

Dual Channel SiC MOSFET Driver

Gate Driver for 1200V SiC MOSFET Power Module

Features

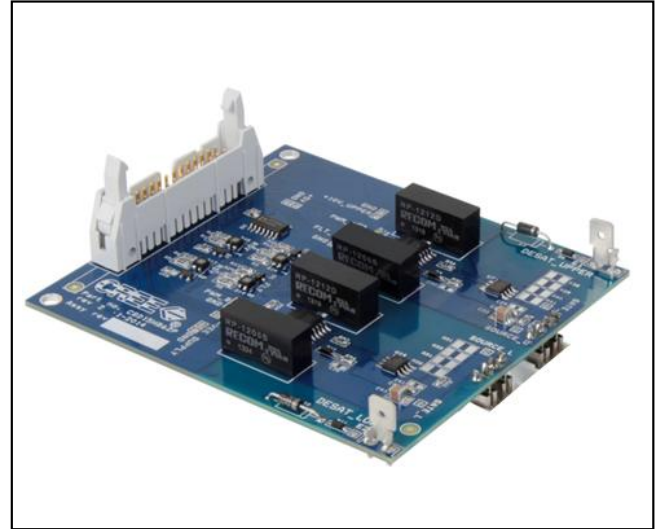
- 2 output channels
- Isolated power supply
- Direct mount low inductance design
- Short circuit protection
- Under voltage protection

For use with Cree Module

- CAS300M12BM2, 1200V, 300A module.

Applications

- Driver for 1.2kV, SiC MOSFET modules
- DC Bus voltage up to 900V



Part Number	Package	Marking
CGD15HB62P	PCBA	CGD15HB62P Rev2

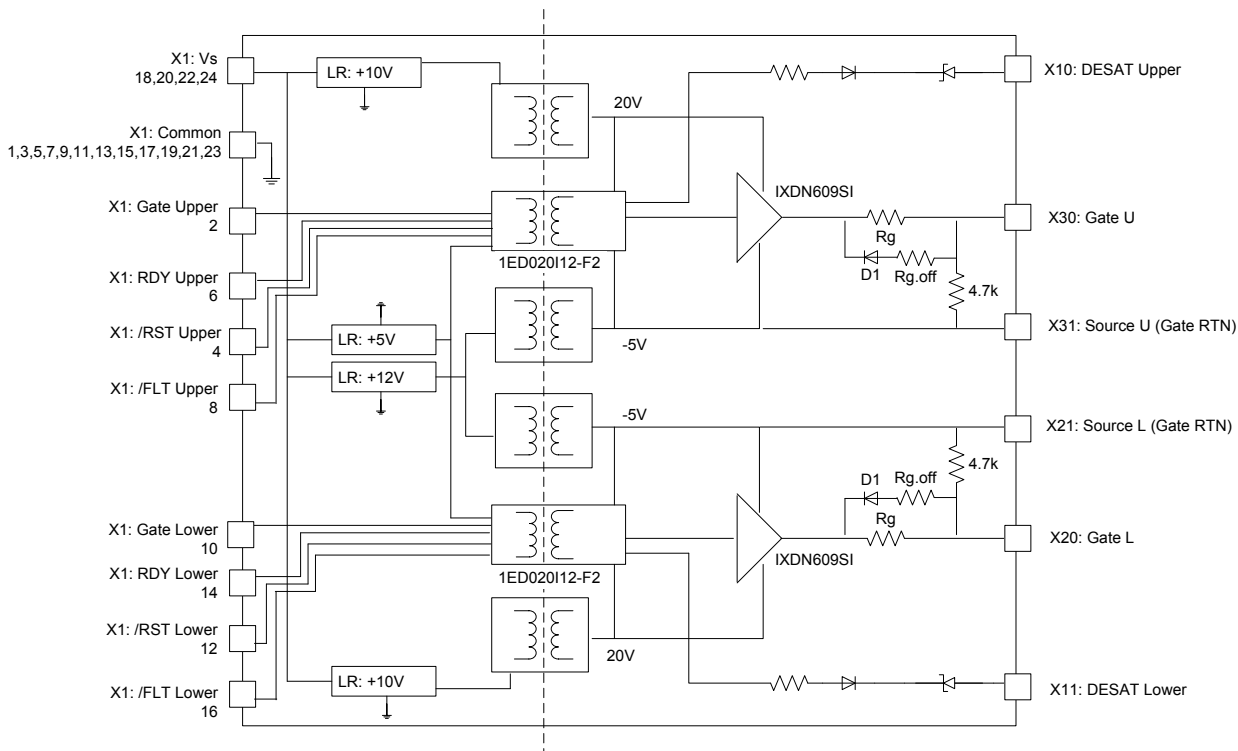
Absolute Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_s	Power Supply Voltage	16	V		
V_{iH}	Input signal voltage HIGH	5	V		
V_{iL}	Input signal voltage LOW	0	V		
$I_{O.pk}$	Output peak current	9	A		
$I_{O.avg.max}$	Output average current	2	A		
F_{Max}	Max. Switching frequency	32 (64)*	kHz		*Can be increased to 64kHz by replacing the 1W isolated power supply with a 2Watt version R12P212D from Recom.
V_{DS}	Max. Drain to source voltage	1200	V		
V_{isol}	Input to output isolation voltage	±1200	V		
T_{op}	Operating temperature	-35 to 85	°C		
T_{stg}	Storage temperature	-40 to 85	°C		

Characteristics

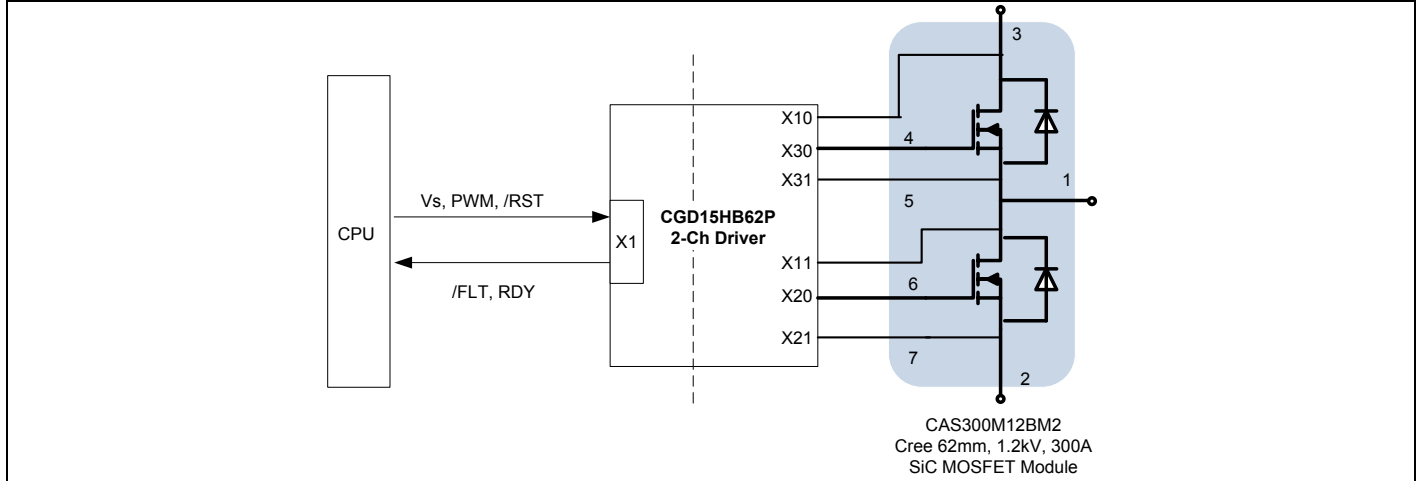
Symbol	Parameter	Value			Unit	Test Conditions	Notes
		Min	Typ	Max			
V_S	Supply voltage	13.0	15.0	16.0	V		
V_i	Input signal voltage on/off		5/0		V		
I_{SO}	Supply current (no load)		140	170	mA	85 °C	
	Supply current (max.)		320	400		85 °C	
V_{iT+}	Input threshold voltage HIGH	3.5			V		
V_{iT-}	Input threshold voltage LOW			1.5	V		
T_{don}	Turn on propagation delay		210	280	nS		
T_{doff}	Turn off propagation delay		207	285	nS		
T_{err}	Pulse width for resetting fault	800			nS		
W	Weight		63		g		
MTBF	Mean time between failure		1.5		10^6 h		

Block Diagram



Note: Default gate resistor for R_g is 10Ω for the gate ON and OFF. The user can control the gate turn ON and OFF speed by changing R_g to a lower value and gain better efficiency. The user can also control the Gate turn-ON and OFF speed independently by populating $R_{g.off}$ and $D1$.

Typical Application



Mounting Instructions

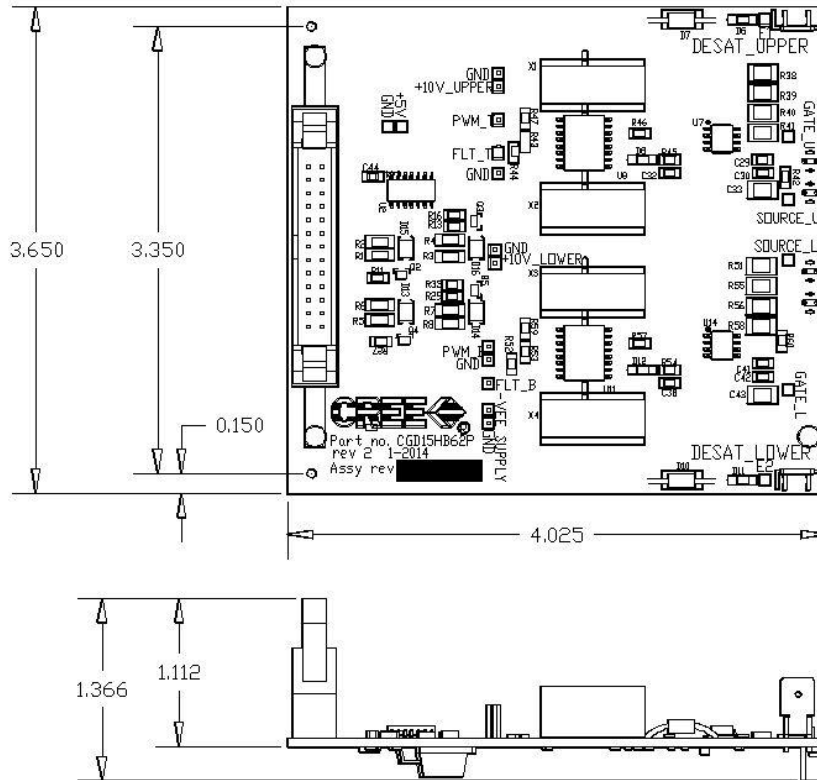
Designed to directly mount to Cree 62 mm style power modules. Four (4) mounting holes for 4x M4-8, Nylon screws are provided to secure the board to a bracket or enclosure (0.5 Nm) for additional support.

External wires with spade style connectors should be used to connect the Desat detect pins (X10 & X11) from the module to the gate drive board.





Mechanical Drawing (units in Inches)



Full Gate Driver reference design available upon request