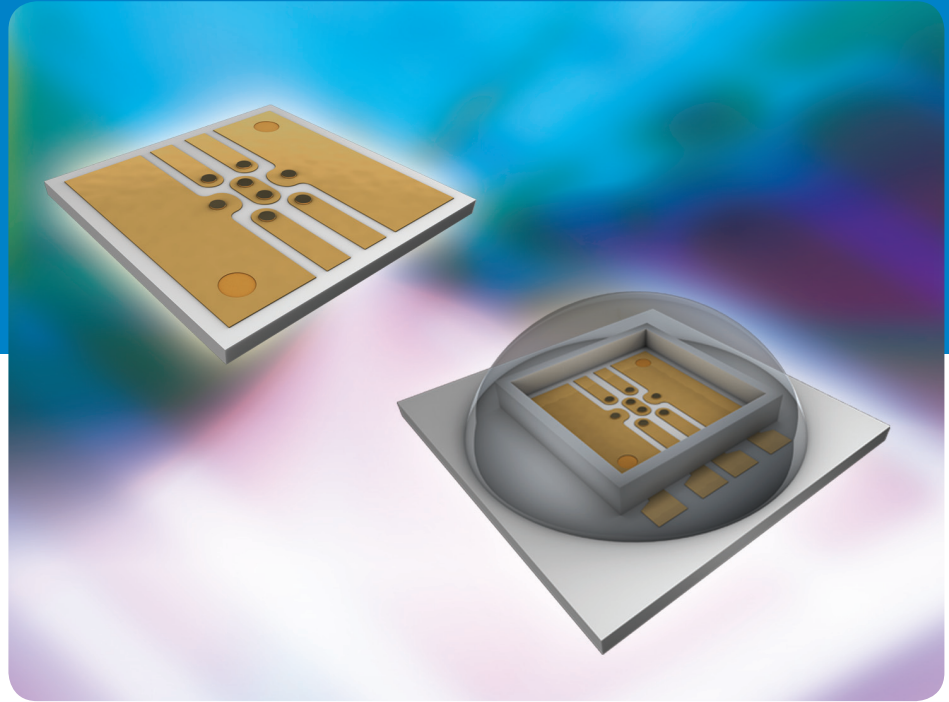




# THIN FILM LED SUBSTRATES

## Standard Layout Guidelines



## Vishay Electro-Films

### DESCRIPTION

Thin film processing techniques are used for surface-mount LED applications with high current and heat challenges. They feature robust, solid metal-filled vias that provide excellent thermal and electrical interconnects. The substrate acts as the base of the package, the LED is surface-mounted, and a lid or encapsulate is added to form a complete assembly.

### KEY BENEFITS

- Substrate is base of package,  $Al_2O_3$  or AlN
- Solid metal-filled vias (Au or Cu) provide thermal and electrical interconnects
- Thick metals (Au or Cu) can be incorporated to handle high current and heat loads
- Second-level Au bumps are available to support ultrasonic LED die attach

### APPLICATIONS

- High-brightness, high-power and/or high-current-draw LED requirements
- Single-cell and multi-cell LEDs
- Automotive lighting
- Consumer backlighting
- Outdoor lighting

## Standard Layout Guidelines

### DESIGN CAPABILITIES

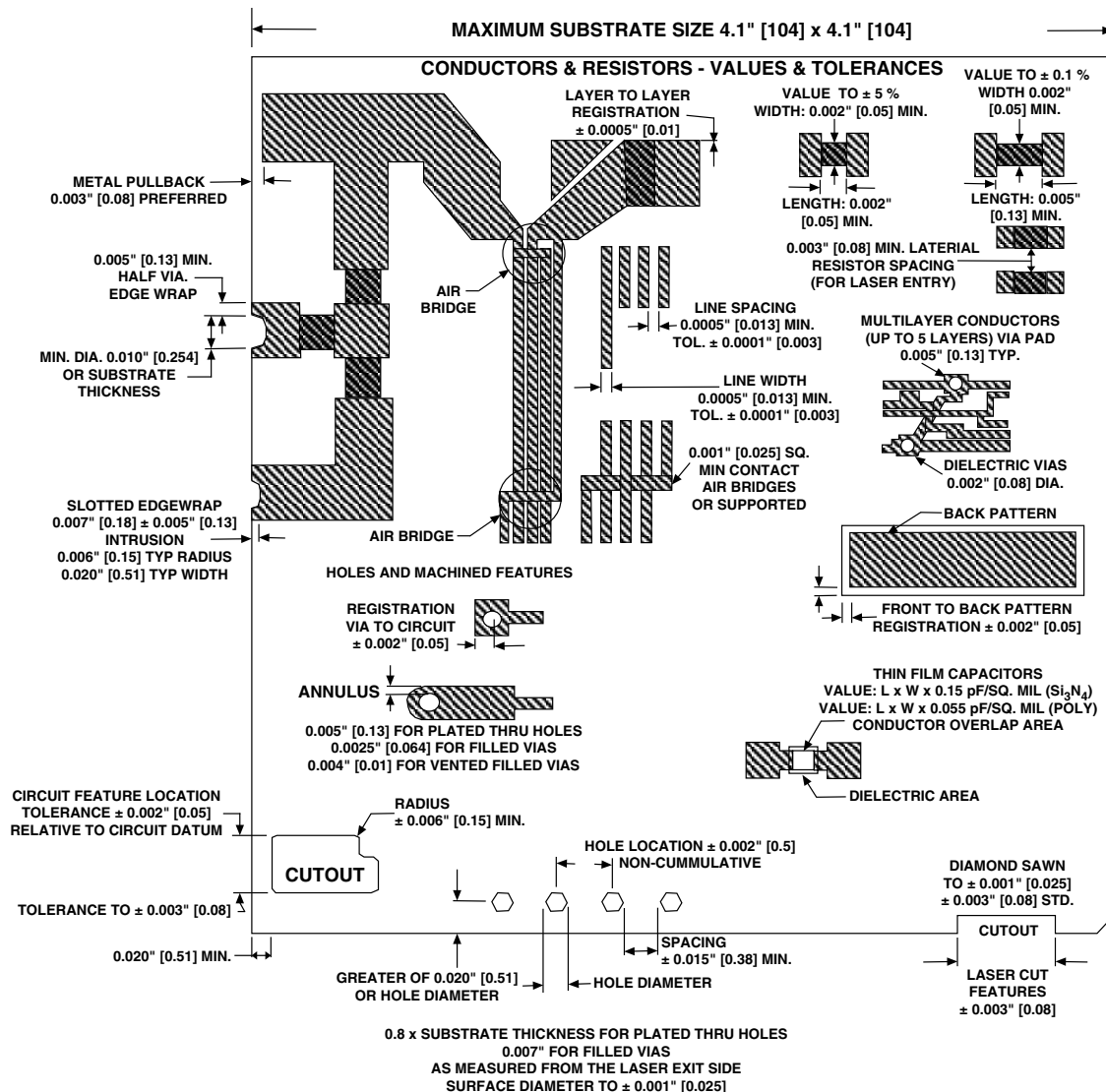
Thin Film High Density Interconnect design guide is directed at engineers looking to design the following:

- Simple resistor networks
- Integrated resistor-capacitor networks
- Multilayer substrate that involve up to 5 layers
- Custom thin film substrate on alumina ( $Al_2O_3$ ) Aluminum nitride (AlN) or beryllium oxide (BeO)
- Substrates with special shapes, vias, and patterns
- Substrates for microwave applications

The wide array of capabilities allows users to find solutions for applications servicing many markets such as:

- Military
- Automotive
- Instrumentation - microwave
- Telecommunications - CATV, fiber optic and wireless
- Aerospace
- Medical

### DIMENSIONS in inches (millimeters)



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