Micro, Mini, Power Z Product Questions

EOS Technology Questions

Question 1: What are some of the main benefits to using the EOS Micro, Mini and Power Z adapters?

EOS Z-series efficiencies range from 85% to 90%
The EOS simple design uses less components to achieve precision voltage outputs.
While most switching power supplies expend 30% of the incoming power through heat loss, EOS Z-series supplies expend one half to one third as much heat.
Less heat and less components inherently provides superior reliability and less hassle with a bulky supply.

Question 2: What power supply switching technology does EOS Corporation apply to the product lines?

In 1991, EOS introduced a major new concept in switching power supplies to the marketplace. We perfected and patented Fixed Frequency Resonant Conversion technology. The EOS patented technology allows for efficiency significantly greater than that of other manufacturers, and current densities heretofore unheard of in the power supply industry.

Question 3: What is Resonant Frequency?

Resonant frequency involves switching at zero current and utilizing a current waveform, which is essentially sinusoidal as opposed to a square waveform, with multiple harmonics. A high frequency voltage proceeds through a transformer, which acts to convert voltage on the secondary or output side of the power supply. The output is then filtered using a LC circuit.

Question 4: What is the output noise characteristic on the Z-Series?

Harmonics on non-linear switching power supplies are at much higher frequencies than linear supplies as a result of the input AC voltage being converted to a high frequency signal that is switched on and off. For this reason we test peak to peak output ripple in the 20Mhz bandwidth. See the individual specifications for values of output ripple.

Question 5: Which EOS products have Harmonic Correction for European Approval? (IEC1000-3-2 /EN61000)

The new generation Micro and Mini Z adapters do not have Harmonic Correction, however, the new Power Z adapter, 80-100Watt with a 3 pin AC input, will be Harmonic Corrected. EOS will meet European standards as they become realized.

Question 6: How do the EOS products handle and recover from an over-current condition?

The standard desktop adapter and open frame power supplies shutdown during an overcurrent condition or short circuit condition; then enter into a cycle of attempting to restart every 3-6 seconds until the over-current condition is lifted.

Safety Technical Questions

Question 7: Does EOS Corporation employ the CB Scheme of testing, and if so, who is your primary testing agency?

Yes, Underwriters Laboratories is our primary test agency and provides us with a CB Report and Certificate.

Question 8: Does EOS Corporation test to worldwide safety standards?

Yes! UL1950 Third edition, IEC 950 Second Edition with Amendments 1 to 4, Safety EN60950 with amendments 1 to 5 (11) for ITE equipment, Emission EN55022, Semko, Demko, Fimko, Nemko, VDE, EZU (Czech Republic), GOST (Russia), and MITI

(Japan).

Question 9: Can you get agency approvals in other countries not listed above?

Yes, if the approval agency in question is a member of the CB Scheme, it is fairly simple to obtain the additional certification. Certifications in countries that are not part of the CB Scheme can be obtained. However, they can take longer and possibly more expensive.

Question 10: What are the differences between a Class I and a Class II power supply? What are the benefits of each?

Class I – Protection against electric shock is achieved by using Basic Insulation and connecting to the protective earth conductor in the building wiring (3 pin plug). Class I has a minimum leakage current of 750m A.

Class II -Protection against electric shock is provided by double or reinforced insulation without reliance on either protective earth grounding or installation conditions. Class II typically uses a two-pin conductor. Class II has a maximum leakage current of 250m A.

Question 11: Does EOS Corporation test to medical certifications and when will EOS have medically certified products?

EOS is testing all of our products to UL2601 for Medical equipment - Medical electrical equipment part 1 And IEC601

Primary factors in meeting the requirements for certification include:

1. Main to secondary creepage and clearance distances must be 8mm and 5mm respectively.
2. Primary to secondary dielectric must withstand 4000VAC

3. The specific application EOS has Type B only

- Type B – Non-patient equipment connection(leakage current 0.1mA and 0.5mA for a single fault)
- Type BF -Equipment with a floating patient connection (leakage current 0.1mA and 0.5mA for a single fault)
- Type CF –Equipment with a floating connection for direct cardiac application(leakage current 0.01mA and 0.05mA for a single fault)

Environmental Technical Questions

Question 12: How is your MTBF specified?

Our MTBF is specified at a minimum of 150,000 hours for the new ZVC adapters and the VLT Multi Output power supplies. Actual MTBF data is available for all of the product families in the Design Verification Test Report. The report reflects worst case operation for that family of products.

The calculation is based on the MIL - HDBK - 217E equation.

MTBF (Hours) = $10^6/\lambda_n$

Where λ_n is the sum of the failure rates for each component. The failure rate is calculated by multiplying the base failure rate of the component by its operating stress level at 25° C. The stress levels are measured at the industry standard of 80% of maximum load. The observed MTBF is at an 80% confidence factor.

Question 13: Do the standard ZVC desktop products have thermal shutdown?

Yes, the ZVC product line incorporates a thermal shutdown feature.

Question 14: Can the ZVC adapters operate above the stated 40 Degrees in the specification?

The de-rating curve is used to determine the reduction in output power at elevated temperatures to assure reliability of the components above 40 degrees C. The ZVC adapter series is typically de-rated 1 Watt for every 1° C above