



DESCRIPTION

The AG2101 is a high voltage, high speed power MOSFET and IGBT driver based on P_SUB P_EPI process. The floating channel driver can be used to drive two N-channel power MOSFET or IGBT independently which operates up to 600V. Logic inputs are 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. Propagation delays are matched to simplify use in high frequency applications.

AG2101 is available in a SOP8 package.

ORDERING INFORMATION

Package Type	Part Number	
SOP8 SPQ: 4,000pcs/Reel	M8	AG2101M8R
		AG2101M8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

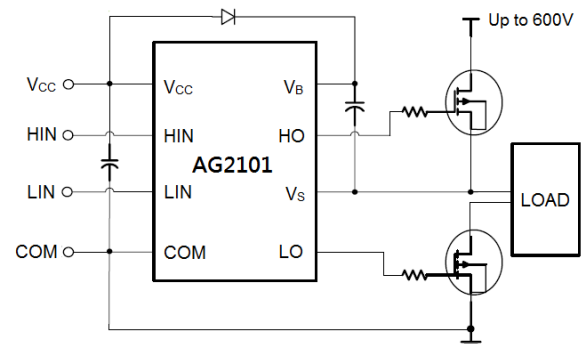
FEATURES

- Fully operational to +600V
- 3.3V logic compatible
- dV/dt Immunity $\pm 50V/nsec$
- Floating channel designed for bootstrap operation
- Gate drive supply range from 10V to 20V
- UVLO for both channels
- Output Source / Sink Current Capability 300mA /600mA
- Independent Logic Inputs to Accommodate All Topologies
- -5V negative Vs ability
- Matched propagation delay for both channels
- Available in a SOP8 package.

APPLICATION

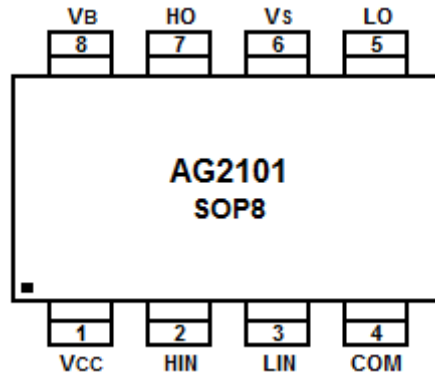
- Small and medium- power motor driver
- Power MOSFET or IGBT driver

TYPICAL APPLICATION CIRCUIT





PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V _{cc}	Low side and main power supply
2	HIN	Logic input for high side gate driver output (HO)
3	LIN	Logic input for low side gate driver output (LO)
4	COM	Ground
5	LO	Low side gate drive output, in phase with LIN
6	V _s	High side floating supply return or bootstrap return
7	HO	High side gate drive output, in phase with HIN
8	V _B	High side floating supply



ABSOLUTE MAXIMUM RATINGS

V _B , High Side Floating Supply	-0.3V ~ 625V	
V _S , High Side Floating Supply Return	V _B -25V ~ V _B +0.3V	
V _{HO} , High Side Gate Drive Output	V _S -0.3V ~ V _B +0.3V	
V _{CC} , Low Side and Main Power Supply	-0.3V ~ 25V	
V _{LO} , Low Side Gate Drive Output	-0.3V ~ V _{CC} +0.3V	
V _{IN} , Logic Input of HIN & LIN	-0.3V ~ V _{CC} +0.3V	
dV _S /dt, Allowable Offset Supply Voltage Transient	50V/ns	
ESD, HBM Model	2.5kV	
ESD, Machine Model	200V	
P _D , Package Power Dissipation @ T _A ≤25°C	SOP8	0.625W
R _{thJA} , Thermal Resistance Junction to Ambient	SOP8	200°C/W
T _J , Junction Temperature	150°C	
T _S , Storage Temperature	-55°C~150°C	
T _L , Lead Temperature (Soldering, 10 seconds)	300°C	

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Max.	Units
High Side Floating Supply	V _B	V _S +10	V _S +20	V
High Side Floating Supply Return	V _S	-	600	V
High Side Gate Drive Output Voltage	V _{HO}	V _S	V _B	V
Low Side Supply	V _{CC}	10	20	V
Low Side Gate Drive Output Voltage	V _{LO}	0	V _{CC}	V
Logic Input Voltage(HIN & LIN)	V _{IN}	0	V _{CC}	V
Ambient Temperature	T _A	-40	125	°C



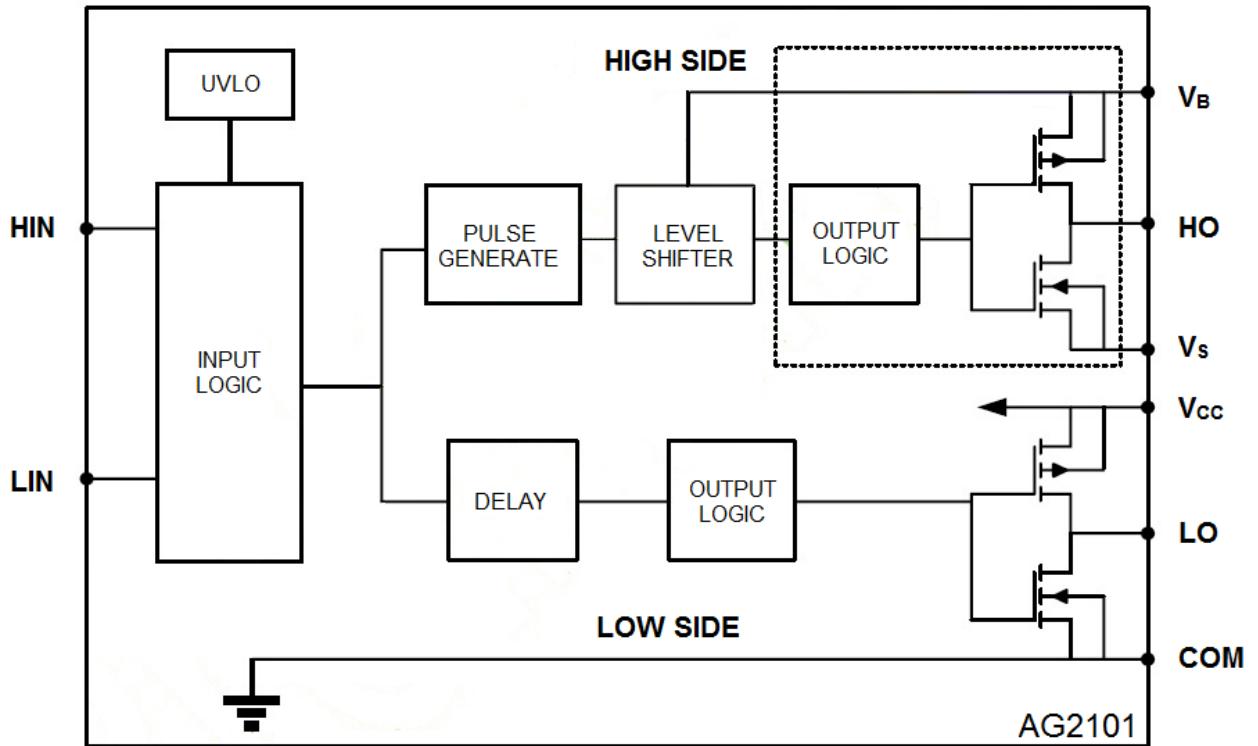
ELECTRICAL CHARACTERISTICS

V_{BIAS} (V_{CC} , V_{BS}) = 15V, C_L = 1000 pF and T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Dynamic Electrical Characteristics						
High Side Turn-On Propagation Delay	t_{onH}		-	160	220	ns
High Side Turn-Off Propagation Delay	t_{offH}		-	150	220	
Low Side Turn-On Propagation Delay	t_{onL}		-	160	220	
Low Side Turn-Off Propagation Delay	t_{offL}		-	150	220	
Delay Matching	MT		-	20	50	
Turn-On Rise Time	t_r		-	90	170	
Turn-Off Fall Time	t_f		-	40	90	
Static Electrical Characteristics						
Logic "1"(HIN & LIN) Input Voltage	V_{IH}		2.5	-	-	V
Logic "0" (HIN & LIN) Input Voltage	V_{IL}		-	-	0.8	
High Level Output Voltage, $V_{BIAS} - V_O$	V_{OH}		-	-	0.3	
Low Level Output Voltage, V_O	V_{OL}		-	-	0.3	
Quiescent V_{CC} Supply Current	I_{QCC}		-	150	270	μ A
Quiescent V_B Supply Current	I_{QBS}		-	30	55	
Leakage Current from $V_S(600V)$ to GND	I_{LK}		-	-	50	
Logic "1" Input Bias Current	I_{IN+}		-	6	10	
Logic "0" Input Bias Current	I_{IN-}		-	-	1	
V_{CC} Supply UVLO Threshold	V_{CCU+}		-	8.7	-	
	V_{CCU-}		-	8	-	
Output High Short Circuit Pulsed Current	I_{o+}		-	300	-	mA
Output Low Short Circuit Pulsed Current	I_{o-}		-	600	-	



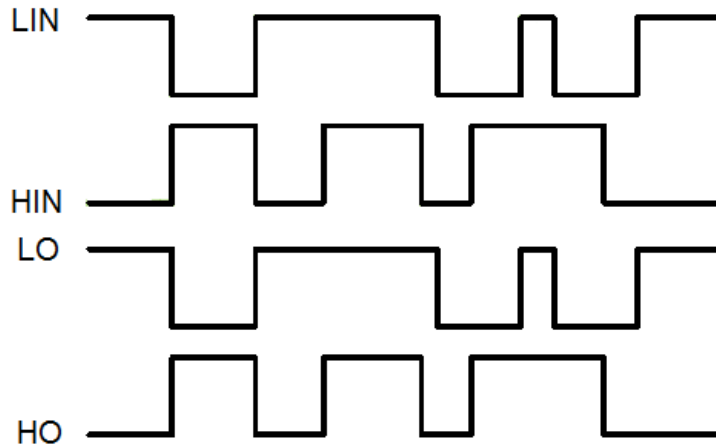
BLOCK DIAGRAM



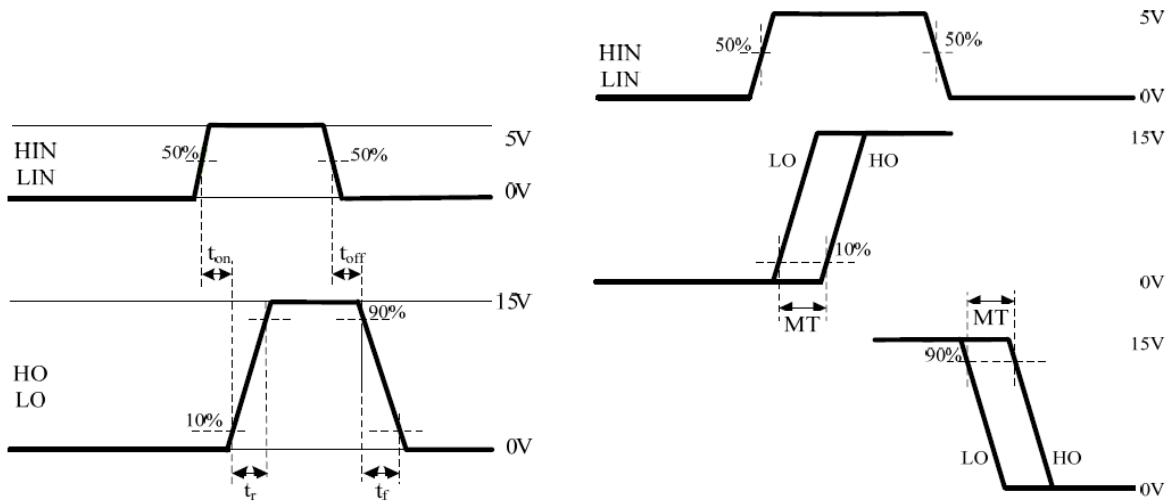


DETAILED INFORMATION

1. Logic Function



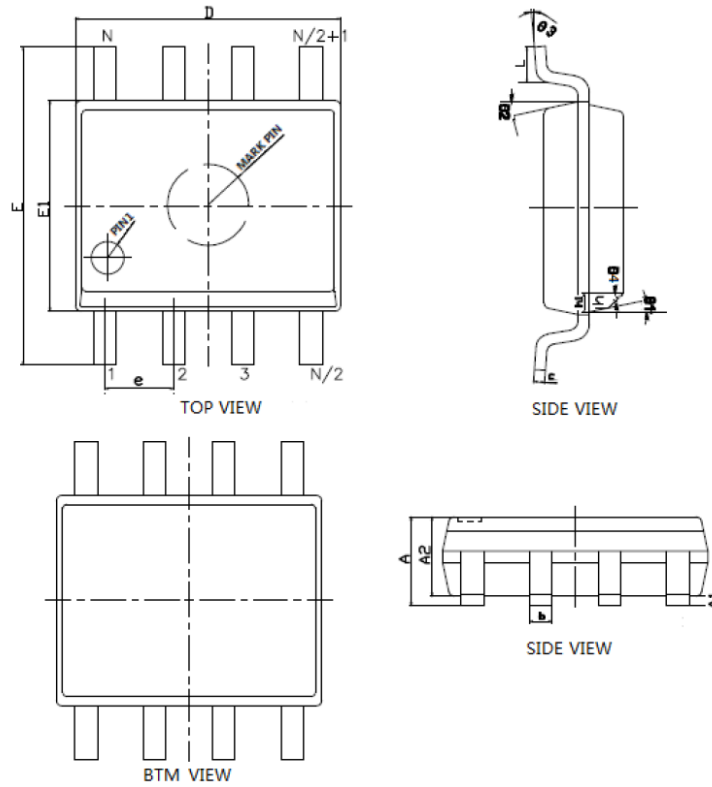
2. Timing Spec





PACKAGE INFORMATION

Dimension in SOP8 (Unit: mm)



Symbol	Min.	Max.
A	1.499	1.750
A1	0.102	0.249
A2	1.397	-
b	0.406TYP	
c	0.2TYP	
D	4.852	4.952
E	5.852	6.198
E1	3.877	3.997
e	1.27TYP	
h	-	-
h1	0.254	0.457
L	0.406	0.889
θ_1	12°TYP	
θ_2	12°TYP	
θ_3	0°	8°
θ_4	45	



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