

## ▶ ENGINEERING

EpecDFx™ perfects the engineering before manufacturing begins:

- Experienced North American engineers work with our customers and EpecDFx™ platform, ensuring specifications integrity, because front end processes are where most mistakes happen.

## ▶ MANUFACTURING

Specialized Epec UL Certified North American and Asian Facilities:

- 24x7 global operations rapidly load orders into the optimal manufacturing facility that matches the order specifications.
- Seamless transition from prototype through production, with universal tooling.

## ▶ QUALITY

Global ISO infrastructure and continuously improving Epec UL certified manufacturing facilities:

- Facilities are dual Epec UL Certified and ISO-9001, TS-16949, ISO14001 with aligned technology roadmaps.
- After fabrication, orders are quality assured by Epec's IPC trained on-site employees, and rapidly delivered through our New Bedford and Shenzhen operations centers.

## ▶ SOLUTIONS

Printed Circuit Boards & Engineered Electronic Products:

- Prototype and Quick-turn through volume production.
- PCBs: Advanced technology, commercial and military specification, up to 24 layers.
- Rigid, Flex, and Rigid-Flex Technology.
- Engineered Electronic Products: Membrane Switches, Rubber Keypads, Graphic Overlays, Custom Battery Packs.

## ▶ TECHNOLOGY

Industry leading global supply chain and EpecDFx™ engineering platform:

- As one of North America's largest PCB and Engineered Product providers, Epec's capital expenditures are among the highest in the industry, focused on new technologies that efficiently integrate our facilities, people, and infrastructure worldwide, accelerating our customers' time to market.

## ▶ PEOPLE

Epec has achieved over 500% growth since 2003, ensuring long term financial strength and stability:

- North American field support teams deliver flexible and experienced solutions.
- Asian operations team in Shenzhen manage logistics, quality and engineering, to reduce lead times and ensure quality.
- Dedicated 24x7 engineering and one-on-one customer support.
- Customized stocking and consigned inventory management programs support our customers' logistics objectives.

## ▶ EpecDFx™ ENGINEERING PLATFORM

EpecDFx™ is a whole new quality and manufacturability platform, combining the industry's latest, most advanced technology and engineering expertise.

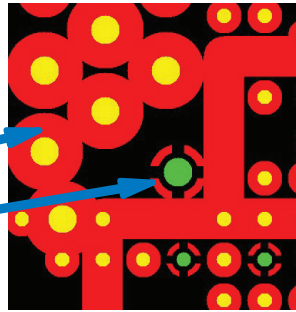
- Prototype through production
- Reduces overall costs
- Accelerates time-to-market

## ▶ EpecDFx™ IN ACTION

Typical example of a subtle, yet crucial engineering and design problem discovered before fabrication; EpecDFx™ and Epec's engineering team detects and develops "must-fix" through "optimal" solutions.

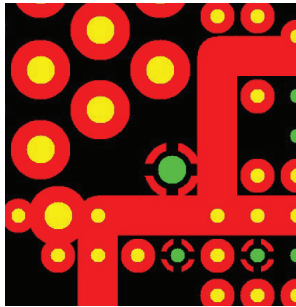
### EpecDFx™ issue shows:

- Isolated connection caused by oversized plane clearances not caught by CAD system resulting in netlist violation.
- Reduced thermal connection due to proximity to large split plane line.



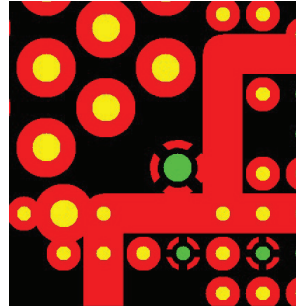
### Impact:

- Electrical integrity of the design is invalid, resulting in scrapped board.
- Compromised thermal connection results in poor solderability to connector pin.



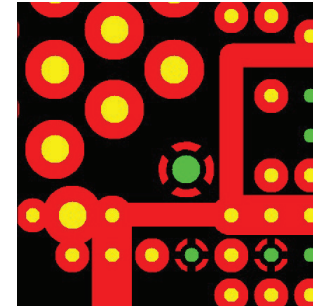
### EpecDFx™ "Critical/Must Fix"

- Suggestion: Reduce plane clearances for holes to allow connection.
- Result: Netlist integrity is restored.



### EpecDFx™ "Better"

- Suggestion: Reduce plane clearances for holes to allow connection. Plus rotate thermal relief 45 degrees.
- Result: Netlist integrity is restored, and thermal properties are improved.



### EpecDFx™ "Best"

- Suggestion: Reduce plane clearances for holes to allow connection. Plus rotate thermal relief 45 degrees and reduce plane clearance line.
- Result: Netlist integrity is restored, and thermal properties are maximized.

Experience EpecDFx™, and how our engineering support gives customers the most in-depth feedback, with exact accuracy, available anywhere in the printed circuit board Industry, eliminating delays and quality problems.

Epec's diverse and growing base of more than 2500 customers represents a wide range of markets including electronics, medical, industrial, communications, access controls, automotive, computing, military, and includes leading OEM's, contract manufacturers, and electronics manufacturing services (EMS) providers.

Contact us today, to experience why Epec has become one of the fastest growing Engineered Electronic Product providers in North America!  
Toll-Free: 888-995-5171  
Main: 508-995-5171  
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