Acronyms and Abbreviations
This list of abbreviations and acronyms contains terms that are used at International SEMATECH (ISMT) and in the semiconductor industry. It is maintained by the technical information transfer department at ISMT. This and other valuable resources can be found at www.sematech.org/public/publications/acronyms/index.htm.

A
AA atomic absorption
AAS atomic absorption spectroscopy
ABC activity-based costing ABM activity-based management
AC alternating current; activated carbon
ACCESS analysis computer for component engineering services support
ACF anisotropic conductive film
ACI after clean inspection
ACP anisotropic conductive paste
ACT alternative control techniques; actual cycle time
A/D analog to digital
ADC analog-to-digital converter
ADE advanced development environment
ADI after develop inspection
ADIG Application Development Interface Guidelines
ADT applied diagnostic techniques
ADTSEM Apply/Develop Track Specific Equipment Model
AE atomic emission; acoustic emission; absolute ellipsometry
AEC advanced equipment controller
AECS Advanced Equipment Control System; Automated Equipment Control System
AEI after etch inspection; automated equipment interface
AEM analytical electron microscopy
AES Auger emission spectroscopy; Auger electron spectroscopy
AFM atomic force microscopy
Ag silver
A-GEMTF Advanced GEM Task Force
AGV automated guided vehicle
AHF anhydrous hydrogen fluoride
AHU air handling unit
AIR automated image retrieval
Al aluminum
ALE atomic layer epitaxy; application logic element
ALS advanced light source; advanced low-power Schottky
Alt alternating
AMC airborne molecular contamination
AMHS automated material handling system
AMT advanced manufacturing technology
AMU atomic mass unit
ANN artificial neural network
ANOVA analysis of variance
AOV air-operated valve
AP adhesion promoter
APA advanced performance algorithm
APC advanced process control
APCD add-on pollution control device
APCFI Advanced Process Control Framework Initiative
APCVD atmospheric pressure chemical vapor deposition
APEC advanced process equipment control
API application programming interface; atmospheric pressure ionization
APM atmospheric passivation module; acoustic plate mode
APRDL Advanced Products Research and Development Laboratory
aPSM attenuating phase shift mask
AQI ACCESS query interface
AQL acceptable quality level
Ar argon
AR aspect ratio
ARAMS Automated Reliability, Availability, and Maintainability Standard
ARC antireflective coating
ARDE aspect ratio-dependent etching
ARPA Advanced Research Projects Agency (see DARPA)
ARS angle-resolved scattering
As arsenic
ASAP Advanced Stepper Application Program
ASIC application-specific integrated circuit
ASO automatic shutoff
ASP advanced strip and passivation; advanced strip processor
ASA automated send-receive
AS/AS automated storage and retrieval system
ATOF Advanced Tool Development Facility
ATE automatic test equipment
ATG automatic test generation
ATLAS abbreviated test language for all systems
Atm atmosphere
ATP advanced technology program; adenosine triphosphate; acceptance and tool performance
ATR attenuated total reflectance
Att attenuated Au gold
AVP advanced vertical processor
AVS advanced visualization system
AWE asymptotic waveform evaluation
AWISPM above wafer in situ particle monitoring
AWS advanced wet station

B
B billion; boron
Ba barium
BARC bottom antireflective coating
BASE Boston Area Semiconductor Education (Council)
BAW bulk acoustic wave
Acronyms and Abbreviations

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BC bias contrast
BDEV behavior-level deviation
BDS Brownian Dynamics Simulation
Be beryllium
BENU bull's eye nonuniformity
BEOL back end of line
BESOI bonded and etchback silicon-on-insulator
BF brightfield
BFGS Broyden-Fletcher-Goldfarb-Shanno optimization algorithm
BFL buffered field-effect-transistor logic
BGA ball grid array
BHT Brinell hardness test
Bi bismuth
BiCMOS bipolar complementary metal-oxide semiconductor
BIFET bipolar field-effect transistor
BIM binary intensity mask
BiMOS bipolar metal-oxide semiconductor
BIST built-in self-test
BIT bulk ion temperature
BITE built-in test equipment
BMC bubble memory controller
BOE buffered oxide etchant
BOR bottom of range
BOSS Book of SEMI Standards; binary object storage system
BOX buried oxide
BPR beam profile reflectometry; business process re-engineering
BPSG boron phosphosilicate glass
BPTEOS BPSG from a TEDS source
Br bromine
BSE backscattered electron detection
BTAB bumped tape automated bonding
BV breakdown voltage
BVH buried via hole

C
C carbon
Ca calcium
CA CIM architecture
CAA CIM applications architecture
CAB Competitive Analysis Benchmarking
CAD computer-aided design
CADT control application development tool
CAE computer-aided engineering
CAI computer-assisted instruction
CALS Computer-Aided Logistics Support (Air Force program)
CAM computer-aided manufacturing
CAPS computer-assisted problem solving

CARRI Computerized Assessment of Relative Risk Impacts
CASE computer-aided software engineering; computer-aided systems engineering
CAT computer-aided testing
CAW Construction Analysis Workgroup
CAWC cryogenic aerosol wafer cleaning
CBGA ceramic ball grid array
CBS chemical bottle storage area
CBT computer-based training
CC chip carrier; cluster controller
CCC ceramic chip carrier
CCD charge-coupled device
CCSL compatible current-sinking logic
CCW counterclockwise
Cd cadmium
CD critical dimension
CDA clean dry air
CDE chemical downstream etch
CDEM Customer Delivery Enterprise Model
CDI collector-diffusion isolation
CDM Common Device Model for SAB
CDO controlled decomposition/oxidation
CD/OL critical dimension overlay
CDR chemical distribution room
CDS chemical distribution system
Ce cerium
CE capillary electrophoresis
CEC cell evaluation chip
CEE control execution chip
CEM continuous emissions monitoring
CER-DIP ceramic dual in-line package
CFA component failure analysis
CFC chlorofluorocarbon
CFD computational fluid dynamics
CFI CAD Framework Initiative
CFM contamination-free manufacturing
CFMRC Contamination-Free Manufacturing Research Center
CI confidence interval
CIC cleanroom interface chamber
CID charge-injection device
CIE computer-integrated engineering
CIM computer-integrated manufacturing
CIM-OSA computer-integrated manufacturing-open systems architecture (ESPRIT program)
CIP Continuous Improvement Program
CIS Center for Integrated Systems
CISC complex instruction set computer
CI chlorine
CLCC ceramic leaded chip carrier
CLIC closed-loop intensity control
CM configuration management; cassette module
Acronyms and Abbreviations
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CMC cassette module controller
CML current mode logic
CMM capability maturity model
CMOS complementary metal-oxide semiconductor
CMP chemical mechanical planarization
CMR common-mode rejection ratio; cancel move request
CMUG Cost Modeling Users Group
CNC computer numerical control; condensation nucleus counter
Co cobalt
COB chip-on-board
COC cost of consumables
CODEC coder-decoder
COED computer optimized experimental design
COGS cost of goods sold
CoO cost of ownership
COOL Cost of Ownership Luminator (Wright, Williams & Kelly)
CORBA common object request broker architecture
CORE composite object reference
COSS common object services specification
CT customer-owned tooling
CoV coefficient of variance
Cp process capability
CPD concurrent product development
CPE Communications, Participation, and Education program
CPGA ceramic pin grid array
Cpk process capability index
CQFP ceramic quad flat pack
CQN closed-queuing network
Cr chromium
CRC cyclic redundancy check
CRM Cost/Resource Model
Cs cesium
CSA CIM systems architecture
CSE control systems engineering
CSF critical success factor
CSL current-steering logic
CSMA/CD carrier-sense, multiple-access/collision detection
CSP chip-scale package
CSPED concurrent semiconductor production and equipment development,
CST CIM systems technology
CSTR continuously stirred tank reactor
CSV comma-separated variable
CT cycle time
CTC cluster tool controller CTE coefficient of thermal expansion
CTI cycle time improvement
CTMC cluster tool modular communications
Cu copper
CUB central utility building
CUBES capacity utilization bottleneck efficiency system
CUI common user interface
CUSUM cumulative sum
CV capacitance-to-voltage
CVCM collected volatile condensable materials
CVD chemical vapor deposition
CW continuous wave; clock-wise
Cz Czochralski process
D
Of A digital to analog
DAC digital-to-analog converter
DAS direct absorption, spectroscopy
DASSL differential algebraic system solver
D/B die bonding
DBMS database management system
DC direct current
DCA direct chip attachment
DCATS double-contained acid transfer system
DCE distributed computer environment
DCG domain coordination group
DCL digital command language; display communication log
DCS dichlorosilane
DDL device description language
DDMS defect data management system
DEDS discrete-event dynamic simulation
DES data encryption standard; display equipment status
DF darkfield
DFC densified fluid clean
DFE dual-frequency etch DFM design for manufacturability
DFR design for reliability
DFT design for test
DHF dilute hydrofluoric acid
DI deionized; dielectric isolation
DIBL drain-induced barrier leakage
DIC differential interference contrast
DIL dual in-line
DIP dual in-line package
DLBI device-level burn-in
DLOC~ developed source lines of code
DLS display lot status
DLT device-level test
DLTS deep-level transient spectroscopy
DMA direct memory access; dynamic mechanical analysis
DMH display message helps
DML data manipulation language; display message log
### Acronyms and Abbreviations

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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>DMM</td>
<td>digital multimeter</td>
</tr>
<tr>
<td>DMOS</td>
<td>diffused metal-oxide semiconductor</td>
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<tr>
<td>DMR</td>
<td>display move requests</td>
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<tr>
<td>DMS</td>
<td>Data Management Standard</td>
</tr>
<tr>
<td>DO</td>
<td>dynamic optimization</td>
</tr>
<tr>
<td>DOA</td>
<td>dead-on alignment</td>
</tr>
<tr>
<td>DOAS</td>
<td>differential optical absorption spectroscopy</td>
</tr>
<tr>
<td>DOE</td>
<td>design of experiments</td>
</tr>
<tr>
<td>DOF</td>
<td>depth of field; depth of focus</td>
</tr>
<tr>
<td>DOP</td>
<td>dioctylphthalate</td>
</tr>
<tr>
<td>DPA</td>
<td>destructive physical analysis</td>
</tr>
<tr>
<td>DPM</td>
<td>digital panel meter</td>
</tr>
<tr>
<td>DPSFRAM</td>
<td>dual-port static random access memory</td>
</tr>
<tr>
<td>DRAM</td>
<td>dynamic random access memory</td>
</tr>
<tr>
<td>DRAPAC</td>
<td>Design Rule and Process Architecture Council</td>
</tr>
<tr>
<td>DRC</td>
<td>design rule check</td>
</tr>
<tr>
<td>DRE</td>
<td>destruction removal efficiency</td>
</tr>
<tr>
<td>DRIFTS</td>
<td>diffuse reflectance infrared Fourier transform spectroscopy</td>
</tr>
<tr>
<td>DRT</td>
<td>defect review tool</td>
</tr>
<tr>
<td>DSA</td>
<td>display system activity; dimensionally stable anode</td>
</tr>
<tr>
<td>DSC</td>
<td>differential scanning calorimetry</td>
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<tr>
<td>DSMC</td>
<td>direct simulation Monte Carlo</td>
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<tr>
<td>DSO</td>
<td>downstream quartz</td>
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<tr>
<td>DSS</td>
<td>display stocker status</td>
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<tr>
<td>DSW</td>
<td>direct step-on-wafer</td>
</tr>
<tr>
<td>DT</td>
<td>dynamic test</td>
</tr>
<tr>
<td>DTA</td>
<td>differential thermal analysis</td>
</tr>
<tr>
<td>DTC</td>
<td>direct thermocouple control</td>
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<tr>
<td>DTL</td>
<td>diode transistor logic</td>
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<tr>
<td>DTM</td>
<td>defect test monitor; delay time multiplier; device test module; digital terrain map</td>
</tr>
<tr>
<td>DTMPN</td>
<td>defect test monitor phase number</td>
</tr>
<tr>
<td>DUT</td>
<td>device under test</td>
</tr>
<tr>
<td>DUV</td>
<td>deep ultraviolet</td>
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<tr>
<td>DV</td>
<td>design verification</td>
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<tr>
<td>DVER</td>
<td>design rule verification</td>
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<tr>
<td>DVM</td>
<td>digital voltmeter</td>
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<tr>
<td>DVS</td>
<td>display vehicle status</td>
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<tr>
<td>DWG</td>
<td>domain work group</td>
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<tr>
<td>ECAD</td>
<td>electronic computer-aided design; engineering computer-aided design</td>
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<tr>
<td>ECAE</td>
<td>electronic computer-aided engineering</td>
</tr>
<tr>
<td>ECL</td>
<td>emitter coupled logic</td>
</tr>
<tr>
<td>ECN</td>
<td>engineering change notice</td>
</tr>
<tr>
<td>ECO</td>
<td>engineering change order</td>
</tr>
<tr>
<td>ECQB</td>
<td>electrochemical quartz crystal balance</td>
</tr>
<tr>
<td>ECR</td>
<td>electron cyclotron resonance</td>
</tr>
<tr>
<td>EDA</td>
<td>electronic design automation</td>
</tr>
<tr>
<td>EDS</td>
<td>energy-dispersive spectroscopy</td>
</tr>
<tr>
<td>EDU</td>
<td>equipment-dependent uptime</td>
</tr>
<tr>
<td>EDX</td>
<td>energy-dispersive X-ray</td>
</tr>
<tr>
<td>EDXA</td>
<td>energy-dispersive X-ray analysis</td>
</tr>
<tr>
<td>EEDF</td>
<td>electron energy distribution function</td>
</tr>
<tr>
<td>EELS</td>
<td>electron energy-loss spectroscopy</td>
</tr>
<tr>
<td>EEPROM</td>
<td>electrically erasable programmable read-only memory</td>
</tr>
<tr>
<td>EFM</td>
<td>equipment front-end module</td>
</tr>
<tr>
<td>EFOCS</td>
<td>evanescent fiber optic chemical sensor</td>
</tr>
<tr>
<td>EFTIR</td>
<td>emission Fourier transform infrared spectroscopy</td>
</tr>
<tr>
<td>EHV</td>
<td>excess flow valve</td>
</tr>
<tr>
<td>EGE</td>
<td>ethylene glycol ethers</td>
</tr>
<tr>
<td>EHS</td>
<td>extremely hazardous sub-stance</td>
</tr>
<tr>
<td>EI</td>
<td>equipment integration</td>
</tr>
<tr>
<td>EID</td>
<td>Equipment Interface Development</td>
</tr>
<tr>
<td>EIP</td>
<td>Equipment Improvement Program; Equipment Improvement Project</td>
</tr>
<tr>
<td>EIS</td>
<td>electrochemical impedance spectroscopy</td>
</tr>
<tr>
<td>EKFT</td>
<td>extended Kalman filter</td>
</tr>
<tr>
<td>ELF</td>
<td>extremely low frequency</td>
</tr>
<tr>
<td>EM</td>
<td>enterprise model; electromagnetic; electromigration</td>
</tr>
<tr>
<td>EMA</td>
<td>equipment maturity assessment</td>
</tr>
<tr>
<td>EMC</td>
<td>electromagnetic capability; electromagnetic compatibility</td>
</tr>
<tr>
<td>EMF</td>
<td>electromagnetic field</td>
</tr>
<tr>
<td>EMG</td>
<td>electromigration</td>
</tr>
<tr>
<td>EMI</td>
<td>electromagnetic interference</td>
</tr>
<tr>
<td>EMMA</td>
<td>electron microscopy and microanalysis, electromagnetic pulse</td>
</tr>
<tr>
<td>EMR</td>
<td>enter move request</td>
</tr>
<tr>
<td>EMU</td>
<td>electromagnetic unit</td>
</tr>
<tr>
<td>EOT</td>
<td>electrical overstress; equivalent oxide thickness</td>
</tr>
<tr>
<td>EP</td>
<td>extreme pressure; electro-polish</td>
</tr>
<tr>
<td>EPL</td>
<td>electron projection lithography</td>
</tr>
<tr>
<td>EPR</td>
<td>electron paramagnetic resonance</td>
</tr>
<tr>
<td>EPRI</td>
<td>Electrical Power Research Institute</td>
</tr>
<tr>
<td>EPROM</td>
<td>electrically programmable read-only memory</td>
</tr>
<tr>
<td>EPSS</td>
<td>electronic performance support system</td>
</tr>
<tr>
<td>EPT</td>
<td>equipment performance tracking</td>
</tr>
<tr>
<td>EQUIP C/I</td>
<td>equipment control and integration</td>
</tr>
<tr>
<td>Acronym</td>
<td>Definition</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>EQUIP RTC</td>
<td>equipment real-time control</td>
</tr>
<tr>
<td>ERAM</td>
<td>equipment reliability, availability and maintainability</td>
</tr>
<tr>
<td>ERM</td>
<td>enterprise reference model</td>
</tr>
<tr>
<td>ERN</td>
<td>external recurrent neural network</td>
</tr>
<tr>
<td>ERP</td>
<td>extended range pyrometer</td>
</tr>
<tr>
<td>ERS</td>
<td>event reporting standard</td>
</tr>
<tr>
<td>ERT</td>
<td>emergency response time</td>
</tr>
<tr>
<td>ES</td>
<td>engineering specification; expert system</td>
</tr>
<tr>
<td>ESC</td>
<td>electrostatic chuck</td>
</tr>
<tr>
<td>ESCA</td>
<td>electron spectroscopy for chemical analysis</td>
</tr>
<tr>
<td>ESD</td>
<td>electrostatic discharge</td>
</tr>
<tr>
<td>ESH</td>
<td>environment, safety and health</td>
</tr>
<tr>
<td>ESM</td>
<td>electronic service manual</td>
</tr>
<tr>
<td>ETAB</td>
<td>Executive Technical Advisory Board</td>
</tr>
<tr>
<td>ETQR</td>
<td>External Total Quality and Reliability</td>
</tr>
<tr>
<td>EUV</td>
<td>extreme ultraviolet eV electron volt</td>
</tr>
<tr>
<td>EWMA</td>
<td>exponentially weighted moving average</td>
</tr>
<tr>
<td>F</td>
<td>fluorine</td>
</tr>
<tr>
<td>FA</td>
<td>failure analysis</td>
</tr>
<tr>
<td>FAB</td>
<td>fast atom bombardment</td>
</tr>
<tr>
<td>FAMOS</td>
<td>floating-gate avalanche-injection metal-oxide semiconductor</td>
</tr>
<tr>
<td>FC</td>
<td>flip chip</td>
</tr>
<tr>
<td>FCM</td>
<td>facilities cost model</td>
</tr>
<tr>
<td>FCS</td>
<td>factory control system</td>
</tr>
<tr>
<td>FDC</td>
<td>fault detection and classification</td>
</tr>
<tr>
<td>FDE</td>
<td>frequency domain experiments</td>
</tr>
<tr>
<td>Fe</td>
<td>iron</td>
</tr>
<tr>
<td>FEC</td>
<td>fabrication evaluation chip</td>
</tr>
<tr>
<td>FEM</td>
<td>finite element model</td>
</tr>
<tr>
<td>FEOL</td>
<td>front end of line</td>
</tr>
<tr>
<td>FESEM</td>
<td>field emission scanning electron microscopy</td>
</tr>
<tr>
<td>FET</td>
<td>field-effect transistor</td>
</tr>
<tr>
<td>FFT</td>
<td>fast Fourier transform</td>
</tr>
<tr>
<td>FFU</td>
<td>filter fan unit</td>
</tr>
<tr>
<td>FII</td>
<td>filterability index; factory integration</td>
</tr>
<tr>
<td>FI</td>
<td>final inspection</td>
</tr>
<tr>
<td>FIB</td>
<td>focused ion beam</td>
</tr>
<tr>
<td>FID</td>
<td>flame ionization detector</td>
</tr>
<tr>
<td>FIFO</td>
<td>first-in, first-out</td>
</tr>
<tr>
<td>FIMS</td>
<td>front-opening interface mechanical standard</td>
</tr>
<tr>
<td>FL</td>
<td>fuzzy logic</td>
</tr>
<tr>
<td>FLOODS</td>
<td>Florida Object-Oriented Device Simulator</td>
</tr>
<tr>
<td>FLOOPS</td>
<td>Florida Object-Oriented Process Simulator</td>
</tr>
<tr>
<td>FLOPC</td>
<td>floating point operations needed per cycle</td>
</tr>
<tr>
<td>FLOTOX</td>
<td>floating gate tunnel oxide</td>
</tr>
<tr>
<td>FLRT</td>
<td>factory layout/relayout tool</td>
</tr>
<tr>
<td>FM</td>
<td>foreign material</td>
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<tr>
<td>FMEA</td>
<td>failure mode and effects analysis</td>
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<tr>
<td>FMVC</td>
<td>Framework Member Validation Project</td>
</tr>
<tr>
<td>FNN</td>
<td>feed-forward neural network</td>
</tr>
<tr>
<td>FOCS</td>
<td>fiber optic chemical sensor</td>
</tr>
<tr>
<td>FOUP</td>
<td>front opening unified pod</td>
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<tr>
<td>FOV</td>
<td>field of view</td>
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<tr>
<td>FOX</td>
<td>field oxide</td>
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<tr>
<td>FP</td>
<td>flash point</td>
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<tr>
<td>FPD</td>
<td>focal plane deviation; flat panel display</td>
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<tr>
<td>FPGA</td>
<td>field-programmable gate array</td>
</tr>
<tr>
<td>FPLA</td>
<td>field-programmable logic array</td>
</tr>
<tr>
<td>FPLF</td>
<td>field-programmable logic family</td>
</tr>
<tr>
<td>FPLS</td>
<td>field-programmable logic switch</td>
</tr>
<tr>
<td>FPMS</td>
<td>Factory Performance Modeling Software</td>
</tr>
<tr>
<td>FRACAS</td>
<td>Failure Reporting, Analysis and Corrective Action System</td>
</tr>
<tr>
<td>FRAME</td>
<td>Failure Rate Analysis and Modeling</td>
</tr>
<tr>
<td>FTAB</td>
<td>Focus Technical Advisory Board</td>
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<tr>
<td>FTIR</td>
<td>Fourier transform infrared</td>
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<tr>
<td>FW</td>
<td>full wave</td>
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<tr>
<td>FWHM</td>
<td>full-width half-maximum</td>
</tr>
<tr>
<td>FZ</td>
<td>float zone</td>
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<tr>
<td>G</td>
<td>gallium</td>
</tr>
<tr>
<td>GAC</td>
<td>granular activated carbon</td>
</tr>
<tr>
<td>GC</td>
<td>gas chromatography; gravimetric calibrator</td>
</tr>
<tr>
<td>GCC</td>
<td>generic cell controller</td>
</tr>
<tr>
<td>GCD</td>
<td>gas chromatography distillation</td>
</tr>
<tr>
<td>GCMS</td>
<td>gas chromatography mass spectroscopy</td>
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<tr>
<td>GDS</td>
<td>graphical design system; graphical design software</td>
</tr>
<tr>
<td>Ge</td>
<td>germanium</td>
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<tr>
<td>GEM</td>
<td>Generic Equipment Model</td>
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<tr>
<td>GEMVS</td>
<td>GEM verification system</td>
</tr>
<tr>
<td>Ges</td>
<td>generic equipment simulator</td>
</tr>
<tr>
<td>GFC</td>
<td>gas filter correlation</td>
</tr>
<tr>
<td>GFCI</td>
<td>ground fault circuit interrupter</td>
</tr>
<tr>
<td>GIDL</td>
<td>gate-induced drain leakage</td>
</tr>
<tr>
<td>GILD</td>
<td>gas immersion laser doping</td>
</tr>
<tr>
<td>GLC</td>
<td>gas liquid chromatography</td>
</tr>
<tr>
<td>GOI</td>
<td>gate oxide integrity</td>
</tr>
<tr>
<td>GPIB</td>
<td>general-purpose inter-face bus</td>
</tr>
<tr>
<td>GSCE</td>
<td>gas source control equipment</td>
</tr>
<tr>
<td>GTS</td>
<td>GEM Test System</td>
</tr>
<tr>
<td>H</td>
<td>hydrogen</td>
</tr>
<tr>
<td>HAP</td>
<td>hazardous air pollutant</td>
</tr>
</tbody>
</table>
Acronyms and Abbreviations
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HAST highly accelerated stress testing
HAZCOM Hazard Communication Standard
HB horizontal Bridgeman crystal
HCl hot carrier injection
HCM hollow cathode magnetron
HCMOS high-density CMOS
HCS hot-carrier suppressed
HD high density
HDL hardware description language
HDP high-density plasma
HDPE high-density polyethylene
He helium
HEM high-efficiency matching
HEPA high-efficiency particulate air
Hf hafnium
HF hydrofluoric acid
Hg mercury
HIBS heavy ion backscattering spectrometry
HIPOx high-pressure oxygen
HLF horizontal laminar flow
HMDS hexamethyldisilizane
HMIS hazardous materials inventory statement
HMMP hazardous materials management plan
HMOS high-performance MOS; high-density MOS
HOMER hazardous organic mass emission rate
HOPG highly oriented pyrolitic graphite
HP high purity
HPEM Hybrid Plasma Equipment Model
HPI high pressure isolation
HPL high-performance logic
HPLC high-performance liquid chromatography
HPM hazardous production materials; high-purity metal
HPV high pressure vent
HRA human reliability analysis
HRR high ramp rate
HRTEM high-resolution transmission electron microscopy
HTO high-temperature oxidation
HTRB high-temperature reverse bias
HUPW hot ultrapure water
HVAC heating, ventilating and air conditioning

I
I iodine
12L integrated injector logic
13001 International 300 mm Initiative
IC integrated circuit; Investment Council; ion chromatography
ICAP inductively coupled argon-plasma spectrometry
ICMS integrated circuit measurement system
ICP inductively coupled plasma
ICP-AES inductively coupled plasma atomic emission spectroscopy
ICP-MS inductively coupled plasma mass spectrometry
ICT ideal cycle time
IDEAL initiating, diagnosing, establishing, acting, leveraging
IDDQ direct drain quiescent current
IDL interface definition language
IDLH immediately dangerous to life or health
IDS interactive diagnostic system
IEA ion energy analysis
IEC infused emitter coupling
IEDF ion energy distribution function
IERN internal-external recurrent neural network
IF interface
IGFET insulated-gate field-effect transistor
II ion implant (also 12)
ILB inner lead bond
ILD interlevel dielectric; inter-layer dielectric
ILS intra cavity laser spectroscopy
IM integrated model
IMD intermetal dielectric
IMMA ion microphobe mass analysis
IMS ion mobility spectroscopy
In indium
INCAMS individual cassette manufacturing system
I/O input/output
IPL ion projection lithography
IPT ideal process time
Ir iridium
IR infrared
IRAS infrared reflection absorption spectroscopy
IRIS imaging of radicals interacting with surfaces
IRN internal recurrent neural network
IRONMAN Improving Reliability of New Machines at Night
IRTC-1 interconnect reliability test chip-1
IS information systems; inter-face specifications; integrated systems
ISC Industry Steering Council
ISEM inspection/review specific equipment model
ISM inductor super magnetron
ISMT International SEMATECH
ISPM in situ particle monitor
ISR in situ rinse
ISS ion scattering spectroscopy
ITRI Interconnection Technology Research Institute
ITRS International Technology Roadmap for Semiconductors
IV interstitial via hole
IVP integrated vacuum processing
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J
JDJP Joint Development Program
JEDEC Joint Electron Device Engineering Council
JESSI Joint European Submicron Silicon Initiative
JIC Joint Industrial Council
JIT just-in-time
JJT Josephson junction transistor
JVD jet vapor deposition

K
K potassium; thousand
keV kilo electron volt
KPA key process area
Kr krypton
kV kilovolt

L
La lanthanum
LAMMA laser micro-mass analysis
LAMMS laser micro-mass spectroscopy
LANL Los Alamos National Laboratory
LC inductance-capacitance; liquid chromatography
LCA lifecycle analysis
LCC leaded chip carrier
LCL lower confidence limit
LDD lightly doped drain
LDL lower detection limit
LDP low-density plasma
LDPE low-density polyethylene
LEC liquid encapsulated Czochralski crystal
LEL lower explosive limit
LF laminar flow
LFL lower flammable limit
LGO linear Gaussian quadratic
Li lithium
LI laser interferometry
LIC linear integrated circuit
LID leadless inverted device
LIFO last in, first out
LIMA laser-induced mass analysis
LIMS laser-induced mass spectrometry
LLCC leadless chip carrier
LLD lower limit of detection control
LLNL Lawrence Livermore National Laboratory
LLNQ least lots next queue
LM light microscope assists
LMMA laser microprobe mass analysis
LOCOS local oxidation of silicon
LOS loss of selectivity
LPC linear predictive coding; laser particle counter; low particle concentration; liquid-borne particle counter
LPCVD low-pressure chemical deposition
LPD light point defect
LPE liquid phase epitaxy deposition
LPL low-pressure isolation
LPSM Levenson phase shift mask
LRS laser Raman spectroscopy
LSE latex sphere equivalent
LSHI large-scale hybrid integration
LSI large-scale integration
LSM laser scanning microscope
LTCDI low-temperature chemical vapor deposition
LTO low-temperature oxidation / oxide
LTPD lot tolerance percent defective
LTV local thickness variation
LV latent variable
LVDT linear voltage differential transducer
LVI low-voltage inverter
LVS layout verification of schematic
LWR line width reduction
LWS large wafer study

M
M million; mega
MACT maximum achievable control technology
MALDI matrix-assisted laser desorption and ionization
MAN metropolitan area network
MAP manufacturing automation protocol
MAWP maximum allowable working pressure
MB machine batch
MBC machine batch collection
MBE molecular beam epitaxy
MBPC model-based process control
MBTC model-based temperature control
MCBA mean cycles between assists
MCBF mean cycles between failures
MCBI mean cycles between interrupts
MCM multichip module; manufacturing cycle management
MCP master control processor; multichip package
MCS material control system
MCU microprocessor control unit; mobile calibration unit
MCVD metal chemical vapor deposition
MD-MOS multi-drain metal-oxide semiconductor
MDL minimum detection limit; Master Deliverables
LST
MDQ market driven quality
MEBS medium energy
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MEM Manufacturing Enterprise Model; Manufacturing Equipment Monitor
MERIE magnetically enhanced reactive ion etching
MES manufacturing execution systems
MESC Modular Equipment Standards Committee (SEMI); Modular Equipment Sub-Committee for Communications (SEMI – after 1992)
MESFET metal semiconductor field-effect transistor
METS Materials and Equipment Trading Service
MeV mega electron volt
MFC mass flow controller
MFM mass flow meter
Mg magnesium
MG manufactured goods
MHI material hazard index
MHz megahertz
MIC monolithic integrated circuit
MID material ID
MIE magnetron ion etching
MIM metal-insulator-metal
MIS metal insulator silicon
MLCC multilayer ceramic capacitor
MLL modify lot location
MLM multilevel metal
MLR message log report
MMC Manufacturing Methods Council
MMD Microlithographic Mask Development program
MMIC monolithic microwave integrated circuit
MMM material movement management
MMMS Material Movement Management Standard
MMO multimodel optimization
MMOS modified MOS
MSTAB Manufacturing Systems Technical Advisory Board
MS Material Safety Data Sheet
MSDA Mine Safety and Health Administration
MSEM Metrology Specific Equipment Model
MSG Management Steering Group
MSI medium-scale integration; manufacturing support item
MSID mass spectrometer lead detector
MSLD mass spectrometer leak detector
MSTAB Manufacturing Systems Technical Advisory Board
MSA mean time between assists
MTBF mean time between failures
MTBFp mean (productive) time between failures
MTBI mean time between interrupt; mean time between incident
MTOL mean time off line; mean time on line
MTS Material Tracking Standard
MTTA mean time to assist
MTTF mean time to failure
MTTR mean time to repair
MV megavolt
MVTR moisture vapor transmission rate
MW molecular weight
MWBC mean wafers between cleans
MWT monitor wafer turner

N
N nitrogen
Na sodium
NA numerical aperture
NCMS National Center for Manufacturing and Science
NCS National Communication Standard
NDA nondisclosure agreement
NDE nondestructive evaluation
NDIR nondispersive infrared spectroscopy
NDP neutron depth profiling
NDT nondestructive testing
NDUV nondispersive ultraviolet spectroscopy
NEC National Electric Code
NESHAP National Emissions Standards for Hazardous Air Pollutants
NFOM near-field optical microscopy
Ni nickel
NI RA near-infrared reflection analysis
NMOS negative channel metal-oxide semiconductor
NMR nuclear magnetic resonance
NN neural network
NRE nonrecurring engineering
NTRS National Technology Roadmap for Semiconductors
NTU nephelometric turbidity unit
NVR non-volatile residue
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**O**
- O Oxygen
- OBA object behavior analysis
- OBEM Object-Based Equipment Model
- OBIC optical beam-induced current
- OBL object-based language
- OC open cassette
- OCR optical character recognition
- OD outside diameter
- ODS ozone-depleting substances
- OEE overall equipment effectiveness
- OEM original equipment manufacturer
- OES optical emission spectroscopy
- OHT overhead transport; over- head hoist transport
- OHV overhead vehicle
- OL overlay
- OLB outer lead bond
- OLE object linking and embedding
- OM operational modeling; optical microscopy
- OMA object management architecture
- OMS optical mass spectroscopy
- OMT object modeling technique
- 00 object-oriented
- OOA object-oriented analysis
- 00D object-oriented design
- OODB object-oriented database
- OODBMS object-oriented database management system
- OOP object-oriented programming
- OPC optical particle counter; optical proximity correction
- ORNL Oak Ridge National Laboratory
- OS operating system
- OSF Open Systems Foundation
- OSI open system interconnection
- OSRM Office of Standard Reference Materials
- OSS Object Services Standard
- Ox oxide

**P**
- P phosphorous
- PAC photoactive compound
- PACVD plasma-assisted chemical vapor deposition
- PA-FTIR photoacoustic Fourier transform infrared spectroscopy
- PAG photoacid generator
- PAL process automation language; programmable array logic; process asset library
- PAM process application module
- PAS photoacoustic spectroscopy
- PAWS portable acoustic wave sensor
- Pb lead
- PBET Performance-Based Equipment Training
- PBGA plastic ball grid array
- PBL poly-buffered LOCOS
- PBS photon backscattering
- PC personal computer; programmable controller; process control
- PCAD packaging computer- aided design
- PCO photocatalytic oxidation
- PCMP post chemical-mechanical polishing
- PCMS plasma chemistry Monte-Carlo simulation
- PCR principle component regression
- PCT process change team
- Pd palladium
- PDC passive data collection
- PDF portable document format
- PDU protocol data unit
- PDVC phase-dependent volt- age contrast
- PEB post-exposure bake
- PECVD plasma-enhanced chemical vapor deposition
- PED post-exposure delay
- PEDS plasma-enhanced deposition system
- PEELS parallel electron energy loss spectrometry
- PEL permissible exposure level
- PES photoelectron spectroscopy
- PET post-etch treatment
- PETEOS plasma-enhanced tetraethylorthosilicate
- PFA perfluoroalkoxy
- PFC perfluorocarbon
- PFPE perfluorinated polyether
- PGA pin grid array
- P-GILD projection gas immersion laser doping
- PGG person-guided vehicle
- PI proportional integral
- PID proportional integral derivative; process-induced defect
- PIIV peak inverse voltage; post indicator valve
- PIP process-induced particle
- PIV peak inverse voltage; post indicator valve
- PLA programmable logic array
- PLC programmable logic controller
- PLCC plastic leaded chip carrier
- PLL plasma lockload
- PLS partial least squares; projection of latent structures
- PLY photolimited yield
- PM process monitor; preventive maintenance; process module
- PMC process module controller
- PMCC Pensky-Martens closed cup
- PMI phase measuring interferometer
- PMMA polymethyl methacrylate
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PMOS positive channel metal-oxide semiconductor
PMS particle measuring system
PMT photomultiplier tube
PMTF Product Management Task Force
POR process-of-record
POU point-of-use
POUCG point-of-use chemical generation
PPE personal protective equipment
PPGA plastic pin grid array
PPID process program identification
PQFP plastic quad flat pack
PRAS particle reactor analysis services
PRB pseudo-random binary
PRBS pseudo-random binary sequence
PROM programmable read-only memory
PRSC parametric response surface control
PRV person rail guided vehicle
PS porous silicon
PSB phase shifting blank
PSC porous silicon capacitor
PSD power spectral density; port status display
PSG phosphosilicate glass
PSII plasma source ion implantation
PSL polystyrene latex
PSLS polystyrene latex sphere
PSM phase shifting mask
Pt platinum
P / T precision-tolerance
PTAB Project Technical Advisory Board
PTC pre- and post-process treatment chambers
PTFE polytetrafluoroethylene
PVA polyvinylacetate
PVC polyvinyl chloride
PVD physical vapor deposition
PVDF polyvinylidene fluoride
PWB printed wiring board
PWP particles per wafer pass

R
RAC remotes access and control
RAIRS reflection-absorption infrared spectroscopy
RAM random access memory; reliability, availability and maintainability
RAMP Reliability Analysis and Modeling Program
Rb rubidium
RBB base sheet resistance
RBS refractive backscattering; Rutherford backscattering spectroscopy
RCWA rigorous coupled wave analysis
RDR rotating disk reactor
Re rhenium
REL recommended exposure limit
RESSFOX recessed sealed sidewall field oxidation
RF radio frequency; resonance frequency
RFI request for information; radio frequency interference
RFM radio frequency monitoring
RFO restricted flow orifice
RFP request for plan; request for proposal; radio frequency probe
RGA residual gas analysis
RGV rail-guided vehicle
RH relative humidity
RI reliability improvement
RIE reactive ion etch
RISC reduced instruction set computer/computing
RIST rule induction and statistical testing
RMOS refractory metal-oxide semiconductor
RMS root mean square; Recipe Management Standard
RMTF Recipe Management Task Force
RNN recurrent neural network
RO reverse osmosis
ROC remote object communications
ROE return on equity
ROI return on investment
ROM read-only memory
RPAO remote plasma-assisted oxidation
RR removal rate
RRMSE relative root mean square error of prediction
RSE reactive sputter etch
RSF relative sensitivity factor
RSM response surface methodology; response surface matrix
RT room temperature
RTA rapid thermal anneal
RTB real-time backplane
RTCVD rapid thermal chemical vapor deposition
RTD resistance temperature detector
RTL resistor-transistor logic; register transfer level
RTM rapid thermal multiprocessing
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- RTO rapid thermal oxidation; regenerative thermal oxidizer
- RTP rapid thermal processing / processor
- RTR real-time reporting
- Ru ruthenium
- S sulfur
- SA surface area; subresolution assist; structured analysis
- SAM scanning auger microscopy
- SAT spray acid tool
- SAW surface acoustic wave
- Sb antimony
- SC1 Standard Clean 1
- SC2 Standard Clean 2
- SCA surface charge analysis
- SCALE SEMATECH Cell Application Learning Environment
- SCALPEL scattering with aperture limited projection lithography
- SCBA self-contained breathing apparatus
- SCC strategic cell controller
- SCCS source code control sys-tem
- SCE short channel effects
- SCF super critical fluid
- SCI surface charge imaging
- SCM scanning capacitance microscopy
- COE SEMATECH Center of Excellence
- SCP single-chip package
- SCR silicon-controlled rectifier
- SO small dual-in-line package; structured design
- S/D source/drain
- SDFL Schottky-diode FET logic
- Se selenium
- SE spectroscopic ellipsometry; secondary electron
- SEAJ Semiconductor Equipment Association of Japan
- SEC size exclusion chromatography
- SECS Semiconductor Equipment Communications Standard
- SEG selective epitaxial growth
- SEIM software engineering improvement method
- SEM scanning electron microscopy; specific equipment model
- SEMI Semiconductor Equipment and Materials International
- SFC supercritical fluid chromatography
- SFCS shop floor control system
- SFCS I/F shop floor control system interface
- SGMRS Semiconductor Generic Manufacturing Requirements Specification
- Si silicon
- SIA Semiconductor Industry Association
- SIDP sputter ion depth profiling
- SIMO single input, multi output
- SIMOX separation by implantation of oxygen
- SIMS secondary ion mass spectroscopy
- SIRIJ Semiconductor Industry Research Institute of Japan
- SISO single input, single output
- SL specification limit
- SLAM scanning laser acoustic microscopy; single-layer aluminum metallization
- SLC surface laminar circuit
- SM stress migration
- SMB single-mask bumping
- SMC surface-mounted component
- SME subject matter expert; software maintenance engineer
- SMIF standard mechanical interface
- SMPM SECS message protocol machine
- SMS SECS message service
- SMTS Strategic Material Transport System
- S/N signal-to-noise ratio
- Sn tin
- SNMS sputtered neutral mass spectroscopy
- SNOM scanning near-field optical microscopy
- SNR signal-to-noise ratio
- SO small outline (package)
- SOD spin-on dielectric
- SODAS SEMATECH Organized Damage Analysis Software
- SOG spin-on glass
- SOI silicon on insulator
- SOIC small outline integrated circuit
- SOM scanning optical microscopy; sulfuric acid-ozone mixture
- SOP standard operating procedure
- SOS silicon on sapphire
- SPC statistical process control
- SPICE simulation program with integrated circuit emphasis
- SPIDER SEMATECH Process Induced Damage Effect Revealer
- SPIDER-MEM SPIDER-Manufacturing Equipment Monitor
- SPIN Software Process Improvement Network
- SPM scanning probe microscopy
- SPP single-phase printing
- SPR semiconductor process representation
- SPV surface photo voltage
- SQC statistical quality control
- SQPMM Software Quality and Process Maturity Model
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Sr strontium
SRAC Supplier Relations Action Council
SRAM static random access memory
SRC Semiconductor Research Corp.
SRP spreading resistance probe
SRS software requirements specification
SSA Semiconductor Safety Association; spatial signature analysis
SSE sum squared error
SEM Stepper Specific Equipment Model
SSI small-scale integration
SSM strategic sourcing methodology
SSQA Standardized Supplier Quality Assessment
SSRL SEMATECH Software Reuse Library
SSRP SEMATECH Software Reuse Program
STAR simultaneous transmitted and reflected
STEL short-term exposure limit
STEM scanning transmission electron microscopy
STM scanning tunneling microscopy
STP standard temperature and pressure; system test plan
SU subresolution attenuated
SVVEAT standard wafer-level electromigration accelerated test
SWI static walkthrough / inspection
SWIM Semiconductor Workbench for Integrated Modeling
SWP single-wafer processing SWR semiconductor wafer representation
SWV square wave voltammetry

T
Ta tantalum
TAB Technical Advisory Board; tape automated bonding
TAP Tool Application Program
TAS trace analysis system
TASC Technical Analysis Service for CoO
TAT turnaround time
TBAH tetrabutylammonium hydroxide
TC time constant; temperature coefficient; thermocouple
T/ C thermocompression
TGA test calibration assembly; 1.1.1-trichloroethane; trichloroethate
TCAD technology computer-aided design
TCC tactical cell controller
TCE temperature coefficient of expansion
TCM tunneling current microscopy
TCP transformer-coupled plasma; tape carrier package
TCP/IP transmission control protocol/Internet protocol
TCR temperature coefficient of resistance
TD thermal desorption
TOOB time-dependent dielectric breakdown
TDEAT tetrakis (diethylamino) titanium
TDLAS tunable diode laser absorption spectroscopy
TDMAT tetrakis (dimethylamido) titanium
TDMS thermal desorption mass spectrometry
TDS thermal desorption spectroscopy
Te tellurium
TE transverse electric; transmitted electron
TEA transverse excited atmosphere
TEC thermal expansion coefficient; test and electrical characterization
TECAP transistor electrical characterization and analysis program
TED transient enhanced diffusion; transmitted electron detection
TEG technical exchange group
TEM transmission electron microscopy; transverse electro-magnetic
TEOS tetrathylorthosilicate; tetrathoxyisilicide
TFC total fault coverage
TFE tetrafluoroethylene
TFT thin-film transistor
TG thermogravimetry
TGA thermal gas analysis; thermal gravimetric analysis
THC total hydrocarbons
TI titanium
TIBA triisobutylaluminum
TIR total indicator runout; total internal reflection
TIS tool-induced shift
TI thallium
TLC thin layer chromatography
TLE tool loading elevator
TLI thin layer imaging
TLM tape-laying machine; telemeter; transition line model
TLV threshold limit value
TLV / TWA threshold limit value / time-weighted average
TM transport module
TMA thermal mechanical analyzer
TMB trim ethyl borate
TMC transport module controller; transfer module controller
TMP trimethylphosphate; turbomolecular pump
TO transistor outline package
TOA take-off angle
TOC total organic carbon; total oxidizable carbon
TOF time-of-flight
TPD temperature program desorption
TPG test pattern generation
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TPM total productive maintenance; total productive manufacturing
TPRS temperature programmed reaction spectroscopy
TPU thermal processing unit
TQM total quality management
TSCA Toxic Substances Control Act
TSI top surface imaging
TSOP thin small outline package
TSP temperature-sensitive parameter
TT technology transfer
TTL transistor-transistor logic
TTV total thickness variation
TVS triangular voltage sweep
TWA time-weighted average
TWG Technical Working Group
TXRF total X-ray fluorescence

U
U uranium
UBM under-bump metallurgy
UCL upper confidence limit; upper control limit
UF ultra-filtration
UHF ultra-high frequency
UHP ultra-high purity
UHV ultra-high vacuum
UID user identification
ULA uncommitted logic array
ULPA ultra-low particulate air
ULSI ultra large-scale integration
UPH units per hour
UPW ultrapure water
USART universal synchronous / asynchronous receiver/ transmitter
USOP ultra small outline package
Utt unattenuated
UV ultraviolet

V
V vanadium; volt
VAC volts alternating current
VAR value-added reseller; volt-ampere reactive
VASE variable angle spectroscopic ellipsometry
VDC volts direct current
VDP Van der Pauw
VDS vapor distribution system
VHF very high frequency
VLE vapor levitation epitaxy
VLF vertical laminar flow
VLSI very large-scale integration
VME versa micromodule extension; virtual manufacturing enterprise
V-MOS v-groove metal-oxide semiconductor

W
W tungsten
WAN wide area network
W/B wire bonding
WB weak base
WBSEM Wire Bonder Specific Equipment Model
WBS work breakdown structure
WDS wavelength-dispersive spectrometry of X-rays
WDX wavelength dispersive X-ray
WDXA wavelength-dispersive X-ray analysis
WEC wafer environment control
WFT wafer fabrication template
WIB within-batch
WIP work in process; work in progress
WIW within-wafer
WJWNU within-wafer nonuniformity
WLBI wafer-level burn-in
WL T wafer-level test
WNP waste neutralization plant
WPC wafer process chamber
WPH wafers per hour
WSI wafer-scale integration
WTC wafer transfer chamber
WTW wafer to wafer
WTMNU wafer-to-wafer nonuniformity

X
X inductive reactance
XANES X-ray adsorption near edge structure spectroscopy
Xe xenon
XLS excimer laser system; extended light scatterer
XPS X-ray photoelectron spectroscopy
XRD X-ray diffraction
XRF X-ray fluorescence spectrometry

Y
Y yttrium
YAG yttrium aluminum garnet

Z
Z zinc
Zr zirconium