

Range of exhibits according to product groups

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- | | | | |
|-------------------------------------|---|---|--|
| 1 Semi-conductors | <ul style="list-style-type: none"> 1.1 Diodes (including diode networks) 1.2 Transistors 1.3 Power semiconductor components 1.4 Opto semiconductor components 1.5 Accessories for discrete semiconductors 1.6 Logic circuits 1.7 Microprocessors (see Embedded systems) 1.8 Memory (see Embedded systems) 1.9 Application-specific ICs (ASSP) 1.10 Data/signal transformer ICs 1.11 ICs, special designs (including ASICs/CSICs) | 9 Electro-mechanics/
System peripherals | <ul style="list-style-type: none"> 9.1 Switches and keyboards <ul style="list-style-type: none"> 9.1.1 Switches for continuous connection 9.1.2 Switches with additional functions 9.1.3 Electrical keys 9.1.4 Detector components 9.1.5 Detector and signaling devices 9.1.6 Keyboards 9.1.7 Components and accessories for keyboards 9.1.8 Initiation devices, manually activated 9.1.9 Relays 9.2 Interconnection components/systems <ul style="list-style-type: none"> 9.2.1 Standardized connectors 9.2.2 Connectors for specific handling 9.2.3 Connectors, PCB-mountable 9.2.4 Sockets 9.2.5 Connectors, application-oriented 9.2.6 Connectors for telecommunications 9.2.7 Cables with connectors 9.2.8 Connectors with additional functions 9.2.9 Connectors, specific forms 9.2.10 Miscellaneous connectors 9.2.11 Accessories for connectors 9.2.12 Specialized connection/connecting components 9.2.13 Cables 9.3 Casing technology <ul style="list-style-type: none"> 9.3.1 System racks 9.3.2 Build-in and desktop housings 9.3.3 Small-scale housings 9.3.4 Special housings 9.3.5 Accessories for housings 9.3.6 Thermal management 9.3.7 Electronic protection devices (EMI/ESD) |
| 2 Embedded systems | <ul style="list-style-type: none"> 2.1 Development tools, software 2.2 Development tools, hardware 2.3 Hardware 2.4 Peripheral systems 2.5 DDI and other network-technology components 2.6 Memories and memory peripherals 2.7 System solutions | 10 Power supplies | <ul style="list-style-type: none"> 10.1 Transformers 10.2 Coilware for specific applications 10.3 Accessories for coilware 10.4 Power supplies, DC output 10.5 Power supplies, AC output 10.6 Frequency converters 10.7 UPS systems 10.8 Special power supplies 10.9 Batteries 10.10 Static current supplies, miscellaneous 10.11 Power management systems 10.12 Accessories |
| 3 Displays | <ul style="list-style-type: none"> 3.1 Liquid Crystal Display (LCD) 3.2 Plasma Display Panel (PDP) 3.3 Cathode Ray Tube (CRT) 3.4 Vacuum Fluorescent Display (VFD) 3.5 Organic Light-Emitting Diode (OLED) 3.6 EL display 3.7 Field Emission Display (FED) 3.8 Light-Emitting Diode (LED) 3.9 Surface Conduction Emitter Display (SED) 3.10 Projection display 3.11 E-Paper 3.12 Peripheral equipment for displays | 11 PCBs, other circuit carriers and EMS | <ul style="list-style-type: none"> 11.1 Non-PTH single- and double-sided PCBs 11.2 Double-sided PCBs, PTH 11.3 Multilayer PCBs (ML) 11.4 Special PCBs 11.5 Ceramic PCBs 11.6 PCBs for backplanes/bus systems 11.7 EMS Electronic manufacturing services 11.8 Prototyping 11.9 Accessories for PCBs |
| 4 Micronano-systems | <ul style="list-style-type: none"> 4.1 Microsystems 4.2 MEMS 4.3 Nanotechnology | 12 Assemblies and subsystems | <ul style="list-style-type: none"> 12.1 Assemblies for control applications 12.2 Printer assemblies 12.3 Assemblies, miscellaneous 12.4 Hybrid modules (including multi-chip modules) 12.5 Servo technology/Drive elements |
| 5 Sensor technology | <ul style="list-style-type: none"> 5.1 Sensors for geometrical parameters 5.2 Sensors for mechanical parameters 5.3 Sensors for time and time-based parameters 5.4 Sensors for temperature and caloric parameters 5.5 Sensors for climatic parameters 5.6 Sensors for optical and acoustic parameters 5.7 Sensors for electrical and magnetical parameters 5.8 Sensors for chemical parameters 5.9 Sensors for biological parameters 5.10 Sensor elements by technology | 13 Automotive | <ul style="list-style-type: none"> 13.1 Drive (engine and gears) 13.2 Chassis/Steering 13.3 Brake 13.4 Interior/Comfort 13.5 Body/Safety 13.6 Active safety 13.7 Electrical on-board power supply 13.8 Construction and test |
| 6 Test and measurement | <ul style="list-style-type: none"> 6.1 Measuring/testing of geometric parameters 6.2 Mechanical parameters 6.3 Time and time-based parameters 6.4 Thermal units 6.5 Environmental parameters 6.6 Chemical and biological parameters 6.7 Optical and acoustical parameters 6.8 Image/pattern recognition and processing 6.9 Electrical parameters 6.10 Specialized laboratory/test equipment | 14 Wireless | <ul style="list-style-type: none"> 14.1 Cellular systems 14.2 Non-cellular systems 14.3 Wireless applications 14.4 Business partners |
| 7 Electronic Design (ED/EDA) | <ul style="list-style-type: none"> 7.1 CAD/CAE tools 7.2 Generation software 7.3 Test software 7.4 Software for special applications 7.5 Peripheral equipment for ED/EDA environments 7.6 ED/EDA services 7.7 Design and development systems | 15 Information gathering and services | <ul style="list-style-type: none"> 15.1 Information 15.2 Approval testing and other services 15.3 Start-up Forum |
| 8 Passive components | <ul style="list-style-type: none"> 8.1 Inductors and accessories 8.2 Capacitors 8.3 Resistors (including R networks) 8.4 Radiofrequency and microwave components 8.5 Polymer components 8.6 Nonlinear high-voltage components 8.7 Passive components, miscellaneous 8.8 Piezoelectric components 8.9 Magnetic and electronic ceramic products | | |

- 1.1 Diodes (including diode networks)**
 - 1.1.1 Tuner diodes
 - 1.1.2 Avalanche diodes
 - 1.1.3 Diode networks
 - 1.1.4 Rectifier diodes, RF
 - 1.1.5 Gunn diodes
 - 1.1.6 Capacitance diodes
 - 1.1.7 Low signal diodes
 - 1.1.8 Microwave diodes
 - 1.1.9 Mixer diodes
 - 1.1.10 Mains diodes
 - 1.1.11 PIN diodes
 - 1.1.12 Reference diodes
 - 1.1.13 Current-regulated diodes (CRD)
 - 1.1.14 Switching diodes
 - 1.1.15 Schottky diodes
 - 1.1.16 Signal diodes
 - 1.1.17 Stabilizer diodes
 - 1.1.18 Step-recovery diodes
 - 1.1.19 Universal diodes
 - 1.1.20 Varactor diodes
 - 1.1.21 Four-layer diodes
 - 1.1.22 Z diodes
 - 1.1.23 Rectifier bridges
 - 1.1.24 Infrared diodes (IRED)
 - 1.1.25 Light-emitting diodes (LED)
 - 1.1.26 Photodiodes
 - 1.1.27 Diodes, miscellaneous
- 1.2 Transistors**
 - 1.2.1 Field effect transistors (FET/MOSFET)
 - 1.2.2 GaAs transistors
 - 1.2.3 Low-frequency transistors
 - 1.2.4 High-frequency transistors
 - 1.2.5 Microwave transistors
 - 1.2.6 High-voltage transistors
 - 1.2.7 Low-signal transistors
 - 1.2.8 Circuit transistors
 - 1.2.9 SM-capable transistors
 - 1.2.10 Transistors, miscellaneous
- 1.3 Power semiconductor components**
 - 1.3.1 Power transistors**
 - 1.3.1.1 Bipolar transistors
 - 1.3.1.2 Darlington transistors
 - 1.3.1.3 IGBTs
 - 1.3.1.4 IEGTs
 - 1.3.1.5 FETs
 - 1.3.1.6 MOSFETs
 - 1.3.1.7 Power MOSFETs
 - 1.3.1.8 Switching transistors
 - 1.3.1.9 GaAs transistors
 - 1.3.1.10 RF power transistors
 - 1.3.1.11 μ W power transistors
 - 1.3.1.12 High-voltage transistors
 - 1.3.1.13 Transistors, miscellaneous
 - 1.3.2 Thyristors**
 - 1.3.2.1 TRIAC sets
 - 1.3.2.2 DIACs
 - 1.3.2.3 SCRs
 - 1.3.2.4 ASCRs
 - 1.3.2.5 GTOs
 - 1.3.2.6 MCTs
 - 1.3.2.7 Thyristors, miscellaneous
 - 1.3.3 Power semiconductor modules**
 - 1.3.3.1 Darlington transistor modules
 - 1.3.3.2 IGBT modules
 - 1.3.3.3 MOSFET modules
 - 1.3.3.4 Power hybrid modules
 - 1.3.3.5 RF power modules
 - 1.3.3.6 Diode/thyristor modules
 - 1.3.3.7 MCT modules
 - 1.3.3.8 IPMs
 - 1.3.3.9 Power semiconductor modules, miscellaneous
 - 1.3.4 Power semiconductor components, miscellaneous**
 - 1.3.4.1 Charge controller ICs
 - 1.3.4.2 SmartPower components
 - 1.3.4.3 Power diodes
 - 1.3.4.4 Power factor correction ICs
 - 1.3.4.5 Selenium rectifiers
 - 1.3.4.6 Motor drivers
 - 1.3.4.7 Relay drivers
 - 1.3.4.8 Semiconductor relays
- 1.4 Opto semiconductor components**
 - 1.4.1 LEDs
 - 1.4.2 Laser diodes
 - 1.4.3 Photo ASICs
 - 1.4.4 Photodetectors
 - 1.4.5 Photodiodes
 - 1.4.6 Photo logic
 - 1.4.7 Photosensor fields
 - 1.4.8 Phototransistors
 - 1.4.9 Photo reproduction equipment
 - 1.4.10 Photovoltaic elements
 - 1.4.11 Photoresistors
 - 1.4.12 Infrared products
 - 1.4.13 Integrated optical products, miscellaneous
 - 1.4.14 Laser components
 - 1.4.15 Luminescent foils
 - 1.4.16 Opto couplers
 - 1.4.17 Photonics components, miscellaneous
 - 1.4.18 Transceivers, electro-optical
 - 1.4.19 CCD components
 - 1.4.20 Optomos switches
 - 1.4.21 Opto semiconductor components, miscellaneous
- 1.5 Accessories for discrete semiconductors**
 - 1.5.1 Transistor clips
 - 1.5.2 Accessories, other
- 1.6 Logic circuits**
 - 1.6.1 ECL circuits**
 - 1.6.1.1 Gate arrays
 - 1.6.1.2 Erasable, programmable logic circuits (EPLD)
 - 1.6.1.3 Programmable logic circuits (PLD/PAL)
 - 1.6.1.4 Standard ECL circuits, miscellaneous
 - 1.6.1.5 Driver ICs
 - 1.6.2 TTL circuits**
 - 1.6.2.1 Gate arrays
 - 1.6.2.2 Erasable, programmable logic circuits (EPLD)
 - 1.6.2.3 Standard TTL circuits, miscellaneous
 - 1.6.2.4 Driver ICs
 - 1.6.3 MOS and CMOS circuits**
 - 1.6.3.1 Gate arrays
 - 1.6.3.2 Erasable, programmable logic circuits (EPLD)
 - 1.6.3.3 Programmable logic circuits (PLD/PAL)
 - 1.6.3.4 Standard ECL circuits, miscellaneous
 - 1.6.3.5 Driver ICs
 - 1.6.4 Logic circuits, miscellaneous**
 - 1.6.4.1 FPGA ASICs
 - 1.6.4.2 Freely programmable logic (FPLA)
 - 1.6.4.3 Link ICs
- 1.7 Microprocessors (see Embedded systems)**
- 1.8 Memory (see Embedded systems)**
- 1.9 Application-specific ICs (ASSP)**
 - 1.9.1 Multiplexer ICs**
 - 1.9.1.1 Multiplexer ICs for digital signals
 - 1.9.1.2 Multiplexer ICs for analog signals
 - 1.9.2 Radio link ICs**
 - 1.9.2.1 Transceiver ICs
 - 1.9.2.2 Transponder ICs
 - 1.9.2.3 Receiver circuits
 - 1.9.3 Telecom ICs**
 - 1.9.3.1 Mixed-signal ICs
 - 1.9.3.2 Data switching ICs
 - 1.9.3.3 ISDN-ICs
 - 1.9.3.4 Filter ICs**
 - 1.9.3.5 PLL clock synthesizers for SONET**
 - 1.9.3.6 Signal conditioning ICs, miscellaneous**
 - 1.9.3.7 CDMA chip sets**
 - 1.9.3.8 DBV chip sets**
 - 1.9.3.9 Modem ICs**
 - 1.9.3.10 Telecom ICs, miscellaneous**
 - 1.9.4 ICs for audio/video applications**
 - 1.9.4.1 Video decoder ICs
 - 1.9.4.2 Video ICs, analog
 - 1.9.4.3 Video ICs, mixed signal
 - 1.9.4.4 Multimedia chip sets
 - 1.9.4.5 Speech processing ICs
 - 1.9.4.6 Microphone amplifiers
 - 1.9.4.7 Audio frequency amplifier ICs
 - 1.9.5 ICs with switch/control function**
 - 1.9.5.1 Switching regulator ICs
 - 1.9.5.2 Battery backup switch ICs
 - 1.9.5.3 ICs with switch/control function
 - 1.9.6 Application-specific ICs, miscellaneous**
 - 1.9.6.1 Low-power ICs
 - 1.9.6.2 Low-voltage ICs
 - 1.9.6.3 High-voltage circuits (HVICs)
 - 1.9.6.4 ICs for electric clocks
 - 1.9.6.5 Chip sets, miscellaneous
- 1.10 Data/signal transformer ICs**
 - 1.10.1 Signal converter ICs**
 - 1.10.1.1 Analog/digital converter ICs
 - 1.10.1.2 Digital/analog converter ICs
 - 1.10.1.3 Frequency converter ICs with analog output
 - 1.10.1.4 Voltage/frequency converter ICs
 - 1.10.2 Power ICs**
 - 1.10.2.1 DC/DC converter ICs
 - 1.10.2.2 Converter ICs, miscellaneous
 - 1.10.3 Amplifier ICs**
 - 1.10.3.1 Measurement amplifier ICs
 - 1.10.3.2 Log amplifier ICs
 - 1.10.3.3 Sample and hold amplifier ICs
 - 1.10.3.4 Line driver ICs
 - 1.10.3.5 Repeater ICs
 - 1.10.3.6 Power amplifier ICs
 - 1.10.3.7 Amplifier ICs, miscellaneous
- 1.11 ICs, special designs (including ASICs/CSICs)**
 - 1.11.1 Passive ICs**
 - 1.11.1.1 Digital potentiometer ICs
 - 1.11.1.2 Standard cell ICs
 - 1.11.1.3 Mixed-mode ASICs
 - 1.11.2 Active ICs**
 - 1.11.2.1 Embedded control ICs
 - 1.11.2.2 SmartCard products
 - 1.11.2.3 Controller ICs, analog
 - 1.11.3 RF and microwave ICs**
 - 1.11.3.1 GaAs ASICs
 - 1.11.3.2 Mixer ICs
 - 1.11.3.3 Delay lines, active
 - 1.11.3.4 Filter ICs
 - 1.11.3.5 RF amplifier ICs
 - 1.11.3.6 Coupler ICs
 - 1.11.3.7 RF and microwave ICs, miscellaneous
 - 1.11.4 Customized ICs**
 - 1.11.4.1 Customized analog ICs
 - 1.11.4.2 Customized digital ICs
 - 1.11.4.3 Application-specific ICs (ASICs)
 - 1.11.4.4 Building block ICs
 - 1.11.4.5 Control circuits, application-specific
 - 1.11.4.6 Flip chip ICs
 - 1.11.5 Linear special circuits**
 - 1.11.5.1 Comparator ICs
 - 1.11.5.2 ICs for analog/linear tasks, miscellaneous
 - 1.11.5.3 Inverter ICs
 - 1.11.5.4 Regulator ICs (static signal)
 - 1.11.5.5 Voltage divider ICs
 - 1.11.5.6 Voltage regulator ICs

2.1	Development tools, software	2.3.3	Microcomputers	2.5	DDI and other network-technology components
2.1.1	BIOS	2.3.3.1	Embedded PCs	2.5.1	Network subsystems
2.1.2	Real-time operating systems	2.3.3.2	PC 104 boards	2.5.1.1	LAN assemblies
2.1.3	Compilers	2.3.3.3	DSP boards	2.5.1.2	Wireless LAN configurations
2.1.4	Cross software	2.3.3.4	Single-board computers	2.5.1.3	FDDI components, miscellaneous
2.1.5	Debuggers	2.3.4	Digital signal processors	2.5.1.4	Field-bus assemblies
2.1.6	Simulators	2.3.4.1	Computer ICs, miscellaneous	2.5.1.5	Profibus assemblies
2.1.7	Fuzzy tools	2.3.4.2	Digital signal processors (DSP)	2.5.1.6	CAN interfaces
2.1.8	Neuronal networks	2.3.4.3	FPGA-based DSPs	2.5.1.7	Fiberglass/plastic components
2.1.9	Network access/embedded networking	2.3.4.4	Real-time clock ICs	2.5.1.8	ATM network components
2.1.10	DSP libraries	2.3.4.5	Supervisory ICs	2.5.1.9	Fiber-optic terminal devices
2.1.11	Software documentation and quality assurance	2.3.4.6	Digital filter ICs	2.5.1.10	Fiber-optic cables/leads
2.1.12	Real-time high-level language debuggers	2.3.4.7	Interpolation circuits	2.5.1.11	Fiber-optic multi-fiber connectors
2.1.13	IEC 1131-3 development systems	2.3.4.8	DSPs (Digital Signal Processors)	2.5.1.12	Fiber-optic rotary couplers
2.1.14	CASE tools	2.4	Peripheral systems	2.5.1.13	Fiber-optic interfaces
2.1.15	Real-time software tools	2.4.1	CPU peripheral assemblies	2.5.1.14	Fiber-optic splice connectors
2.1.16	HLL debuggers for emulators	2.4.1.1	Magnetic card readers	2.5.1.15	Fiber-optic connection systems, miscellaneous
2.1.17	Embedded TCP/IP stacks	2.4.1.2	Scanners	2.5.1.16	Wireless LAN configurations
2.1.18	Development tools for Internet applications for windowing systems	2.4.1.3	Chip card interfaces	2.5.1.17	Profibus assemblies
2.1.19	In-system programming (FLASH/OTP)	2.4.1.4	Chip card readers	2.5.1.18	Subsystems, miscellaneous
2.1.20	Microprocessor development systems	2.4.1.5	CD-ROM drives	2.5.2	Interfaces
2.1.21	Development systems, software, miscellaneous	2.4.1.6	Disk drives	2.5.2.1	LON assemblies
2.2	Development tools, hardware	2.4.1.7	Hard disks	2.5.2.2	SCSI interfaces
2.2.1	Starter kits	2.4.1.8	Optical memory drive assemblies	2.5.2.3	WAN assemblies
2.2.2	Development assemblies	2.4.1.9	CPU peripheral assemblies, miscellaneous	2.5.2.4	PCMCIA components
2.2.3	Development systems	2.4.1.10	Computer main boards	2.5.2.5	Interfaces, miscellaneous
2.2.4	Programming equipment	2.4.1.11	Interface converters for serial interfaces	2.6	Memories and memory peripherals
2.2.5	In-circuit simulators	2.4.1.12	Graphics subsystems	2.6.1	Memories for workstations and PCs
2.2.6	ROM emulators	2.4.1.13	Memory boards	2.6.1.1	Dynamic RAMs (DRAM)
2.2.7	Background debug mode tools	2.4.1.14	VME bus assemblies/modules	2.6.1.2	Static RAMs (SRAM)
2.2.8	Microprocessor tracers	2.4.1.15	CAN bus modules	2.6.1.3	Cache RAMs
2.2.9	Pentium processor debug tools	2.4.1.16	LIN bus modules	2.6.1.4	RAMs (read/write memories)
2.2.10	VXI, PMC, compact PCI analyzers	2.4.1.17	Input/output modules	2.6.1.5	Rambus dynamic RAMs
2.2.11	Development tools, hardware, miscellaneous	2.4.1.18	PC-card modules	2.6.1.6	Multiport RAMs
2.3	Hardware	2.4.1.19	Assemblies/modules, miscellaneous	2.6.1.7	Video memories
2.3.1	Microprocessors	2.4.2	Modulators	2.6.1.8	Cache memories
2.3.1.1	8 bit processors	2.4.2.1	Modems, single-chip	2.6.1.9	Combo memory modules
2.3.1.2	16 bit processors	2.4.2.2	QPSK modulators	2.6.1.10	Memories, miscellaneous
2.3.1.3	32 bit processors	2.4.2.3	Pulse code modulator ICs	2.6.2	Memories for other uses
2.3.1.4	64 bit processors	2.4.2.4	Pulse width modulator ICs	2.6.2.1	Memory cards
2.3.1.5	RISC processors	2.4.3	Coders/decoders	2.6.2.2	FIFO memories
2.3.1.6	Multimedia/video processors	2.4.3.1	MPEG coder/decoder ICs	2.6.2.3	Nonvolatile memories
2.3.1.7	Crypto-controllers	2.4.3.2	Voice coder/decoder ICs	2.6.2.4	Programmable read-only memories (PROM/EPROM)
2.3.1.8	Multiprocessor ICs	2.4.3.3	CODEC ICs, miscellaneous	2.6.2.5	Erasable read-only memories (EROM/EEROM/E2ROM)
2.3.1.9	Microprocessor cores	2.4.4	ICs for bus systems	2.6.2.6	Output latches
2.3.1.10	x86 processors	2.4.4.1	Token-ring chip sets	2.6.2.7	Registers and other memory products
2.3.1.11	Processors with Multi Media Extention, MMX	2.4.4.2	Ethernet chip sets	2.6.2.8	ROMs (read-only memories), miscellaneous
2.3.1.12	Graphics processors	2.4.4.3	LAN controllers	2.7	System solutions
2.3.1.13	Coprocessors	2.4.4.4	Bus controller ICs	2.7.1	Fully equipped industrial PCs
2.3.1.14	Microprocessors, miscellaneous	2.4.4.5	Transmission systems chip sets	2.7.2	PC assemblies
2.3.2	Microcontrollers	2.4.4.6	ATM chip sets	2.7.3	VME bus PCs
2.3.2.1	8 bit microcontrollers	2.4.4.7	PCI interface ICs	2.7.4	Multibus PCs
2.3.2.2	16 bit microcontrollers	2.4.4.8	PCI bridge chips	2.7.5	Compact PCI Systems
2.3.2.3	32 bit microcontrollers	2.4.4.9	USB ICs	2.7.6	Real-time platforms
2.3.2.4	64 bit microcontrollers	2.4.4.10	Bus-oriented ICs, miscellaneous	2.7.7	Industrial PCs, miscellaneous
2.3.2.5	Application-specific controllers			2.7.8	Memory modules
2.3.2.6	CAN controllers			2.7.9	Modems
2.3.2.7	ARINC controllers			2.7.10	Carriers
2.3.2.8	Controllers, miscellaneous			2.7.11	Software
				2.7.12	I/O modules
				2.7.13	CAN bus modules
				2.7.14	Ethernet modules
				2.7.15	PC cards, miscellaneous

3 Displays

- 3.1 Liquid Crystal Display (LCD)**
 - 3.1.1 LCD monitors
 - 3.1.2 LCD displays, passive (STN, DSTN)
 - 3.1.3 LCD displays, active (TFT)
 - 3.1.4 Liquid crystal display elements
- 3.2 Plasma Display Panel (PDP)**
 - 3.2.1 Plasma monitors
 - 3.2.2 Plasma display elements
- 3.3 Cathode Ray Tube (CRT)**
 - 3.3.1 CRT monitors
 - 3.3.2 Cathode Ray Tube
- 3.4 Vacuum Fluorescent Display (VFD)**
 - 3.4.1 VFD monitors
 - 3.4.2 Vacuum Fluorescent Display Elements
- 3.5 Organic Light-Emitting Diode (OLED)**
 - 3.5.1 OLED monitors
 - 3.5.2 OLED displays
- 3.5.3 LEP displays
- 3.5.4 Polymer light-emitting diodes (PLED)
- 3.5.5 Small-molecule OLEDs (SMOLED)
- 3.6 EL Display**
 - 3.6.1 ELD monitors
 - 3.6.2 EL display elements
- 3.7 Field Emission Display (FED)**
 - 3.7.1 FED monitors
 - 3.7.2 Field emission display elements
- 3.8 Light-Emitting Diode (LED)**
 - 3.8.1 LED monitors
 - 3.8.2 LED display elements
- 3.9 Surface Conduction Emitter Display (SED)**
 - 3.9.1 SED monitors
 - 3.9.2 SE display elements
- 3.10 Projection display**
 - 3.10.1 Projection display monitors
 - 3.10.2 Projection display elements
- 3.11 E-Paper**
 - 3.11.1 EP monitors
 - 3.11.2 EP display elements
- 3.12 Peripheral equipment for displays**
 - 3.12.1 Signaling and illuminating elements
 - 3.12.1.1 Light-emitting diodes (LED)
 - 3.12.1.2 Bicolor display elements
 - 3.12.1.3 Cold Cathode Fluorescent Lamp (CCFL)
 - 3.12.1.4 EL lamps
 - 3.12.1.5 Background lighting for LCD
 - 3.12.2 Display mountings
 - 3.12.3 AD signal processor
 - 3.12.4 Touch panel
 - 3.12.5 Inverter LCD
 - 3.12.6 Inverter TFT
 - 3.12.7 Display interconnection systems/components
 - 3.12.8 Power supplies
 - 3.12.9 Display filters

4 Micronano-systems

- 4.1 Microsystems**
 - 4.1.1 Microswitches
 - 4.1.2 Micro-optics**
 - 4.1.2.1 Glasses
 - 4.1.2.2 Polymers
 - 4.1.2.3 Silicon
 - 4.1.2.4 Fiber optics
 - 4.1.2.5 Planar fibers
 - 4.1.2.6 Mirror systems
 - 4.1.2.7 Micro-optics, miscellaneous
 - 4.1.3 Mounting, housing and bonding technology
 - 4.1.4 Microsensor systems**
 - 4.1.4.1 GMR magnetic bridge sensors
 - 4.1.4.2 Optical sensors
 - 4.1.4.3 Chemical FET
 - 4.1.4.4 Metal-oxide film gas sensors
 - 4.1.4.5 Capillary electrophoresis
 - 4.1.4.6 Chromatography techniques
 - 4.1.4.7 Microflow injection analysis
 - 4.1.4.8 Microsensor systems, miscellaneous
 - 4.1.5 Microactuators**
 - 4.1.5.1 Electrostatic MAs
 - 4.1.5.2 Electromagnetic MAs
 - 4.1.5.3 Piezoelectric MAs
 - 4.1.5.4 Thermomechanical MAs
 - 4.1.5.5 Thermopneumatic MAs
 - 4.1.5.6 Shape memory alloy MAs
 - 4.1.5.7 Magnetostrictive MAs
 - 4.1.6 Microactuators, miscellaneous
 - 4.1.7 Microsubsystems**
 - 4.1.7.1 Microvalves
 - 4.1.7.2 Micropumps
 - 4.1.7.3 Micromixers
 - 4.1.7.4 Micro thermo exchangers
 - 4.1.7.5 Microspectrometers
 - 4.1.7.6 Planar motors
 - 4.1.7.7 Microgears
 - 4.1.7.8 Microsubsystems, miscellaneous
 - 4.1.8 Development and simulation tools for microsystems
 - 4.1.8.1 Layout systems, 3D
 - 4.1.8.2 Hardware description languages
 - 4.1.8.3 Simulation of production processes
 - 4.1.8.4 Component simulation and analysis
 - 4.1.8.5 Functional simulation
 - 4.1.8.6 System simulation
 - 4.1.8.7 EMI simulation
 - 4.1.8.8 Development and simulation tools for microsystems, miscellaneous
 - 4.1.9 Test and measurement equipment for microsystems
 - 4.1.10 Components for sensors and microsystems
 - 4.2 MEMS**
 - 4.2.1 RF MEMS**
 - 4.2.1.1 Switches
 - 4.2.1.2 Capacitors
 - 4.2.1.3 Tunable capacitors
 - 4.2.1.4 Microinductors
 - 4.2.1.5 Tunable inductors
 - 4.2.1.6 Micromechanical resonators
 - 4.2.1.7 Cavity resonators
 - 4.2.1.8 FBAR resonators
 - 4.2.1.9 Tunable filters
 - 4.2.1.10 Micromachined antennas
 - 4.2.1.11 Micromachined transmission lines
 - 4.2.1.12 Phase shifters
 - 4.2.1.13 RF MEMS, miscellaneous
 - 4.2.2 Optical MEMS**
 - 4.2.2.1 2D optical switches
 - 4.2.2.2 3D optical switches
 - 4.2.2.3 OXC Optical Cross Connects
 - 4.2.2.4 Tunable filters
 - 4.2.2.5 VOA (Variable Optical Attenuators)
 - 4.2.2.6 Mux/Demux modules
 - 4.2.2.7 Add/Drop modules
 - 4.2.2.8 AWG (Arrayed Waveguides)
 - 4.2.2.9 V grooves
 - 4.2.2.10 Fibre-alignment parts
 - 4.2.2.11 Microoptical lenses
 - 4.2.2.12 Optical bench
 - 4.2.2.13 Micromirrors
 - 4.2.2.14 Microspectrometer
 - 4.2.2.15 Image sensors
 - 4.2.2.16 Optical MEMS, miscellaneous
 - 4.2.3 MEMS sensors**
 - 4.2.3.1 Single-axis accelerometers
 - 4.2.3.2 Multiple-axis accelerometers
 - 4.2.3.3 Angular accelerometers
 - 4.2.3.4 Gyroscopes (rotation)
 - 4.2.3.5 Piezoresistive pressure
 - 4.2.3.6 Capacitive pressure
 - 4.2.3.7 Mass flow (gas)
 - 4.2.3.8 Mass flow (liquid)
 - 4.2.3.9 Fingerprint sensors
 - 4.2.3.10 Micromachined microphones
 - 4.2.3.11 MEMS sensors, miscellaneous
 - 4.2.4 MEMS actuators**
 - 4.2.4.1 Micronozzles
 - 4.2.4.2 Microvalves
 - 4.2.4.3 Rotational microactuators
 - 4.2.4.4 Linear microactuators
 - 4.2.4.5 MEMS actuators, miscellaneous
 - 4.2.5 Bio MEMS**
 - 4.2.5.1 Microfluidic
 - 4.2.5.2 Microtiterplate
 - 4.2.5.3 Microelectrode for organic materials
 - 4.2.5.4 Bio sensors
 - 4.2.5.5 Electrochemical sensors
 - 4.2.5.6 Bio MEMS, miscellaneous
 - 4.2.6 MEMS packaging technology and services**
 - 4.2.6.1 Single-Chip Packaging (SCP)
 - 4.2.6.2 Wafer-based SCP
 - 4.2.6.3 Wafer Level Packaging
 - 4.2.6.4 MEMS packaging technology and services, miscellaneous
- 4.3 Nanotechnology**

5 Sensor technology

- 5.1 Sensors for geometrical parameters**
 - 5.1.1 Angle, location
 - 5.1.2 Rotary encoders
 - 5.1.3 Inclination, tilt
 - 5.1.4 Distance, length, elevation
 - 5.1.5 Level, depth
 - 5.1.6 Volume, diameter, particle size
 - 5.1.7 Coat thickness, roughness
 - 5.1.8 Position, contour (2D/3D)
 - 5.1.9 Other parameters
- 5.2 Sensors for mechanical parameters**
 - 5.2.1 Force, torque, torsion, stress
 - 5.2.2 Pressure (gauge, absolute, differential)
 - 5.2.3 Mass, density, volume
 - 5.2.4 Extension, tension
 - 5.2.5 Friction, damping
 - 5.2.6 Hardness, elasticity, viscosity
 - 5.2.7 Other parameters
- 5.3 Sensors for time and time-based parameters**
 - 5.3.1 Time, duration, time constants
 - 5.3.2 Wavelength, frequency, oscillation, rmp
 - 5.3.3 Speed
 - 5.3.4 Acceleration, vibration, shock
 - 5.3.5 Event counting, occurrence
 - 5.3.6 Radioactivity
 - 5.3.7 Flow, volume, current (gases)
 - 5.3.8 Flow, volume, current (liquids)
 - 5.3.9 Other parameters

- 5.4 Sensors for temperature and caloric parameters**
 - 5.4.1 Temperature, temperature distribution
 - 5.4.2 Heat, heat distribution, thermal conductivity
 - 5.4.3 Other parameters
- 5.5 Sensors for climatic parameters**
 - 5.5.1 Humidity (gas), evaporation, precipitation, dew point, condensation
 - 5.5.2 Humidity (solid matter)
 - 5.5.3 Particle density
 - 5.5.4 Wind direction, wind force, wind velocity
 - 5.5.5 Barometric pressure
 - 5.5.6 Room climate
 - 5.5.7 Immission
 - 5.5.8 Other parameters
 - 5.5.9 CO₂ sensor
- 5.6 Sensors for optical and acoustic parameters**
 - 5.6.1 Light intensity
 - 5.6.2 Radiation
 - 5.6.3 Opacity, absorption, transmission
 - 5.6.4 Refraction, reflexion, remission, brilliancy
 - 5.6.5 Chromaticity
 - 5.6.6 Image detection, image evaluation
 - 5.6.7 Sound, solid-borne sound, volume
 - 5.6.8 Other parameters

- 5.7 Sensors for electrical and magnetical parameters**
 - 5.7.1 Voltage, current
 - 5.7.2 Charge, capacitance
 - 5.7.3 Field strength
 - 5.7.4 Resistance, conductivity
 - 5.7.5 Inductivity
 - 5.7.6 Power, energy
 - 5.7.7 Other parameters
- 5.8 Sensors for chemical parameters**
- 5.9 Sensors for biological parameters**
- 5.10 Sensor elements by technology**
 - 5.10.1 Potentiometer and resistive sensor elements
 - 5.10.2 Inductive
 - 5.10.3 Capacitive
 - 5.10.4 Optoelectronic
 - 5.10.5 Magnetic
 - 5.10.6 Piezo electrical
 - 5.10.7 Ultrasonic
 - 5.10.8 UV and IR
 - 5.10.9 Laser
 - 5.10.10 Radar
 - 5.10.11 X-rays
 - 5.10.12 Biometric
 - 5.10.13 Other technologies

6 Test and measurement

- 6.1 Measuring/testing of geometric parameters**
 - 6.1.1 Linear measurement devices
 - 6.1.2 GPS positioning systems
- 6.2 Mechanical parameters**
 - 6.2.1 Torque measurement equipment
 - 6.2.2 Force meters
 - 6.2.3 Pressure meters
 - 6.2.4 Scale equipment
 - 6.2.5 Mechanical parameters, miscellaneous
- 6.3 Time and time-based parameters**
 - 6.3.1 Acceleration meters
 - 6.3.2 RPM measurement
 - 6.3.3 Speed measurement
 - 6.3.4 Time/frequency distribution equipment (networks)
 - 6.3.5 Time counters
 - 6.3.6 Frequency and time standards
- 6.4 Thermal units**
 - 6.4.1 Temperature meters
 - 6.4.2 Micro-thermographs without contact
- 6.5 Environmental parameters**
 - 6.5.1 Humidity meters, relative air
 - 6.5.2 Shock, vibration meters
- 6.6 Chemical and biological parameters**
- 6.7 Optical and acoustical parameters**
 - 6.7.1 Optical spectrum analyzers
 - 6.7.2 Optical time domain reflectometers
 - 6.7.3 Optical power meters
 - 6.7.4 Optical network analyzers
 - 6.7.5 Optical attenuators
 - 6.7.6 Optical polarization analyzers
 - 6.7.7 Optical signal generators
 - 6.7.8 Optical amplifiers
 - 6.7.9 Optical multimeters
 - 6.7.10 Fiber optic measurement equipment, miscellaneous
 - 6.7.11 Sound level meters

- 6.8 Image/pattern recognition and processing**
 - 6.8.1 Image-processing software
 - 6.8.2 Identification systems
 - 6.8.3 Lighting systems for image/pattern recognition
 - 6.8.4 Optical inspection systems
 - 6.8.5 Technical endoscopes
 - 6.8.6 Equipment for image/pattern recognition and processing, miscellaneous
- 6.9 Electrical parameters**
 - 6.9.1 Analog measurement techniques**
 - 6.9.1.1 RF measurement equipment**
 - 6.9.1.1.1 Frequency counters
 - 6.9.1.1.2 Power meters
 - 6.9.1.1.3 Spectrum analyzers
 - 6.9.1.1.4 Reflectometers
 - 6.9.1.1.5 Measurement receivers
 - 6.9.1.1.6 Network analyzers, scalar
 - 6.9.1.1.7 Network analyzers, vector
 - 6.9.1.1.8 Signal generators
 - 6.9.1.1.9 Sweep generators
 - 6.9.1.1.10 Noise-figure meters
 - 6.9.1.1.11 Measurement equipment for electrical/magnetic parameters, miscellaneous
 - 6.9.1.2 Microwave measurement equipment
 - 6.9.1.3 EMI measurement techniques**
 - 6.9.1.3.1 EMI measurement receivers
 - 6.9.1.3.2 EMI test systems
 - 6.9.1.3.3 EMC test-site equipment
 - 6.9.1.3.4 Field-strength measurement devices
 - 6.9.1.3.5 Probes
 - 6.9.1.3.6 Antennas
 - 6.9.1.3.7 ESD testers
 - 6.9.1.3.8 Magnetic-field measurement equipment
 - 6.9.1.3.9 Standards for electrical/magnetic parameters
 - 6.9.1.3.10 LISNs
 - 6.9.1.3.11 Power amplifiers
 - 6.9.1.3.12 Surge and burst test equipment
 - 6.9.1.3.13 Testing electrical/magnetic properties, other devices for

- 6.9.1.4 Accessories for RF and μ W measurement equipment**
 - 6.9.1.4.1 Measurement bridges
 - 6.9.1.4.2 Reflection bridges
 - 6.9.1.4.3 Calibration kits
 - 6.9.1.4.4 Power sensors
 - 6.9.1.4.5 High-frequency test tips
 - 6.9.1.4.6 Attenuators
 - 6.9.1.4.7 Detectors
 - 6.9.1.4.8 Power splitters
 - 6.9.1.4.9 Couplers
 - 6.9.1.4.10 Mixers
 - 6.9.1.4.11 Test sets
 - 6.9.1.4.12 Noise generators
 - 6.9.1.4.13 RF measurement cables
- 6.9.1.5 Audio measurement equipment**
 - 6.9.1.5.1 Level meters
 - 6.9.1.5.2 Distortion factor measurement devices
 - 6.9.1.5.3 Signal analyzers, also FFT
 - 6.9.1.5.4 Signal generators
- 6.9.1.6 General-purpose measurement equipment**
 - 6.9.1.6.1 Voltmeters
 - 6.9.1.6.2 Current meters
 - 6.9.1.6.3 Power meters
 - 6.9.1.6.4 Multimeters, voltmeters
 - 6.9.1.6.5 Signal generators
 - 6.9.1.6.6 Function generators
 - 6.9.1.6.7 Pulse generators
 - 6.9.1.6.8 Arbitrary waveform generators
 - 6.9.1.6.9 Oscilloscopes
 - 6.9.1.6.10 Resistance meters
 - 6.9.1.6.11 Impedance meters
 - 6.9.1.6.12 Capacitance meters
 - 6.9.1.6.13 Inductivity meters
 - 6.9.1.6.14 Pulse counters
 - 6.9.1.6.15 Transient-value recorders
 - 6.9.1.6.16 Transmission-time measurement devices
 - 6.9.1.6.17 Energy-consumption measurement
 - 6.9.1.6.18 Powerline measurement equipment IEC 1000-3-3
 - 6.9.1.6.19 Power analyzers/disturbance analyzers

6 Test and measurement

6.9.1.6.20	Measurement equipment, miscellaneous	6.9.5	Protective-measure test devices	6.9.8.6	Standards for measurement/testing
6.9.1.7	Current sinks	6.9.5.1	Ground test equipment	6.9.8.7	Calibration equipment, passive
6.9.1.7.1	Resistive loads	6.9.5.2	Insulation testers	6.9.8.8	Measurement/analysis devices for laboratory examinations, miscellaneous
6.9.1.7.2	Inductive loads	6.9.5.3	High-voltage testers	6.9.8.9	Measured-value amplifiers
6.9.1.7.3	Capacitive loads	6.9.5.4	Short-circuit localization devices	6.9.8.10	Probes
6.9.1.7.4	Variable loads	6.9.5.5	Safety testers, multitesters	6.9.8.11	Differential probes
6.9.1.7.5	Programmable loads	6.9.6	Test systems	6.9.8.12	Testing aids, miscellaneous
6.9.1.8	Hand-held measurement equipment	6.9.6.1	Semiconductor test systems	6.9.8.13	Adapters for component testing
6.9.1.8.1	Multimeters	6.9.6.2	IC testers	6.9.8.14	Probe cards
6.9.1.8.2	Oscilloscopes	6.9.6.3	Mixed-signal test systems	6.9.8.15	Bed-of-nails adapters
6.9.1.8.3	LWL multimeters	6.9.6.4	Board testers	6.9.8.16	Test fixtures, miscellaneous
6.9.2	Digital measurement equipment	6.9.6.5	Boundary scan board test systems	6.9.8.17	Test pins
6.9.2.1	Logic analyzers	6.9.6.6	In-circuit testers	6.9.8.18	Test pin arrays
6.9.2.2	Logic generators, word generators	6.9.6.7	Functional testers	6.9.8.19	Connection testers
6.9.2.3	Embedded software and verification tools	6.9.6.8	Combination testers (in-circuit & function)	6.9.8.20	Measurement cables/leads
6.9.2.4	Digital measurement equipment, miscellaneous	6.9.6.9	VXI bus test systems	6.9.8.21	Measurement data-transmission equipment
6.9.3	Communication test equipment	6.9.6.10	VME bus test systems	6.9.8.22	PC instrumentation
6.9.3.1	PCM/PDH test equipment	6.9.6.11	Benchtop ATEs, miscellaneous	6.9.8.23	Analog registration devices
6.9.3.2	Sonet/SDH test equipment	6.9.6.12	Real-time measured-value acquisition systems	6.9.8.24	Peripheral equipment, miscellaneous
6.9.3.3	ATM analyzers	6.9.6.13	Adapters for assembly testing	6.10	Specialized laboratory/test equipment
6.9.3.4	Protocol analyzers	6.9.6.14	Test systems without adapters	6.10.1	Aging test equipment
6.9.3.5	LAN analyzers	6.9.6.15	Measurement-data acquisition systems with distributed sensors	6.10.2	Burn-in equipment
6.9.3.6	WAN analyzers	6.9.6.16	Multiple-channel measurement systems (loggers)	6.10.3	Identification tools
6.9.3.7	VXI, PMC, compact PCI analyzers	6.9.6.17	Computer-aided measurement/analysis systems (CAMA)	6.10.4	Component assortment
6.9.3.8	PCI bus analyzers and measurement adapters	6.9.6.18	Component testers for electronics (hardware-specific)	6.10.5	Shielded rooms
6.9.3.9	USB analyzers	6.9.6.19	Power supply test equipment	6.10.6	Erasers for EPROMs
6.9.3.10	Data analyzers	6.9.6.20	Cable test systems	6.10.7	Measurement cabinets and chambers
6.9.3.11	Bus testers	6.9.6.21	Test systems, miscellaneous	6.10.8	Mains filters for laboratory purposes
6.9.3.12	Fiber-optic measurement equipment	6.9.7	Software tools for test systems	6.10.9	Programming equipment
6.9.3.13	Precision frequency sources	6.9.7.1	Data evaluation tools for measurement purposes	6.10.10	Visual inspection (with image processing)
6.9.3.14	CATV measurement equipment	6.9.7.2	Databases, measurement technologies	6.10.11	Environmental simulation/test equipment
6.9.3.15	TV and radio measurement equipment	6.9.7.3	Simulators	6.10.12	Radiation sources for measurement purposes
6.9.4	Mobile radio measurement equipment	6.9.7.4	Simulation software	6.10.13	Reference voltage sources
6.9.4.1	Test systems for analog mobile radios	6.9.7.5	ATE software	6.10.14	Reference current sources
6.9.4.2	Test systems for digital mobile radios	6.9.8	Peripheral equipment	6.10.15	Time standards
6.9.4.3	Signal generators for digital mobile radio transmission	6.9.8.1	DSP cards	6.10.16	Hand tools
6.9.4.4	Analyzers for digital mobile radio transmission	6.9.8.2	A/D converter cards	6.10.17	Special electronics hand tools
6.9.4.5	Geographical radio-coverage analysis systems	6.9.8.3	D/A converter cards	6.10.18	ESD hand tools
6.9.4.6	Type-approval test systems	6.9.8.4	Laboratory instrumentation accessories	6.10.19	Lab furniture
		6.9.8.5	Laboratory mains equipment	6.10.20	ESD benches
				6.10.21	Specialized laboratory/test equipment, miscellaneous

7 Electronic Design (ED/EDA)

7.1	CAD/CAE tools	7.4.3	System integration programs	7.6.1.12	PGA design for ASICs
7.1.1	Development software	7.4.4	Thermoanalysis software	7.6.1.13	Characterization and optimization of magnetic components
7.1.1.1	CAD/CAM interface software	7.4.5	Software packages/tools, miscellaneous	7.6.1.14	Development of synthesis-capable functional models
7.1.1.2	Chip design programs	7.4.6	Compilers	7.6.1.15	Development services, miscellaneous
7.1.1.3	Design programs, miscellaneous/specialized	7.4.7	Libraries/databases	7.6.2	Manufacturing services
7.1.1.4	Design-to-test software	7.4.8	Real-time operating systems	7.6.2.1	Prototype construction, housings
7.1.1.5	RF design programs	7.4.9	Emulators	7.6.2.2	Burn-in services
7.1.1.6	VHDL development systems	7.4.10	Customized software	7.6.2.3	Operating life testing
7.2	Generation software	7.5	Peripheral equipment for ED/EDA environments	7.7	Design and development systems
7.2.1	Circuit optimization routines	7.5.1	Data terminals	7.7.1	Analog design tools, miscellaneous
7.2.2	Layout editors	7.5.2	Card readers	7.7.2	ASIC design tools
7.2.3	Routers for EDA	7.6	ED/EDA services	7.7.3	PCB design tools
7.2.4	Modeling programs	7.6.1	Development services	7.7.4	Design and development systems, miscellaneous
7.2.5	Board design programs	7.6.1.1	Software development		
7.2.6	Synthesis tools	7.6.1.2	PCB design technology consulting		
7.2.7	Debuggers	7.6.1.3	Circuit optimization services		
7.2.8	Line optimizers for place machines	7.6.1.4	Fault analysis		
7.3	Test software	7.6.1.5	Release testing		
7.3.1	Simulation programs	7.6.1.6	Gate-array design for ASICs		
7.3.2	Diagnostic programs	7.6.1.7	Standard-cell design for ASICs		
7.3.3	Verification programs	7.6.1.8	ASIC design services for other architectures		
7.3.4	EMI/EMC test software	7.6.1.9	Miniaturization development		
7.3.5	Application software, miscellaneous	7.6.1.10	Customized circuit development, digital, analog, mixed-signal design		
7.4	Software for special applications	7.6.1.11	Customized circuit development, RF and μ W design		
7.4.1	Software design programs, CASE tools				
7.4.2	Software for electronic labs				

8.1	Inductors and accessories	8.3.2.10	Nonlinear resistors	8.4.9.1	Filters
8.1.1	DC Inductors, Filter reactors	8.3.2.11	Controllable resistors	8.4.9.1.1	L/C filter arrays
8.1.2	Laminated core inductors	8.3.2.12	Motor potentiometers	8.4.9.1.2	R/C filter arrays
8.1.3	Coils with powder cores/ferrite cores	8.3.2.13	Variable resistors, miscellaneous	8.4.9.1.3	YIG filters
8.1.4	Aircore coils	8.4	Radiofrequency and microwave components	8.4.9.1.4	Surface acoustic wave filters (SAW filters)
8.1.5	Planar transformers	8.4.1	Antennas and antenna accessories	8.4.9.1.5	Crystal filters
8.1.6	SMD inductors	8.4.1.1	Antennas	8.4.9.1.6	Ceramic filters
8.1.7	Foil coils component sets	8.4.1.2	Antenna components	8.4.9.1.7	Coupling filters
8.1.8	Magnetic tape heads	8.4.1.3	Absorbers	8.4.9.1.8	Customized filters
8.1.9	Inrush current limiters	8.4.1.4	Tuner units	8.4.9.1.9	Filters, miscellaneous
8.1.10	Deflection coils	8.4.1.5	Antenna accessories, miscellaneous	8.4.9.2	Resonators
8.1.11	Line transformers	8.4.2	Signal transmission, RF	8.4.9.2.1	Microwave ceramics
8.1.12	Ignition spark transformers	8.4.2.1	Waveguides	8.4.9.2.2	Surface acoustic wave resonators (SAW resonators)
8.1.13	Low frequency transformers	8.4.2.2	Waveguide components	8.4.9.2.3	Cavity resonators
8.1.14	Isolation transformers	8.4.2.3	Waveguide systems, miscellaneous	8.4.9.2.4	Resonators, miscellaneous
8.1.15	Power transformers	8.4.2.4	Directional couplers, coaxial	8.4.9.3	Oscillators
8.1.16	L/C networks (PFC)	8.4.2.5	Directional couplers, waveguide	8.4.9.3.1	Crystal oscillators
8.1.17	Pressed cores	8.4.2.6	Circulators	8.4.9.3.2	VCXO modules
8.1.18	Inductor cores	8.4.2.7	Isolators	8.4.9.3.3	TCXO modules
8.1.19	Metal powder inductor cores	8.4.2.8	Signal transmission, RF, miscellaneous	8.4.9.3.4	OCXO modules
8.1.20	Inductors, miscellaneous	8.4.2.9	RF transformers	8.4.9.3.5	Programmable oscillators
8.1.21	Accessories, miscellaneous	8.4.3	RF switches	8.4.9.3.6	Crystal oscillators, miscellaneous
8.2	Capacitors	8.4.3.1	Waveguide switches	8.4.9.3.7	Oscillators for SMT
8.2.1	Capacitors, fixed	8.4.3.2	Waveguide switching systems	8.4.9.3.8	Tuning-fork oscillators
8.2.1.1	Aluminum electrolytic capacitors	8.4.3.3	Matrix switches	8.4.9.3.9	Synthesizer modules
8.2.1.2	Capacitor networks	8.4.3.4	Coaxial relays	8.4.9.3.10	Oscillator modules, miscellaneous
8.2.1.3	Film capacitors	8.4.3.5	Coaxial switches	8.4.10	Tubes
8.2.1.4	High-voltage capacitors	8.4.3.6	PIN diode switches	8.4.10.1	X-ray tubes
8.2.1.5	Ceramic capacitors	8.4.3.7	Multiplexers	8.4.10.2	Transmitter tubes
8.2.1.6	Capacitors with non-standard dielectrics	8.4.3.8	RF switches, miscellaneous	8.4.10.3	Generator tubes
8.2.1.7	Capacitors, special design	8.4.4	Signal influencing	8.4.10.4	Microwave tubes
8.2.1.8	Plastic capacitors	8.4.4.1	Power splitters	8.4.10.5	Specialized tubes
8.2.1.9	Power capacitors	8.4.4.2	Combiners	8.4.10.6	Vacuum switching elements
8.2.1.10	SMD capacitors	8.4.4.3	Step attenuators	8.4.10.7	Traveling wave tubes
8.2.1.11	Tantalum electrolytic capacitors	8.4.4.4	Attenuators	8.4.10.8	Tubes, miscellaneous
8.2.1.12	Ultra capacitors	8.4.4.5	Phase shifters	8.5	Polymer components
8.2.1.13	Capacitors, miscellaneous	8.4.4.6	Delay lines	8.6	Nonlinear high-voltage components
8.2.2	Capacitors, variable	8.4.4.7	Mixers	8.6.1	2-electrode arresters
8.2.2.1	Rotary capacitors	8.4.4.8	Limiters	8.6.2	3-electrode arresters
8.2.2.2	Trimmer capacitors with solid dielectrics	8.4.4.9	Components for signal modification, miscellaneous	8.6.3	Switching spark gaps
8.2.2.3	Air dielectric variable capacitors	8.4.5	LTCC (Low-Temperature Co-fired Ceramics)	8.6.4	Starters for gas discharge tubes
8.3	Resistors (including R networks)	8.4.6	Accessories	8.7	Passive components, miscellaneous
8.3.1	Fixed resistors	8.4.6.1	Loads, chip	8.8	Piezoelectric components
8.3.1.1	Individual fixed resistors, standard	8.4.6.2	Loads, coax	8.8.1	Piezoelectric signal generators
8.3.1.2	SMD resistors	8.4.6.3	Loads, waveguide	8.8.2	Piezoceramic wares
8.3.1.3	SMD resistor networks	8.4.6.4	Rotary couplings	8.8.3	Piezo foils
8.3.1.4	High-voltage resistors	8.4.6.5	Seals	8.8.4	Piezo actuators
8.3.1.5	Power resistors, air-cooled	8.4.6.6	Bias tees	8.9	Magnetic and electronic ceramic products
8.3.1.6	Power resistors, water-cooled	8.4.6.7	DC blocks	8.9.1	AlNiCo magnets
8.3.1.7	Measurement resistors	8.4.6.8	Adapters, coax-waveguide	8.9.2	Hard-ferrite magnets
8.3.1.8	Calibration resistors	8.4.6.9	Adapters, coax-coax	8.9.3	Plastic-bonded hard-ferrite magnets
8.3.1.9	Resistor combinations/networks	8.4.6.10	Circulators, coax	8.9.4	Plastic-bonded neodymium iron boron magnets
8.3.1.10	Varistors	8.4.6.11	Circulators, waveguide	8.9.5	Magnetic systems
8.3.1.11	NTC thermistors	8.4.6.12	Accessories, miscellaneous	8.9.6	Soft-ferrite products
8.3.1.12	PTC thermistors	8.4.7	Passive microwave components, miscellaneous	8.9.7	Neodymium iron boron magnets
8.3.1.13	Fixed resistors, miscellaneous	8.4.8	Microwave components, active	8.9.8	Samarium cobalt magnets
8.3.2	Variable resistors	8.4.8.1	Mixers	8.9.9	Ferroelectric ceramic tubes
8.3.2.1	Wire-wound potentiometers	8.4.8.2	Amplifiers	8.9.10	Ferroelectric ceramic perls
8.3.2.2	Conductive plastic potentiometers	8.4.8.3	Frequency multipliers	8.9.11	Ceramic molded parts
8.3.2.3	Layered potentiometers	8.4.8.4	YIG components	8.9.12	Ceramic insulation inserts
8.3.2.4	Precision potentiometers	8.4.8.5	Microwave components, active, miscellaneous	8.9.13	Magnetic and electronic ceramic products, miscellaneous
8.3.2.5	Rotary potentiometers	8.4.9	Filters, resonators and oscillators		
8.3.2.6	Linear potentiometers				
8.3.2.7	Sliding resistors				
8.3.2.8	Trimmer resistors				
8.3.2.9	Adjustable resistors, miscellaneous				

9.1	Switches and keyboards	9.1.7.1	Panel membranes for keyboards	9.2.2.10	Plug-in connectors for insulation displacement assembly
9.1.1	Switches for continuous connection	9.1.7.2	Separation membranes for keyboards	9.2.3	Connectors, PCB-mountable
9.1.1.1	Encoder switches	9.1.7.3	Silicone keypads for keyboards	9.2.3.1	Fine-pitch connectors
9.1.1.2	DIL switches	9.1.7.4	Silicone rubber key pads	9.2.3.2	Card plug-in connectors
9.1.1.3	Dial/rotary switches	9.1.7.5	Piezo keys	9.2.3.3	PCB connection systems
9.1.1.4	Push-button switches	9.1.7.6	LCD single keys	9.2.3.4	PCB connectors
9.1.1.5	Remote-control switches, miscellaneous	9.1.7.7	Key modules	9.2.3.5	DIP plug-in connectors
9.1.1.6	Manually activated switches, miscellaneous	9.1.8	Initiation devices, manually activated	9.2.3.6	SM-capable connectors
9.1.1.7	Toggle switches	9.1.8.1	Console components	9.2.3.7	Ball-grid array adapters
9.1.1.8	Multiplexers	9.1.8.2	User consoles for night usage	9.2.3.8	SM test points
9.1.1.9	Matrix switches	9.1.8.3	Input systems	9.2.4	Sockets
9.1.1.10	PCB switches	9.1.8.4	Remote controls	9.2.4.1	Plug bodies, modular
9.1.1.11	Illuminated key switches/keypads	9.1.8.5	Initiation devices, miscellaneous	9.2.4.2	IC sockets
9.1.1.12	Miniature switches	9.1.8.6	Trackball input devices	9.2.4.3	IC footprint converters
9.1.1.13	Subminiature switches	9.1.8.7	Manual computer input devices, miscellaneous	9.2.4.4	IC test clips
9.1.1.14	Reed switches	9.1.8.8	Mouse	9.2.4.5	PGA sockets
9.1.1.15	Opto switches	9.1.8.9	Pad input devices	9.2.4.6	Ball-grid array sockets
9.1.1.16	Piezo switches	9.1.8.10	Joysticks	9.2.4.7	Lead frames
9.1.1.17	Sliding switches	9.1.8.11	Miniature joysticks	9.2.4.8	Sockets, miscellaneous
9.1.1.18	Safety switches	9.1.9	Relays	9.2.5	Connectors, application-oriented
9.1.1.19	SM-capable switches	9.1.9.1	DIL relays	9.2.5.1	Railway plug-in connectors
9.1.1.20	Incremental switch/resistor combinations	9.1.9.2	Poled relays	9.2.5.2	Mining plug-in connectors
9.1.1.21	Switches, miscellaneous	9.1.9.3	Telecommunications relays	9.2.5.3	Audio, video plug-in connectors
9.1.2	Switches with additional functions	9.1.9.4	Card relays	9.2.5.4	Automotive plug-in connectors
9.1.2.1	Selection switches	9.1.9.5	Hermetically sealed relays	9.2.5.5	Battery plug-in connectors
9.1.2.2	Circuit breaker	9.1.9.6	Automotive relays	9.2.5.6	High current plug-in connectors
9.1.2.3	Time switches	9.1.9.7	Miniature relays	9.2.5.7	Medical plug-in connectors
9.1.2.4	Tilt switches	9.1.9.8	Microrelays	9.2.5.8	Equipment plug-in connectors
9.1.2.5	Thermo switches	9.1.9.9	Mains power-isolating relays	9.2.5.9	MIL connectors
9.1.2.6	Sensor switches	9.1.9.10	Phase monitor relays	9.2.5.10	Audio connectors
9.1.2.7	ASI switches	9.1.9.11	Reed relays	9.2.6	Connectors for telecommunications
9.1.3	Electrical keys	9.1.9.12	Relays with forcibly guided (linked) contacts	9.2.6.1	Coaxial plug-in connectors
9.1.3.1	Limit keys	9.1.9.13	Incremental switch relays	9.2.6.1.1	BNC 50 Ω/ 75 Ω connectors
9.1.3.2	Input keys	9.1.9.14	Fuses/relays, miscellaneous	9.2.6.1.2	C/UHF connectors
9.1.3.3	Miniature keys	9.1.9.15	Sensor relays	9.2.6.1.3	MCX/MMCX connectors
9.1.3.4	Sensor switches	9.1.9.16	Relays as SMDs	9.2.6.1.4	F connectors
9.1.3.5	ASi keys	9.1.9.17	Current relays	9.2.6.1.5	N connectors
9.1.3.6	Electrical keys, miscellaneous	9.1.9.18	Thermorelays	9.2.6.1.6	SMA connectors
9.1.4	Detector components	9.1.9.19	Overload-monitor relays	9.2.6.1.7	SMB/SMC/SMS connectors
9.1.4.1	Event detectors/counters	9.1.9.20	Secured relays	9.2.6.1.8	PC 7 mm connectors
9.1.4.2	Light barriers	9.1.9.21	Vacuum relays	9.2.6.1.9	PC 3.5 mm connectors
9.1.4.3	Reflectors for light barriers	9.1.9.22	Time relays	9.2.6.1.10	PC 2.4 mm connectors
9.1.4.4	Signal generators, acoustic	9.1.9.23	Measurement relays	9.2.6.1.11	PC 2.0 mm connectors and smaller
9.1.4.5	Proximity switches	9.1.9.24	High-frequency relays	9.2.6.1.12	Adapters
9.1.4.6	Limit switches	9.1.9.25	Magnets, electric	9.2.6.1.13	Twinaxial components
9.1.4.7	Ring generators for telephones	9.1.9.26	Timers, electromechanical	9.2.6.1.14	Coaxial connectors, miscellaneous
9.1.4.8	Detector components, miscellaneous	9.1.9.27	Counter mechanisms, electromechanical	9.2.6.2	Fiber-optic plug-in connectors
9.1.5	Detector and signaling devices	9.1.9.28	Relays, miscellaneous	9.2.6.3	Data connectors (e.g. RJ 45)
9.1.5.1	Optical signaling devices	9.2	Interconnection components/systems	9.2.7	Cables with connectors
9.1.5.2	Optical/acoustical signaling devices	9.2.1	Standardized connectors	9.2.7.1	Configured cable/connector combinations for data technology
9.1.5.3	Acoustical signaling devices	9.2.1.1	DIN 41 612 plug-in connectors	9.2.7.2	Configured cable/connector combinations for household equipment
9.1.5.4	Ex-signaling devices	9.2.1.2	Metric connectors	9.2.7.3	Configured cable/connector combinations for industrial electronics
9.1.5.5	Signal towers	9.2.1.3	D subminiature connectors	9.2.7.4	Configured cable/connector combinations for consumer electronics
9.1.5.6	Loudspeakers	9.2.1.4	D subminiature connectors with filters	9.2.7.5	Configured cable/connector combinations for automotive applications
9.1.5.7	Tone generators, electronic	9.2.1.5	D plug-in connectors	9.2.7.6	Configured cable/connector combinations for laboratory/testing technology
9.1.5.8	Microphones	9.2.1.6	Extended standards plug-in connectors	9.2.7.7	Configured cable/connector combinations for the aerospace industry
9.1.5.9	Sound generators, electromechanical	9.2.1.7	Subminiature plug-in connectors	9.2.7.8	Configured cable/connector combinations for miscellaneous applications
9.1.6	Keyboards	9.2.1.8	SMD print connectors 0.635 mm pitch	9.2.7.9	Configured cable/connector combinations for telecommunications
9.1.6.1	Keyboards	9.2.1.9	Standardized connectors, miscellaneous	9.2.7.10	Ribbon cable connection systems
9.1.6.2	PC keyboards	9.2.1.10	RCA plugs/jacks	9.2.7.11	Powercords
9.1.6.3	Flat keyboards	9.2.1.11	Mains power appliance inlets		
9.1.6.4	Membrane keyboards	9.2.1.12	Mains power appliance outlets		
9.1.6.5	Short-stroke keyboards	9.2.2	Connectors for specific handling		
9.1.6.6	MF keyboards (multifunctional)	9.2.2.1	Crimp connectors, open frame		
9.1.6.7	Miniature keyboards	9.2.2.2	Crimp connectors, rectangular		
9.1.6.8	Piezo keypads	9.2.2.3	Crimp connectors, round		
9.1.6.9	Sensor keys/keyboards	9.2.2.4	Crimp connectors, miscellaneous		
9.1.6.10	Silicone keyboards	9.2.2.5	Plug-in connectors for press-fit applications		
9.1.6.11	Specialized keyboards	9.2.2.6	Plug-in connectors for soldered connections		
9.1.6.12	Keyboard systems	9.2.2.7	Plug-in connectors with solder tags		
9.1.6.13	Touch-glass keyboards	9.2.2.8	Plug-in connectors with crimp connectors		
9.1.6.14	LCD single-key keyboards	9.2.2.9	Plug-in connectors for wire-wrap connectors		
9.1.6.15	Touch panels				
9.1.7	Components and accessories for keyboards				

9.2.8	Connectors with additional functions	9.2.13.2	RF cords	9.3.6.1.3	Heat sinks
9.2.8.1	Inverted plug-in connectors	9.2.13.3	Semi-rigid cables	9.3.6.1.4	Specialized heat sinks
9.2.8.2	Encoder plug-in connectors	9.2.13.4	Ready-made coaxial cables	9.3.6.1.5	Heat-conducting plates/washers
9.2.9	Connectors, specific forms	9.2.13.5	Coaxial conductor components and systems	9.3.6.1.6	Circuit carriers, thermally conductive
9.2.9.1	Miniature plug-in connectors			9.3.6.1.7	Passive components, miscellaneous
9.2.9.2	Right-angle plug-in connectors	9.2.13.6	Twinaxial components	9.3.6.1.8	Thermal interface materials
9.2.9.3	Round plug-in connectors	9.2.13.7	Wire harnesses	9.3.6.2 Active components	
9.2.9.4	Zero-force plug-in connectors (ZIF)	9.2.13.8	Spiral cords	9.3.6.2.1	Fans
9.2.9.5	Cut/crimp connectors (IP)	9.2.13.9	Customized cables	9.3.6.2.2	Fan inserts
9.2.9.6	Flat plug-in connectors	9.2.13.10	Light-conducting cables	9.3.6.2.3	Heat exchangers with built-in radiators
9.2.9.7	SMD connectors, 0.635 mm pitch	9.2.13.11	Instrument cables	9.3.6.2.4	Heat pumps, thermoelectric
9.2.9.8	Foil-type plug-in connectors	9.2.13.12	Safety cables/leads	9.3.6.2.5	Peltier elements
9.2.9.9	Ribbon cable connectors	9.2.13.13	Data transmission cables	9.3.6.2.6	Heat exchanger systems
9.2.10	Miscellaneous connectors	9.2.13.14	Computer cables, configured	9.3.6.2.7	Heat pipes
9.2.10.1	Transfer plug-in connectors (I/O)	9.2.13.15	Round-conductor ribbon cables for IDC	9.3.6.2.8	Air-conditioning units
9.2.10.2	Coupling plug-in connectors	9.2.13.16	Flexible ribbon cables	9.3.6.2.9	Radiators and coolants
9.2.10.3	Customized plug-in connectors	9.2.13.17	Shielded cables	9.3.6.2.10	Cooling equipment
9.2.10.4	Specialized plug-in connectors	9.2.13.18	Halogen-free cables	9.3.6.2.11	CPU cooling equipment
9.2.10.5	Multiple connection systems	9.2.13.19	Enamelled wire	9.3.6.2.12	Filter fans
9.2.10.6	Plug sockets, miscellaneous	9.2.13.20	Wire/cables/leads, miscellaneous	9.3.6.2.13	Thermostats
9.2.10.7	Chip card connectors	9.2.13.21	Cables, miscellaneous	9.3.6.2.14	Thermal management aids, miscellaneous
9.2.10.8	Hermetically sealed connectors	9.3 Casing technology		9.3.6.2.15	Thermofoil heaters
9.2.10.9	Waterproof connectors	9.3.1 System racks		9.3.6.2.16	Heating elements with/without regulators
9.2.10.10	Shielded connectors	9.3.1.1	19" racks and cabinets	9.3.6.2.17	Active components, miscellaneous
9.2.10.11	Jumpers	9.3.1.2	RF-shielded housings	9.3.7 Electronic protection devices (EMI/ESD)	
9.2.10.12	MID connectors	9.3.1.3	Circuit boxes	9.3.7.1 EMC-conducted	
9.2.10.13	Connectors, miscellaneous	9.3.1.4	Modular systems, metric	9.3.7.1.1	EMC-type plug-in connectors
9.2.11	Accessories for connectors	9.3.1.5	Sheet-metal structures	9.3.7.1.2	EMC leads
9.2.11.1	Plastic housings for connectors	9.3.1.6	System racks for telecommunications	9.3.7.1.3	EMC filters
9.2.11.2	Metal housings for connectors	9.3.2 Build-in and desktop housings		9.3.7.1.4	SM EMI suppression filters
9.2.11.3	EMI/RFI shielding metal hoods	9.3.2.1	19" inserts and housings	9.3.7.1.5	Chip bead EMI suppressors
9.2.11.4	Rubber and plastic parts for connectors	9.3.2.2	19" frames	9.3.7.1.6	Filter-equipped power-connection leads
9.2.11.5	Tapper sleeves	9.3.2.3	19" accessories	9.3.7.1.7	Mains filter modules
9.2.11.6	Special tools for connectors	9.3.2.4	Console housings	9.3.7.1.8	RF chokes
9.2.11.7	Press-fit tools for connectors	9.3.2.5	Consoles	9.3.7.1.9	Mains power-surge protectors
9.2.12	Specialized connection/connecting components	9.3.2.6	Computer housings	9.3.7.1.10	Filter-equipped plug-in connectors
9.2.12.1	Terminals	9.3.2.7	Stand-alone housings	9.3.7.1.11	Threaded EMC cable glands
9.2.12.1.1	Terminals/terminal strips	9.3.2.8	Table-top housings	9.3.7.1.12	EMC feedthrough components
9.2.12.1.2	Connectors (silicon rubber)	9.3.2.9	Wall-mountable housings	9.3.7.1.13	X/Y capacitors
9.2.12.1.3	Connection strips	9.3.2.10	Specialized housings for assemblies/devices	9.3.7.1.14	Electronic protection devices, miscellaneous
9.2.12.1.4	Test terminals	9.3.2.11	Housings, RF-resistant	9.3.7.2 EMC-radiated	
9.2.12.1.5	Terminal strips	9.3.2.12	Wall-mountable and desktop housings, miscellaneous	9.3.7.2.1	Shieldings (EMC)
9.2.12.1.6	Terminals with diodes	9.3.3 Small-scale housings		9.3.7.2.2	Housings with EMC protection
9.2.12.1.7	PCB terminals	9.3.3.1	Sheet-metal housings	9.3.7.2.3	RF seals
9.2.12.1.8	Feed-through terminals	9.3.3.2	Plastic housings, application-specific	9.3.7.2.4	Metal sealings for housings
9.2.12.1.9	Measurement terminals	9.3.3.3	Hand-held housings	9.3.7.2.5	Polymer seals for housings
9.2.12.1.10	Disconnect terminals	9.3.3.4	Milling housings	9.3.7.2.6	Conductive tapes/cloth
9.2.12.1.11	Terminals, miscellaneous	9.3.3.5	Mini housings, miscellaneous	9.3.7.2.7	Window glass, RF-sealed
9.2.12.2	Connection elements, miscellaneous	9.3.4 Special housings		9.3.7.3 EMP protection	
9.2.12.2.1	Contact elements/modules	9.3.4.1	Specialized component enclosures	9.3.7.3.1	EMP protection elements/modules
9.2.12.2.2	Screen-connection elements	9.3.4.2	Components out of shape memory materials	9.3.7.3.2	NEMP protective equipment
9.2.12.2.3	Slip-ring transformers	9.3.4.3	Portable cases	9.3.7.4 ESD protection	
9.2.12.2.4	Contactless electrical rotary joints	9.3.4.4	Individual housings	9.3.7.4.1	ESD protection
9.2.12.2.5	Contactless optical rotary joints	9.3.5 Accessories for housings		9.3.7.4.2	Voltage suppressors
9.2.12.2.6	Soldered connection elements	9.3.5.1	Card slots	9.3.7.4.3	Limiter diodes
9.2.12.2.7	Wire-wrap elements	9.3.5.2	Covers	9.3.7.4.4	Lightning protection equipment
9.2.12.2.8	Removable connection elements, miscellaneous	9.3.5.3	Front panels for assemblies/devices	9.3.7.4.5	Surge protection equipment
9.2.12.2.9	Power distribution components (power strips)	9.3.5.4	Front panels, customized	9.3.7.5 Packaging materials	
9.2.12.2.10	Microconnectors	9.3.5.5	Front handles	9.3.7.5.1	Packaging materials
9.2.12.2.11	Press-fit connectors	9.3.5.6	Housing seals	9.3.7.5.2	Blister belting strips
9.2.12.2.12	Individual contacts	9.3.5.7	Knobs	9.3.7.5.3	Blister belt cover strips
9.2.12.2.13	Chip-card connection frames	9.3.5.8	Rubber and plastic parts for housings	9.3.7.5.4	Belt spools for component belting
9.2.12.2.14	Permanent contacting elements, miscellaneous	9.3.5.9	Distance assembly fittings	9.3.7.6 Protection components, miscellaneous	
9.2.12.2.15	Connection elements, miscellaneous	9.3.5.10	Housing cover accessories	9.3.7.6.1	Suppressor chokes
9.2.12.3	Accessories	9.3.5.11	Conduits	9.3.7.6.2	Suppressor capacitors
9.2.12.3.1	Continuity accessories	9.3.5.12	Filters, air	9.3.7.6.3	Shielded chokes/converters
9.2.12.3.2	Elastomers, electrical/thermal conducting	9.3.5.13	Housing design programs	9.3.7.6.4	Power semiconductor protection
9.2.12.3.3	Shrink-wrap hoses	9.3.5.14	Bearings	9.3.7.6.5	Low-voltage protection equipment
9.2.12.3.4	Strain-relief elements	9.3.5.15	Power distribution components	9.3.7.6.6	EMC ferrite cores
9.2.12.3.5	Threaded cable glands	9.3.5.16	Accessories for housings, miscellaneous	9.3.7.6.7	Circuit breaker for equipment protection
9.2.12.3.6	Accessories, miscellaneous	9.3.6 Thermal management		9.3.7.6.8	Equipment-protection fuses
9.2.13	Cables	9.3.6.1 Passive components		9.3.7.6.9	Fuse holders/sockets
9.2.13.1	Coaxial high-frequency cables	9.3.6.1.1	Shieldings, thermal	9.3.7.6.10	Protection components accessories
		9.3.6.1.2	Insulating elements, special		

10 Power supplies

- 10.1 Transformers**
 - 10.1.1 Power-supply transformers
 - 10.1.2 PCB transformers
 - 10.1.3 Planar transformers
 - 10.1.4 Miniature transformers
 - 10.1.5 Toroidal core transformers
 - 10.1.6 Security transformers
 - 10.1.7 Isolating transformers (including shielded)
 - 10.1.8 Regulating transformers
 - 10.1.9 High-voltage transformers
 - 10.1.10 Pulse transformers
 - 10.1.11 Stray-field transformers
 - 10.1.12 Diode splitter transformers
 - 10.1.13 Autotransformers
 - 10.1.14 Transformers, miscellaneous
- 10.2 Coilware for specific applications**
 - 10.2.1 Filter coils
 - 10.2.2 Commutation chokes
 - 10.2.3 Chokes, miscellaneous
 - 10.2.4 Coilware, application-specific
 - 10.2.5 Coilware, shielded
 - 10.2.6 Coilware, miscellaneous
- 10.3 Accessories for coilware**
 - 10.3.1 Core-molded parts
 - 10.3.2 Cores
 - 10.3.3 Coil former
 - 10.3.4 Metal powder coil cores
- 10.3.5 Transformer sheets
- 10.3.6 Accessories, miscellaneous
- 10.4 Power supplies, DC output**
 - 10.4.1 AC/DC power supplies, single/multiple phase
 - 10.4.2 AC/DC eurocard power supplies
 - 10.4.3 AC/DC power supplies, DIN rail
 - 10.4.4 AC/DC power supplies, open frame
 - 10.4.5 VME bus power supplies
 - 10.4.6 DC/DC converter modules
 - 10.4.7 DC converters with 42 V input for automotive applications
 - 10.4.8 Protected power supplies
 - 10.4.9 Plug-in mains power devices (AC/DC)
- 10.5 Power supplies, AC output**
 - 10.5.1 Mains power devices, insert housing
 - 10.5.2 Mains power devices, portable
 - 10.5.3 Plug-in mains power devices (AC/AC)
 - 10.5.4 Inverters (DC/AC)
- 10.6 Frequency converters**
- 10.7 UPS systems**
 - 10.7.1 Uninterruptable power supplies (UPS)
 - 10.7.2 Backup power supplies
 - 10.7.3 Mains power stabilizers
- 10.8 Special power supplies**
 - 10.8.1 Programmable power supplies
 - 10.8.2 System power supplies
 - 10.8.3 Lab power supplies
- 10.8.4 Intelligent power modules, customized
- 10.8.5 Power supplies, high-voltage
- 10.8.6 Mains power devices, application-specific
- 10.8.7 LED power supplies
- 10.9 Batteries**
 - 10.9.1 Accumulators, up to 50 Ah
 - 10.9.2 Primary elements and batteries
 - 10.9.3 Smart batteries
 - 10.9.4 Chargers, battery
- 10.10 Static current supplies, miscellaneous**
- 10.11 Power management systems**
- 10.12 Accessories**
 - 10.12.1 Power factor compensation equipment
 - 10.12.2 Voltage stabilizers
 - 10.12.3 Charge rectifiers
 - 10.12.4 Charge indicators
 - 10.12.5 Surge suppression documenters
 - 10.12.6 SMPS capacitors for high-frequency suppression
 - 10.12.7 Battery testers
 - 10.12.8 Accessories, miscellaneous

11 PCBs, other circuit carriers and EMS

- 11.1 Non-PTH single- and double-sided PCBs**
- 11.2 Double-sided PCBs, PTH**
 - 11.2.1 Copper through-hole PCBs
 - 11.2.2 Silver through-hole PCBs
- 11.3 Multilayer PCBs (ML)**
 - 11.3.1 Ultrathin ML (100µm/layer)
 - 11.3.2 Blind and buried vias PCBs
 - 11.3.3 PCBs with blind vias
 - 11.3.4 HDI PCBs
 - 11.3.5 Multilayer PCBs, miscellaneous
- 11.4 Special PCBs**
 - 11.4.1 PCBs with thick copper
 - 11.4.2 Bondable PCBs
 - 11.4.3 Metal core PCBs
 - 11.4.4 PCBs with embedded resistors
 - 11.4.5 Flexible circuits
 - 11.4.6 Flex-rigid circuits
 - 11.4.7 Micro via PCBs
 - 11.4.8 PCBs on aluminum substrates
 - 11.4.9 PTFE PCBs
 - 11.4.10 Impedance-controlled PCBs
 - 11.4.11 Press-fit component PCBs
 - 11.4.12 Large-format PCBs (more than 600 mm)
 - 11.4.13 Ultrafine-line circuitry (< 50µm)
 - 11.4.14 PCBs, other
 - 11.4.15 3D PCBs (MID)
- 11.5 Ceramic PCBs**
 - 11.5.1 LTCC
 - 11.5.2 Al₂O₃
 - 11.5.3 AlN
- 11.5.4 Ceramic PCBs, miscellaneous
- 11.6 PCBs for backplanes/ bus systems**
 - 11.6.1 PCI bus
 - 11.6.2 Compact PCI bus
 - 11.6.3 VME 64
 - 11.6.4 Profi bus
 - 11.6.5 Multi bus
 - 11.6.6 Field bus
 - 11.6.7 Backplane PCBs, unconfigured
 - 11.6.8 Backplanes/bus systems, miscellaneous
- 11.7 EMS Electronic manufacturing services**
 - 11.7.1 EMS for component/ chip carrier manufacturing**
 - 11.7.1.1 Layout services
 - 11.7.1.2 Artwork production services
 - 11.7.1.3 Screen production services
 - 11.7.1.4 ML lamination/drilling services
 - 11.7.1.5 Contacting services
 - 11.7.1.6 Coating services
 - 11.7.1.7 Laser engraving
 - 11.7.1.8 Wire erosion
 - 11.7.1.9 Electrolyte reprocessing
 - 11.7.1.10 Laser welding/cutting
 - 11.7.1.11 Plating services
 - 11.7.1.12 Reflow services
 - 11.7.1.13 Surface treatment
 - 11.7.1.14 Production services for component/ chip carrier manufacturing, miscellaneous
 - 11.7.2 EMS for component construction and equipment manufacturing**
 - 11.7.2.1 Solder mask services
 - 11.7.2.2 Hybrid solutions
 - 11.7.2.3 Component insertion
 - 11.7.2.4 Bonding of dies on PCBs
 - 11.7.2.5 Flip chip insertion
 - 11.7.2.6 Component insertion under cleanroom conditions
 - 11.7.2.7 Metal machining
 - 11.7.2.8 Manufacturing precision drilling and milling parts
 - 11.7.2.9 Housings, customer-specific
 - 11.7.2.10 Assembly production
 - 11.7.2.11 EMD shielding
 - 11.7.2.12 Cabling
 - 11.7.2.13 Labeling
 - 11.7.2.14 Production services for component construction and equipment manufacturing, miscellaneous
- 11.8 Prototyping**
 - 11.8.1 PCBs
 - 11.8.2 Housings, prototypes
 - 11.8.3 Equipment
 - 11.8.4 Prototyping, miscellaneous
- 11.9 Accessories for PCBs**
 - 11.9.1 Multilayer bus bars for PCBs
 - 11.9.2 Conductor strips
 - 11.9.3 Silver vias
 - 11.9.4 Accessories for PCBs, miscellaneous

12 Assemblies and subsystems

- 12.1 Assemblies for control applications**
 - 12.1.1 Regulator assemblies
 - 12.1.2 Motor protection modules
 - 12.1.3 Switching-device assemblies
 - 12.1.4 MPC assemblies
 - 12.1.5 Compact PCI bus modules
 - 12.1.6 VME 64 modules
 - 12.1.7 Profi bus modules
 - 12.1.8 Field bus modules
 - 12.1.9 LON bus modules
 - 12.1.10 Mezzanine modules
 - 12.1.11 Modules for other bus systems
 - 12.1.12 Controllers, programmable
 - 12.1.13 Electromotor controllers/regulators
- 12.2 Printer assemblies**
 - 12.2.1 Thermal printers
 - 12.2.2 Thermal transfer printers
 - 12.2.3 Printer assemblies, mechanical
 - 12.2.4 Laser printer assemblies
 - 12.2.5 Ink-jet printer assemblies
 - 12.2.6 Printer assemblies, miscellaneous
- 12.3 Assemblies, miscellaneous**
 - 12.3.1 Converter assemblies
 - 12.3.2 Backplane PCBs, configured
 - 12.3.3 IR transmitters/receivers
 - 12.3.4 Matrix cameras, CCD
 - 12.3.5 Bar-code reader assemblies
- 12.3.6 Image-conversion assemblies, miscellaneous
- 12.4 Hybrid modules (including multi-chip modules)**
 - 12.4.1 Thick-film hybrids
 - 12.4.2 Thin-film hybrids
 - 12.4.3 RF hybrids
 - 12.4.4 Hybrid filters
 - 12.4.5 Hybrid modules, mixed-signal
 - 12.4.6 Hybrid modules, alternating-signal, miscellaneous
 - 12.4.7 Hybrid modules, static-signal, miscellaneous
 - 12.4.8 Hybrid circuits on glass substrates
 - 12.4.9 Hybrid modules on ceramic substrates
 - 12.4.10 LSI hybrids (MCM)
 - 12.4.11 Multi-chip module hybrids, miscellaneous
 - 12.4.12 Application-specific hybrid circuits
 - 12.4.13 Networks, miscellaneous
 - 12.4.14 Opto hybrids
 - 12.4.15 Miscellaneous hybrid circuits/modules
 - 12.4.16 Strip-conductor components for microwave technology
 - 12.4.17 Clock modules
 - 12.4.18 Hybrid modules, miscellaneous
- 12.5 Servo technology / Drive elements**
 - 12.5.1 Motors
 - 12.5.1.1 AC motors (standard, up to 300 W)
 - 12.5.1.2 Brushless motors
 - 12.5.1.3 DC motors (standard, up to 300 W)
 - 12.5.1.4 Torque motors
 - 12.5.1.5 Miniature motors, universal current
 - 12.5.1.6 Stepper motors
 - 12.5.1.7 Micromotors
 - 12.5.2 Gears
 - 12.5.2.1 Geared motors
 - 12.5.2.2 Linear drives
 - 12.5.2.3 Micropositioning
 - 12.5.2.4 Actuators, miscellaneous
 - 12.5.2.5 Micro gears
 - 12.5.3 Magnetic actuators
 - 12.5.3.1 Magnetic motors (translational direct drives)
 - 12.5.3.2 Electromagnets for moving processes
 - 12.5.4 Actuators, miscellaneous
 - 12.5.4.1 Piezo actuator motors
 - 12.5.4.2 Translational direct drives
 - 12.5.4.3 Positioning drives, miscellaneous
 - 12.5.4.4 Resolvers
 - 12.5.5 Accessories for actuators
 - 12.5.5.1 Electromotor device parts, miscellaneous
 - 12.5.5.2 Slide bearings, ceramic
 - 12.5.5.3 Electronic motor protection relays
 - 12.5.5.4 Soft starters for electric motors

13 Automotive

- 13.1 Drive (engine and gears)**
 - 13.1.1 Engine control**
 - 13.1.1.1 Ignition
 - 13.1.1.2 Fuel injection
 - 13.1.1.3 Direct fuel injection
 - 13.1.1.4 Multi-point fuel injection
 - 13.1.1.5 Valve controllers
 - 13.1.1.6 Common rail
 - 13.1.1.7 Camshaft controllers
 - 13.1.1.8 Emission recirculation
 - 13.1.1.9 Catalytic converter
 - 13.1.1.10 Drive by wire
 - 13.1.1.11 Cruise control
 - 13.1.1.12 On-board diagnostic system
 - 13.1.2 Gearbox controllers**
 - 13.1.2.1 Gearbox electronic
 - 13.1.3 Alternative drives**
 - 13.1.3.1 Starter generators
 - 13.1.3.2 Hybrid batteries (Li-Ion, NiMH)
 - 13.1.3.3 Electromotor
 - 13.1.3.4 Automatic start-stop system
- 13.2 Chassis/Steering**
 - 13.2.1 Steering**
 - 13.2.1.1 Steer by wire
 - 13.2.1.2 Power steering
 - 13.2.1.3 Parameter steering
 - 13.2.2 Chassis**
 - 13.2.2.1 Electronic shock absorption control
 - 13.2.2.2 Roll stabilizer
- 13.3 Brake**
 - 13.3.1 Brake by wire
 - 13.3.2 ABS/ESP
 - 13.3.3 Anti-slip control
 - 13.3.4 Brake assistant
 - 13.3.5 Power handbrake
 - 13.3.6 Auto emergency stop
- 13.4 Interior/Comfort**
 - 13.4.1 Comfort functions**
 - 13.4.1.1 Power window control
 - 13.4.1.2 Anti-trap protection
 - 13.4.1.3 Electrical seat adjustment
 - 13.4.1.4 Seat memory
 - 13.4.1.5 Seat heater
 - 13.4.1.6 Interior lights
 - 13.4.1.7 Ambient lights
 - 13.4.1.8 Wind screen heating
 - 13.4.1.9 Electrical air conditioning
 - 13.4.1.10 Automatic 2-/4-zone air-conditioning system
 - 13.4.2 Driver information**
 - 13.4.2.1 Multi-purpose instrument
 - 13.4.2.2 Head-up display
 - 13.4.2.3 Displays (see Displays)
 - 13.4.2.4 Pointer instrument
 - 13.4.2.5 Warning lights, displays
 - 13.4.2.6 Secondary display
 - 13.4.3 Communication/Telematics**
 - 13.4.3.1 Car radio/Loudspeaker
 - 13.4.3.2 CD/DVD player
 - 13.4.3.3 Sound system
 - 13.4.3.4 Mobile radio
 - 13.4.3.5 Infotainment
 - 13.4.3.6 Voice command
 - 13.4.3.7 Multimedia
 - 13.4.3.8 Navigation
 - 13.4.3.9 GSP receiver
 - 13.4.3.10 Car antenna
 - 13.4.3.11 Video
 - 13.4.3.12 Car television receiver
 - 13.4.3.13 Rear seat entertainment
 - 13.4.3.14 USB port
 - 13.4.3.15 Bluetooth
 - 13.5 Body/Safety**
 - 13.5.1 Theft protection**
 - 13.5.1.1 Engine immobilizer
 - 13.5.1.2 Interior surveillance
 - 13.5.1.3 Access authorization
 - 13.5.1.4 Keyless Go/Keyless Entry
 - 13.5.2 Passive safety**
 - 13.5.2.1 Airbag controllers
 - 13.5.2.2 Passenger detection
 - 13.5.2.3 Precrash
 - 13.5.2.4 Seat-belt tightener
 - 13.5.2.5 Active headrest
 - 13.5.2.6 Pedestrian protection
 - 13.5.3 Car lighting/exterior**
 - 13.5.3.1 Headlights
 - 13.5.3.2 Bending light
 - 13.5.3.3 Headlight levelling
 - 13.5.3.4 Light-emitting diodes (see Semiconductors)
 - 13.5.3.5 Taillights
 - 13.5.3.6 Adaptive headlight assistant
 - 13.6 Active safety**
 - 13.6.1 Driver assistance systems**
 - 13.6.1.1 Adaptive cruise control (ACC)
 - 13.6.1.2 Stop and go cruise control
 - 13.6.1.3 Lane change assistant
 - 13.6.1.4 Lane departure warning
 - 13.6.1.5 Pre-crash detection (activation) system
 - 13.6.1.6 Tire pressure sensor
 - 13.6.1.7 Night vision
 - 13.6.1.8 Parking aid
 - 13.6.1.9 Parking assistant
 - 13.6.1.10 Radar
 - 13.6.1.11 Lidar
 - 13.6.1.12 Infrared
 - 13.6.1.13 Car to car communication
 - 13.6.1.14 Ultrasonic
 - 13.6.1.15 Video/camera
 - 13.6.1.16 Doze alarm
 - 13.6.1.17 Traffic sign detection system
 - 13.7 Electrical on-board power supply**
 - 13.7.1 Energy supply**
 - 13.7.1.1 Generators
 - 13.7.1.2 Energy storage (Batteries, ultracaps)
 - 13.7.1.3 Energy recovery systems
 - 13.7.1.4 DC/DC converter, DC/AC converter
 - 13.7.1.5 Battery sensor
 - 13.7.1.6 Power supply sensor
 - 13.7.1.7 Central electrics
 - 13.7.1.8 On-board power supply management
 - 13.7.2 Components/Mechatronics**
 - 13.7.2.1 Electric motor
 - 13.7.2.2 Solenoid valves
 - 13.7.2.3 Piezo valves
 - 13.7.2.4 Relays (see Electromechanics/ System peripherals)
 - 13.7.2.5 Switches (see Electromechanics/ System peripherals)
 - 13.7.2.6 Fuses
 - 13.7.2.7 Smart Power
 - 13.7.2.8 Connectors (see Electromechanics/ System peripherals)

13 Automotive

13.7.2.9	Cable assemblies	13.7.3.4	Can-C bus	13.8.1.3	Diagnosis
13.7.2.10	Optical conductors	13.7.3.5	FlexRay	13.8.1.4	Controller development
13.7.2.11	Sensors (see Sensor technology)	13.7.3.6	MOST	13.8.1.5	Software development
13.7.3	Bus systems	13.8	Construction and test	13.8.1.6	Hardware development
13.7.3.1	Gateway	13.8.1	Services	13.8.2	Test equipment
13.7.3.2	Lin bus	13.8.1.1	DIN/ISO norming	13.8.2.1	Hardware in the Loop
13.7.3.3	Can-B bus	13.8.1.2	Test regulations	13.8.2.2	Tester

14 Wireless

14.1	Cellular systems	14.2.5	Infrared	14.3	Wireless applications
14.1.1	UMTS	14.2.6	Spread-spectrum transmitters/receivers	14.3.1	Virtual Business
14.1.2	GSM	14.2.7	Other standards	14.3.2	eCommerce
14.1.3	GSM-R	14.2.8	Modems	14.3.3	Music
14.1.4	GPRS	14.2.9	RF assemblies, miscellaneous	14.3.4	Video
14.1.5	EDGE	14.2.10	Filter assemblies	14.3.5	Games
14.1.6	HSCSD	14.2.11	Up converters	14.3.6	TV receiver subsystems
14.1.7	LMDS	14.2.12	Down converters	14.3.7	TV tuners
14.1.8	Tetra	14.2.13	Low-noise converters, LNC, LNB	14.3.8	SAT tuners
14.1.9	Tetrapol	14.2.14	IRD	14.3.9	GPS chip sets
14.1.10	Other standards	14.2.15	Batteryless radio technology	14.3.10	GPS receivers
14.2	Non-cellular systems	14.2.16	ISM modules	14.3.11	Other applications
14.2.1	WLAN			14.3.12	RFID
14.2.2	DECT			14.4	Business partners
14.2.3	Bluetooth			14.4.1	Content providers
14.2.4	Home RF			14.4.2	Service providers

15 Information gathering and services

15.1	Information	15.2.3	Software design	15.2.20	Distribution
15.1.1	Parts databases, also with online access	15.2.4	Test software design	15.2.21	Second-hand equipment
15.1.2	Product information systems	15.2.5	System design	15.2.22	Equipment rental, leasing
15.1.3	Technical books	15.2.6	Project assistance	15.2.23	Calibration/test equipment services
15.1.4	Technical publications	15.2.7	Consulting/training	15.2.24	Consulting services for measurement applications
15.1.5	Publications, miscellaneous	15.2.8	Consulting services for measurement applications	15.2.25	Other services
15.1.6	Associations	15.2.9	Systems integration	15.2.26	Programming services
15.1.7	Documentation services	15.2.10	Firmware and drivers	15.2.27	Test-program creation
15.1.8	Standards, national/European	15.2.11	User groups	15.2.28	Production services
15.1.9	Literature databases	15.2.12	Providing embedded system services	15.2.29	Consulting services for electro-mechanical solutions
15.1.10	Generation of documentation, technical	15.2.13	EMC testing/characterization	15.3	Start-up Forum
15.1.11	Economic development agencies	15.2.14	ESD testing/characterization	15.3.1	Technology transfer
15.1.12	Kitting	15.2.15	Certification, product	15.3.2	Consulting
15.1.13	Training	15.2.16	Quality management services	15.3.3	Financial services/risk capital
15.2	Approval testing and other services	15.2.17	Quality/repair data, system generation	15.3.4	Joint ventures
15.2.1	ASIC development services	15.2.18	Environmental simulation testing		
15.2.2	Hardware design	15.2.19	Testing services, electronic components		