

NEW PRODUCT RELEASE

Date: 8/25/14

Custom Optical Filters and Thin-Film Sensors

Custom Thin-Film Coating Services for Medical Electronics, Sensors, MEMS and Semiconductor Industries.

PRODUCTS

Dichroic Filters

Narrow Band Filters

Tunable Filters

Beam Splitters

Metallized Optical Fibers ITO Coated
Glass & Quartz Plates

Metallized & AR coated Optical Fibers

SERVICES

Custom Thin-Films Coatings

Coatings On Optical Fibers

Custom MEMS Fabrication

New Process Development

Contract Research & Manufacturing

Simultaneous Deposition of Two or More Materials
to Form Exotic Alloys.

Sichrome-Chromium-Nickel-Gold layers coated Alumina wafers as described here and patterning the resistor and conductor circuits.

We offer you thin-film technology made to order. Our technological capabilities include growth of precision thin-films by various physical vapor deposition processes such as Thermal Evaporation, Electron Beam Deposition, Sputtering and Ion Assisted Depositions.

We can deposit multi-layers of metals or dielectric films, sequentially in a single pump-down. We can grow films of exotic alloys by computer-controlled, simultaneous depositions of two or more materials.

Housed in a specially constructed 3,000 square foot facility, which includes class-1000 equivalent clean-rooms and state-of-the-art equipment, the experienced staff of Mesa Microwave is prepared to meet your custom thin-film coating requirements

Sample Description

The necessary starting Al₂O₃ wafers as per your drawing (33.5 mm x 20 mm, thickness to be specified), The substrates will be cleaned and on to one face of the wafers the following layers will be deposited so as cover the entire face uniformly:

Layer 1: Sichrome layer. Resistance optimized to be 1000 Ω/Sq.

Layer stack 2: Sequential deposition of Cr-Ni-Au layers. Thicknesses will be optimized to be 200Å-300 Å for Chromium, 5000 Å for Nickel and 2 microns for Gold layer.

2460 West Ray Road, Ste 2
Chandler, Arizona 85224 USA
T: 480-890-1612

Fax: 480-890-2150 Email: sales@mesamicrowave.com

After deposition of these layers; the resistor and conductor patterns will be delineated using photolithography process. MESA MICROWAVE will design and acquire the lithography masks as per your drawings. All process parameters will be optimized to achieve high bond strength to the surface of the wafers. The bond strength will meet or exceed MIL-STD-13508C.

After fabrication, the circuits will be inspected and electrically checked as per your specifications. Prices have been quoted here assuming no trimming of the resistors are needed. The prices tooling and set-up casts for active laser trimming of Resistors will be quoted separately if needed.

All processing will take place in class-1000 clean room (class-100 laminar flow hoods) environment.

Services

Thin-Film Metallizations of Diamond Substrates & Silicon Carbide Substrates.

Because of their excellent thermal conductivity, Diamond & Silicon Carbide substrates are being used more frequently for superior thermal management of Semiconductor and Electro-Optical devices under performance.

Using our proprietary processes we can now grow durable and rugged thin-films of various metals on these substrates, rendering them suitable for mounting electronic components. Some of the typical metallization layers are Nickel, Copper, Silver, Gold, Palladium, Platinum, Titanium, etc.

Custom Designed Thin-Film Circuits:

We design and fabricate application-specific Thin-Film resistor/conductor circuits on various Ceramic and Quartz substrates for micro-electronics applications.

Some of the Resistor layers we can deposit are:

NiChrome (Ni/Cr)

SiChrome (Si/Cr)

Tantalum Nitride, Etc.

Stoichiometry of the films are computer-controlled to achieve the desired TCR & Sheet resistance values. Passivation layers are applied where necessary.

Conductive patterns : These are usually made up of several layers, chosen to meet complex requirements of adhesion, diffusion barrier, contact resistance, solderability, thermal management, etc.

Some of the conductive systems are Ti/Pd/Au, Ti-W/Ni/Au, Cr/Ni/Au, Cr/Cu/Au, Ti/Pt/Au etc.

Multiple layers are deposited without breaking the vacuum, for high reliability.