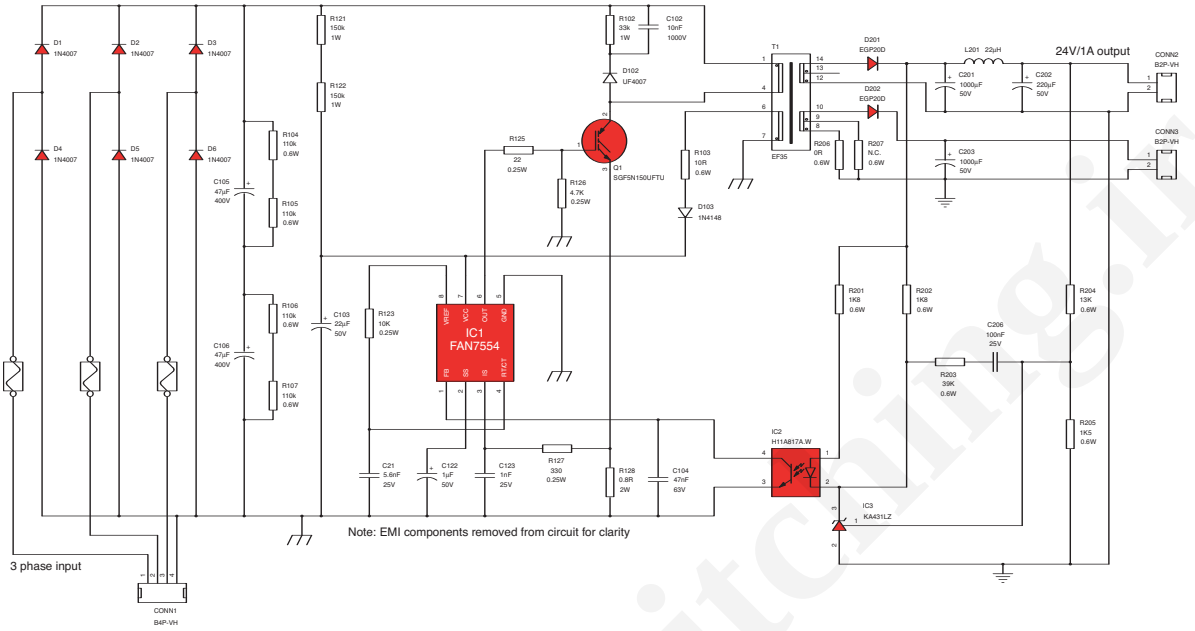
Examples of Typical Application Circuits

24W Flyback Converter using 1500V IGBT and FAN7554

Typical Application – Motor Drives, Uninterruptible Power Supplies, 3-Phase Input Systems



This inventive flyback solution uses a cost-effective 1500V IGBT as the main switching element, offering a more robust design. The alternative option for the switch would be a MOSFET with a rated voltage exceeding 1000V, which is a more expensive solution. The FAN7554 PWM controller provides the PWM regulation. Frequency compensation comes from the standard KA431 reference circuit.

- Flyback converter with cost-effective 1500V IGBT
  - Ensures high robustness against external voltage transients at a reasonable cost
- Complete, tested sub-system solution from Fairchild's Global Power Resource with test circuit data
  - Fairchild Semiconductor offers all semiconductor components in the circuit
  - Efficiency exceeds 78% for 24W output, 600V input, 20kHz switching frequency
  - Efficiency exceeds 74% for 24W output, 600V input 40kHz switching frequency
  - IGBT temperature rises less than 40°C in test circuit

Fairchild Devices	Description
SGF5N150UFTU	1500V, 5A IGBT
FAN7554	PWM Controller
EGP20D	Fast Recovery Diode (1A/200V)
H11A817A.W	Transistor Optocoupler
KA431LZ	2.5V Reference (2.5V)
1N4007	Diode (1A/1000V)
UF4007	Fast Recovery Diode (1A/1000V)
1N4148	General Purpose Diode (10mA/100V