

## **6. Materials and Processes for Silicon Technology**

### **6.1 Si Oxides and LOCOS Process**

#### **6.1.1 Si Dioxide**

#### **6.1.2 LOCOS Process**

#### **6.1.3 Summary to: 6.1 Si Oxide and LOCOS Process**

### **6.2 Chemical Vapor Deposition**

#### **6.2.1 Silicon Epitaxy**

#### **6.2.2 Oxide CVD**

#### **6.2.3 CVD for Poly-Silicon, Silicon Nitride and Miscellaneous Materials**

#### **6.2.4 Summary to: 6.2 Chemical Vapor Deposition**

### **6.3. Physical Processes for Layer Deposition**

#### **6.3.1 Sputter Deposition and Contact Hole Filling**

#### **6.3.2 Ion Implantation**

#### **6.3.3 Miscellaneous Techniques and Comparison**

#### **6.3.4 Summary to: 6.3 Physical Processes for Layer Deposition**

### **6.4 Etching Techniques**

#### **6.4.1 General Remarks**

#### **6.5.2 Chemical Etching**

#### **6.4.3 Plasma Etching**

#### **6.4.4 Summary to: 6.4 Etching Techniques**

### **6.5 Lithography**

#### **6.5.1 Basic Lithography Techniques**

#### **6.5.2 Resist and Steppers**

#### **6.5.3 Summary to: 6.5 Lithography**

### **6.6 Summary:**

#### **6.6.1 Materials and Processes for Silicon Technology**