

## **SWITCHING POWER SUPPLY DESIGN:**

Push-Pull Converter. Multiple Output. 100 Watts evenly distributed load. Voltage controlled. Continuous current. 1825 PWM. Cockpit CRT Display Application. Commercial Airliner (Pseudo-Military). 90 kHz switching. 16-80VDC in. Redesign for loop stability problem only.

Push-Pull Converter. Multiple Output. 40 Watts evenly distributed load. Current controlled. Continuous current. 1846 PWM. Cockpit Radio application. Military Aircraft. 30kHz switching. 16-80 VDCin.

Forward Converter. Multiple Output (+5VDC/1A, +15/-15V, .2A, +54VDC/4A). Voltage Controlled. Continuous current. 1525 PWM. Cockpit LCD Display. Assumed to be a dynamic load since LCD displays were a new technology. Military Application. 100kHz switching. 16-50 VDC in.

Boost Converter. Multiple Output (+200/-200/.75A). Voltage Controlled. Discontinuous current. 1525 PWM. Cockpit LCD Display application. Assumed to be a dynamic load since LCD displays were a new technology. Military Application. 100kHz switching. Regulated VDC in

Push-Pull Converter. Multiple Output. 20 Watts evenly distributed load. Current controlled. 1842 PWM. Housekeeping supply application. Military Aircraft/Solid State Power Controller Module (SSPCM). 100 kHz switching. 16-50VDC in.

Single Phase as well as Three Phase Transformer Rectifier Design to a 270VDC output of 35 kilowatts (kW). Designed light regulation, transient and surge into this design to create a utilization source tester to meet MIL-STD-704A. Device was used to develop in-house power supplies to run off said utilization source tester. This Utilization Source Tester was also used as a power source for testing 270VDC Solid State Power Controller Modules (SSPCM).

Zero Voltage Transistion (ZVT) Phase-Shift Modulated (PSM) Converter. Single Output. 2000 watts. 1875/1879 PWM. PA Amplifier. Dynamic load. Military Aircraft. 16-50 VDC in. 200kHz switching. On and off the project twice.

Flyback converter. Multiple output. 0.5 Watts (it's own load) to 6 Watts. Current Controlled. SI9110 PWM. Cockpit radio application. Military Aircraft. 300 kHz switching. 16-50VDC in. Catered to 5 different power supply applications.

Push-Pull Converter. Multiple Output. 80 Watts evenly distributed. Current controlled. Continuous current. 1846 PWM. Cockpit Radio. Somewhat dynamic load of a PA Amplifier, 2:1. Military Aircraft. 100kHz switching. 16-50 VDC input.

Push-Pull Converter. Single Output. 300 Watts. Current controlled. Continuous current. 1856 PWM. Urine Processor on Int'l Space Station. Spacecraft. 100kHz switching. 16-50

VDC in. Project direction changed to Hybrid DC/DC converters after 3 months of development.

ZVT-PSM Converter. Single Output. 4000 watts. 1875/1879/1895 PWM. Oxygen Generator Assembly/Int'l Space Station. Radiation Atmosphere-Single Event Concerns. Used as current source: capacitive load/ voltage regulation not important. Spacecraft. 16-50VDC. 65 Khz switching. Magnetics development only.

Flyback. Space Application. Radiation Atmosphere-Single Event Concerns. Multiple Output. 3-30 Watts. Current Controlled. Discontinuous Mode. 1845 PWM. Firmware Controller for Urine Processor/Water Recovery System on Int'l Space Station to deploy in 2008. 30kHz switching. 113-126 VDC Normal.

Buck Regulator. Commercial/Public Service Application/Gunfire Detection, Direction, Ranging, Type. Single Output. Disposable Alkaline Battery Input. 2 Ampere current slug in millisecond duration but short duty cycle. 2-8 hours functionality before battery replacement.