

## ICs for ESD and EMI PROTECTION— MARKET and TRENDS

### IC-based Integration Opportunities for ESD Protection

#### ABSTRACT

**Note:** Our clients find most of a report's value in specific parts of our reports; in areas of their special interest (Pareto's 80/20 rule). In that sense our published reports, which address complex and fragmented markets, are never "finished." Our unique solution is:

- Together with both [our reports and unlimited post-sale inquiry service we deliver more than 100% value and always exceed client expectations.](#)

The purpose of this report is to deliver strategy insights into the evolving semiconductor ESD and EMI protection devices landscape. Note that this report addresses discrete and IC-based protection devices, that is, [not on-chip ESD protection](#) (which is mostly in the intellectual property domain and in which Sarnoff's on-chip ESD IP dominates). The report validates the profound changes in the semiconductor ESD and EMI protection market, specifically its accelerating transformation and migration – from Discretives into ICs. The new IC segment of ESD and EMI protection includes many other analog functions on ever-larger dies.

In order to assess the IC integration opportunities of ESD and EMI protection devices we first needed to deliver an up-to-date view of the ESD and EMI market. We used our methodology specifically tailored for the ESD and EMI market, and based on our extensive segmentation work; we refer to this methodology as "From End-Market to BOM" (bill of materials) methodology.

The resulting market data reveal that the actual ESD and EMI market is significantly larger than captured by traditional market statistics – [an order of magnitude larger, that is, more than \\$6B in 2008 instead of merely \\$0.7B as reported by WSTS statistics.](#) Emerging semiconductor and packaging technologies have created new classes of products, making traditional classification and market size estimates obsolete.

Our report illustrates that [the IC-based integration trend of ESD and EMI protection solutions will significantly increase the total market within a relatively short period – driven primarily by high-speed interfaces and mobile applications.](#) The emerging IC-based ESD and EMI protection market creates numerous high margin and high ASP business opportunities since IC-based protection devices are very application-specific, that is, there are many large and small volume differentiated segment opportunities.

This report's ESD and EMI market-specific methodology fills the void created by legacy market classifications and their lagging statistics, especially in the consumer sector. The report provides an in-depth view of the current ESD and EMI protection devices market, and its segment size and growth potential. We achieve this by taking fresh, unbiased top-down and bottom-up analyses of the market landscape and by introducing revised market segmentation.

The evolution of semiconductor ESD and EMI protection devices has blurred the traditional boundary between discrete and IC devices. The new IC-based integrated products combine analog perimeter functions and single-function discrete and passive devices on a single chip. [This is creating new high margin business opportunities for current vendors and for new entrants.](#)

Please note that we provide after-sale free-of-charge report support, another feature of our service differentiation which is highly appreciated by our clients.

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- Telecom devices — xDSL and cable modems, switches/routers, LAN NICs, Tx/Ex line cards, other ( Applications—data lines (Ethernet, USB, T1/E1, T3/E3, other), SLIC, other
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#### Competitive landscape

- |                       |                             |
|-----------------------|-----------------------------|
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| 2. NXP Semiconductors | 6. Microsemi                |
| 3. ON Semiconductor   | 7. ProTek Devices           |
| 4. Semtech            | 8. Alpha & Omega            |

- |                       |                             |
|-----------------------|-----------------------------|
| 9. Littlefuse         | 14. Fairchild Semiconductor |
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