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Application Note Number 50

Product : MP6 600W power supply
Application Overview: Ride through time.

Originator: Paul Haycock Location: Merry Hill Date: 28-9-98

Schematic

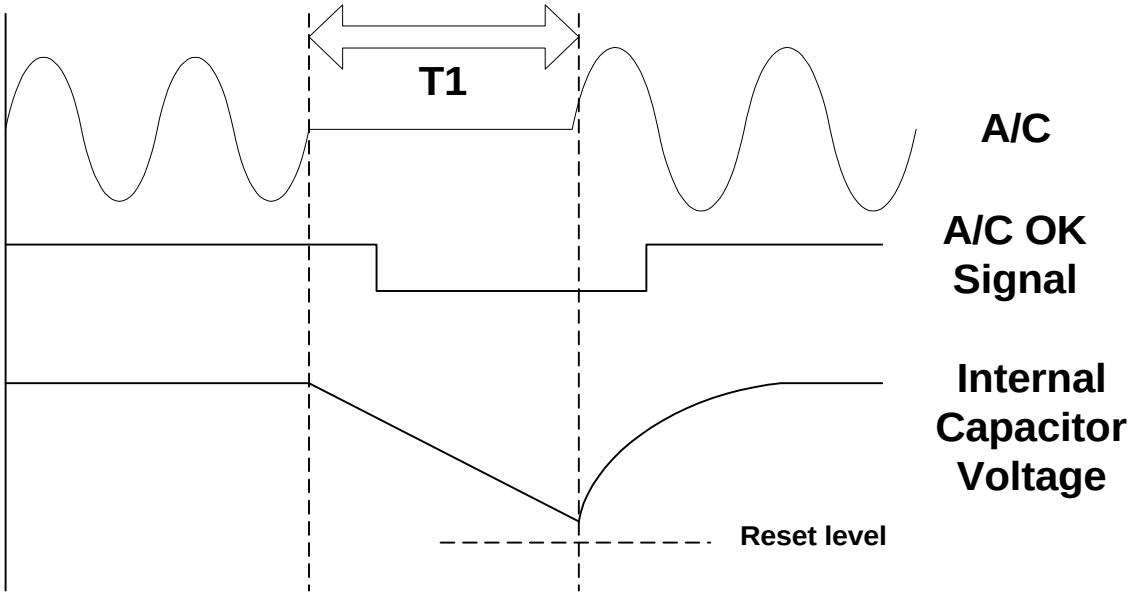

FIGURE 1

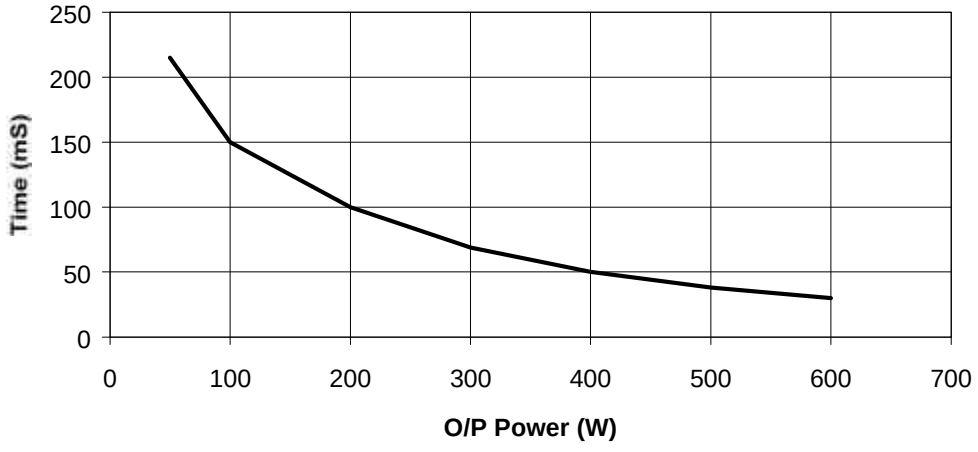

FIGURE 2

Application Note Number 50

Description

The Astec range of MP6 modular power supplies feature a ‘Ride Through’ capability which will allow the power supply to continue working correctly, in the event of short periods of supply failure. This capability is possible due to the internal capacitance within the PSU known as the Storage or Bulk capacitor. The voltage on this capacitor remains constant regardless of the input voltage and therefore the AC line does not affect the ride through time. Additionally, the configuration of output modules will also have no effect.

The actual ride through time is dependent on the total output power being consumed at the time of the supply dropout. When the AC input power is lost, the voltage on the capacitor will immediately start to decay, see Figure 1. At higher levels of output power, energy is drawn from the internal capacitance at a faster rate than at lower output power levels resulting in a faster rate of decay. This in turn results in a reduced ride through time capability.

The time T1, see Figure 2, represents the absolute maximum time the power supply can tolerate loss of input power without causing the output to fall out of regulation limits. If this time is exceeded and the capacitor voltage drops too low, the power supply will initiate a reset condition causing the output modules to shut down and the entire power supply will restart.