

# How to Convert a Low Power Inverter to a High Power Inverter

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Here I have explained about a couple of simple circuit configurations which will convert any low power inverter to a massive high power inverter circuit.

You'll find a plenty of small and medium sized inverters in the market ranging from 100 to 500 watts, the same may be seen posted in this blog. Upgrading or converting such small or medium power inverters into massive high power inverter in the order of kvas may look quite a daunting and complex, but actually it's not.

## Analyzing Inverter Topologies

All inverter topologies basically incorporate an oscillator frequency which is then amplified using power devices to high current levels before dumping into the step-up transformer for the final voltage boosting procedures.

The current amplifier stage which employs high current devices is where the upgrade needs to be done in order to achieve any desired power outputs from an inverter.

The modern day inveters heavily rely on mosfets for the above mentioned power conversion stage, nevertheless BJTs can be also used for the same very effectively, in fact much reliably than mosfets...

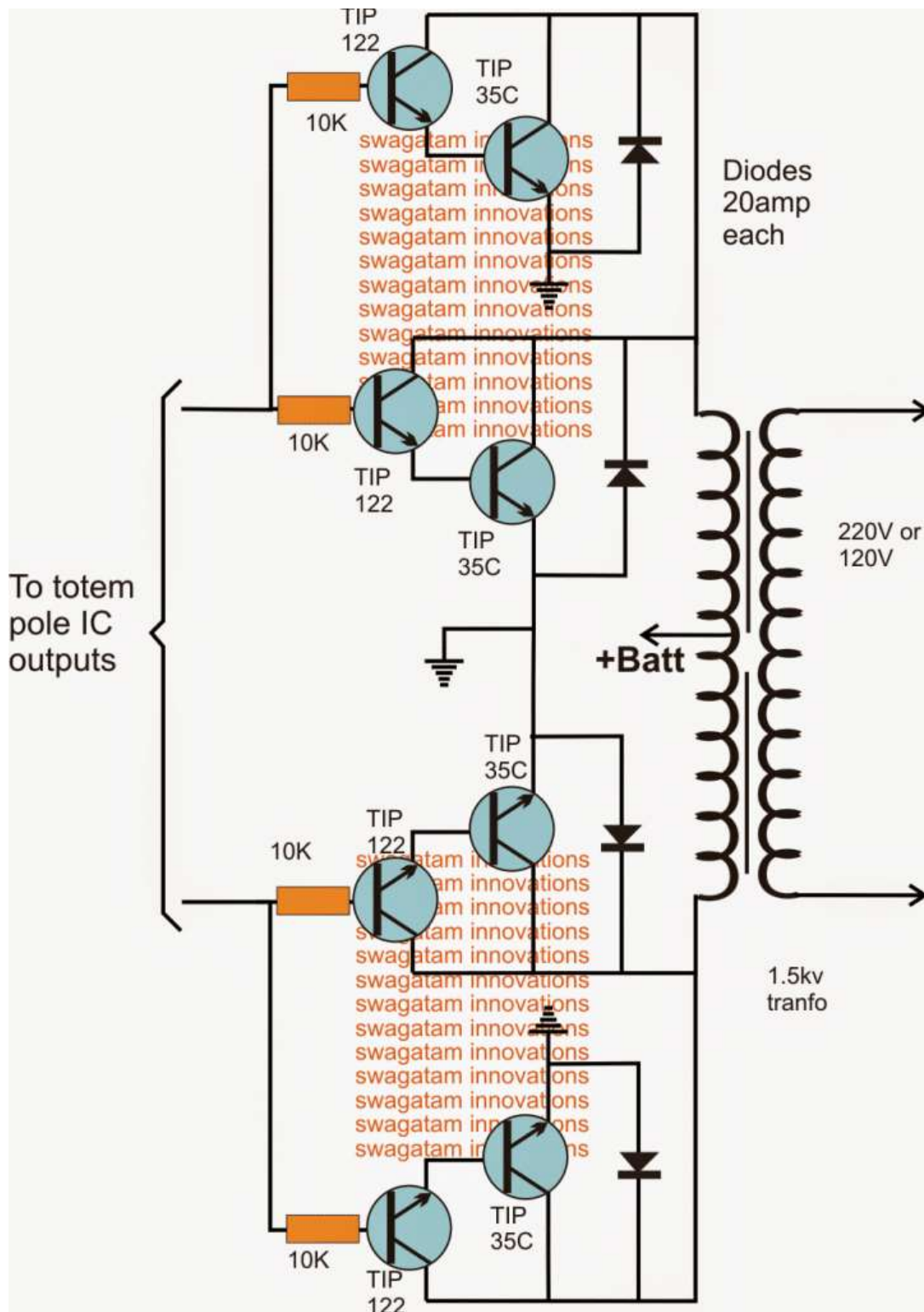
## How to Upgrade Low Power to High Power

The following diagram shows a simple and very effective power output stage which can be integrated with any totem pole IC outputs such as IC 4047, IC

TL494, IC SG3525, IC 4017 (clocked with IC555), for acquiring upto 1.5kva conversions.

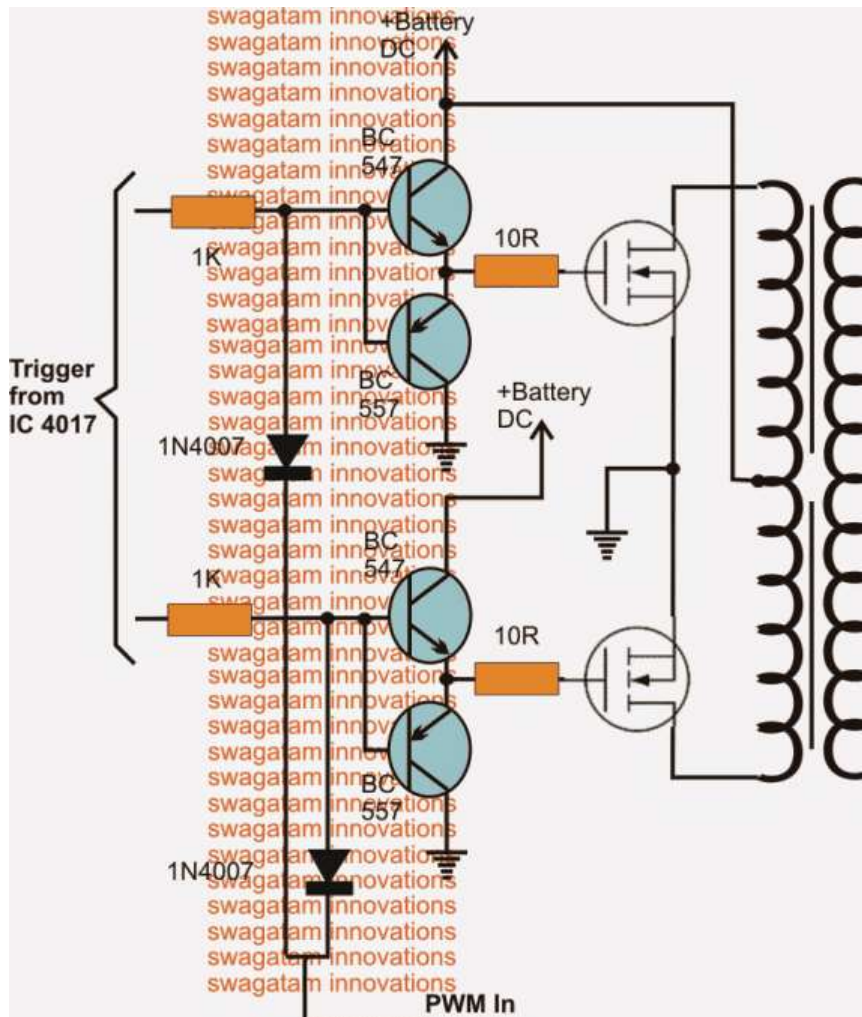
The key devices in the circuit are the combination of the TIP122 and TIP35 which become a high gain, high current transistor pair, capable of boosting current to the rated massive levels instantly.

Each such device module is rated to produce at least  $30 \times 24 = 720$  watts, so by adding more such modules in parallel any desired kva range can be anticipated from the configuration



# Using Power BJTs

Using BJTs could be very reliable and simpler but quite bulky, if space is your problem and need the upgrade from low to high power inverter in the most compact way, then MOSFETs become the popular choice and may be wired as shown in the following diagram:



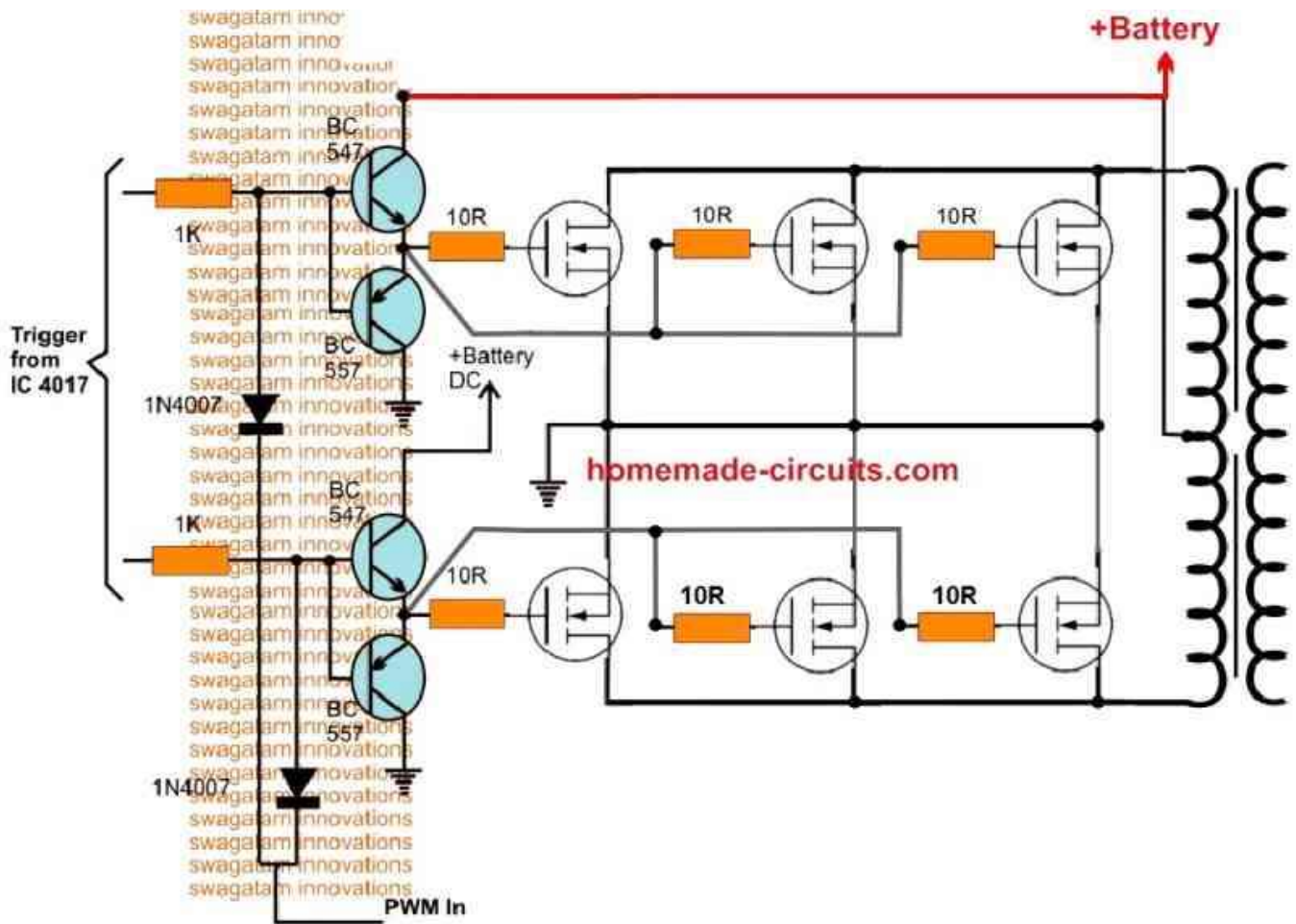
The input is derived again from any totem pole IC outputs, the MOSFETs could be rated as per the desired upgrade from lower to the highest magnitudes.

The diode integration suggests a simple PWM insertion which is optional, but could be used if a modified sine wave output intended to be included in the upgrade.

## Adding MOSFETs in Parallel

The above explained ideas for upgrading a low power inverter circuit to a higher power version can be implemented to any desired level, simply by adding several MOSFETs in parallel.

Adding MOSFETs in parallel is actually easier than adding BJT in parallel. It's just about connecting the all the drains, and all the sources together, and then joining all the gates together through individual 10 ohms resistors.



## Upgrading Transformer and the Battery

MOSFETs are like switches, which means that only by upgrading the MOSFETs will only bolster the switching part to handle higher wattage and current. However, to actually achieve the desired high output wattage, the transformer and the battery rating will also need to be upgraded accordingly.

For example, if the a 100 watt inverter is upgraded to 500 watts, then the along with the MOSFETs, the battery Ah and the transformer wattage will also need to be increased to the intended 3 times or higher values.

The above explained simple strategies would be enough to enable you to upgrade, or modify, or convert any small or low power inverter design into a high power inverter circuit with the desired wattage specs.