MTBF (Mean Time Between Failures)

Mean Time Between Failures for a hybrid DC-DC converter may be estimated using the parts count method, or calculated using the stress method. In order to get a precise MTBF calculation, the following must be known:

- Component stress at the actual operating conditions.
- Component temperature at the actual operating conditions.
- Parts quality and screening.
- Actual application environment.
- The method and piece part failure rate data specified for performing the calculation.
- This means that a lot of very specific analysis is required as a pre-requisite to getting an accurate MTBF value.

Fortunately, MDI can offer generic MTBF values based on some common assumptions:

- Operating base temperature 50° C.
- Overall power derating 75%.
- Parts quality and screening suitable for applications.
- MIL-HDBK-217F notice 2 used for calculations.

Based on these assumptions, the following are "generic" MTBF's for a typical 30 watt dual output converter:

A. Ground Benign
   646.041.1 Hours
B. Ground Mobile
   394,802.9 Hours
C. Naval Sheltered
   394,802.9 Hours
D. Airborne Inhabited Cargo
   394,802.9 Hours
E. Airborne Inhabited Fighter
   355,322.6 Hours
F. Airborne Uninhabited Fighter
   273,325.1 Hours
G. Rotary Wing Aircraft
   273,325.1 Hours
H. Missile Flight
   355,322.6 Hours
I. Space Applications
   2,584,164.2 Hours

MDI can provide specific MTBF calculations for a customer's actual operating conditions according to the customer's order.