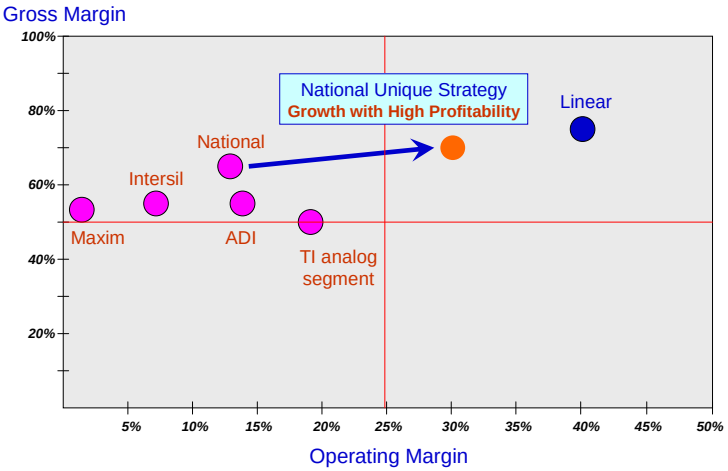
NATIONAL SEMICONDUCTOR— POWER MANAGEMENT STRATEGY

ABSTRACT

This report (94 pages, 66 figures, 13 chapters) delivers an in-depth and comprehensive analysis of National's power management strategy – its businesses, markets, products, and technologies.

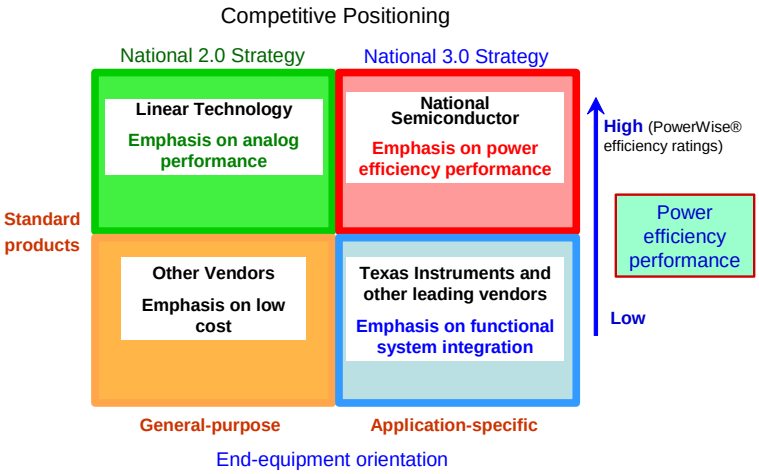
Power management represents nearly one-half of National's total revenues, which were $1.5B in FY09 (May 2009). National's corporate strategic thrust is embodied in its PowerWise® product branding strategy which assures to its customers that all products have the highest power efficiency at very high analog performance. National's legacy core analog competency has evolved over time into a leading power management franchise as well as its profit and growth engine. Under the new top management the company has already distanced itself from other leading Power IC vendors and is approaching Linear Technology in terms of gross margins.

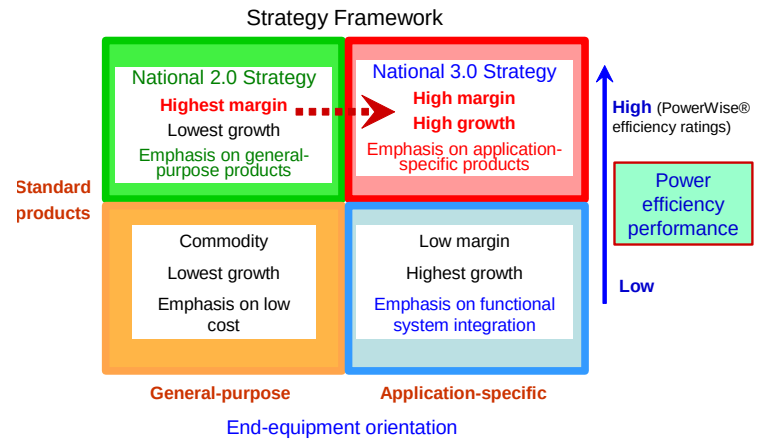
This report demonstrates that National is well positioned to become the industry's top IC vendor in terms of performance and valuation by breaking the historic growth-profit barrier of the Analog IC business. The growth-profit barrier represents the traditional tradeoff between revenue growth and profitability that has marked the industry since its start five decades ago.



Achieving industry-average growth while sustaining very high net margins would be an exceptional and unique achievement. The report reveals the key success factors Enabling National to achieve this elusive achievement which is uniquely possible in the power management domain where power efficiency is a common denominator to all end-equipment systems. This in turn allows National to focus on standard product ICs with high power efficiency performance.

There is no such common denominator for signal path products where there is a large number of various analog performance attributes unique to specific products and end-equipment applications. Hence Linear Technology, the most profitable vendor in the semiconductor business for decades, has more limited revenue growth opportunities.





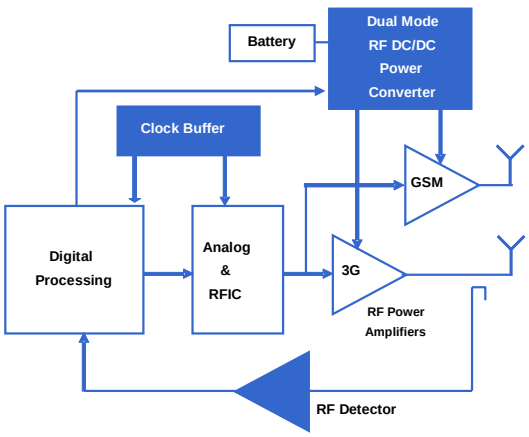
National's power management strategy evolved along profit driven "National 2.0" and growth driven "National 3.0" corporate strategy initiatives. The essence of the current National 3.0 strategy is revenue growth while sustaining the relatively high gross margin level achieved by the National 2.0 strategy. In product terms this means a transition from an emphasis on general-purpose building block products to end-equipment oriented application-specific products. As a result, the company's revenue stream composition shifts to an opportunistic revenue layer on top of the profit rich foundation annuity revenue layer. Currently, National's profit rich annuity revenue layer represents nearly two-thirds of the company's revenues, and is mainly derived from industrial and communications/networking market segments.

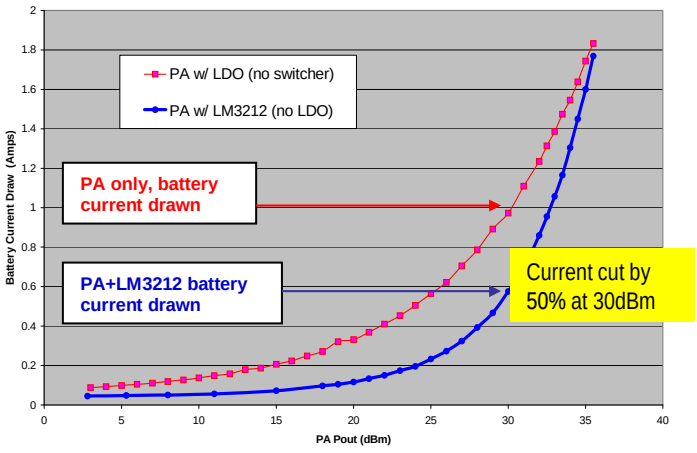
In essence, National 3.0 strategy framework's objective is to position National in the analog market landscape into a unique growth-profit position in the performance and valuation area epitomized by Linear Technology.

Successful execution of the National corporate ("National 3.0") strategy will place National among the top industry performers within the next two years. Importantly, all key factors supporting this strategy are already in place:

- It has a new top management that is committed to and capable of executing this strategy, and there is an organizational structure already in place supporting the strategy execution
- The new management team has already successfully executed the profit-driven first strategy phase that has placed the company into the highest margin space epitomized by Linear Technology
- National already has a well established power management franchise based on the company's power-efficiency core competency
- National has demonstrated the ability to achieve high margins while addressing the cost sensitive mobile devices business (about 30 percent of total revenues)
- The company has comprehensive in-house manufacturing and packaging technologies
- National has established an uncompromising minimum margin requirement that assures a high fall-through rate to gross margin; this will sustain the 70 percent range gross margin level
- National has already realigned its distribution channel to support the application-specific aspects of its unique strategy

High margin and revenue growth will be achieved primarily via application-specific products. This requires a shift from building block products to application-specific and system-level products. This, in turn, means a shift from an emphasis on product level to end-equipment power efficiency performance as well as a shift to vertical end-markets.





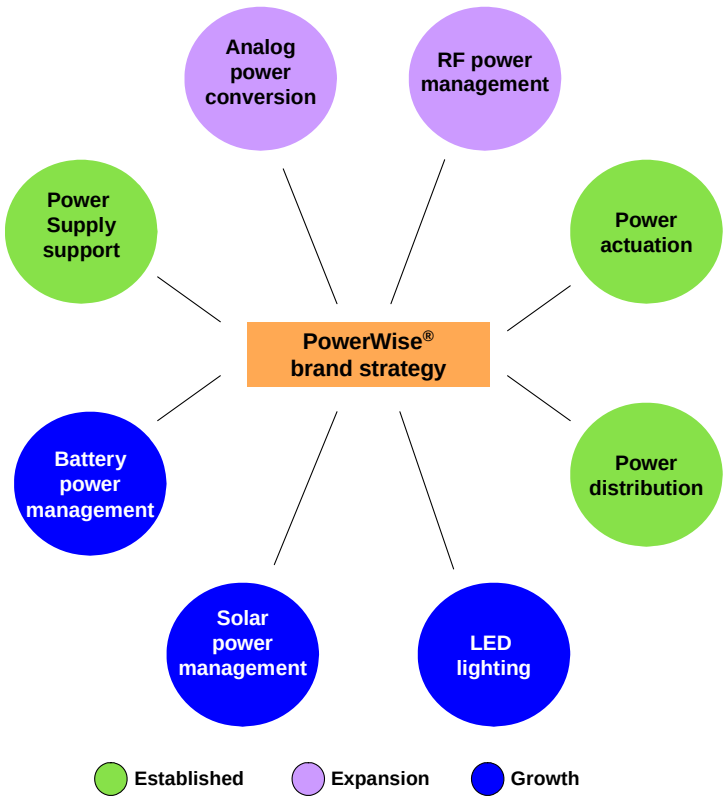
Products for the RF power management domain represent an actual example of National's approach to breaking the analog growth-profit barrier. This power domain offers a high potential for improving the power efficiency of RF power modules for mobile devices as well as wireless base stations, because these subsystems typically feature very low levels of power efficiency. National's SuPA family of RF power converters enable a 50 percent reduction in drawn battery current in comparison with a case when RF power amplifier is directly powered by the battery.

The National power management franchise generates large revenues per generic product – about $1.3M per year. Well established product lines such as Simple Switcher® power conversion products introduced in 1990 and evolving through five family generations generate about $5M per generic product.

Product category	FY09 revenue		FY10 revenue (estimate)		Generic products		Revenue per generic product ($M)
	$M	% of total	$M	% of total	Number	% of total	
Power management	**672**	**51%**	690	54%	**513**	**31%**	**1.3**
Amplifiers	**336**	**25%**	304	24%	**302**	**18%**	**1.1**
Interface	**161**	**12%**	138	11%	**280**	**17%**	**0.6**
Data conversion	88	7%	83	7%	188	12%	**0.5**
Application-specific analog	73	5%	55	4%	365	22%	**0.2**
Total analog segment	**1,329**	**100%**	1,281	100%	**1,648**	**100%**	**0.8**
Other (non-analog) segment	131	9%	110	8%	–	–	–
Total company	1,460	–	1,381	–	–	–	–

In this report all National's power management products are segmented into eight power domains:

- Analog power conversion -- includes about 65 percent of total power management products and represents about 58 percent of total power management revenues
- LED lighting -- highest growth business and a major business thrust area
- Solar power management -- emerging growth business and a major business thrust area targeting global industry leadership
- RF power management -- growth business and the company's business focus area
- Battery power management -- focus on battery charging and the emerging business for battery power management of electric vehicles (EV). EV technology leverages the company's solar power management technology.
- Power distribution -- hot plug controllers, USB switches, and power-over-Ethernet (PoE) products
- Power actuation -- power MOSFET drivers, power drivers, and motor control ICs
- Power supply support -- voltage monitors, power sequencers, and voltage references

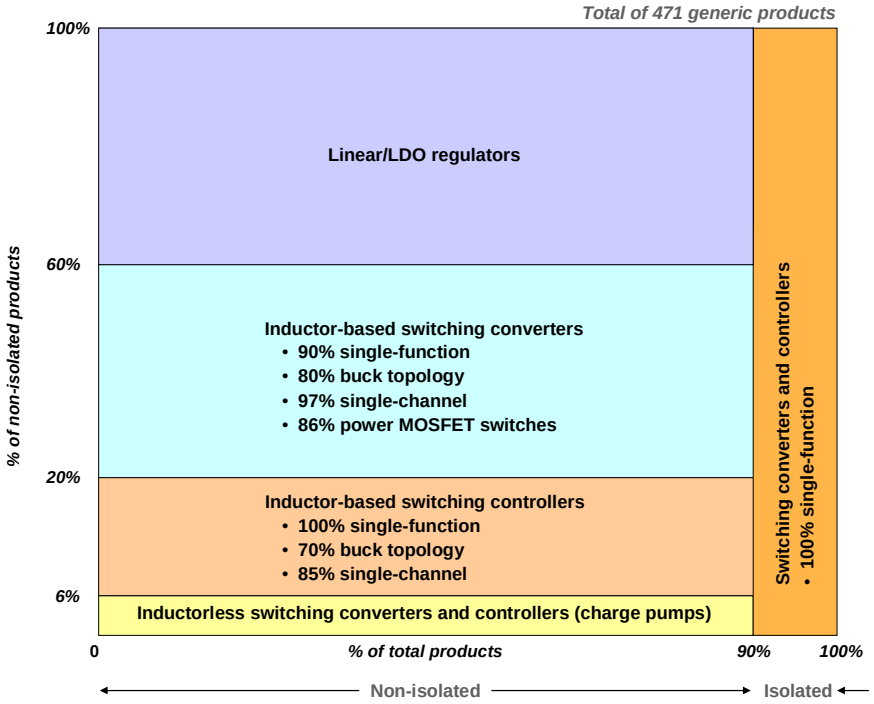


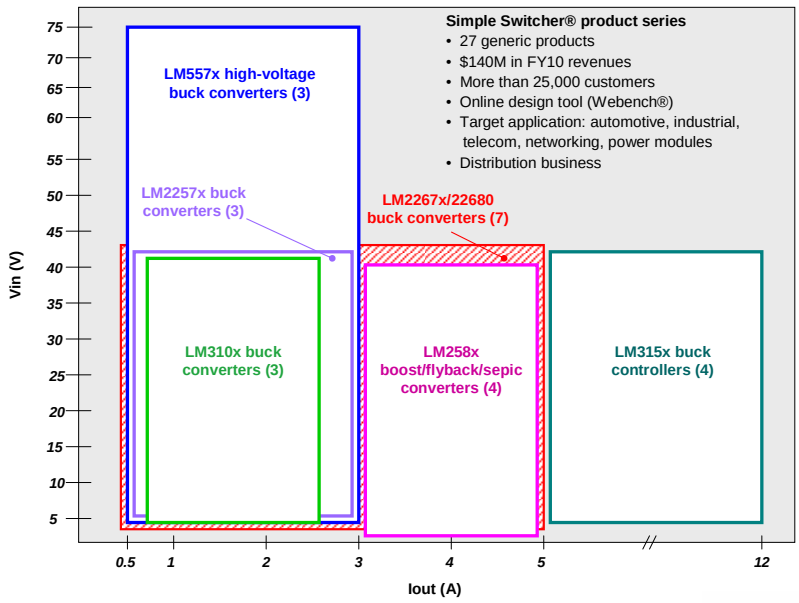
All eight power domain businesses are guided by the objectives of the PowerWise® umbrella branding strategy. In each power domain National focuses on end-equipment applications featuring the lowest level of energy efficiency, hence, enabling the company to grow revenues as well as sustain very high profitability.

The analog power conversion domain is the core of National's power management franchise and features about 323 generic products (out of 513 total power management products) dominated by non-isolated DC/DC conversion ICs and modules (279 products):

- o Linear/LDO regulators, 97 products (35%)
- o Inductor based converters and controllers, 159 products (57%)
- o Inductorless (charge pump) converters and controllers, 23 products (8%)

Single-function and single-channel products represent more than 90 percent of products. National offers about 23 multifunction products typically referred to as power management units (PMU) and energy management units (EMU). EMUs implement the company's proprietary adaptive voltage scaling (AVS) technology.

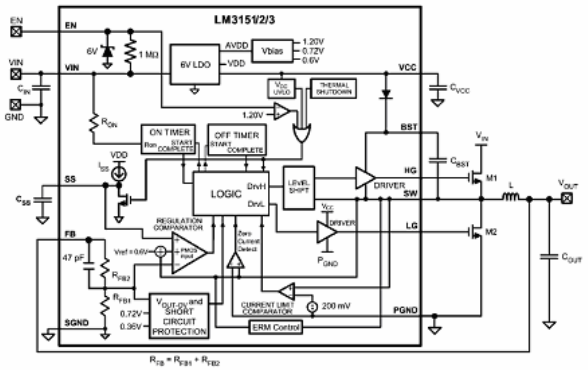




The Simple Switcher® product family features seven different product Series.

The Simple Switcher® family of power conversion ICs is National's single largest revenue contributor (about $140M in FY10). Practically all business comes from the distribution channel while the main applications are in the industrial and communications end-market segments. The relatively high revenue per generic product (about $5/product) comes from the company's large customer base enabled with advanced online design tools (Webench® Power Designer Tool).

National is expanding this product family with new product generations to reinforce its core power business. A representative Simple Switcher® buck controller, for example, is LM3151. This device is implemented in National's BCD process (ABCD5). Target applications include telecom and networking equipment, and power modules.



NATIONAL SEMICONDUCTOR— POWER MANAGEMENT STRATEGY

TABLE of CONTENTS (94 pages, 66 figures, 13 chapters)

List of Figures

Appendix Figures

ORDER FORM

Power Management IC Series

Print, Fill out, and E-mail

Report Title	Pages/Figures	Report Price	Order
National — Power Management Strategy (Businesses, Markets, Products, Technologies)	81 pages 72 figures	$4,450	$_____
Intersil — Power Management Strategy (Businesses, Markets, Products, Technologies)	86 pages 78 figures	$4,450	$_____
Maxim — Power Management Strategy (Businesses, Markets, Products, Technologies)	81 pages 72 figures	$4,450	$_____
Texas Instruments—Power Management Strategy (Businesses, Markets, Products, Technologies)	86 pages 78 figures	$4,450	$_____
Digital Power ICs — High Growth Opportunities for IC and Foundry Vendors (2009 to 2015)	146 pages 98 figures	$4,450	$_____
Analog Power Conversion ICs — Enabling Power Management Applications (2009 to 2015)	122 pages 81 figures	$4,450	$_____
LED Driver ICs for Displays and Lighting — From Cell Phones to Street Lights — Markets and Trends	110 pages 54 figures	$4,450	$_____
Power ICs in Portable Devices — Market, Vendors, Technologies and Integration Trends	75 pages 30 figures	$4,450	$_____
ICs for ESD and EMI Protection — Markets and Integration Trends	69 pages 41 figures	$4,450	$_____
The Rise of BCD Technology in Power ICs — Where and Why	147 pages 45 figures	$4,450	$_____
BCD-based Integration Platform for Power ICs — A Significant Value-Added Opportunity for IC Vendors	63 pages 38 figures	$4,450	$_____
15% Discount for Multiple Reports		**Total**	$_____

The highlighted reports are offered together at a 20% discount for a single-user license and at a 30% discount for a corporate license

Payment Method (We promptly send our Invoice for your records)

☐ **AmEx [ ] Visa [ ] MC [ ].** **Card No.** _____ **Exp. Date** _____

Card Holder _____ Signature _____

☐ Check (for credit card, check or wire transfer payment contact us for further information)

☐ Purchase Order No. _____ Phone to Verify P.O. _____

Signature Authorizing Order _____ Date _____

Payment terms: Our payment terms are 15 working days

Contact Information

Name _____ Title _____

Company _____ Division _____

Phone _____ Fax _____ E-mail _____

PETROV GROUP 4173 El Camino Real,Suite #40 Palo Alto, CA 94306 E-mail: boris@petrovgroup.com