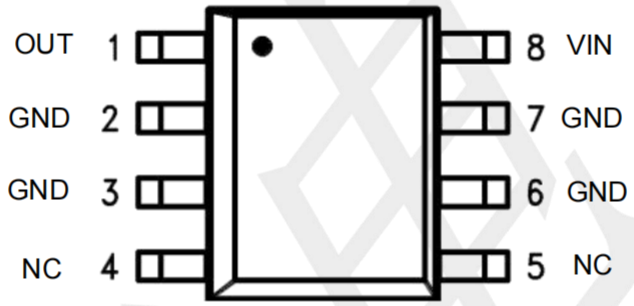
Features

- 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



SOP8

(TOP VIEW)

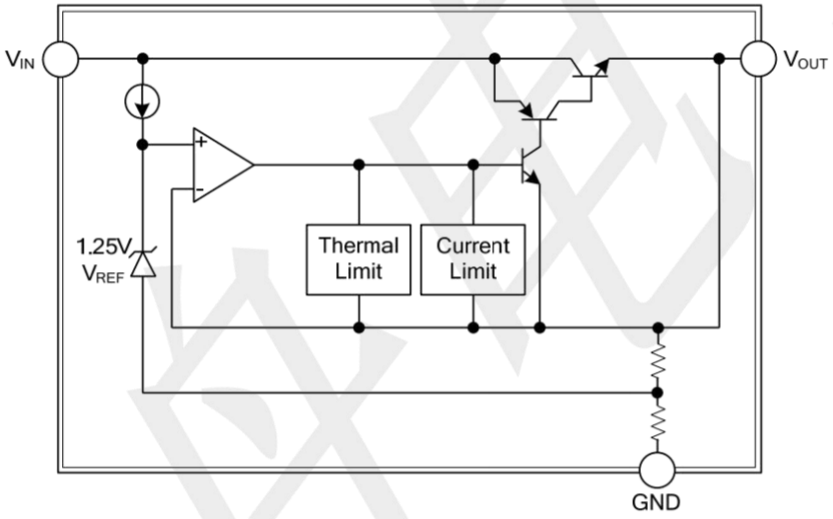
Pin Number	Pin Name	Pin Function
SOP8		
1	VOUT	Output of the Regulator
2	GND	Ground
3	GND	Ground
4	NC	No Internal Connection
5	NC	No Internal Connection
6	GND	Ground
7	GND	Ground
8	VIN	Input of Supply Voltage

Absolute Maximum Ratings

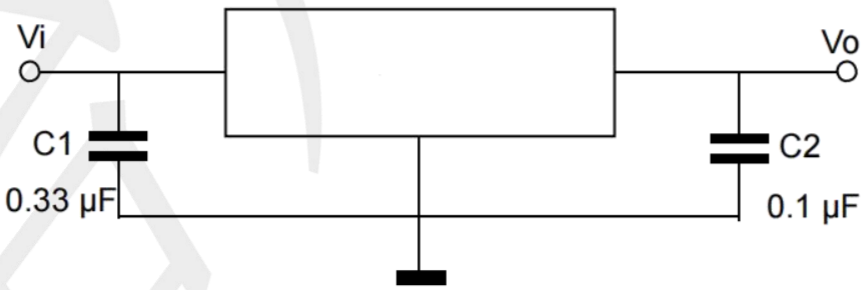
over operating free-air temperature range (unless otherwise noted)

Symbol	Parameter	Rating	UNIT
VIN	Input voltage	30	**V**
IOUT	output current	200	**mA**
TJ	Junction temperature	+150	℃
TOPR	Operating Junction Temperature Range	-40～+125	℃
Tstg	Storage temperature range	-65～+150	℃

BLOCK DIAGRAM



Typical Application Circuit



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

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

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

Electrical Characteristics

(TA=25℃, unless otherwise specified)

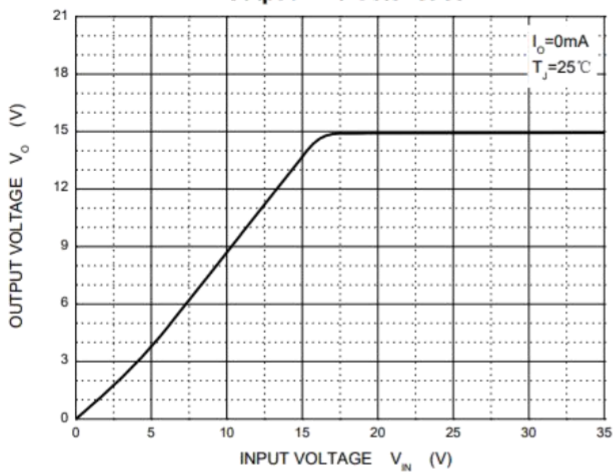
PARAMETER	SYMBOL	TEST Conditions		MIN	TYP	MAX	UNIT
DC Output Voltage	VO	T_j=25℃		14.4	15	15.6	V
		V_i=17.5V-30V Io=1mA-40mA	0-125 ℃	14.25	15	15.75	V
		Io=1mA-70mA V_i=30V		14.25	15	15.75	V
Load Regulation	△Vo	T_j=25℃ Io=1mA-200mA		--	--	150	mV
		T_j=25℃ Io=1mA-40mA		--	--	75	mV
Line regulation	△Vo	T_j=25℃ Vi=17.5V-30V		--	--	150	mV
		T_j=25℃ Vi=20V-30V		--	--	150	mV
Quiescent Current	Iq	T_j=25℃		--	3.8	6.5	mA
Quiescent Current Change	△Iq	V_i=18V-30V		--	--	1.5	mA
		Io=1mA-40mA		--	--	0.1	mA
Output Noise Voltage	VN	B=10Hz-100KHz T_j=25℃		--	42	--	μV
Ripple Rejection	RR	V_i=18V-30V f=120Hz,T_j=25℃		40	49	--	dB
Dropout Voltage	VD	T_j=25℃		--	1.7	--	V

Note: All characteristics are measured with a 0.33-μF capacitor from input to ground and a 0.1-μF capacitor from output to ground. All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques (tw ≤ 10 ms, duty cycle ≤ 5%).

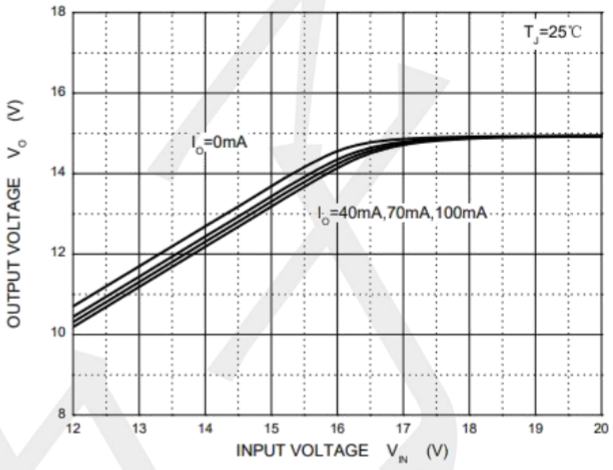
Output voltage changes due to changes in internal temperature must be taken into account separately.

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

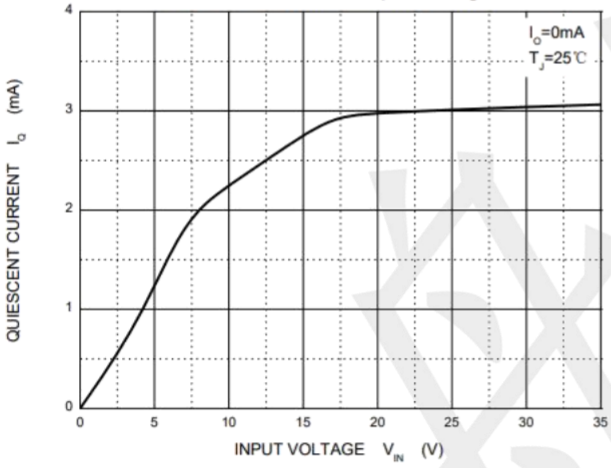
Output Characteristics



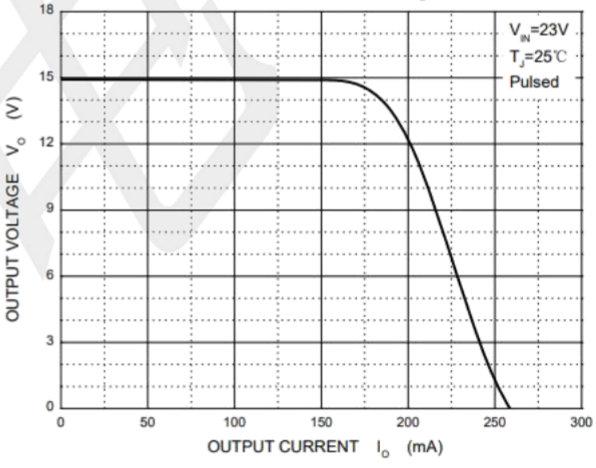
Dropout Characteristics



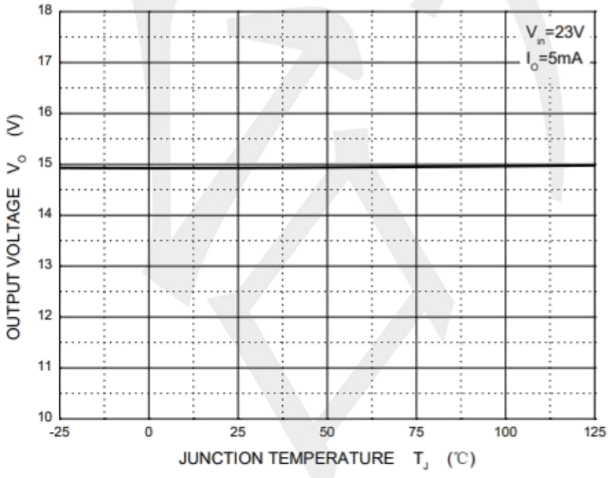
Quiescent Current vs Input Voltage



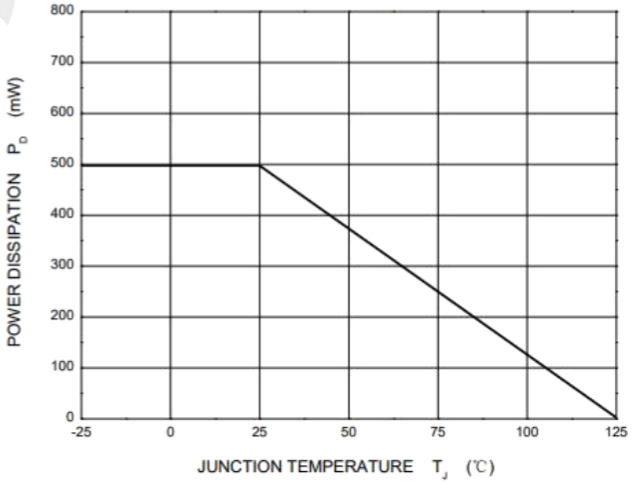
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature

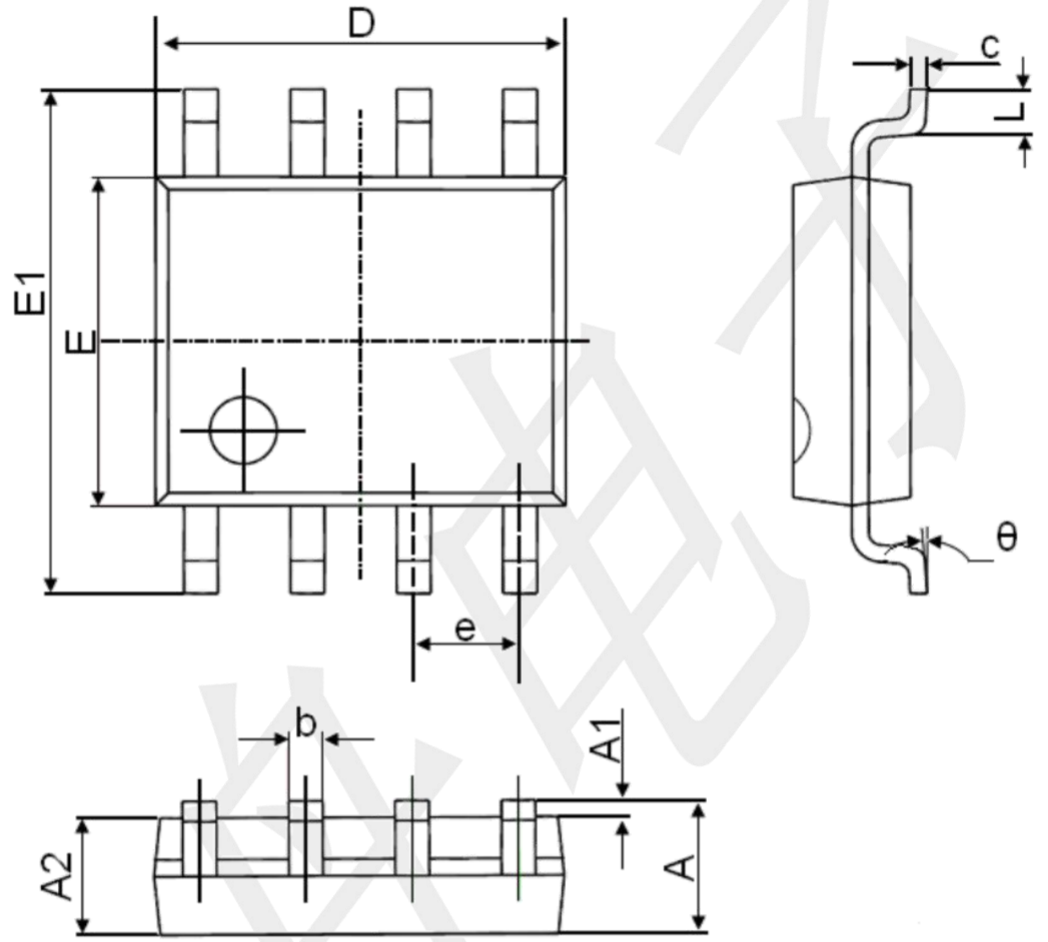


Power Derating Curve



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°