These reports present an in-depth analysis of the latest innovations in Bipolar-CMOS-DMOS (BCD) devices. They show the differences between 23 selected devices from Infineon, STMicroelectronics, Elmos, Bosch, NXP, Freescale, Texas Instruments, Linear Technology, Analog Devices, Denso, Renesas and Toyota. The report covers all the major players on the market and their new technologies.

BCD technology has been developed to simplify the control of power devices by offering a monolithic solution that integrates the gate driving circuit, current and temperature measurements to protect the power component in the same silicon integrated circuit. Today BCD technologies allow a microcontroller to be integrated with logic, memory, analog and power functions in the same circuit. This was possible thanks to incredible innovations in areas of the BCD components such as the copper metal layer, deep trench insulation, and metal-insulator-metal capacitors, and their integration.

For BCD technologies, the lithographic technology node is not the main innovation driver. Silicon-on-insulator substrates, thick metal layers, the addition of passive elements, and other factors increase the performance and the value more significantly than lithography.

For each analysed device, the technology report details the manufacturing process and materials used, the component design and technical choices. The cost report provides an estimation of the cost structure of the wafers using the various technologies, highlighting the influence of the technological innovations.

These reports provide a unique opportunity to understand the technology evolution, and the manufacturing costs of the major BCD manufacturers, to give the basis for an optimal choice of components during design and integration. In the reports, we analyze and compare products from the 12 main manufacturers. The reports are focused on technology evolution with a description of the cost impact of these innovations.
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