

The wave forms try to match the ones in this papper

<http://wrap.warwick.ac.uk/135348/1/WRAP-reliable-control-direct-PWM-AC-AC%20buck-converter-short-circuit-protection-Wang-2019.pdf>

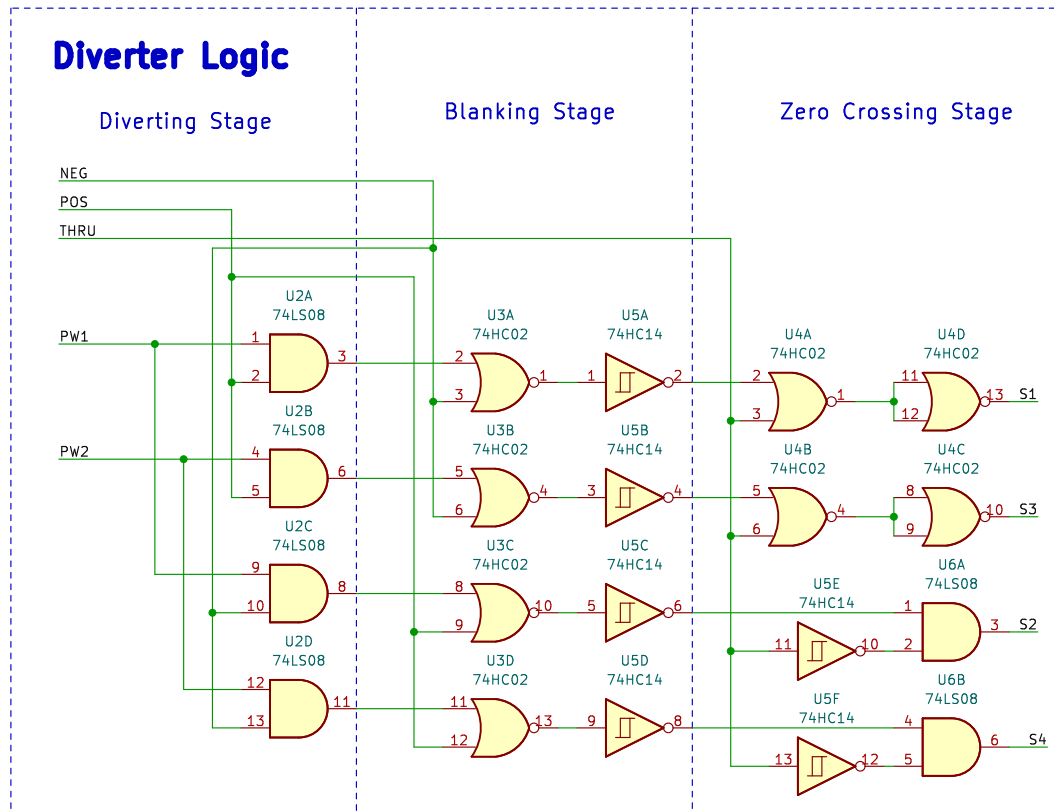
Found this papper after comming up with this design  
Helps show the gate driver is a good idea

<https://ieeexplore.ieee.org/document/290613>

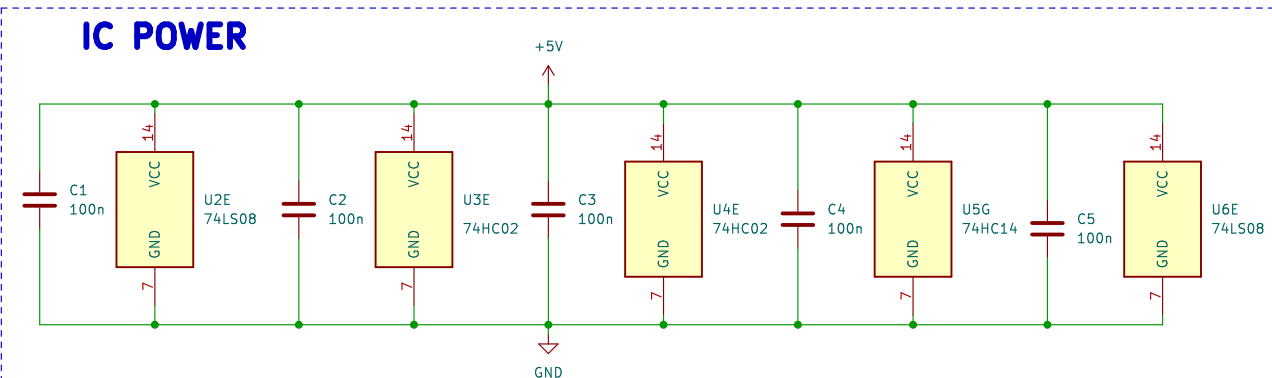
Havent looked at yet but from the pictures looks helpful

<https://ieeexplore.ieee.org/document/7420054>

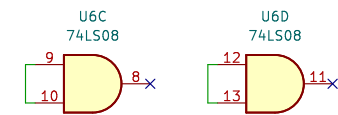
## Diverter Logic



## IC POWER



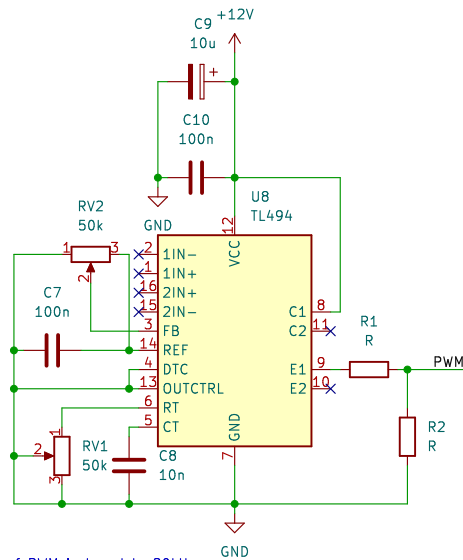
## Unused



What the gates do

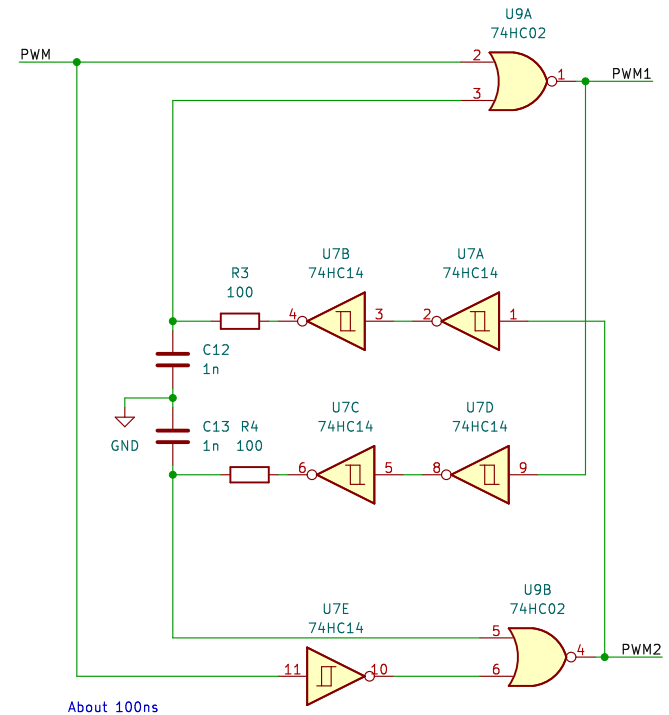
First & are used to divert the PWM to either S1&S3 what POS is H and S2&S4 when NEG is H  
 The (NOR + Inverter create a or did it this way as I had not ORs on hand)  
 This is used to set the switches which are not PWMing to H. E.G. S2&S4 are H when S1&S3 have the PWM.  
 The last section made up of and not and inverters is used for the zero crossing. When the zero crossing is H then S1&S3 are H and S2&S4 are L

## PWM Generation



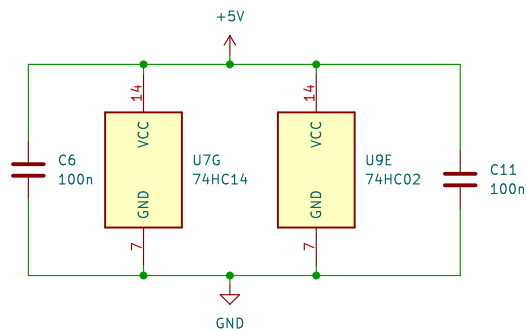
Frequency of PWM is tuned to 20kHz

## Deadtime

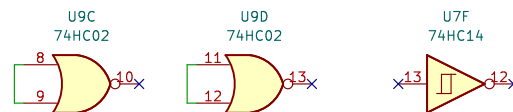


About 100ns

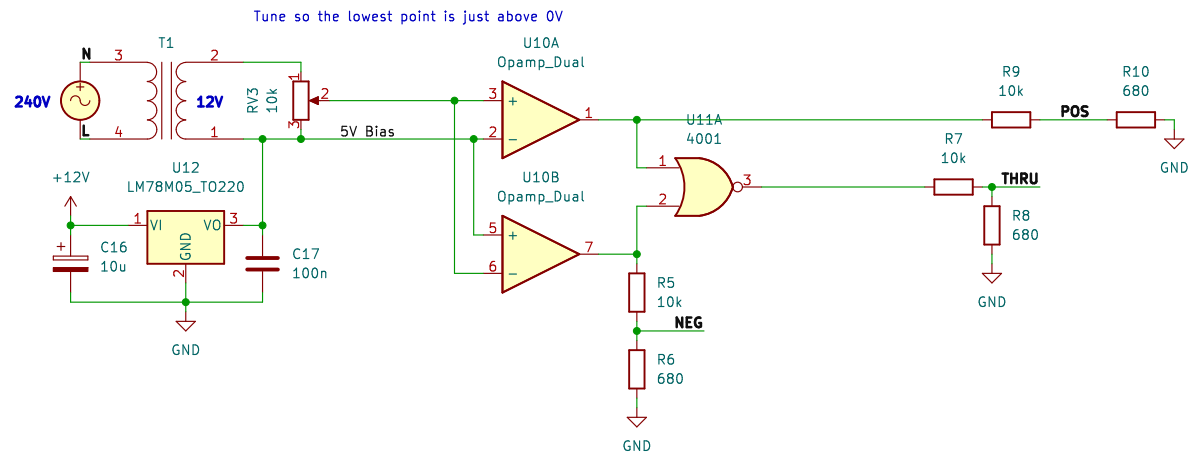
## Logic Gate Power



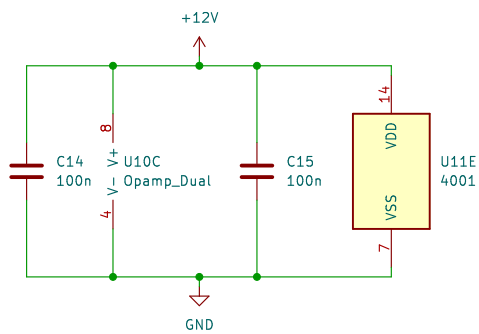
## Not Used



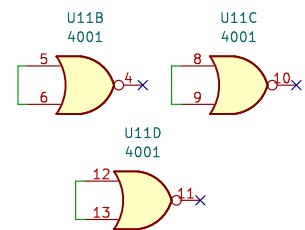
## Detection Logic



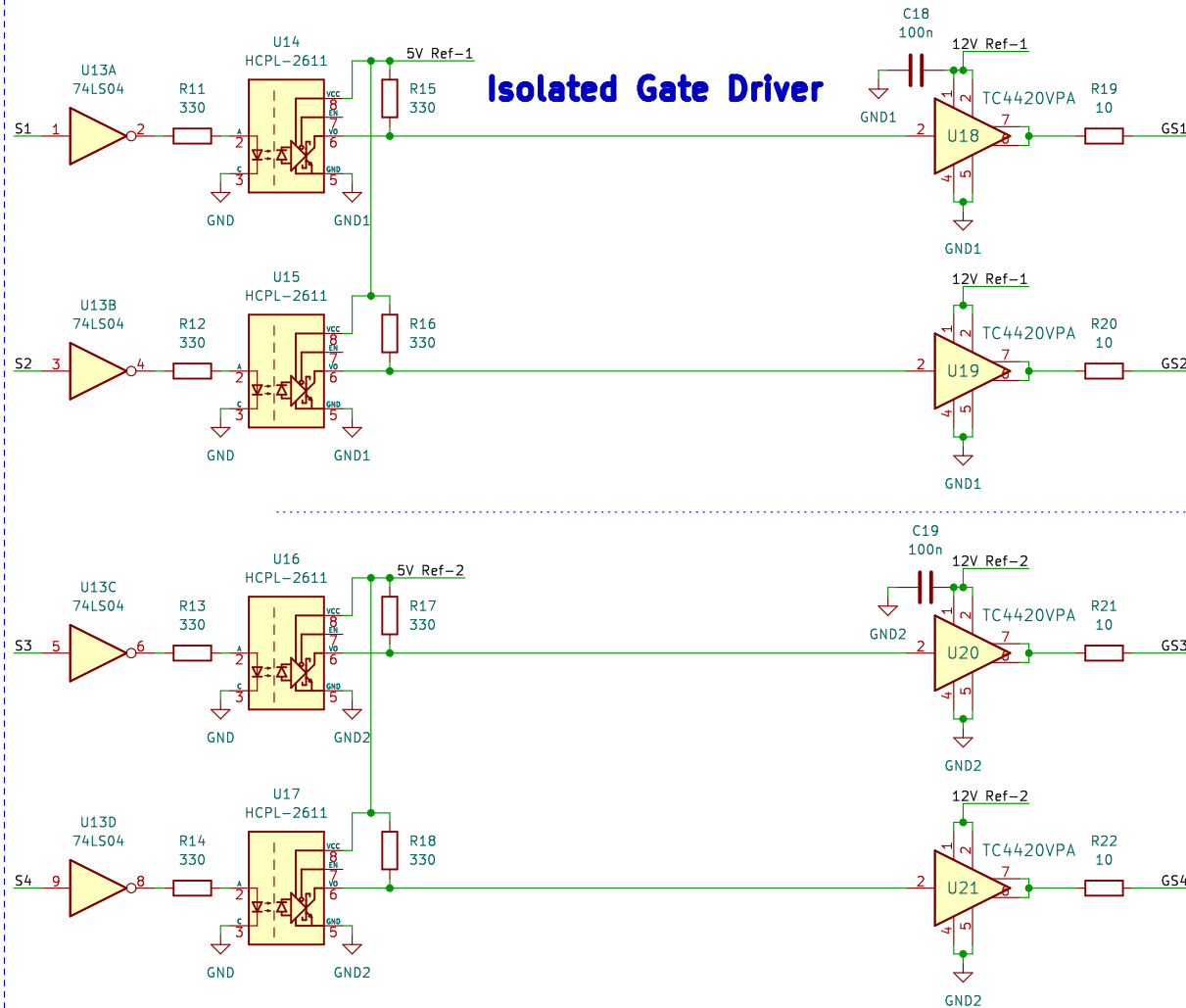
## IC Power



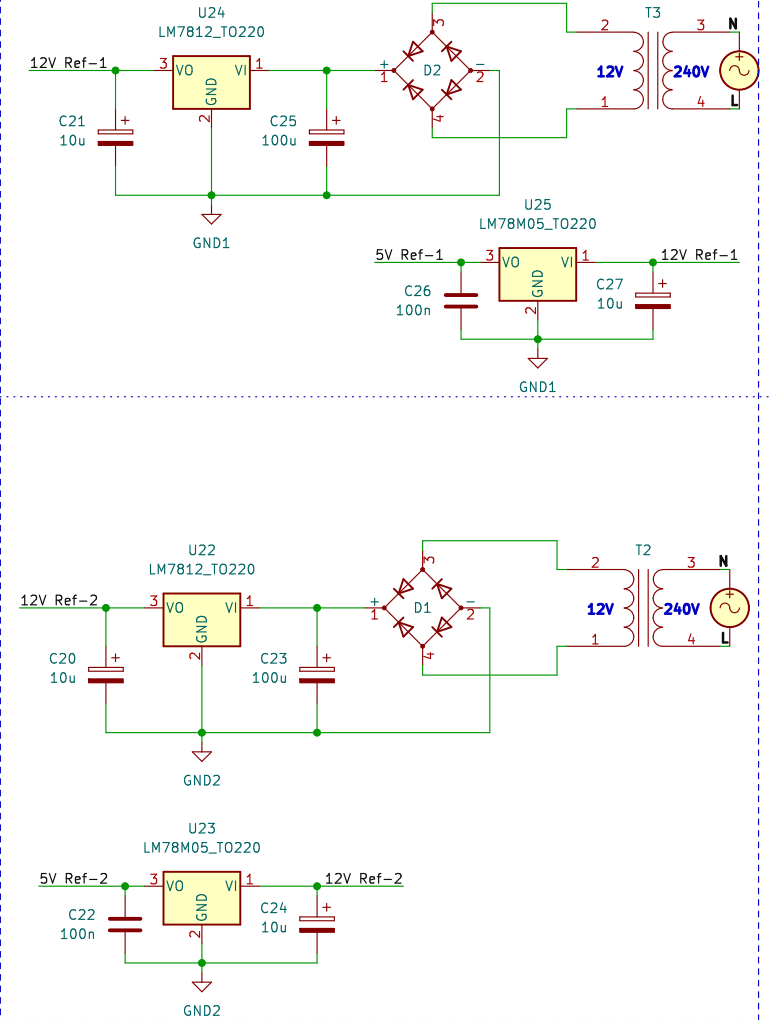
**Unused**



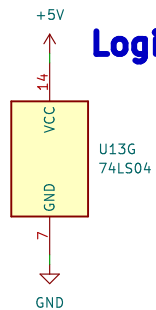
## Isolated Gate Driver



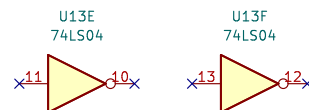
## Isolated Power Supplies



## Logic IC Power



## Unused



## Power Stage

