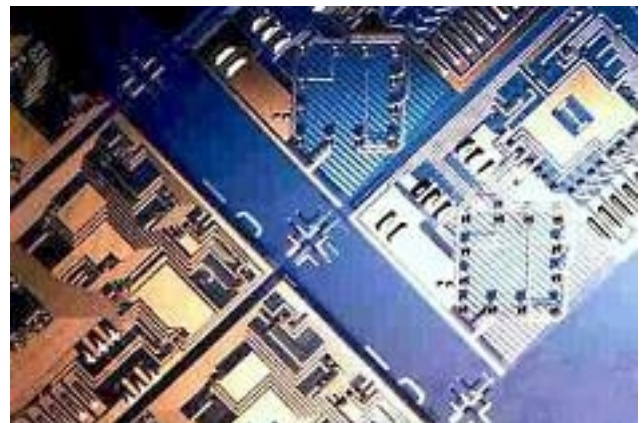
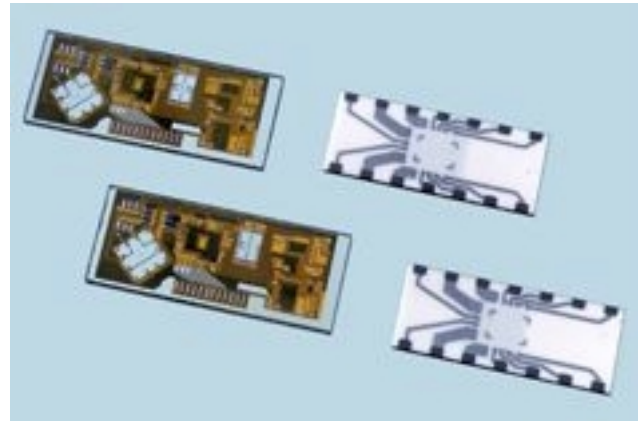


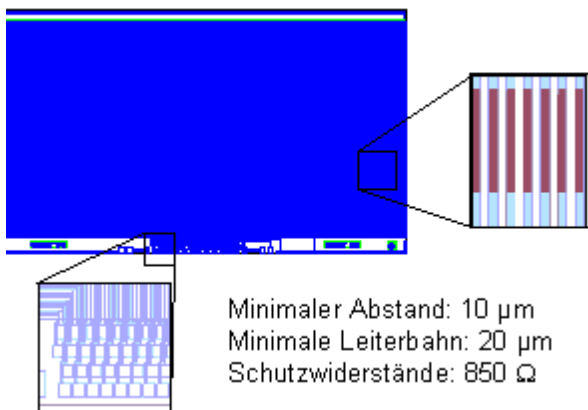
## *Thin film connecting pattern with flip chip-, chip and wire- and SMD contacts*

Type: DFS

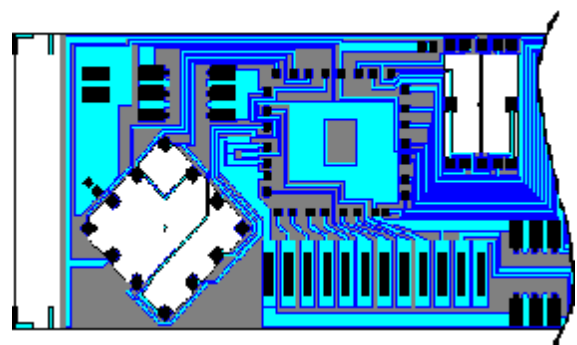
- low cost systems in high integrated one-layer wiring with highest line size resolution
- specific substrat material for use
- possibilities of combination of different construction and interconnection technologies
- bumps for flip chip assembly until ultrafine pitch area (pad distance minimum 80  $\mu\text{m}$ ) on glass too



Verdrahtungsstruktur mit integrierten Widerständen



Layout Verdrahtungsträger auf Glas



**Composite:**

- Cu
- Al
- Au

**Resistors:**

- 2  $\mu\text{m} \approx 10 \text{ m}\Omega/$
- 1,5  $\mu\text{m} \approx 25 \text{ m}\Omega/$
- 1,5  $\mu\text{m} \approx 25 \text{ m}\Omega/$
- CrNi-resistor layer variable (50, 100, 200  $\Omega/$  )

**System technique:**

- Flip-Chip and SMD
- Chip & Wire, SMD and Flip-Chip (each with internal resistors)
- Chip & Wire, SMD-Kleben (each with internal resistors)

**Substrat materials:**

- Borosilikate glass, Quartz glass
- Aluminiumoxid- and Aluminiumnitritceramic
- Glass-ceramic
- Silicon

**Connecting grid for components:**

- Flip-Chip: pad size minimum 100 x 140  $\mu\text{m}$   
pad spacing minimum 80  $\mu\text{m}$   
Solder bumps LSn 63  
bump altitude 30 ... 100  $\pm 10 \mu\text{m}$  variable
- Chip and Wire: Metallisation Al or Au  
Pad size 1000  $\mu\text{m}^2$  Pad spacing variable 10  $\mu\text{m}$  variabel
- SMD: with LSn 63 pre plumbed contactpads  
pad size and pad spacing variable

**Dimensions:**

- maximum circuit size 4''
- minimum structure width: 20  $\mu\text{m}$
- minimum structure distance: 10  $\mu\text{m}$

**Temperature loadability:**

- flip chip system: until 125 °C
- bonding batch system: until 150 °C
- bonding-solder batch combination: until 150°C

**Packaging:**

- Circuits on substrate
- Diced circuits



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