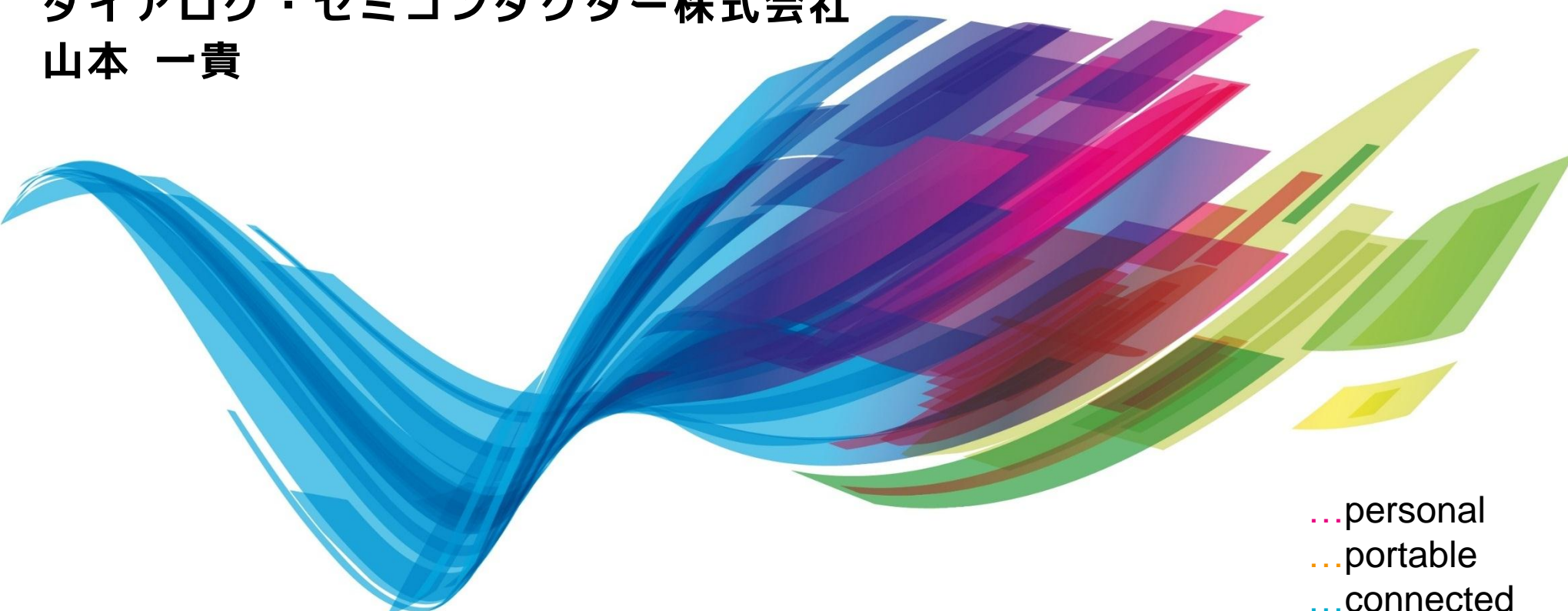


会社概要

ダイアログ・セミコンダクター株式会社
山本 一貴



...personal
...portable
...connected

自己紹介

- 山本 一貴 (やまもと かずき)
- 所属：ダイアログセミコンダクター株式会社
 - 東京デザインセンター所属 ジュニアアプリケーションエンジニア
- おしごと：IPテストチップの評価に関する全てのこと
 - 評価基板の回路設計・基板レイアウト・出図
 - 実装屋さんとのやりとり
 - 実際の評価とレポート
 - など
- mbed祭りの常連
 - 2013年から関東で開催している祭りはほぼ全部参加しています
 - 初心者向け開催の後の親睦会だけ参加 (集合写真にも入る) など
- mbed-srcの一部と「イカ醤油ポッポ焼き」のLPC824対応に貢献
 - <https://developer.mbed.org/users/k4zuki/>
 - <https://github.com/K4zuki>
- Twitter: @_K4ZUKI_ 
 - 公式アカウント を よろしくお願い致します (英語) : @DialogSemi



自己紹介2

今日持ってきたものと昨日言いそびれたこと

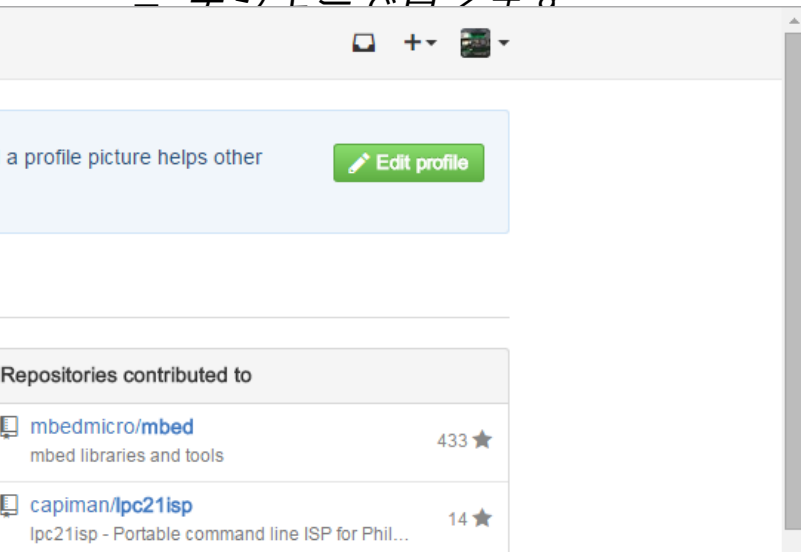
- DA7212 Audio Codec Shield (ARD-AUDIO-DA7212)
 - I2C/I2S で動きます
 - **FRDM K64F** ピンコンパチブル
 - マイク・外部入力 → (内蔵DSP) → スピーカ・ヘッドホン出力
 - データシート各種オンラインで入手できます：
 - 回路図、ガーバ、BOMリスト、**マニュアル**、チップデータシート
 - 直販やってます (\$30, 送料も\$30)
 - mbed.org でComponents に登録済 (ライブラリは書きかけ)
- DA14580EVKT-B
 - BLEチップ“DA14580”の評価基板
 - デジキーで買えます
 - ポータルサイトからデータシート類・開発環境各種ダウンロードできます
 - (いわゆる) 技適は未通過
 - 皆様の厚いご要望で取るかもしれません。
 - 是非ポータルに登録の上「技適マダァー？」と問い詰めて合わせてください
 - 技適取得済モジュールもあります！
 - 村田製作所 LBCA2HNZY “ZYシリーズ” LGAパッケージ
 - マウサーで買えます
 - GitHubにPCB設計図のリポジトリを作りました：<https://github.com/K4zuki/da14580>



自己紹介2

今日持ってきたものと昨日言いそびれたこと

- DA7212 Audio Codec Shield (ARD-AUDIO-DA7212)
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 - BLEチップ"DA14580"の評価基板
 - デモボードを買えます



…類・開発環境各種ダウンロードでき

ません。

マダァー？」と問い詰めで合わせてくださ

文 (解説は日本語) で

りあっさりざっくり、

概要を説明します



Contact Mouser 0120 954 837 | Feedback



Products

Manufacturers

Applica

All Products



Murata Type ZY Bluetooth SMART

Murata's Type ZY Bluetooth SMART Module is required for Bluetooth low energy communication. It features an onboard PCB Antenna, low power consumption, and is easy to use. Learn More

Embedded Solutions

Corporate Presentation

June 2015



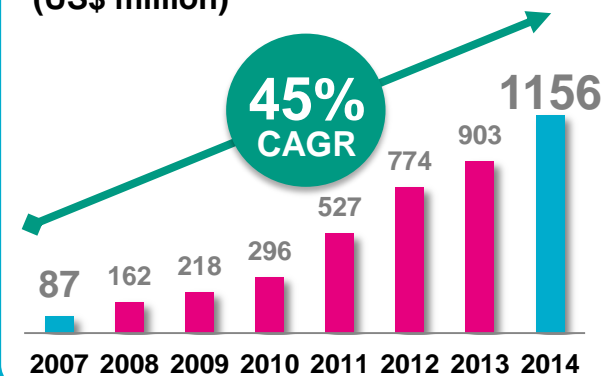
...personal
...portable
...connected

Dialog Semiconductor Overview

At the Forefront of Innovation

- Fabless provider of mixed signal semiconductor integrated circuits (ICs)
- Listed on Frankfurt Stock
- Leading power saving technologies
 - Highly integrated power management
 - AC/DC power conversion
 - **Ultra low power audio** ← 今日持って来ました
 - **Bluetooth® Smart** ← わたし、気になります！
 - Multi-Touch displays
 - LED solid state lighting
- Fastest growing European public semiconductor company
- We work with the leading OEMs in high volume, high growth market segments
 - Smartphones, tablets & Ultrabooks™
 - IoT applications
 - LED lighting
 - Wearables

Dialog Accelerated Growth
(US\$ million)



Focus on Power Saving Technologies



Power Management



AC/DC Power Conversion



Wireless Audio



Bluetooth Smart



Targeting Growth Applications



Controlling Both Sides of the Wire

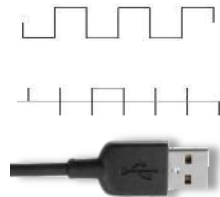
Hybrid Business Model – Custom and Standard Products



AC-DC ICs for portable chargers



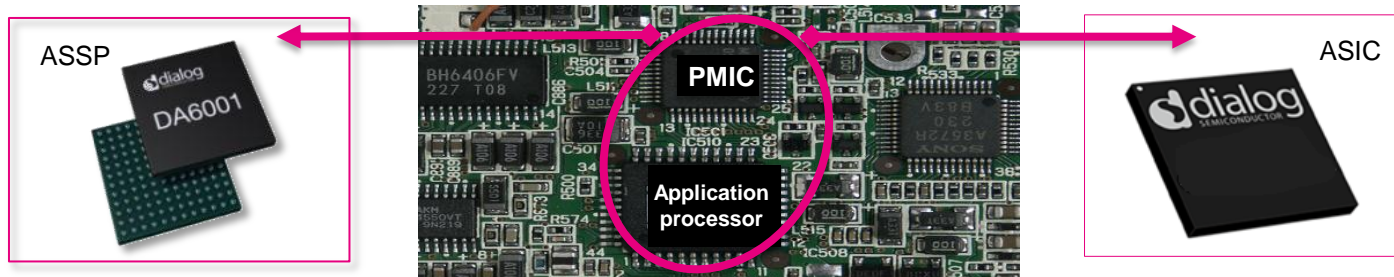
Communication protocol



Power management ICs



PMIC processor ecosystem partners



Controlling Both Sides of the Wire

Hybrid Business Model – Custom and Standard Products



AC-DC ICs for



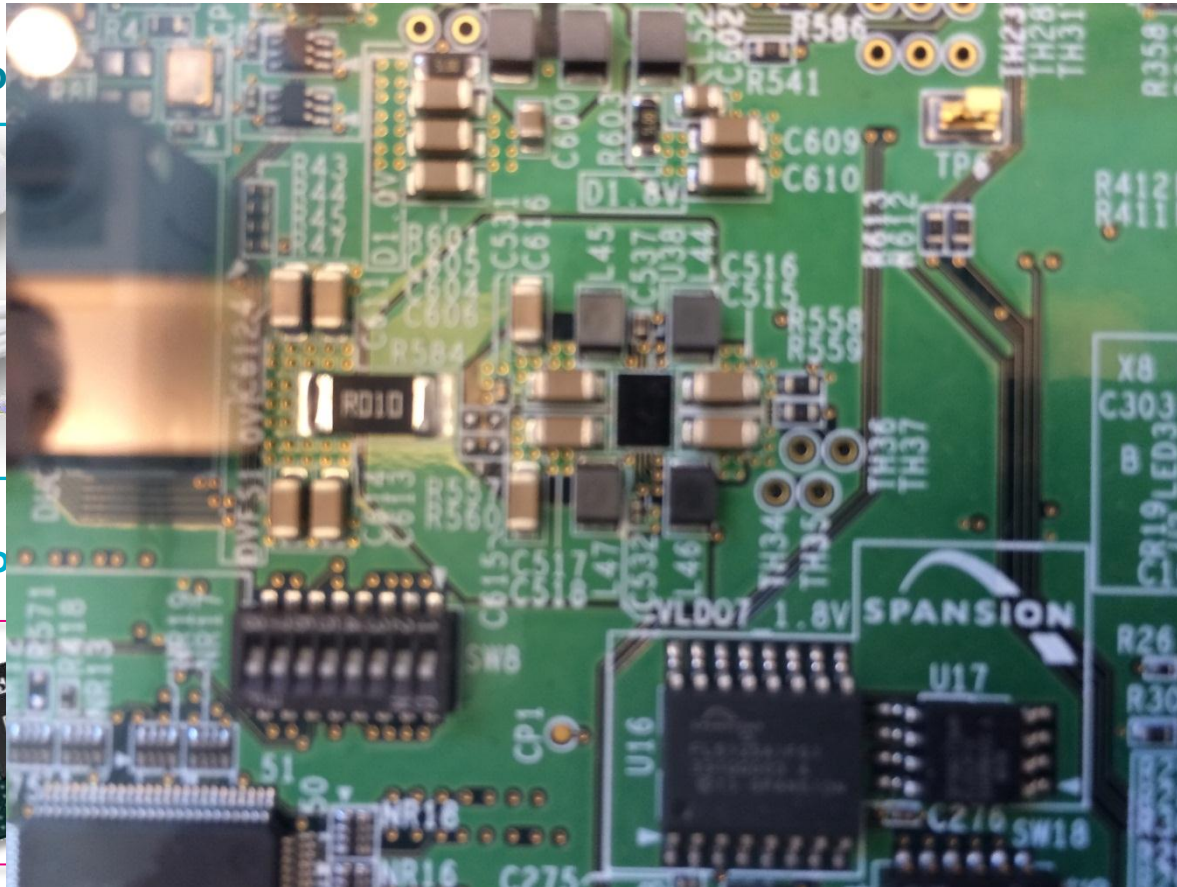
ment ICs



PMIC processor eco



ASSP



SIC



Outsourced Manufacturing Model



Design & layout



Wafer probe test (prototypes) & test development



Application & physical lab



Test environment

Transfer to sub-con



GLOBALFOUNDRIES



Fabless manufacturing model

- In-house process expertise, complemented by foundry process and manufacturing

Hybrid back-end test and assembly

- In-house test development & Asian contractors for volume test and packaging



Corporate Structure

≈1400 Employees Today > 70% Engineering



Corporate

- Finance
- Global manufacturing, operations & quality
- Corporate development & strategy
- Advanced technology development
- Engineering
- Sales
- HR

Business Groups

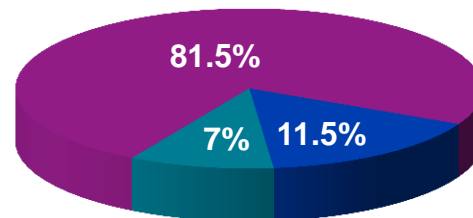
Mobile Systems

Connectivity, Automotive & Industrial

Power Conversion

Emerging Business

2014 Revenue

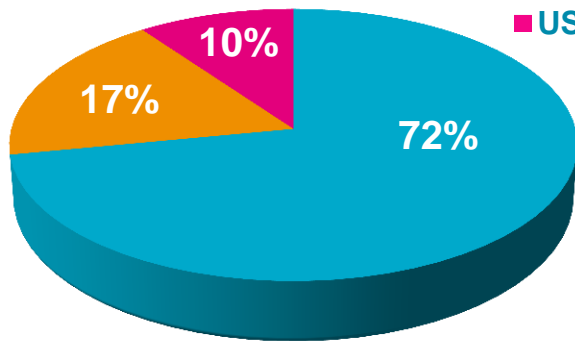


- Mobile Systems
- Connectivity, Automotive & Industrial
- Power Conversion

Global Organisation



■ Europe
 ■ APAC & Japan
 ■ US



- Total employees: ~1400
- Engineering: ~70%

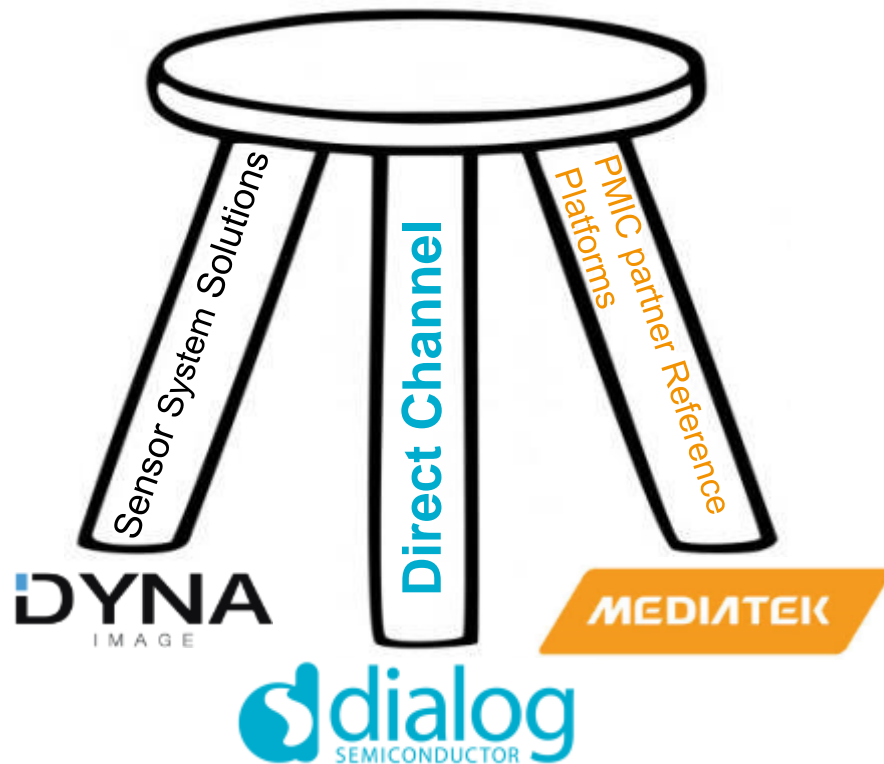
Source date: May 2015

R&D Centers	Sales Offices
Stuttgart & Munich, Germany	Taipei, Taiwan ROC
Swindon & Edinburgh, United Kingdom	Seoul, Korea
Den Bosch & Hengelo, Holland	Tokyo, Japan
Athens & Patras, Greece	Shanghai, Shenzhen, Hong Kong, China
Graz, Austria	
Livorno, Italy	Singapore
Istanbul, Turkey	Reading, United Kingdom
Beijing & Tianjin, China	Stuttgart, Germany
Tokyo, Japan	Den Bosch, Holland
Hsinchu, Taiwan	
Santa Clara, Campbell, CA & Chandler, AZ, US	Santa Clara, CA, US



Dialog in Greater China

Achieving the Maximum Reach with our Partners



- Direct channel to OEMs: Bluetooth® Smart, AC/DC converters, LED drivers
- Reference platforms: MediaTek Sub-PMIC
- Lite-On partnership – Dyna-Image JV: sensor system solutions



Recent Success



- ❖ Smartphones based on Mediatek (MT6795 and MT6955 reference platforms using Dialog sub PMIC technology
- ❖ Xiaomi Mi band using Dialog Bluetooth Smart technology



Agenda

Dialog Semiconductor Overview

Our Strategy & Markets

Financials

Technology

Summary



Technology Focus: Bluetooth® Smart

Wearable-on-Chip™ Targeting IoT Applications



- Complete Bluetooth low energy 4.1 SOC
- 32 bit ARM M0 core integrated
- Radio: 4.9 mA RX/ TX at 3V @ 0 dBm output power
- Under 600 nA in sleep mode
- Operating down to 0.9V
- Operates from coin cell, single or dual cell (alkaline or NiMH)



$< 1/2$

Package size of currently available solutions : 2.5x2.5x0.5mm WL-CSP

Technology Focus: Smart Lighting

Leading in Dimmable SSL and Innovative Smart Lighting



- Eliminates flicker, targeting dimming and non dimming
- Features smaller form factor, improved lifetime and reliability
- Retrofittable into existing fixtures
- Compatible with widest range of dimmers



Technology Focus: Multi-Touch

Multi-Touch Technology Targeting Computing Market



- Highly integrated Multi-Touch IC
- Supports FlatFrog Planar Scatter Detection Touch
- Designed to be Microsoft Windows 8 touch compliant
- Cost effective, premium multi-touch to All-In-One PCs, large monitors and TV's



Feel the
pressure...



Technology Focus: Wireless Audio

Interference Free Wireless Solutions



- Low energy single chip wireless solutions at 1.9 and 2.4 GHz
- Both proprietary and DECT standard based solutions incl. full CAT-iq software support
- Leading audio quality suitable for professional wireless headsets, wireless microphones and digital cordless
- Lowest latency wireless audio solutions, based on DECT



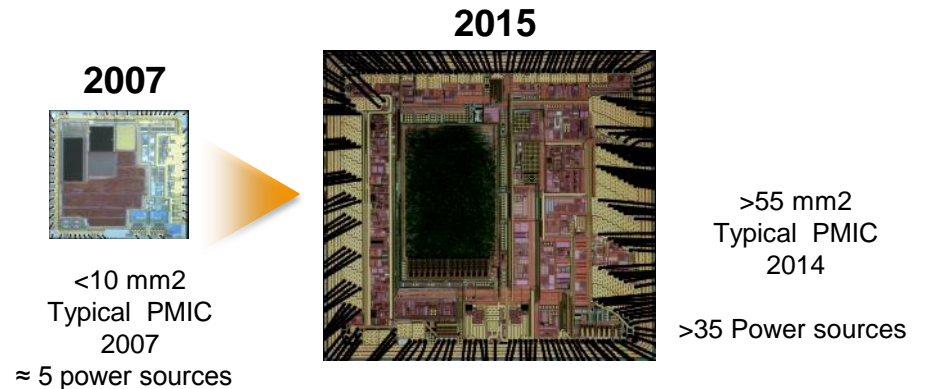
Technology Focus: PMICs

At the core of smartphones, tablets and wearables



Configurable PMICs: changing how engineers design power management

- High integration of power management with optional ultra low power audio
- Fully configurable with PC software
- Battery fuel gauge, or ARM® processor integration option
- Fifth generation configurable power management IC now in production



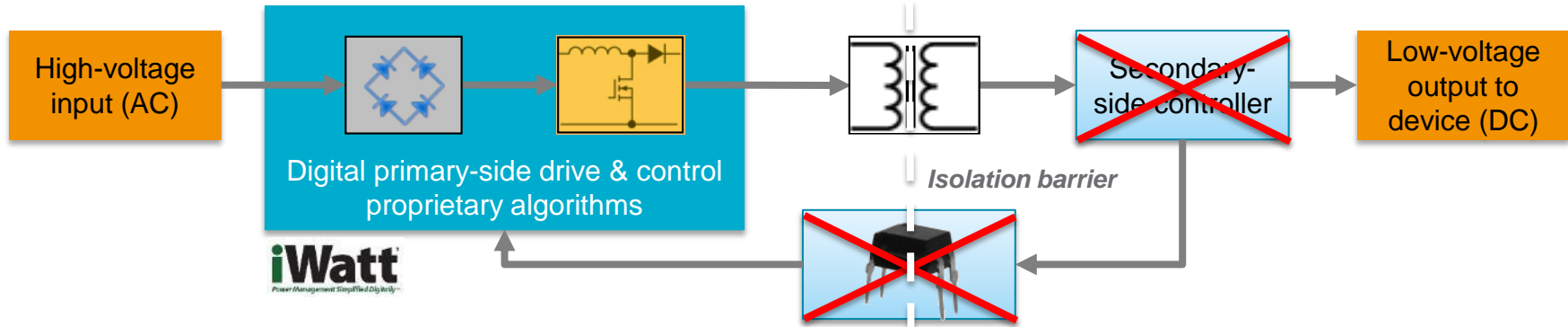
Increasing levels of PMIC integration

- One time programmable by customer using Dialog software
- Allows systems designers to simply make late changes in power tree
- Few silicon iterations and faster product development cycle

Technology Focus: AC/DC Charging

Digital Solution

AC/DC conversion for charger and LED applications

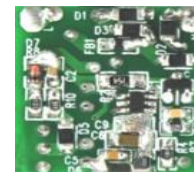


Benefits of iWatt charger technology

- Reduced stand-by power
- Smaller form factor
- Lower BOM cost
- Better longevity – no opto-coupler

iWatt vs. Competition

Less components

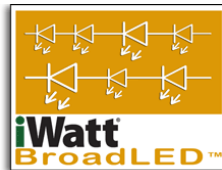


Technology Focus: LED Backlighting

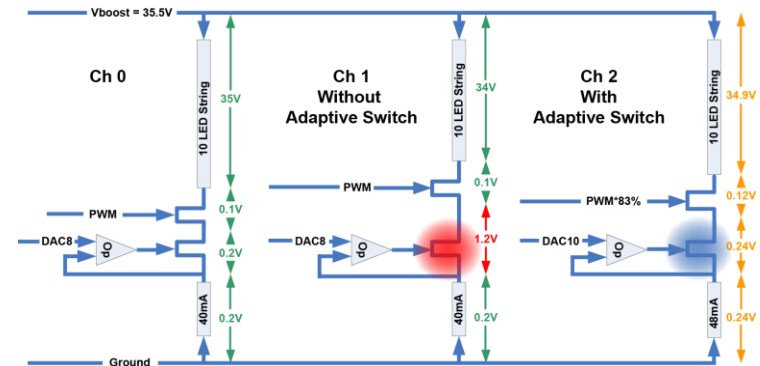
Dialog's DC/DC LED Backlight Drivers competitive advantages...

BroadLED™ Technology

- Reduces wasted power by up to 90%
- Maintains better than 2% channel current matching
- Minimizes thermal problems and reduces heat
- Enables use of cheaper, loosely binned LED arrays for lower BOM



BroadLED™ with Adaptive Switch Mode Topology



Lower BOM Cost, Better Performance



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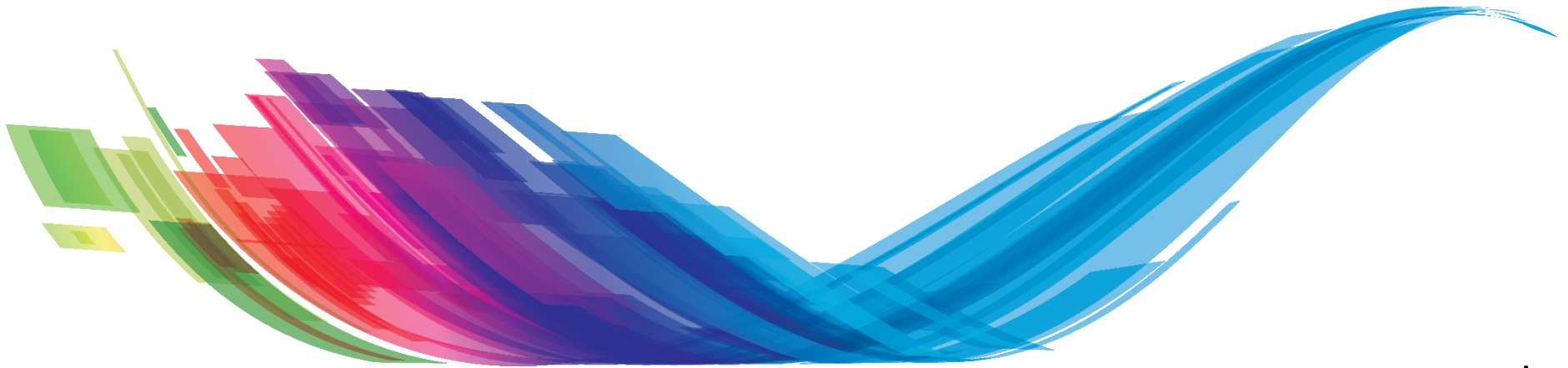
Why Dialog?



- 1 Leading power management intellectual property for portable devices
- 2 Leading rollout with Bluetooth Smart connectivity in emerging IoT applications
- 3 Strong relationship with brand-name, innovative and trend-setting partners
- 4 High volume custom product and ASSP product capability
- 5 Ecosystem partnerships with the leading application processor vendors
- 6 Strong pipeline of new products and technologies for 2015 and beyond
- 7 Robust financial position, US\$421 million on balance sheet at last quarter end



The Power To Be...



...personal
...portable
...connected