



## DESCRIPTION

The AG2008 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. It has two versions AG2008-A & AG2008-B.

AG2008 is available in a SOP8 package.

## ORDERING INFORMATION

Package Type	Part Number	
SOP8 SPQ: 4,000pcs/Reel	M8	AG2008M8R-Z
		AG2008M8VR-Z
Note	V: Halogen free Package Z: A=LIN; B= $\overline{\text{LIN}}$ R: Tape & Reel	
AiT provides all RoHS products		

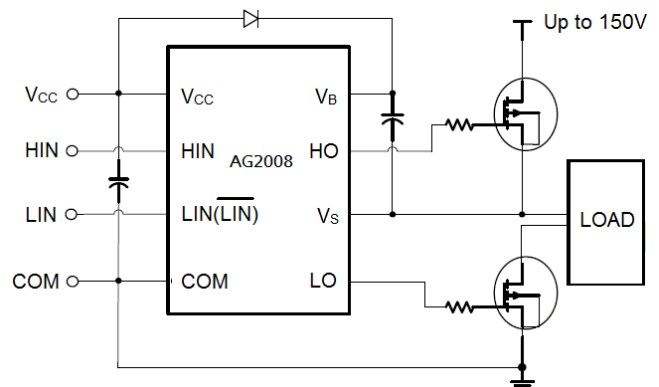
## FEATURES

- Fully operational to +600V
- 3.3V logic compatible
- dV/dt Immunity  $\pm 50\text{V/nsec}$
- Floating channel designed for bootstrap operation
- Gate drive supply range from 10.5V to 20V
- UVLO for both channels
- Output Source / Sink Current Capability 450mA /900mA (at  $V_{cc} = 15\text{V}$ )
- Independent Logic Inputs to Accommodate All Topologies
- -5V negative  $V_s$  ability
- Matched propagation delay for both channels
- Available in a SOP8 package.

## APPLICATION

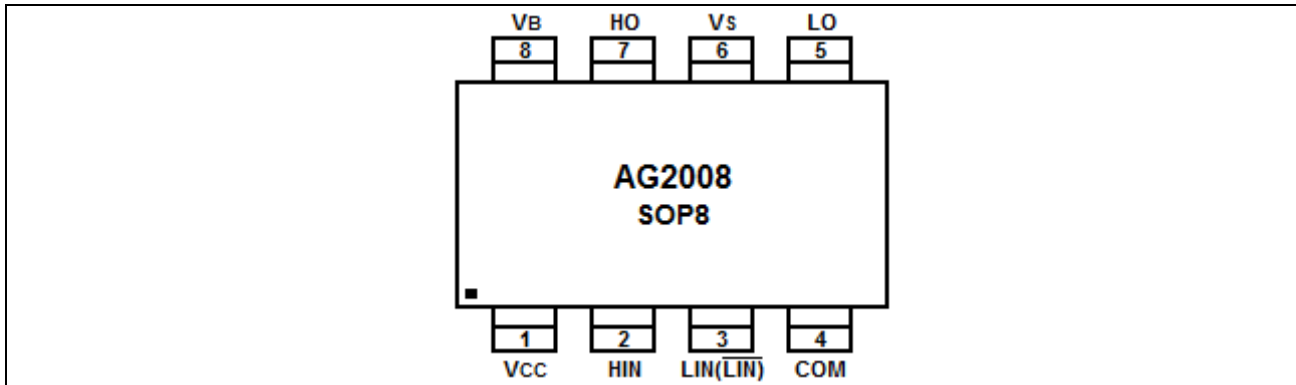
- Small and medium- power motor driver
- Power MOSFET or IGBT driver
- Half-Bridge Power Converters
- Full-Bridge Power Converters
- Any Complementary Drive Converters

## TYPICAL APPLICATION CIRCUIT





## PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V <sub>cc</sub>	Low side and main power supply
2	HIN	Logic input for high side gate driver output (HO)
3	LIN( $\overline{\text{LIN}}$ )	Logic input for low side gate driver output (LO)
4	COM	Ground
5	LO	Low side gate drive output A version: in phase with LIN, B version: out of phase with LIN
6	V <sub>s</sub>	High side floating supply return or bootstrap return
7	HO	High side gate drive output, in phase with HIN
8	V <sub>B</sub>	High side floating supply



## ABSOLUTE MAXIMUM RATINGS

$V_B$ , High Side Floating Supply	-0.3V ~ 622V	
$V_S$ , High Side Floating Supply Return	$V_B - 22V \sim V_B + 0.3V$	
$V_{HO}$ , High Side Gate Drive Output	$V_S - 0.3V \sim V_B + 0.3V$	
$V_{CC}$ , Low Side and Main Power Supply	-0.3V ~ 22V	
$V_{LO}$ , Low Side Gate Drive Output	-0.3V ~ $V_{CC} + 0.3V$	
$V_{IN}$ , Logic Input of HIN & LIN	-0.3V ~ $V_{CC} + 0.3V$	
ESD, HBM Model	2.5kV	
ESD, Machine Model	200V	
$P_D$ , Package Power Dissipation @ $T_A \leq 25^\circ C$	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	$V_B$	$V_S + 10.5$	$V_S + 20$	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	$V_{CC}$	10.5	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



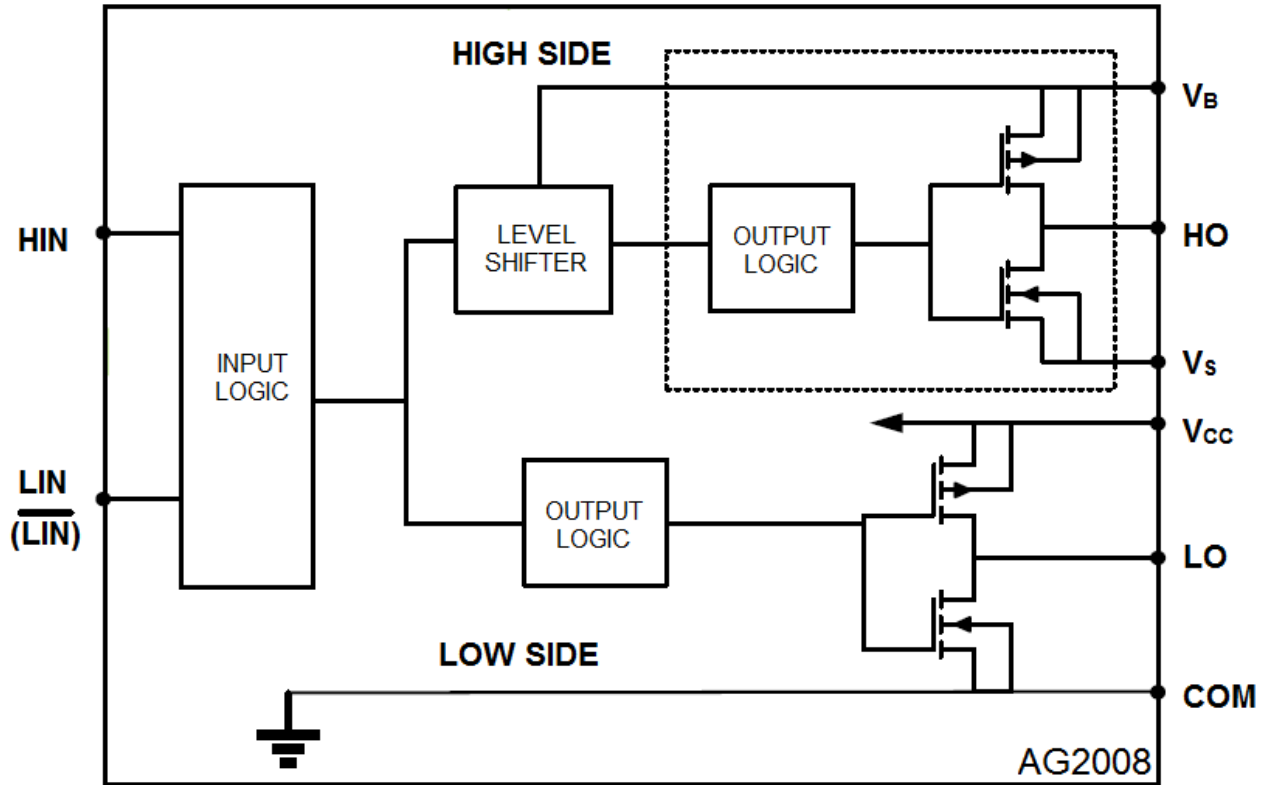
## ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
<b>Dynamic Electrical Characteristics</b>						
High Side Turn-On Propagation Delay	$t_{onH}$		-	170	240	ns
High Side Turn-Off Propagation Delay	$t_{offH}$		-	170	240	
Low Side Turn-On Propagation Delay	$t_{onL}$		-	170	240	
Low Side Turn-Off Propagation Delay	$t_{offL}$		-	170	240	
Delay Matching	MT		-	-	50	
Turn-On Rise Time	$t_r$		-	50	90	
Turn-Off Fall Time	$t_f$		-	30	80	
<b>Static Electrical Characteristics</b>						
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	$I_{QCC}$		-	160	220	$\mu$ A
Quiescent $V_B$ Supply Current	$I_{QB}$		-	80	150	
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	2	
$V_{BS}$ Supply UVLO Threshold	$V_{BSU+}$		-	10.0	-	V
	$V_{BSU-}$		-	9.4	-	
$V_{CC}$ Supply UVLO Threshold	$V_{CCU+}$		-	10.0	-	
	$V_{CCU-}$		-	9.4	-	
Output High Short Circuit Pulsed Current	$I_{O+}$		-	450	-	mA
Output Low Short Circuit Pulsed Current	$I_{O-}$		-	900	-	



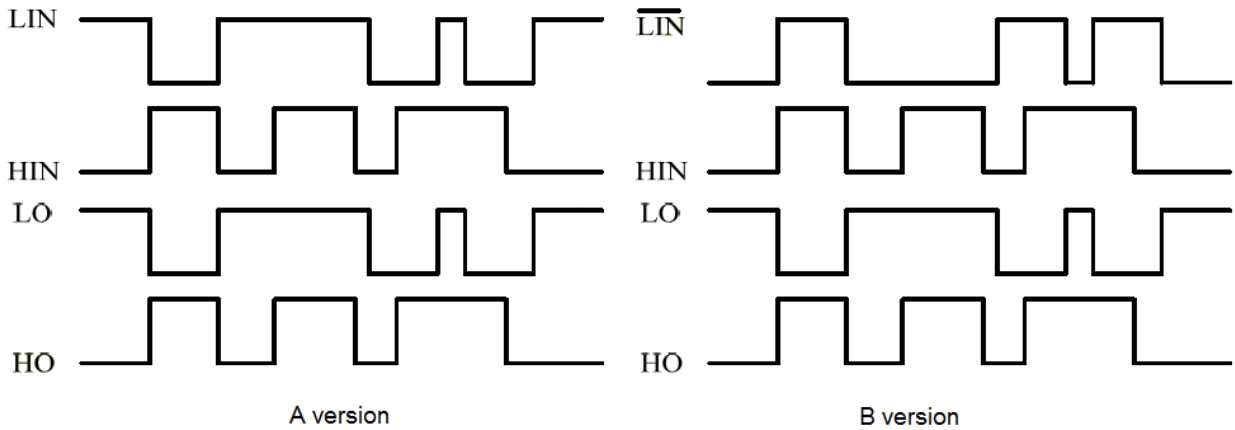
**BLOCK DIAGRAM**



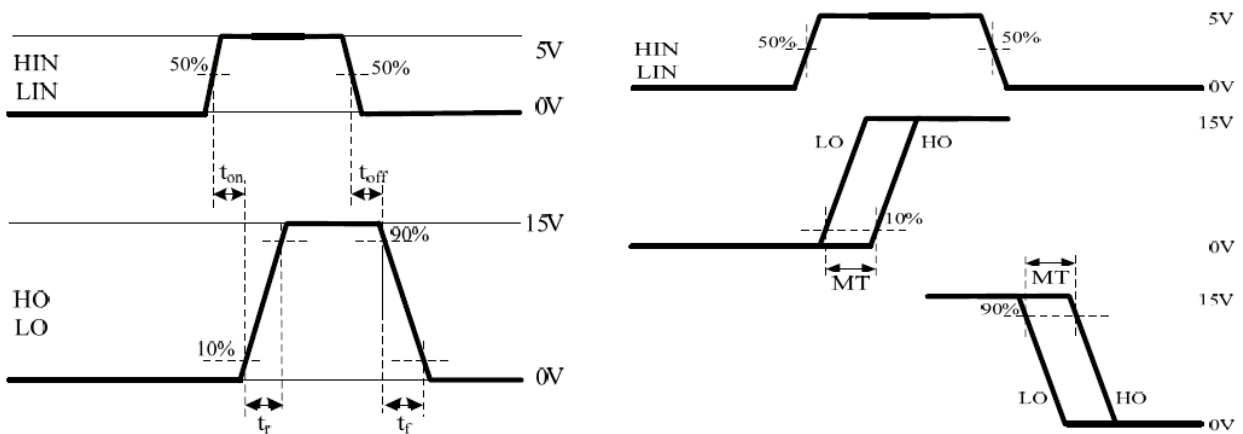


## DETAILED INFORMATION

### 1. Logic Function



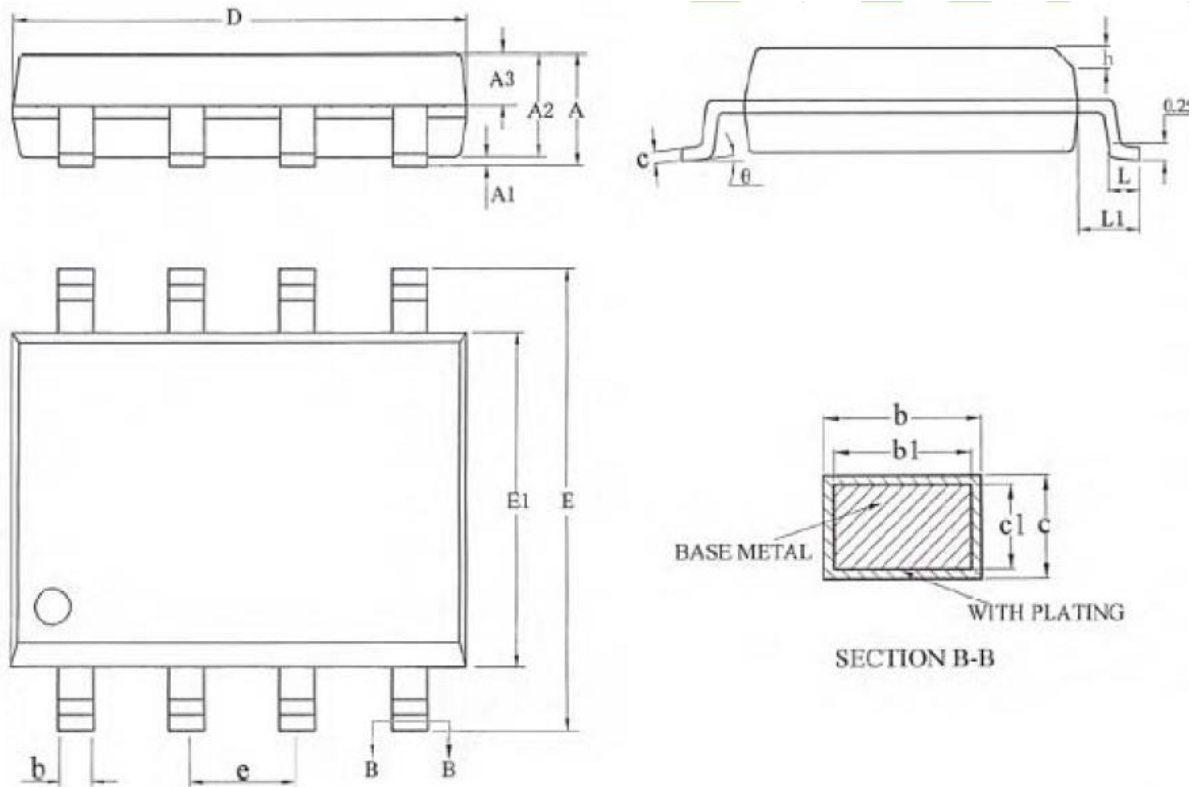
### 2. Timing Spec





**PACKAGE INFORMATION**

Dimension in SOP8 (Unit: mm)



Symbol	Min.	Max.
A	-	1.75
A1	0.10	0.225
A2	1.30	1.50
A3	0.60	0.70
b	0.39	0.48
b1	0.38	0.43
c	0.21	0.26
c1	0.19	0.21
D	4.70	5.10
E	5.80	6.20
E1	3.70	4.10
e	1.27 BSC	
h	0.25	0.50
L	0.50	0.80
L1	1.05 BSC	
θ	0°	8°



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