

# Thin Film Mother/Daughter Boards



## Features:

- Bare die attach with epoxy
- Gold wire bondable
- Integral precision resistors
- Reduced size and weight
- High temperature operation
- Solder ready surfaces for flip chips

## Description:

BI Technologies' thin film boards are custom ceramic circuit boards for specialty electronic assembly applications. The Thin Film board's prominent feature is the integration of precision resistors into the layout. These resistors achieve tight tolerances, excellent matching and top temperature characteristics.

As a motherboard, Thin Film substrates are compatible with die, chip capacitors, and other surface mountable components. Interfacing is achieved with wire bonding, solder mount and conductive epoxies. Thin Film boards also serve as daughter boards, bringing the critical resistor networks closer to the important ICs.

## Applications:

- Military hybrids
- RF assemblies
- Precision amplification
- Signal processing
- Medical/implantable

## Generating a Design

### Customer Supplied Design

Provide BI with a close approximation of your desired layout. Include overall substrate length and width. Include all resistor tolerance specifics. BI will then estimate pricing. BI will refine resistor layout detail to optimize for our processes.

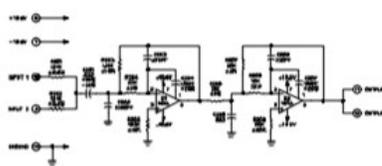
### BI Assisted Design

Provide a schematic of the resistor network, or complete circuit to be included on the motherboard. Include die sizes and other component dimensions. Provide resistor specification detail. Provide preferred and/or maximum substrate dimensions. BI will do a size estimation of the substrate, and generate pricing.

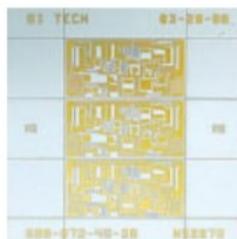
### Tooling Costs

Tooling costs will be submitted as part of the proposal package. Typical costs include Mask Set, Probe Card and Test Fixture. Design costs will vary depending on level of design support provided.

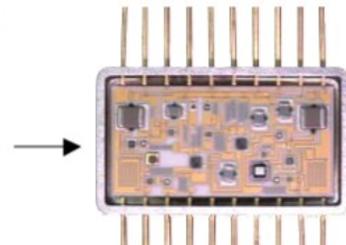
## Example:



(From customer)



(Produced by BI)



(End Customer Product)

## General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

TT Electronics | BI Technologies  
4200 Bonita Place, Fullerton, CA USA 92835-1053 | Ph: +1 714-447-2300  
www.ttelectronics.com | sensors@ttelectronics.com

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<b>Material</b>	
Substrate	99.6% Alumina
Conductor	Gold surface and or plated Nickel for soldering
Resistor	Nickel Chromium
Passivation	Provided
Applicable Interface	Wire bond, Silver filled epoxy, solder
<b>Electrical</b>	
Absolute:	0.05%
Matching:	0.01%
Tempco:	25 ppm/°C
Tempco Tracking:	1 ppm/°C
<b>Dimensions</b>	
Min Size:	0.050" x 0.050"
Max Size:	2.00" x 2.00"
Thickness: thickness	0.010" typical, 0.015", 0.020", 0.025"
Layers:	Four layers, Single sided technology
Multi-up:	Singulated elements, or multi-up scribed wafers
<b>Design Parameters</b>	
Min Trace Widths:	0.5 mil Resistor trace & 1.0 mil Gold trace
Resistivities:	25 Ω/□, 50 Ω/□, 100 Ω/□, 200 Ω/□
Trim flag structure:	Flag, Top Hat, ladder. Consult factory for specifics

BI Technologies also offers custom thick film substrates that can be used for mother or daughter boards for your applications. Please consult factory for detail.

BI Technologies has over 30 years experience building thin film resistor networks. We offer these networks in packaged products for PCB applications and for hybrid use as chip resistors and motherboards. BI has also been building hybrid micro-circuits for over 40 years. Combining these capabilities, Hybrid and Thin Film resistor manufacturing, allows BI to support your thin and thick film motherboard requirements.

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[www.ttelectronics.com](http://www.ttelectronics.com) | [sensors@ttelectronics.com](mailto:sensors@ttelectronics.com)