



ZHEJIANG UNIÜ-NE Technology CO., LTD

浙江宇力微新能源科技有限公司



U1001 Data Sheet

V 1.1

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Independent Single-Channel Gate Driver

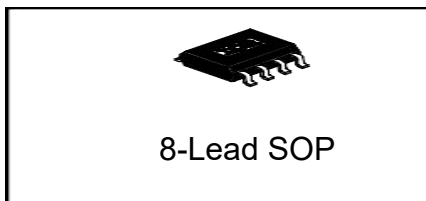
General Description

The U1001 is high voltage, high speed power MOSFET and IGBT driver with dependent high and low side referenced output channels. Proprietary HVIC and latch immune CMOS technologies enable ruggedized monolithic construction. The logic input is compatible with standard CMOS or LSTTL output, down to 3.3V logic. The output drivers feature a high pulse current buffer stage designed for minimum driver cross-conduction. The floating channel can be used to drive an N-channel power MOSFET or IGBT in the high side configuration which operates up to 30 volts.

Key Features

- Floating channel designed for bootstrap operation
- Built IN SD Function
- Tolerant to negative transient voltage dV/dt immune
- Gate drive supply range from 2.8 to 30V
- Undervoltage lockout
- 3.3V, 5V input logic compatible
- Cross-conduction prevention logic
- Internally set deadtime
- High side output in phase with input
- Shut down input turns off both channels
- Matched propagation delay for both channels

Packages



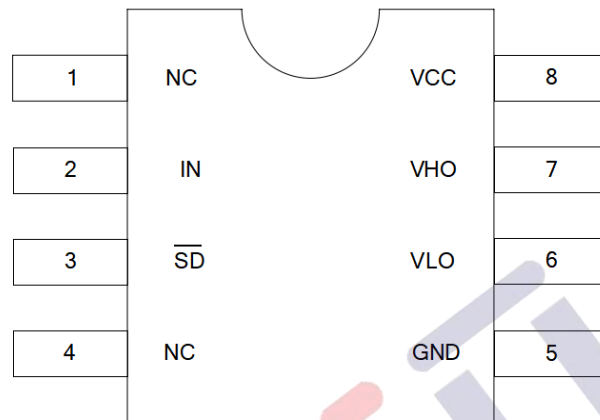
Product Summary

V _{OFFSET}	30V max
I _{O+/-}	1.2A / 1.5A
V _{CC}	8V ~ 30V
Work Tem	-40 ~150 °C

Products Information

Base Part Number	Package Type	Standard OUT		V _{OFFSET}	Logic Control
		IO+	IO-		
U1001	SOP8	1.2A	1.5A	30V	IN & $\bar{S}\bar{D}$

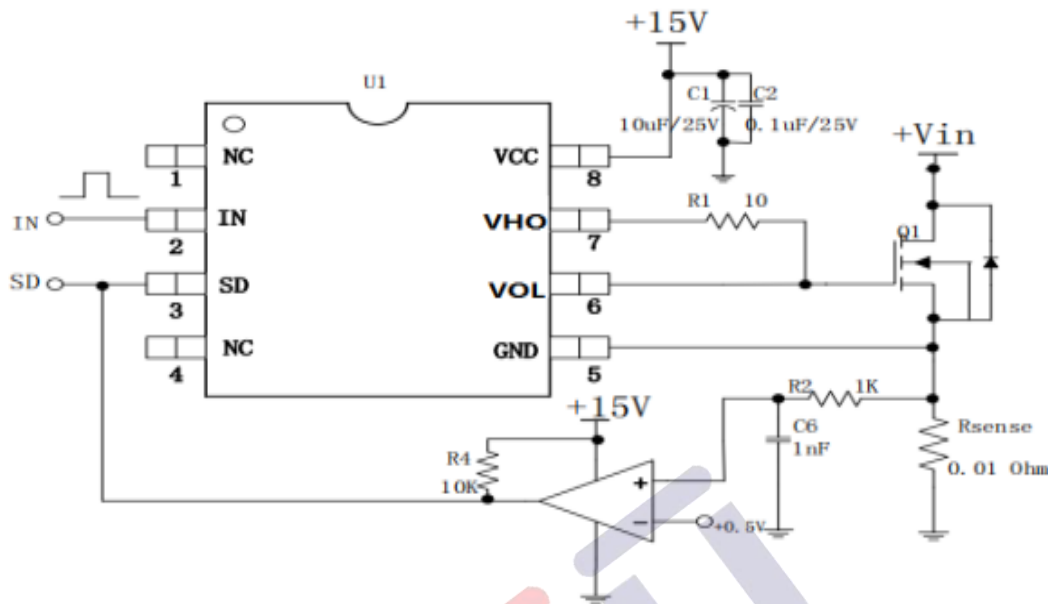
Pin Assignments



Pin Function

Number	Symbol	Description
8	VCC	Low side and logic fixed supply
2	IN	Logic input for high and low side gate driver outputs
3	\overline{SD}	Logic input for shutdown
5	COM	GND
6	VLO	Low side gate drive output
4	NC	
7	VHO	High side gate drive output
1	NC	

Typical Application



Absolute Maximum Ratings

Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to COM. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

Symbol	Definition	Min.	Max.	Units
VHO	High side floating output voltage	-0.3	35	V
VCC	Low side and logic fixed supply voltage	-0.3	35	
VLO	Low side output voltage	-0.3	35	
VIN	Logic input voltage (IN)	-0.3	35	
SD	Logic input voltage (SD)	-0.3	7	
dVS/dt	Allowable offset supply voltage transient	—	50	V/ns
P _D	Package power dissipation @ TA ≤+25°C (8 lead SOIC)	—	0.625	W
R _{thJA}	Thermal resistance, junction to ambient (8 lead SOIC)	—	200	°C/W
T _J	Junction temperature	—	150	°C
T _S	Storage temperature	-55	150	
T _L	Lead temperature (soldering, 10 seconds)	—	300	

Electrical Characteristic

VCC = 15V, CL = 1000pF, TA = 25°C, unless otherwise specified.

Symbol	Definition	Min.	Typ.	Max.	Units	Test Conditions
ton	Turn-on propagation delay	—	15 ns		ns	
toff	Turn-off propagation delay	—	15 ns			
tsd	Shutdown propagation delay	—	15 ns			
tf	Turn-on rise time	—	15 ns			
tr	Turn-off fall time	—	15 ns			
MT	Delay matching, HS & LS turn-on/off	—	—			

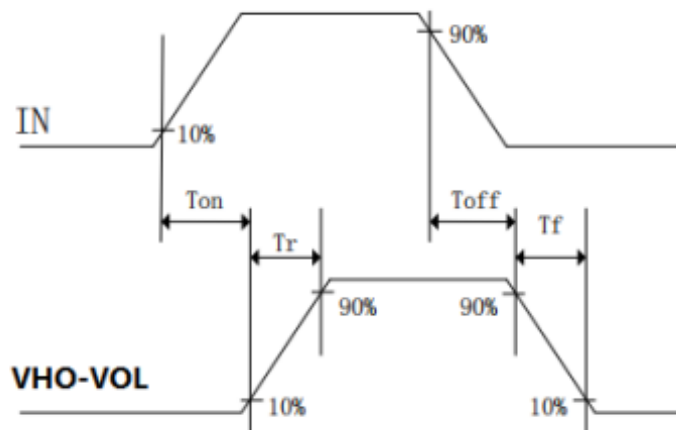
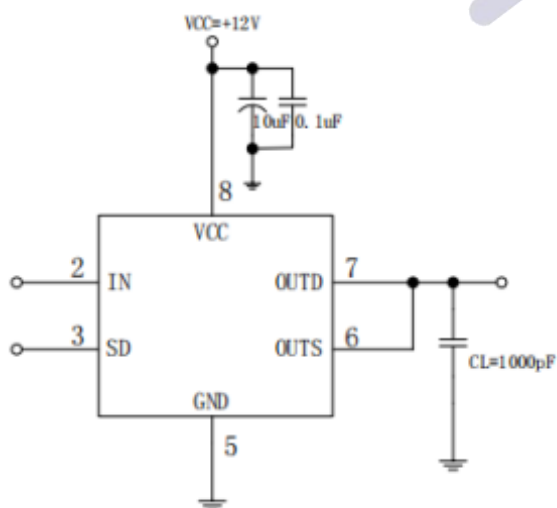
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Electrical Characteristic

VCC = 15V , TA = 25°C , unless otherwise specified.

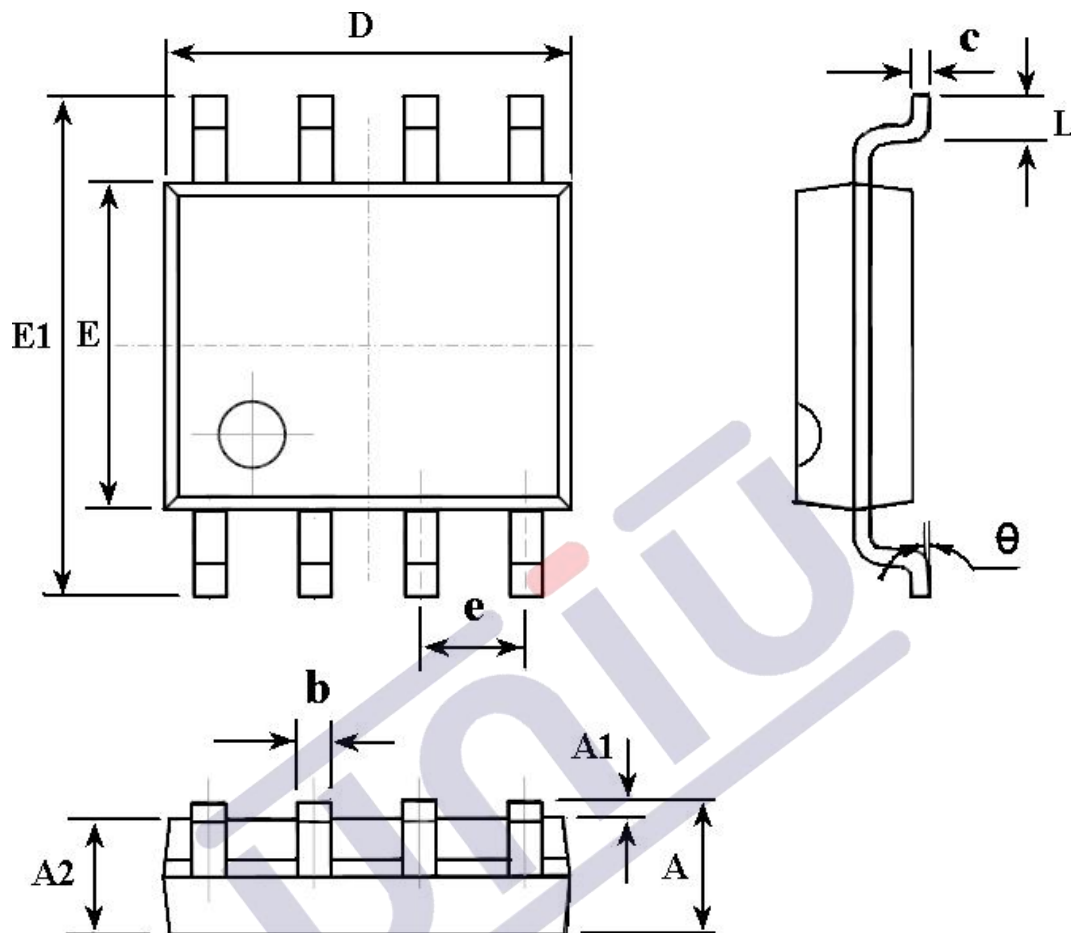
Symbol	Definition	Min.	Typ.	Max.	Units	Test Conditions
VHO	Logic "1" & Logic "0" input voltage	3	—	—	V	VCC = 10V to 20V
VLO	Logic "0" & Logic "1" input voltage	—	—	0.8		VCC = 10V to 20V
VSD,VH+	SD input positive going threshold	3	—	—		VCC = 10V to 20V
VSD,VL-	SD input negative going threshold	—	—	0.8		VCC = 10V to 20V
VHO	High level output voltage, VBIAS - VO	—	—	100	mV	IO = 0A
VLO	Low level output voltage, VO	—	—	100		IO = 0A
ILK	Offset supply leakage current	—	—	50	μA	VCC= 15V
IQCC	Quiescent VCC supply current	—	150	270		VIN = 0V or 5V
IO+	Output high short circuit pulsed current	—	1.2	—	A	VO = 0V PW ≤ 10 μs
IO-	Output low short circuit pulsed current	—	1.5	—		VO = 15V PW ≤ 10 μs
DT	Output low short circuit DT time	500	600	800	ns	

Time waveform



Packaging information

SOP 8



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	0.127(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2020/05/21	1.1	Change the package

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