



ZHEJIANG UNIÜ-NE Technology CO., LTD

浙江宇力微新能源科技有限公司



## U2104(S/M) Data Sheet

V 1.1

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## High Current IO+/- 2A/2.5A HALF-BRIDGE DRIVER

### General Description

The U2104(S/M) 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 600 volts.

### Product Summary

V <sub>OFFSET</sub>	600V max
I <sub>O+/-</sub>	2A / 2.5A
V <sub>CCton/off (typ.)</sub>	8.9V & 8.2V
Deadtime (typ.)	520 ns
Work Tem	-40 ~150 °C

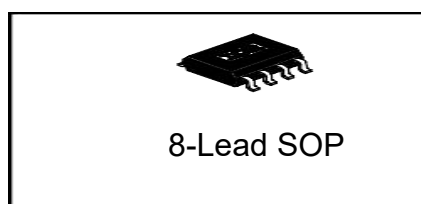
### Key Features

- Floating channel designed for bootstrap operation
- Fully operational to +600V
- Tolerant to negative transient voltage dV/dt immune
- Gate drive supply range from 8 to 20V
- Undervoltage lockout
- 3.3V, 5V and 15V 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

### Applications

- Home appliances
- Industrial applications and drives
- Motor drivers
- DC, AC, PMDC and PMAC motors
- Induction heating
- HVAC

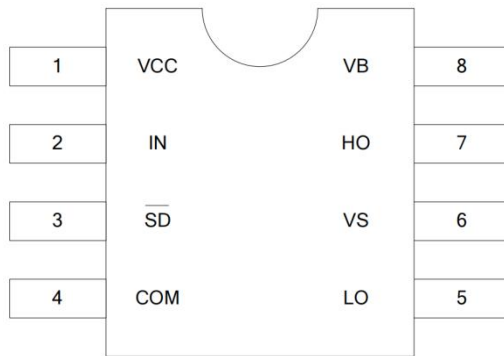
### Packages



### Products Information

Base Part Number	Package Type	Standard OUT		V <sub>OFFSET</sub>	Logic Control
		IO+	IO-		
U2104	SOP8	2A	2.5A	600V	IN & $\overline{SD}$
U2104S	SOP8	1.2A	1.5A	600V	IN & $\overline{SD}$
U2104M	SOP8	0.4A	0.6A	600V	IN & $\overline{SD}$

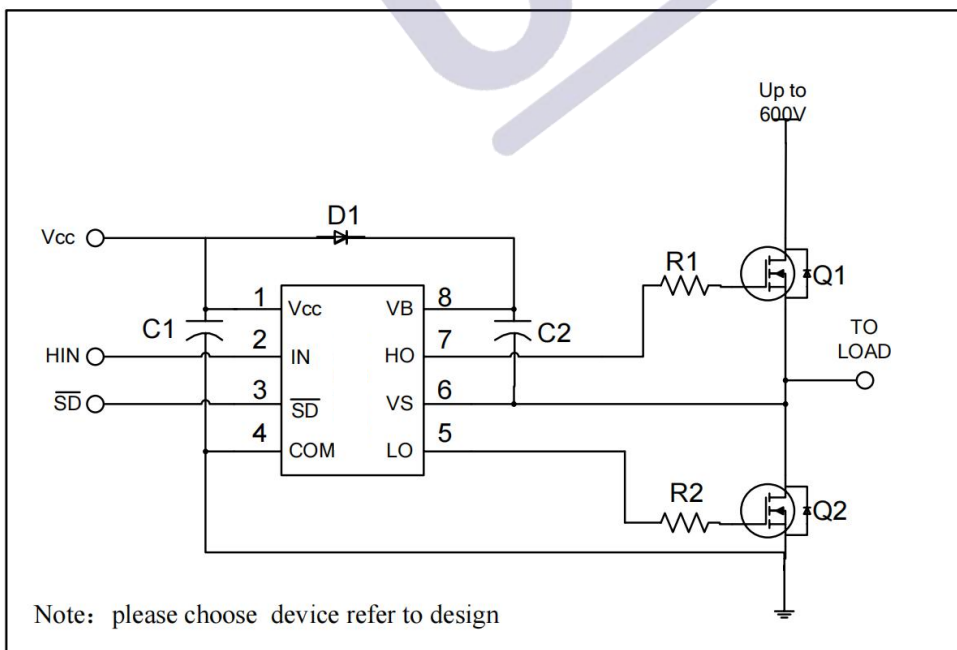
### Pin Assignments



### Pin Function

Number	Symbol	Description
1	VCC	Low side and logic fixed supply
2	IN	Logic input for high and low side gate driver outputs (HO and LO)
3	$\overline{SD}$	Logic input for shutdown
4	COM	Low side return
5	LO	Low side gate drive output
6	VS	High side floating supply return
7	HO	High side gate drive output
8	VB	High side floating supply

### Typical Application



Part	Typical value
D1	BYV26B
C1	10uF/25V
C2	0.1uF/63V
R1	20R
R2	20R
Q1	IRF830
Q2	IRF830

## 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
VB	High side floating absolute voltage	-0.3	625	V
VS	High side floating supply offset voltage	VB - 25	VB + 0.3	
VHO	High side floating output voltage	VS - 0.3	VB + 0.3	
VCC	Low side and logic fixed supply voltage	-0.3	25	
VLO	Low side output voltage	-0.3	VCC + 0.3	
VIN	Logic input voltage (IN & SD )	-0.3	VCC + 0.3	
dVs/dt	Allowable offset supply voltage transient	—	50	V/ns
PD	Package power dissipation @ TA ≤ +25°C (8 lead SOIC)	—	0.625	W
RthJA	Thermal resistance, junction to ambient (8 lead SOIC)	—	200	°C/W
TJ	Junction temperature	—	150	°C
TS	Storage temperature	-55	150	
TL	Lead temperature (soldering, 10 seconds)	—	300	

## Recommended Operating Conditions

The Input/Output logic timing diagram is shown in Figure 1. For proper operation the device should be used within the recommended conditions. The VS offset rating is tested with all supplies biased at 15V differential.

Symbol	Definition	Min.	Max.	Units
VB	High side floating supply absolute voltage	VS + 10	VS + 20	V
VS	High side floating supply offset voltage	-0.3	600	
VHO	High side floating output voltage	VS	VB	
VCC	Low side and logic fixed supply voltage	8	20	V
VLO	Low side output voltage	0	VCC	V
VIN	Logic input voltage (HIN&LIN )	0	VCC	V
TA	Ambient temperature	-40	125	°C

## 1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2010/05/21	1.1	Change the package

## 2.免责声明

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