

General Description

The OB2101H is a monolithic single-phase half-bridge gate driver IC designed for high voltage, high speed, driving power MOSFET and IGBT operating up to 650V.

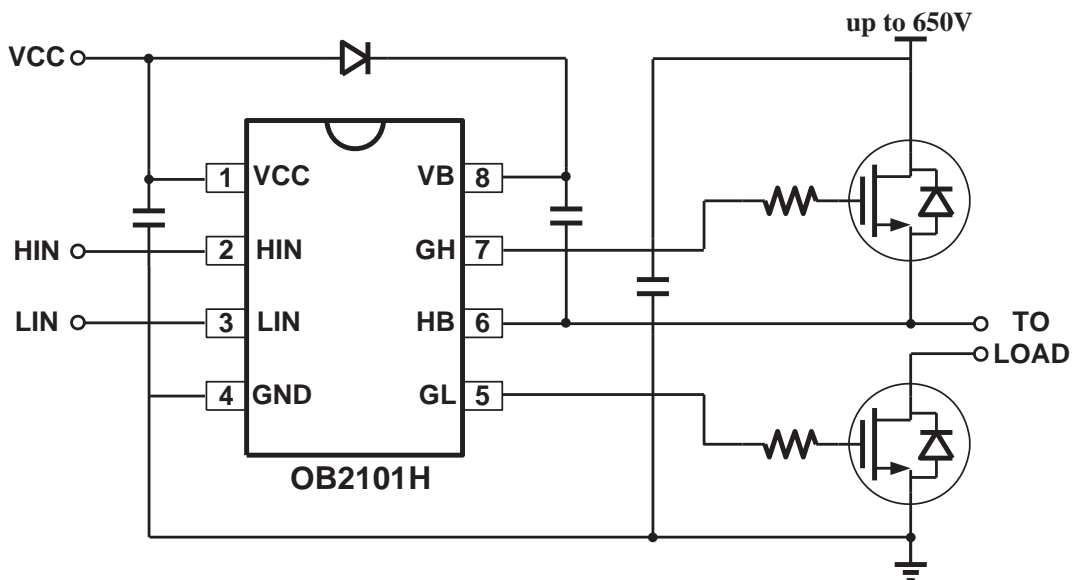
The OB2101H uses high voltage process and common mode noise canceling technique provides stable operation of high-side drivers under high dv/dt noise circumstance, and two output channels with internal deadtime to avoid cross-conduction.

The input logic level is compatible with standard 3.3V/5V. Output driver source and sink current 260mA and 530mA .

Features

- Floating channel for bootstrap operation up to 650V
- Positive input logic, and 3.3V/5V input logic compatible
- Built-in low-side supply under voltage lockout (UVLO)
- Built-in high side supply under voltage lockout (UVLO)
- Built-in cross conduction prevention logic
- Built-in dead time and matched propagation delay
- Available in SOP8 package

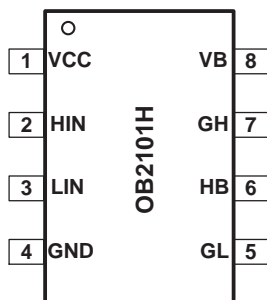
Typical Application



GENERAL INFORMATION

Pin Configuration

The pin map is shown as below for SOP8



Ordering Information

Part Number	Description
OB2101HCP	SOP8, Halogen-free, Tube
OB2101HCPA	SOP8, Halogen-free, T&R

Package Dissipation Rating

Package	R θ JA (°C/W)
SOP8	90

Note: Drain Pin Connected 100mm² PCB copper clad.

Absolute Maximum Ratings

Symbol	Description	Min	Max	Units
VB	High side floating supply voltage	-0.3	650	V
V _{HB}	High side floating offset voltage	VB-25	VB+0.3	
V _{GH}	High side floating output voltage	V _{HB} -0.3	VB+0.3	
VCC	Low side and supply voltage	-0.3	20	
V _{GL}	Low side gate driver output	-0.3	VCC+0.3	
V _{IN}	Logic input voltage(HIN & LIN)	-0.3	VCC+0.3	
dV _{HB} /dt	Allowable offset voltage transient		50	V/ns
P _D	Package power dissipation@T _A ≤+25°C		0.6	W
T _J	Junction temperature	-40	150	°C
T _S	Storage temperature	-40	125	

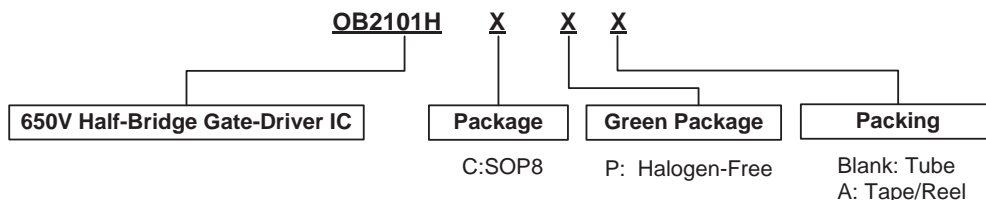
Note: Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.

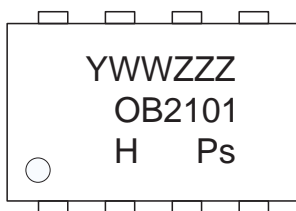
Recommended Operating Conditions

For proper operation the device should be used within the recommended conditions.

Symbol	Description	Min	Max	Units
VB	High side floating supply voltage	V _{HB} +10	V _{HB} +20	V
V _{HB}	High side floating offset voltage		600	
V _{GH}	High side floating output voltage	V _{HB}	VB	
VCC	Low side and supply voltage	10	15	
V _{GL}	Low side gate driver output	0	VCC	
V _{IN}	Logic input voltage(HIN & LIN)	0	VCC	
T _A	Ambient temperature	-40	125	°C

Marking Information





Y:Year Code
 WW:Week Code(01-52)
 ZZZ:Lot Code
 H:Character Code
 P:Green Package(Halogen-free)
 S:Internal Code(Optional)

PIN Definitions

Symbol	Description
VCC	Low side supply voltage
HIN	Logic input for high side gate driver output(GH),in phase
LIN	Logic input for low side gate driver output(GL),in phase
GND	Low side ground
GL	Low side gate driver output
HB	High side floating supply return
GH	High side gate driver output
VB	High side floating supply

Dynamic Electrical Characteristics

Setup: VCC=VB=12V, GND=HB=0V and T_A=25°C unless otherwise specified.

Symbol	Description	Test Conditions	Min	Typ	Max	Units
GH_t _{on}	GH turn-on propagation delay		200	310	550	ns
GH_t _{off}	GH turn-off propagation delay		200	310	550	
GL_t _{on}	GL turn-on propagation delay		200	350	550	
GL_t _{off}	GL turn-off propagation delay		200	350	550	
t _r	Turn-on rise time	Cload=1nF		95		
t _f	Turn-off fall time			45		
MT	Delay matching HS & LS turn-on/off			40		

Static Electrical Characteristics

Setup: VCC=VB=12V, Cload=10nF and TA=25°C unless otherwise specified.

Symbol	Description	Test Conditions	Min	Typ	Max	Units
V _{IH}	Logic“1”input voltage	VCC=12V	2			V
V _{IL}	Logic“0”input voltage				0.8	
I _{IN+}	Logic“1”input bias current	V _{IN} =5V		50	150	uA
I _{IN-}	Logic“0”input bias current	V _{IN} =0V			1	
I _{LK}	Offset voltage leakage current	VB=HB=600V			1	
I _{QBS}	Quiescent VBS supply current	HIN=LIN=0V		110	200	
I _{QCC}	Quiescent VCC supply current	HIN=LIN=0V		65	120	
V _{CCUV+}	VCC supply under voltage positive going threshold		7.3	8.3	9.3	V
V _{CCUV-}	VCC supply under voltage negative going threshold		7.8	8.8	9.8	
V _{BSUV+}	VBS supply under voltage positive going threshold		6.1	7.1	8.1	
V _{BSUV-}	VBS supply under voltage negative going threshold		6.5	7.5	8.5	
I _{SOURCE_GH}	Source current of GH driver	GH=15V, HIN=5V, with PW≤10us,	160	275		mA
I _{SINK_GH}	Sink current of GH driver	GH=0V, HIN=0V, with PW≤10us,	320	530		
I _{SOURCE_GL}	Source current of GL driver	GH=15V, HIN=5V, with PW≤10us,	150	260		
I _{SINK_GL}	Sink current of GL driver	GH=0V, HIN=0V, with PW≤10us,	350	590		