High Withstand Voltage High Side Switch

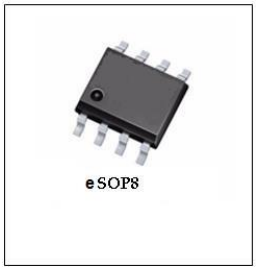
Description

The SL4250H is a high-side switch characterized by high voltage tolerance and low power consumption. It is typically used to output a current of 400mA, with an internal current limiting value of approximately 800mA.

Features

- ultra-low shutdown power consumption: 10uA
- internal current limiting: 800mA
- low voltage differential, short circuit protection
- is suitable for automotive electronics
- RoHS

Package



Pin Configuration and Functions

The application circuit of SL4250H is straightforward. For EMC considerations, appropriate capacitors can be added to both the input and output. Additionally, the chip integrates numerous internal circuits for protections such as overcurrent and overtemperature, ensuring the safety of electronic systems.

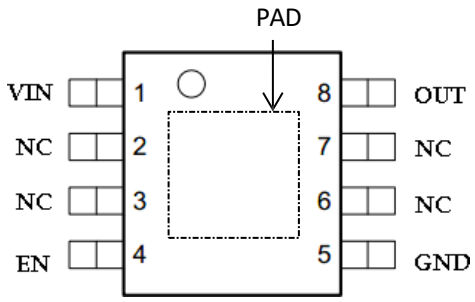


Figure 3-1 SL 4250H pin connections

Table 3.1 Pin Functions

Pin Number	Pin Name	Function
1	VIN	power input: connect to capacitor, close to IC direct ground.
2，3	NC	flotation
4	EN	enable pin, enable the chip when it is connected high, disable the chip when it is connected low.
5	GND	chip ground, internally connected to bottom heat sink
6,7	NC	flotation
8	OUT	output: connect to capacitor, close to IC and grounded directly.
cooling base	PAD	internally connected to GND

Maximum Ratings T_j = -40°C to 150°C. Unless otherwise stated,all voltages are relative to ground.

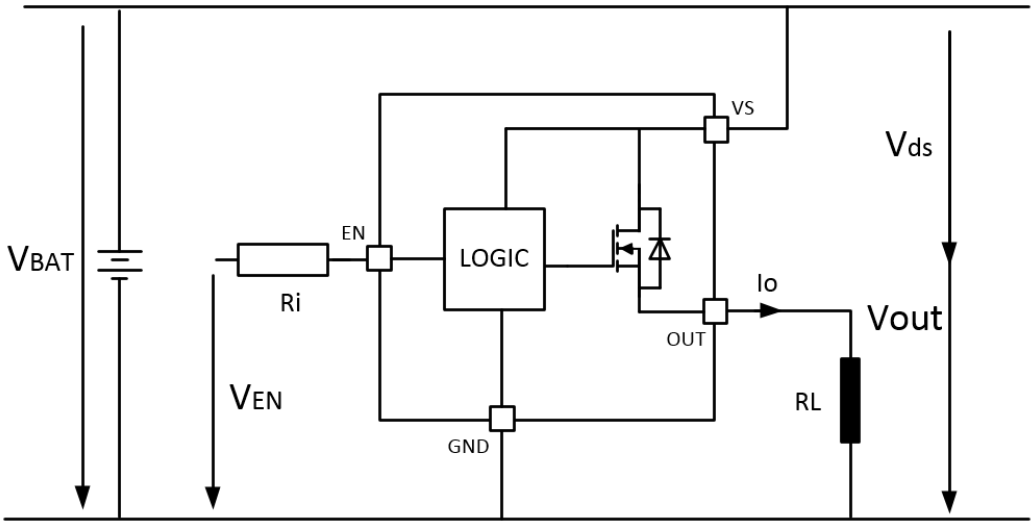
Parameter	Symbol	limiting value		Units	Note
		Min	Max		
input voltage	V_I	-0.3	42	V	
output voltage	V_Q	-0.3	42	V	
temperature	T_j	-40	150	℃	temperature of a bond
	T_{stg}	-40	150	℃	storage temperature
thermal resistance	R_{thj-a}	50	90	K/W	Pin only
ESD withstand voltage	$V_{ESD-HBM}$	-2000	2000	V	mannequin[1)]
	$V_{ESD-CDM}$	-1000	1000	V	charging equipment mould[2)]

1. He esd voltage-resistant manikin is based on jesd22-a114.
2. The ESD voltage withstand charging equipment model is based on JESD22-C101E.

Electrical Characteristics V_I = 13.5V ; - 40℃≤ T_j ≤ 150℃

Parameter	Symbol	Parameter Value			Units	Note
		Min	Typ	Max		
operating voltage	V_I	4	13.5	42	V	
output current limit	I_{out}	400	800		mA	
shutdown power consumption	I_q		10		uA	E_N=0V
quiescent current	I_q		600	800	uA	I_O=5mA
quiescent current	I_q		1	2	mA	I_O=400mA
dropout voltage	V_{dr}		0.3	0.5	V	I_O=300mA
enable enable threshold	V_{EN}	2	3	4	V	

Application Information



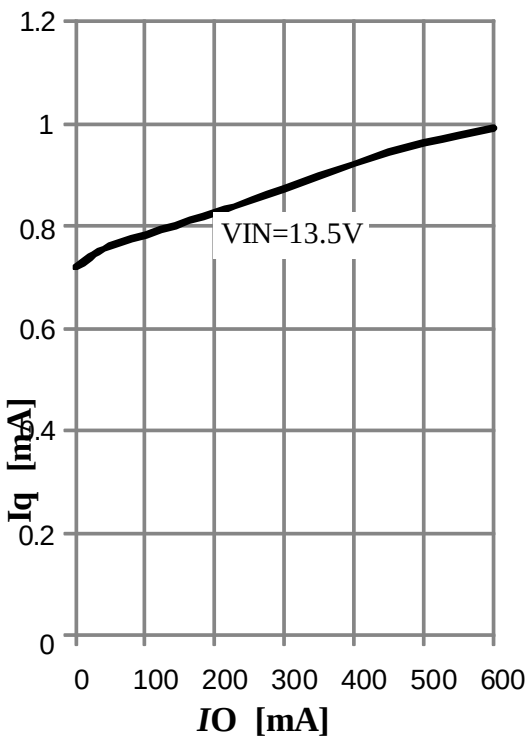


Figure 4-2 Static Current vs Output Current

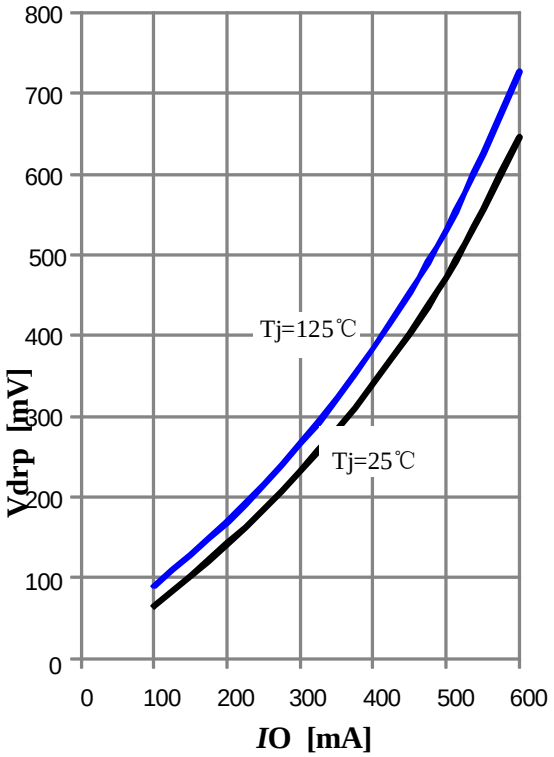
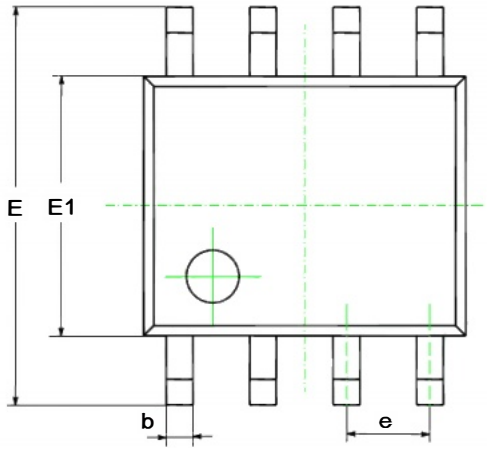


Figure 4-3 Differential Pressure VS Output Current

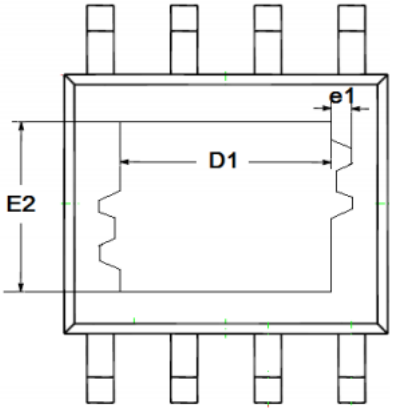
Package Outline Dimensions

The SL 4250H is packaged in an eSOP8 package, see Figure 5-1 below for package outline drawing and dimensions

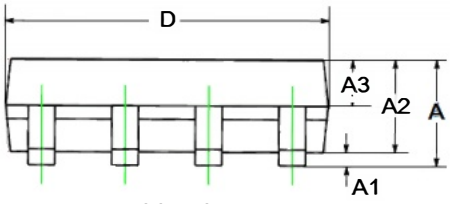
eSOP8, 8LEAD



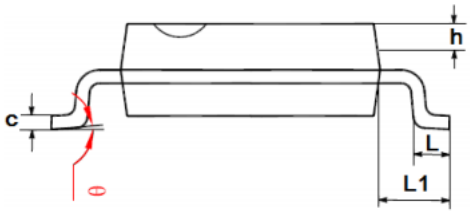
Top View



Bottom View



Side View



End View

Symbol	Unit: mm		
	Min	Typ	Max
A	–	–	1.65
A1	0.05	–	0.15
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	–	0.48
b1	0.38	0.41	0.43
c	0.21	–	0.25
c1	0.19	0.20	0.21
D	4.70	4.90	5.10
D1		3.10REF	
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
E2		2.21REF	
e		1.27BCS	
e1		0.10REF	
h	0.25	–	0.50
L	0.50	0.60	0.80
L1		1.05BSC	
θ	0	–	8°