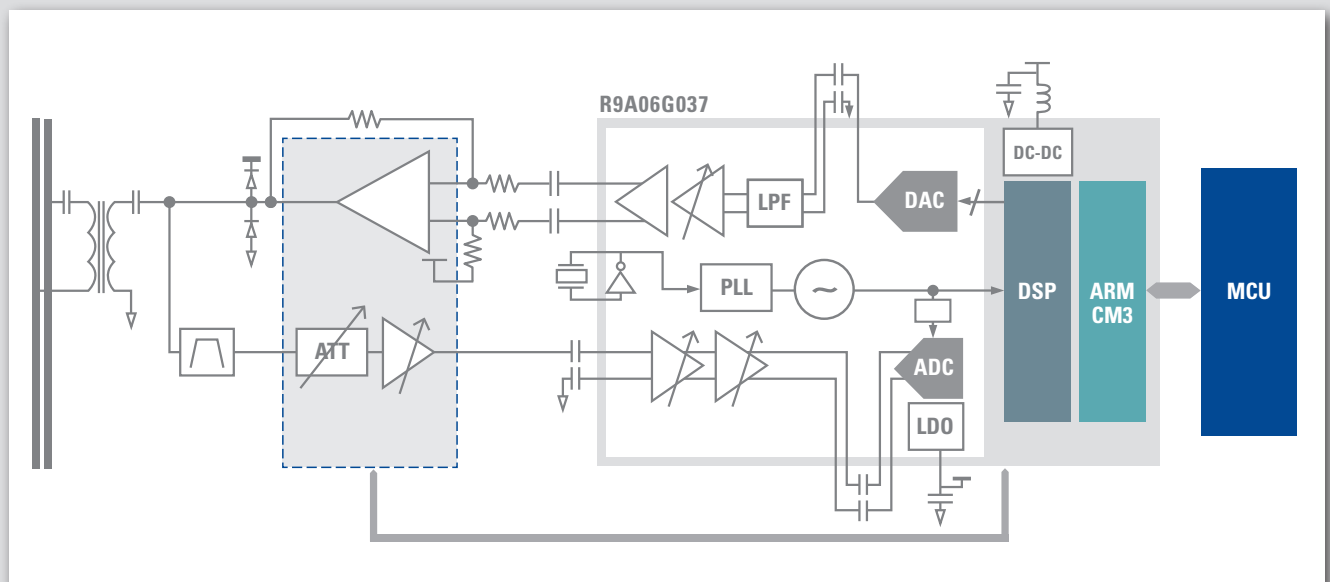


## Cool Phoenix 3

### Renesas' Third Generation Flexible PLC Modem Solution

With the constantly evolving markets, equipment manufacturers face many challenges in developing new products supporting ever changing needs. Re-usable building blocks and efficient synergy effects in the development and testing phase are becoming of the essence. Renesas' third generation of flexible single-chip powerline solutions allows equipment manufacturers to significantly shorten time-to-market, minimise risk and maximise system cost efficiency. With its increased memory headroom and boosted protocol processing performance, additional functions like dual-route communication can be implemented, helping customers to differentiate their products.

#### System Configuration



- Software configurable, flexible PLC modem supporting worldwide frequency bands (CENELEC A, FCC, ARIB)
  - » Supporting multiple regions with a single design
- Pure software based implementation for standard protocols
  - » Supporting multiple standards with a single design (G3, PRIME)
- Modular system architecture
  - » Reusable building blocks reducing testing effort and development cost
- Integrated AFE with adaptive gain amplifier and AGC function
  - » Assuring optimum reception performance and robustness
- Unique robustness achieved by dedicated hardware features and software algorithms
  - » Assuring communication even in harsh network environments
- High memory headroom.
  - » Even dual route communication can be supported.
- Competitive Bill of Material
  - » Including certified software stacks with no additional license fees.

# Cool Phoenix 3 – Renesas' Third Generation Flexible PLC Modem Solution

| Features                                                                   | Benefits                                                                                               |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| High performance DSP and MCU core                                          | Enables easy design of a single meter platform ready to support multiple standards and frequency bands |
| High memory headroom (768k Byte RAM)                                       | Offers sufficient headroom for future standard evolution and dual route communication                  |
| Very low power operation                                                   | Helps reducing overall system power consumption                                                        |
| 12-bit DAC                                                                 | Reduced integral and differential non linearity<br>-> Increased robustness                             |
| 11-bit ADC (ENOB 11bits)                                                   | Increased noise tolerance<br>-> Increased robustness                                                   |
| Tuneable internal anti-aliasing filter                                     | Reduced BOM cost                                                                                       |
| Integrated Rx programmable gain amplifier (-18 dB to +60 dB in 2 dB steps) | Wide gain range and wide dynamic range<br>-> Increased robustness                                      |
| Integrated DC/DC and LDO                                                   | Low power consumption and low noise interference;<br>Reduced BOM cost                                  |

## Connect it! – Powerline Communication Solution Kit

- Simple to use tool for technology evaluation and development
- Configurable to support multiple frequency bands by simple exchange of the filter board
- Pre-programmed for quick PHY performance evaluation
- Simple PC GUI for flexible device configuration and powerline communication analysis
- Assembled RX631 host MCU allowing customisation of evaluation software to own powerline test environment
- E1 debugging interface for development support
- Multiple USB connectors as interface between modem and host microcontroller



Before purchasing or using any Renesas Electronics products listed herein, please refer to the latest product manual and/or data sheet in advance.

