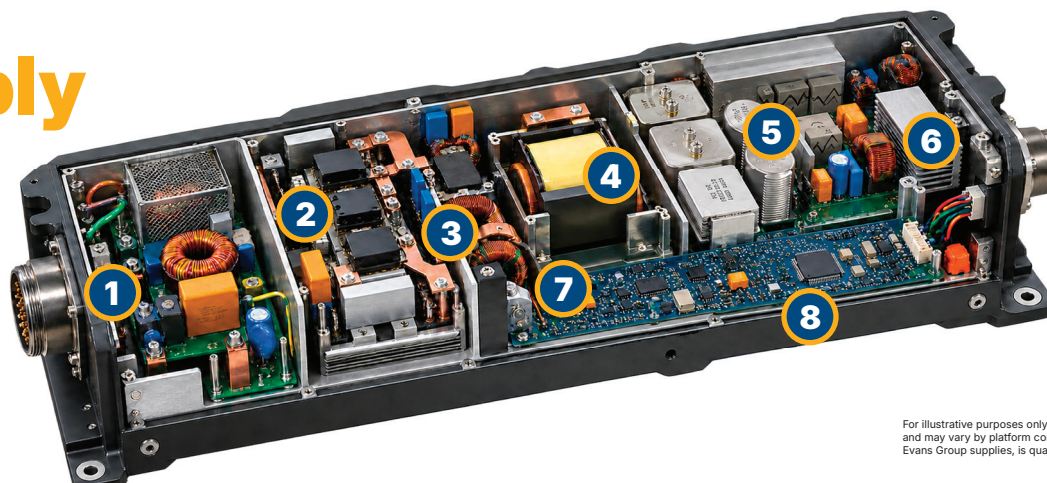


Where Capacitors Impact

Power Supply Systems



Evans GROUP
Power Density.
Conversion Efficiency.
Mission Ready.

Technology Key

Evans: Hybrid Wet Tantalum

Paktron: Multilayer Polymer Film (stacked)

UTC: High-reliability Ceramic

Eulex: RF & High-frequency Ceramic

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For illustrative purposes only. System configurations and applications vary. Subsystem locations shown are representative and may vary by platform configuration. Product placement identifies potential areas of applicability and does not imply that Evans Group supplies, is qualified on, or is installed on every platform or subsystem shown.

1. Input Protection & EMI/RFI Filtering



CAPACITOR FUNCTIONS

- Input-noise suppression
- Common/differential-mode filtering
- Feedthrough filtering
- Line bypassing
- Switching-transient suppression
- High-voltage input stability

BEST FIT TECHNOLOGIES

Paktron: High-dv/dt MLP film capacitors for input filtering and switching-transient suppression

UTC: Discoidal and planar feedthroughs plus high-voltage ceramics for EMI suppression and bypass



2. Rectification & Front-End Conversion



CAPACITOR FUNCTIONS

- Rectifier-output filtering
- PFC energy buffering
- High-ripple-current handling
- Voltage smoothing
- Converter-input stabilization
- Switching-noise reduction

BEST FIT TECHNOLOGIES

Paktron: High-ripple MLP film capacitors for PFC, DC-link, and converter-input filtering

UTC: High-voltage ceramics for high-frequency bypass and switching-noise filtering



3. High-Frequency Switching & Gate Drive



CAPACITOR FUNCTIONS

- Switching-node snubbing
- Gate-drive bypassing
- Resonant conversion
- High-dv/dt pulse handling
- Switching-noise filtering
- Local decoupling

BEST FIT TECHNOLOGIES

Paktron: High-dv/dt, low-ESR film capacitors for snubbing and resonant power conversion

UTC: Low-ESL ceramics for local bypass and switching-noise filtering

Eulex: Ultra-low-ESL bypass for select high-frequency switching and control circuits



4. Isolation & Transformer Stage



CAPACITOR FUNCTIONS

- Primary/secondary snubbing
- Resonant-tank support
- Isolation-barrier noise control
- Clamp-circuit support
- High-voltage filtering
- EMI reduction

BEST FIT TECHNOLOGIES

Paktron: MLP film capacitors for primary/secondary snubbing and resonant circuits

UTC: High-voltage ceramics for transformer-side filtering and clamp-circuit support



5. DC-Link Energy Storage & Hold-Up



CAPACITOR FUNCTIONS

- Bulk energy storage
- Power hold-up
- Ride-through support
- DC-bus stabilization
- Voltage-droop reduction
- Ripple-current handling

BEST FIT TECHNOLOGIES

Evans: power-dense bulk energy storage with MIL-STD-704 power hold-up, ride-through, and minimized voltage droop

Paktron: High-ripple MLP film capacitors for DC-link filtering and bus stabilization

UTC: High-density ceramics for local bus decoupling and high-frequency ripple filtering



6. Output Filtering & Regulation



CAPACITOR FUNCTIONS

- Converter-output filtering
- Ripple suppression
- Load-step response
- Output-voltage stabilization
- Point-of-load decoupling
- High-frequency noise reduction

BEST FIT TECHNOLOGIES

Evans: Bulk output energy storage and load-step support

Paktron: Low-ESR, high-ripple MLP film capacitors for converter-output filtering

UTC: Point-of-load decoupling and high-frequency output filtering

Eulex: Ultra-low-ESL broadband bypass for high-speed load power integrity



7. Protection, Snubbing & Transient Control



CAPACITOR FUNCTIONS

- RC snubbing
- Clamp-circuit support
- Switching-transient suppression
- Relay/contact arc suppression
- EMI/RFI reduction
- dv/dt control

BEST FIT TECHNOLOGIES

Paktron: MLP film capacitors and Quencharc RC networks for snubbing, arc suppression, and dv/dt control

UTC: High-voltage ceramics for snubbing and pulse-transient suppression



8. Control, Monitoring & Auxiliary Power



CAPACITOR FUNCTIONS

- Controller/FPGA decoupling
- Reference-voltage filtering
- Timing/sensing stability
- Auxiliary-supply filtering
- Digital-interface filtering
- Fault-logic hold-up

BEST FIT TECHNOLOGIES

Evans: Backup and hold-up energy for critical control electronics

Paktron: Low-ESR filtering for auxiliary converters and control power

UTC: Low-ESL decoupling, precision filtering, and reference-circuit stability



THE EVANS GROUP ADVANTAGE



Power Density

Compact energy storage for SWaP-constrained designs



High Efficiency

Low ESR and ESL for reduced conversion losses



Wide Temperature Range

Solutions for operation from -55°C to +250°C



High Reliability

Rugged performance in extreme environments