

SPOTLIGHT on Power Supplies

Capacitor Application and Selection



X2 capacitors

PHE840 up to 10uF
High-rel: PME271M
SMD: SMP255 Q1 '03
X1 caps and voltages to 760VAC available.

Snap-in Electrolytics

105°C: PEH532, PEH534, PEH536
85°C: PEH506



Y2 capacitors

Paper: PME271Y, PME289
Film: PHE842, PHE850 Q2 '03
Ceramic: ERO610 SMP253



High frequency coupling/snubbing

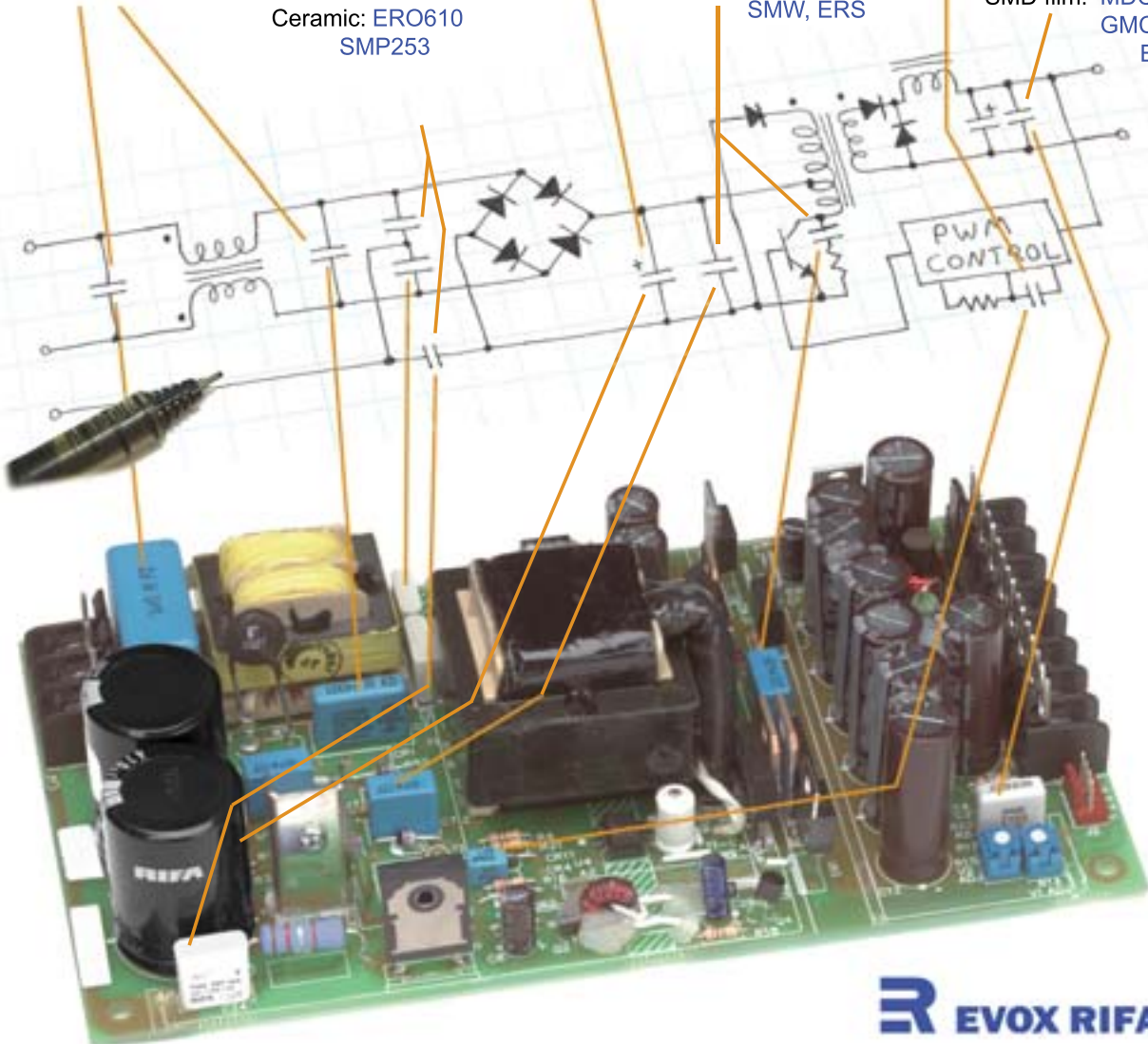
Leaded film: PHE426, PHE450
SMD film: SMC, GPC, SMW, ERS

Timing & gen. purpose

Leaded film: MMK, PFR5
SMD film: MMC, GMC, GMW, SMC, SMW, ERS
SMD ceramic: ERC



Leaded film: MDK, MMK
SMD film: MDC, MMC, GMC, GMW, ERS



SPOTLIGHT on Power Supplies

Four ways to reduce your footprint

What is the IEC950 push test?



During safety agency testing each component of an SMPS will be pushed with a calibrated probe. Many conformally coated devices such as ceramic Y capacitors may be bent during this test.

The power supply components and their insulation capability are evaluated after the push test. If a ceramic Y capacitor without an approved insulation touches the chassis or another component, the power supply may not obtain the agency approval.

Power supply designers typically employ one of two remedies.

Insulated sleeving

An insulating sleeve of approved material is placed over the ceramic Y capacitor, at higher total cost.



Keep-out zones

An open area is left around the ceramic Y capacitors, creating a footprint penalty.

1 ~~Keepout zones~~

If the power supply has open areas around the Y capacitors they may be eliminated with Evox Rifa film or paper types. Encapsulated in boxes, these Y capacitors do not bend in the IEC950 push test.



Photo showing keepout zone which may be eliminated with Evox Rifa Y capacitors.



The insulating box of most Evox Rifa Y capacitors has been tested by UL. In many applications an insulating sleeve is not required even when the capacitor is positioned very near other devices.

2 Use reduced-size X2 caps

New series PHE840 is offered in substantially smaller sizes – in many cases with smaller leadspacings compared to other capacitors. For high power designs series PHE840 is available up to 10 μ F. Plus, the low loss design is ideal for high frequency drives and avionics.



3 Choose the correct AC caps



Evox Rifa offers several different series for high frequency coupling and snubbing. Choose the correct model for minimum size in the application. Ask an Evox Rifa sales engineer for assistance or download the free PCCad software from www.evox-rifa.com.

4 Go surface mount

Evox Rifa offers a broad range of SMD caps for SMPS using wound film, stacked film and MLCC – plus an SMD Y2 cap now and an X2 cap coming in Q1 '03!

