

PHILIPS

Application Guide Book:
DECT Phones and Base Stations
The power semiconductors they use

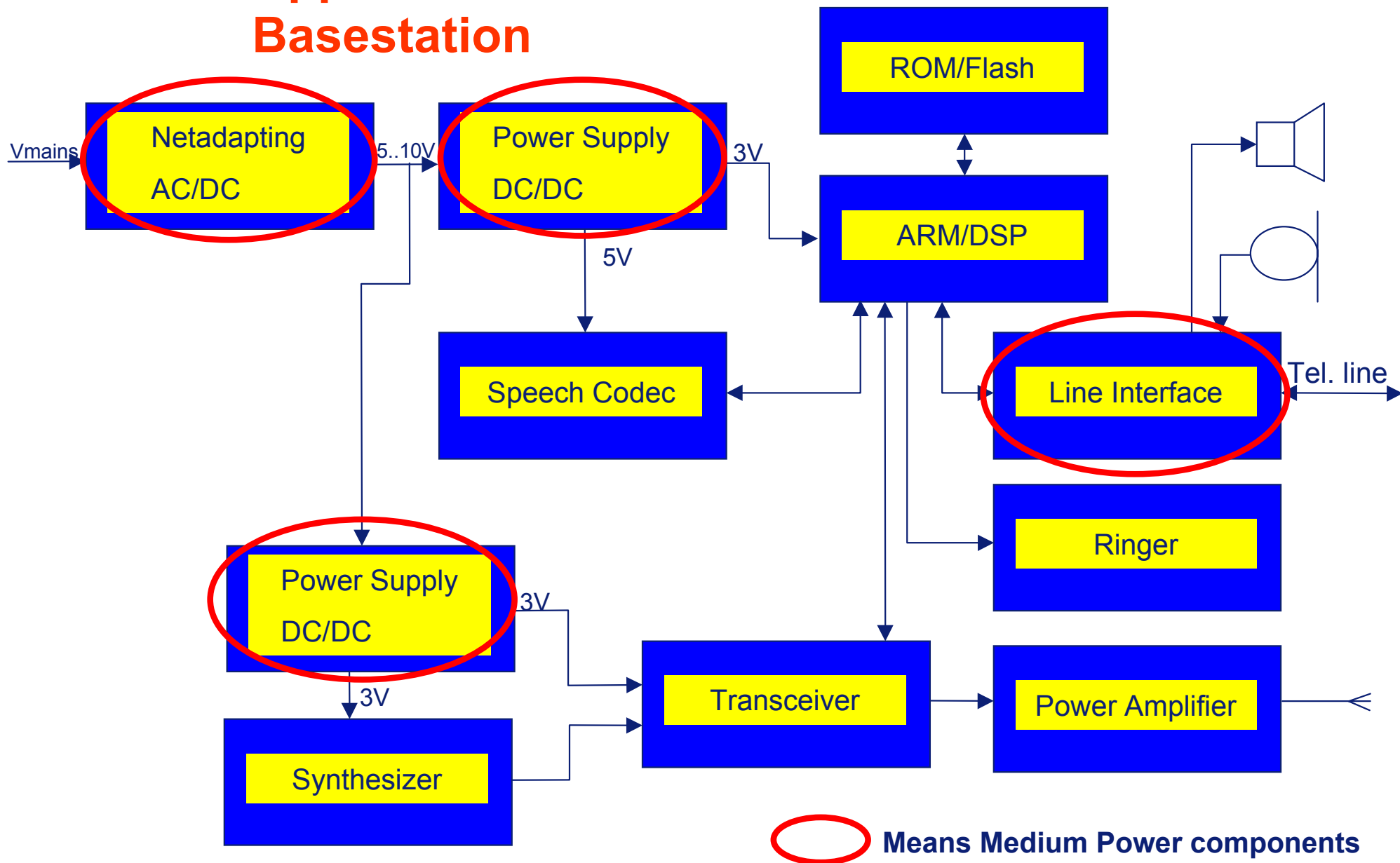
Discretes and MultiMarket ICs

DMI – BL Power

07/08/2002

Base station

Application: DECT Basestation



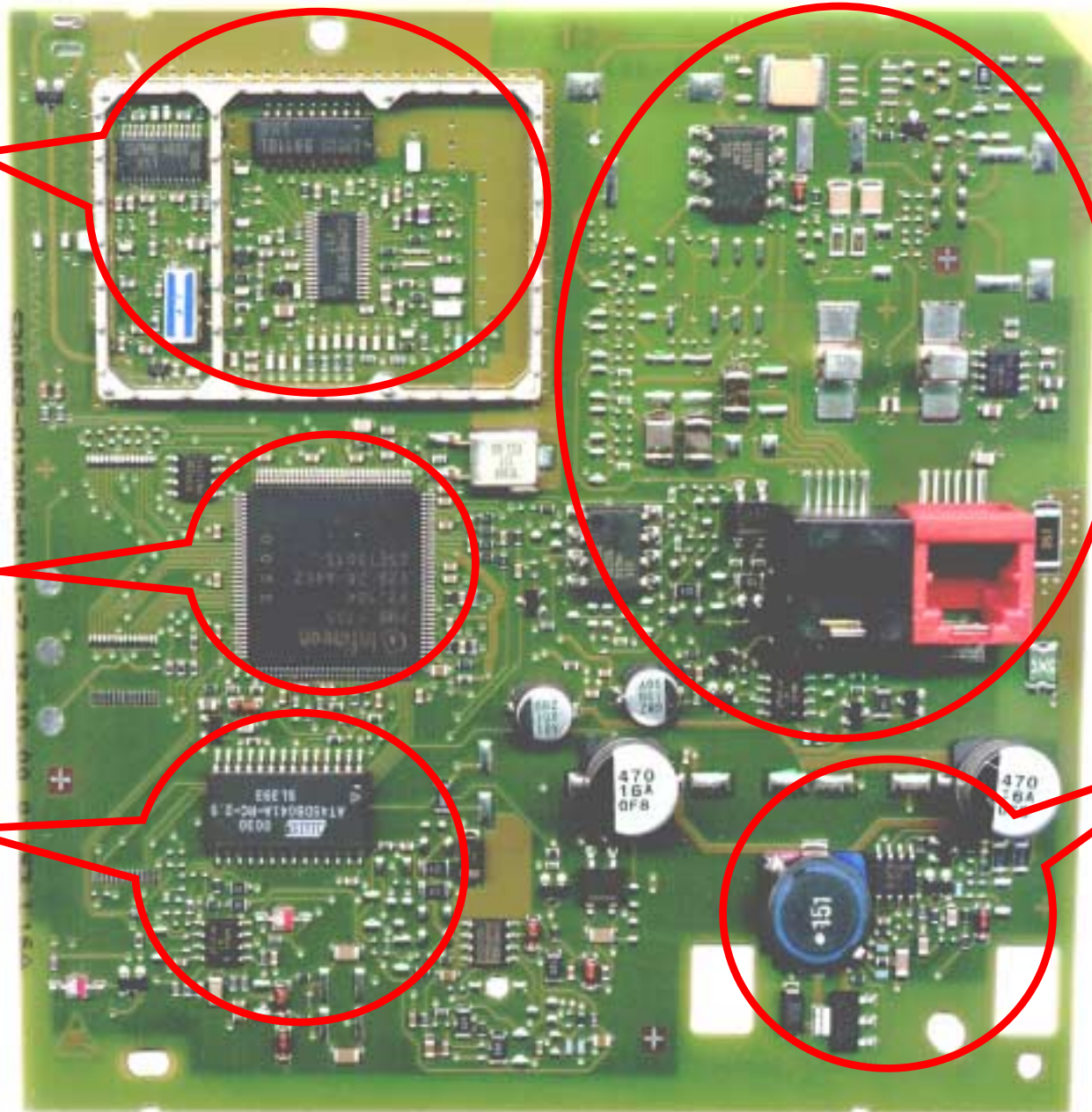
**Power
Amplifier**

ARM/DSP

**ROM /
Flash
memory**

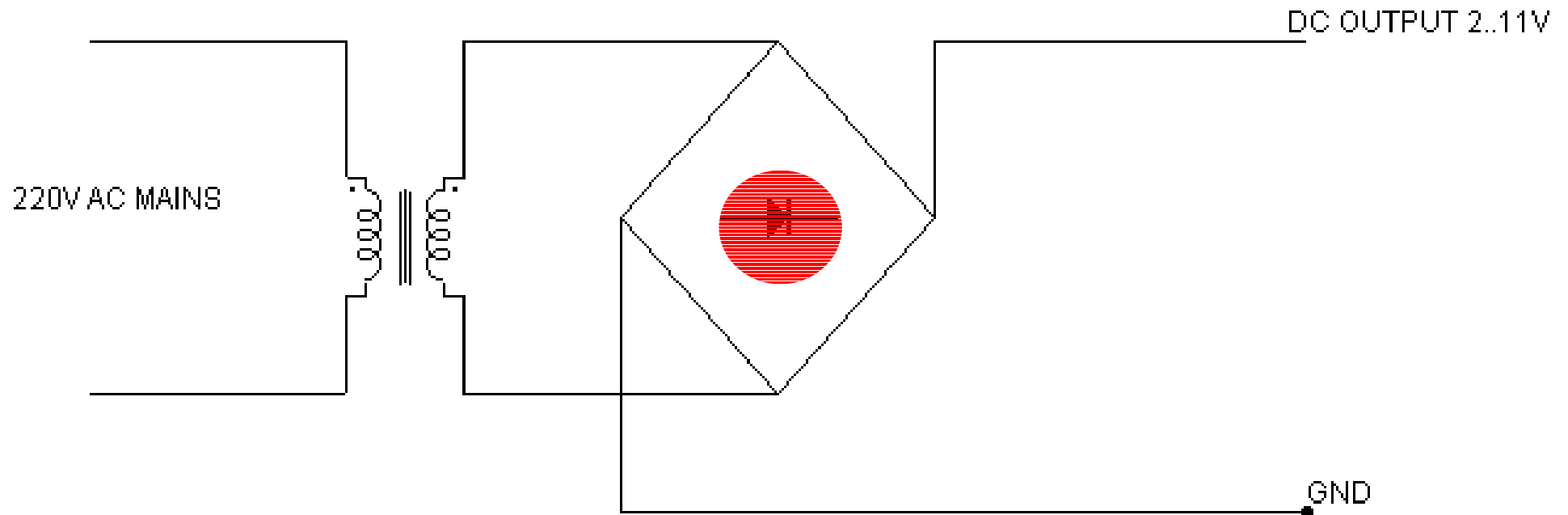
**Line-
Interface**

**DC/DC-
supply**



AC/DC Conversion

- Mains voltage in
- DC-Voltage out 2..11V DC
- Linear topology



Philips General purpose diodes:

1N4000-series

Schottky diodes

1N5817/18/19

SOD81

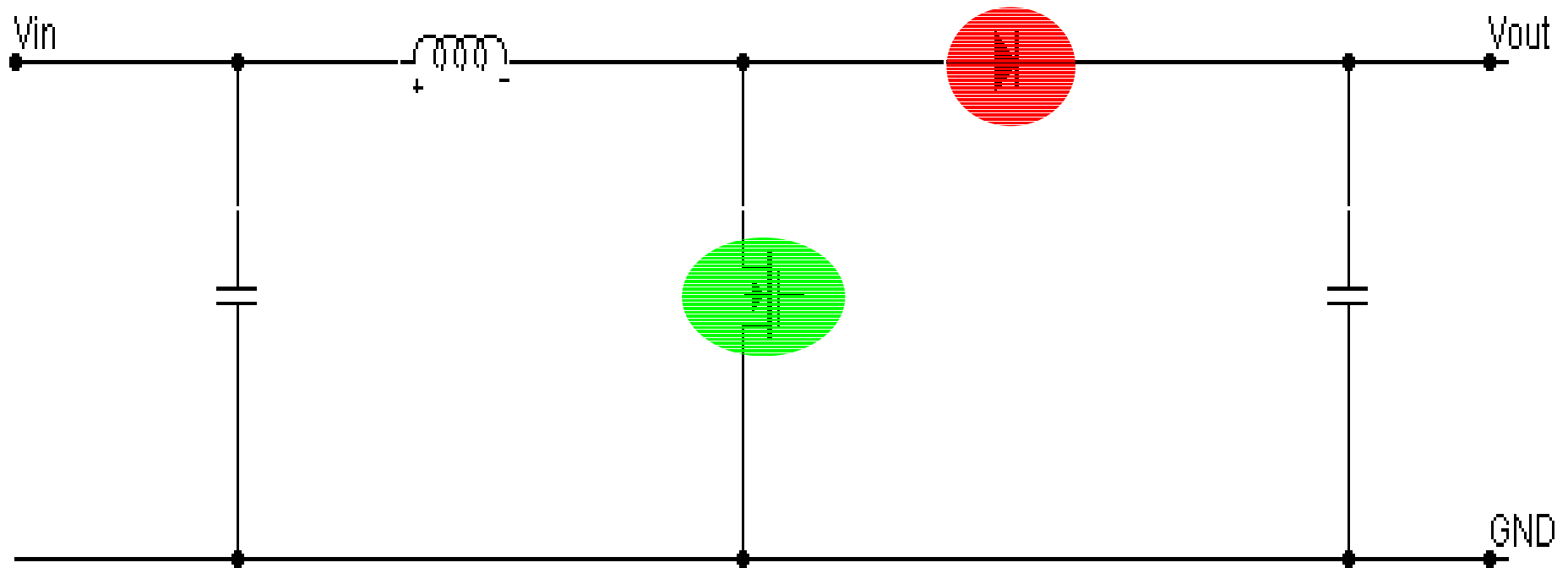
PRLL5817/18/19

SOD87

DC/DC Conversion

- **External voltage in (5..30V DC)**
- **Voltage out 3V and 5V DC**
- **Discrete solution or,**
- **IC topology**

Discrete solution



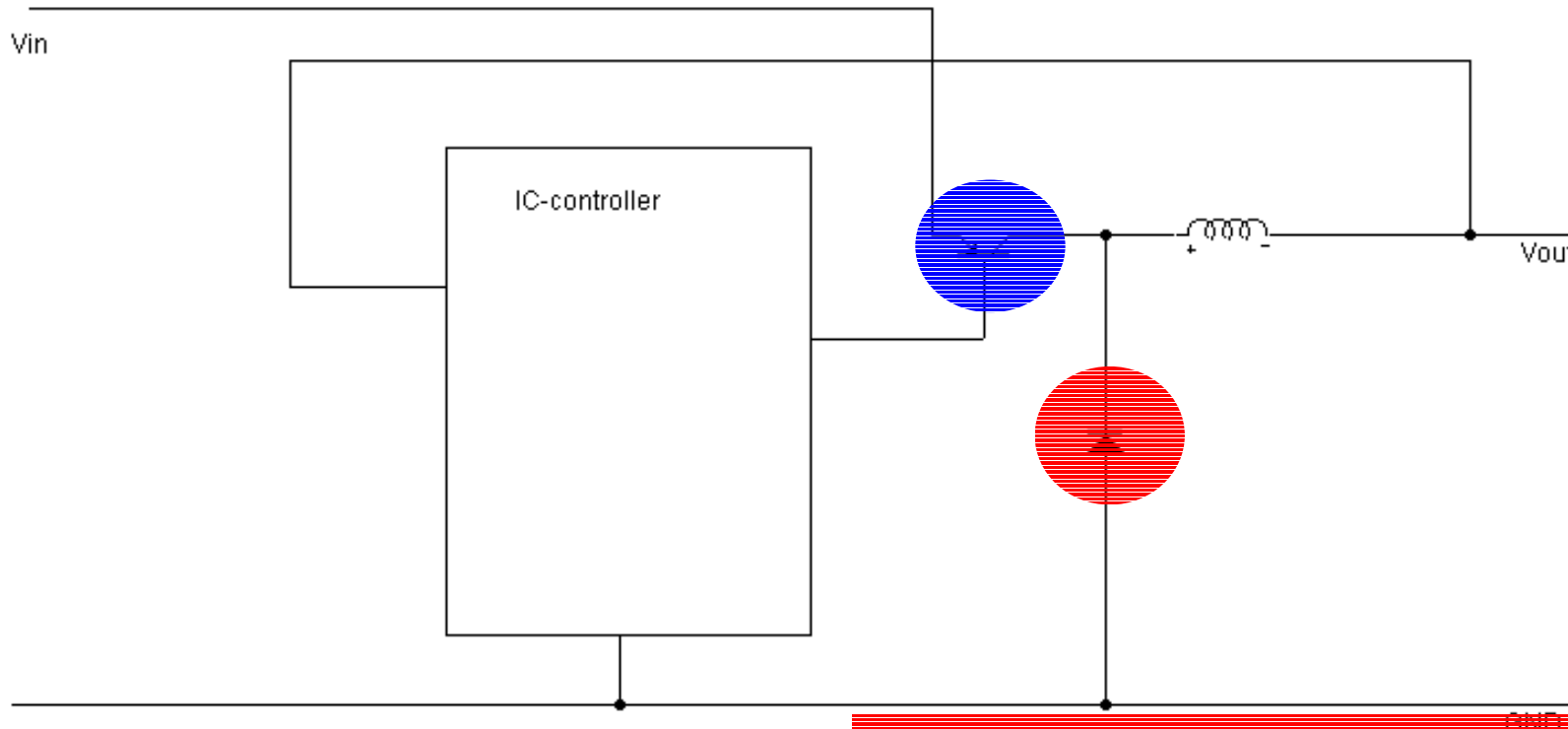
Philips Mosfet devices:

- BSH103**
- BSH105**
- BSH108**

Philips Schottky diodes:

- BYG90-series
- PRL5817/18/19 20 .. 40V, 1A, SOD81
- 1PS74SB43 / ... SB23 40 / 25V, 1A, SOT457
- BAT720 40V, 0.5A, SOT23
- BAT760 20V, 1A, SOD323 (SC-76)
- 1PS70SB20 40V, 0.5A, SOT323
- PMEG2010EV 20V, 1A, SOT666

IC solution



- Philips PNP bipolar transistors:**
- Low $V_{CE(sat)}$
- PBSS5140D 40V, 1A, SOT457
 - PBSS5350D 50V, 3A, SOT457
 - PBSS5350Z 50V, 3A, SOT223
- General purpose
- BCP51 45V, 1A, SOT223

- Philips Schottky diodes:**
- BYG90-series
 - PRL5817/18/19 20 .. 40V, 1A, SOD81
 - 1PS74SB43 / ...SB23 40 / 25V, 1A, SOT457
 - BAT720 40V, 0.5A, SOT23
 - BAT760 20V, 1A, SOD323 (SC-76)
 - 1PS70SB20 40V, 0.5A, SOT323
 - PMEG2010EV 20V, 1A, SOT666

Power supply supporting electronics

- Application examples
 - Supply line switches
 - Signal OR'ing
 - Voltage regulation
 - Overvoltage protection
- Product examples

RETs (Resistor-equipped transistors)
 PDTA-, PDTC- series
 PEM- and PUM-series (double)
 GPTs (General purpose transistors)
 BC807-40
 BC847B, BC857B, BC807-25, BC817-25
 BC847BS, BC857BS, BC847BPN (double)
 BC847BV, BC857BV, BC847BVN (double)

Schottky diodes
 BAT54-series

Zener diodes

BZX84-[A..C]5V1	5.1 V, 0.25 W, SOT23
BZX384-[A..C]5V1	5.1 V, 0.25 W, SOT323*)
BZX584-[A..B]5V1	5.1 V, 0.25 W, SOD523
BZX884-[A..B]5V1	5.1 V, 0.25 W, SOD882*)
PDZ-5.1B	5.1 V, 0.4 W, SOD323**)

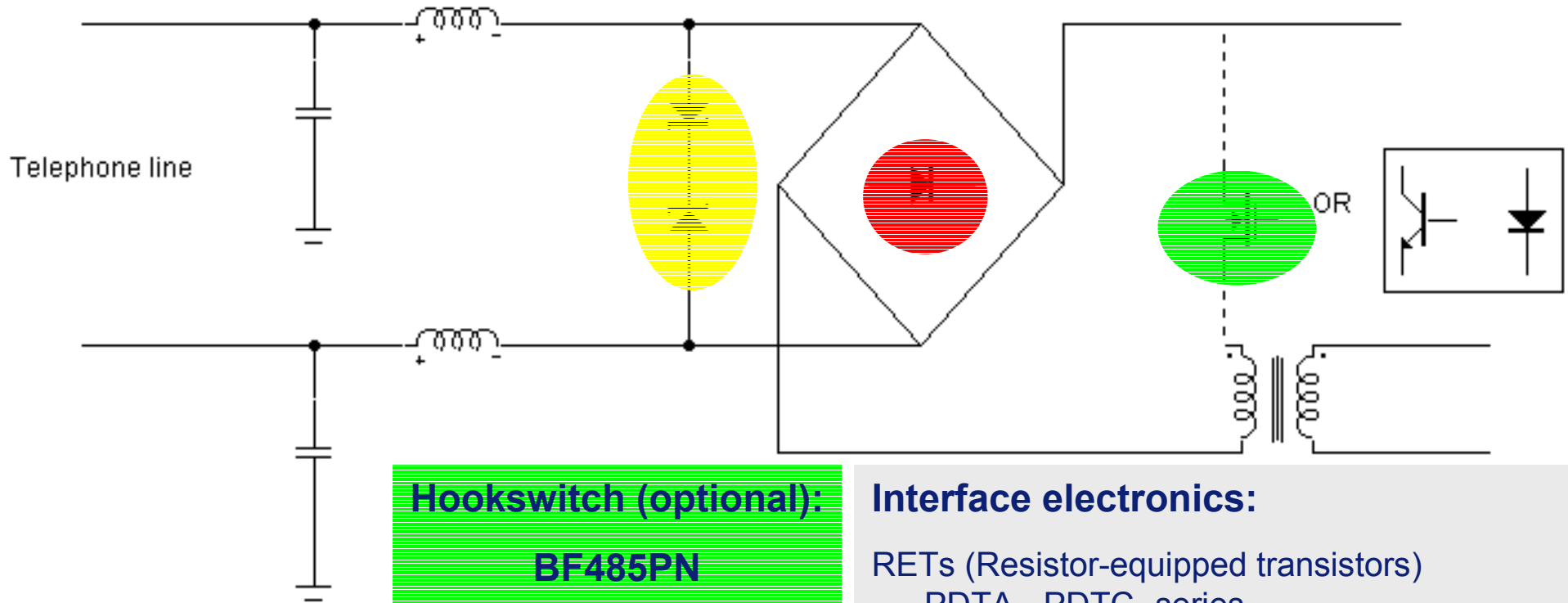
*) under development (August 2002)

***) Japanese range

Line Interface

- **Connection for incoming and outgoing signals.**
- **Bridges or Bridge topology (AC-> DC)**

Line Interface



**(BI)-Directional TVS:
230V, 6000W peak**

**Bridge diodes:
1N4000-series**

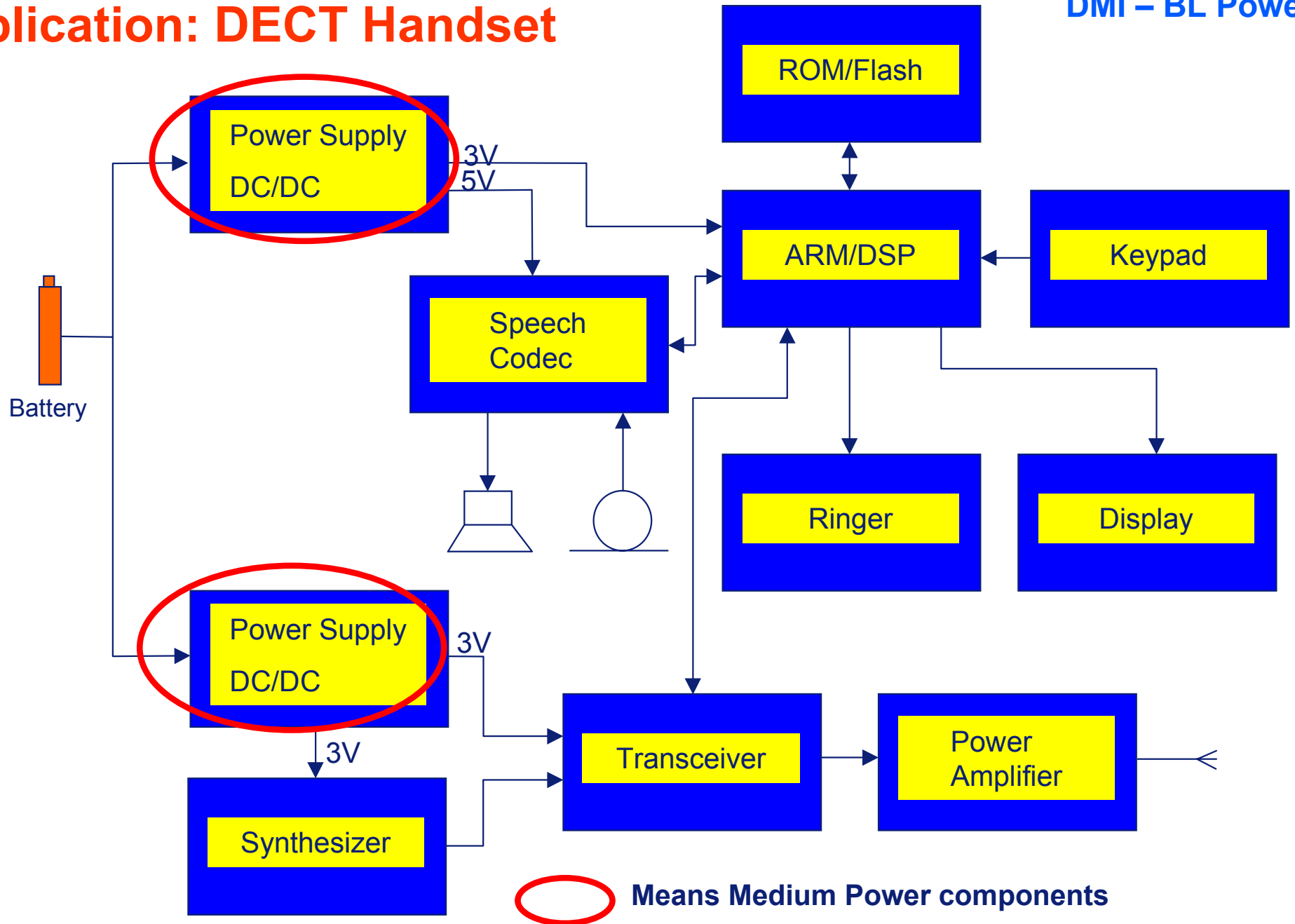
Hookswitch (optional):
BF485PN
BSP89
BSP122
BSP126
BSP130
PHC2300N

Interface electronics:
 RETs (Resistor-equipped transistors)
 PDTA-, PDTC- series
 PEM- and PUM-series (double)
 GPTs (General purpose transistors)
 PMBTA42
 BC847B, BC857B, BC807-25, BC817-25
 BC847BS, BC857BS, BC847BPN (double)
 BC847BV, BC857BV, BC847BVN (double)
 Schottky diodes
 BAS21

Handset

Application: DECT Handset

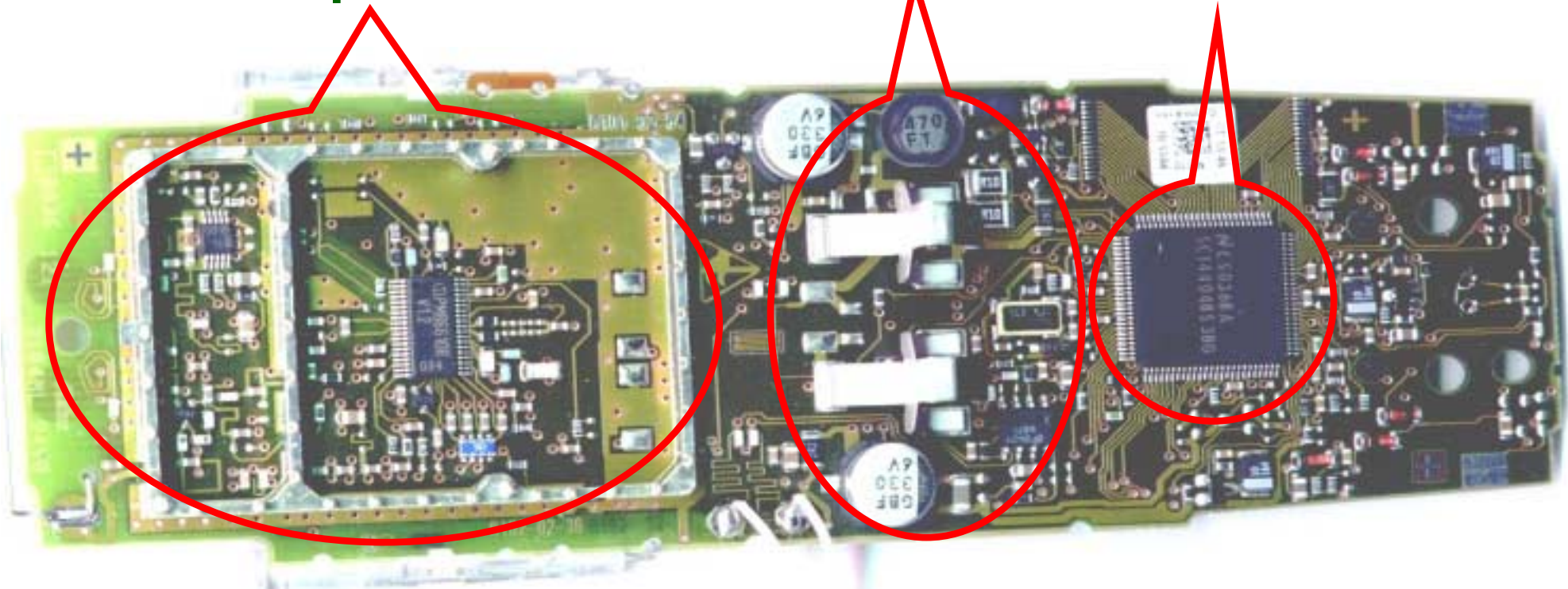
DMI – BL Power



**Power
Amplifier**

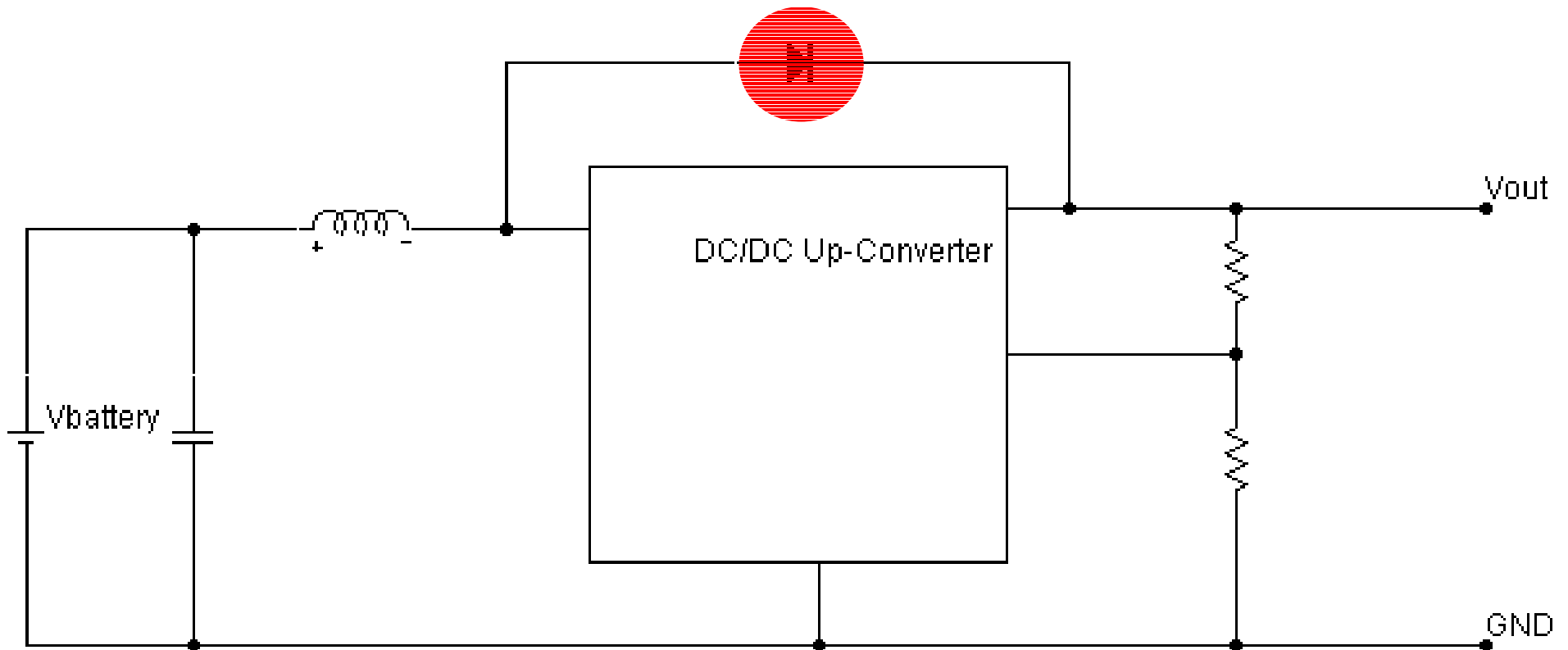
**DC/DC
supply**

ARM/DSP



DC/DC Conversion

- **Battery voltage in (2.4 or 3.6V (2 or 3 NiMH-cells))**
- **Voltage out 3V and 5V DC**
- **IC solution**

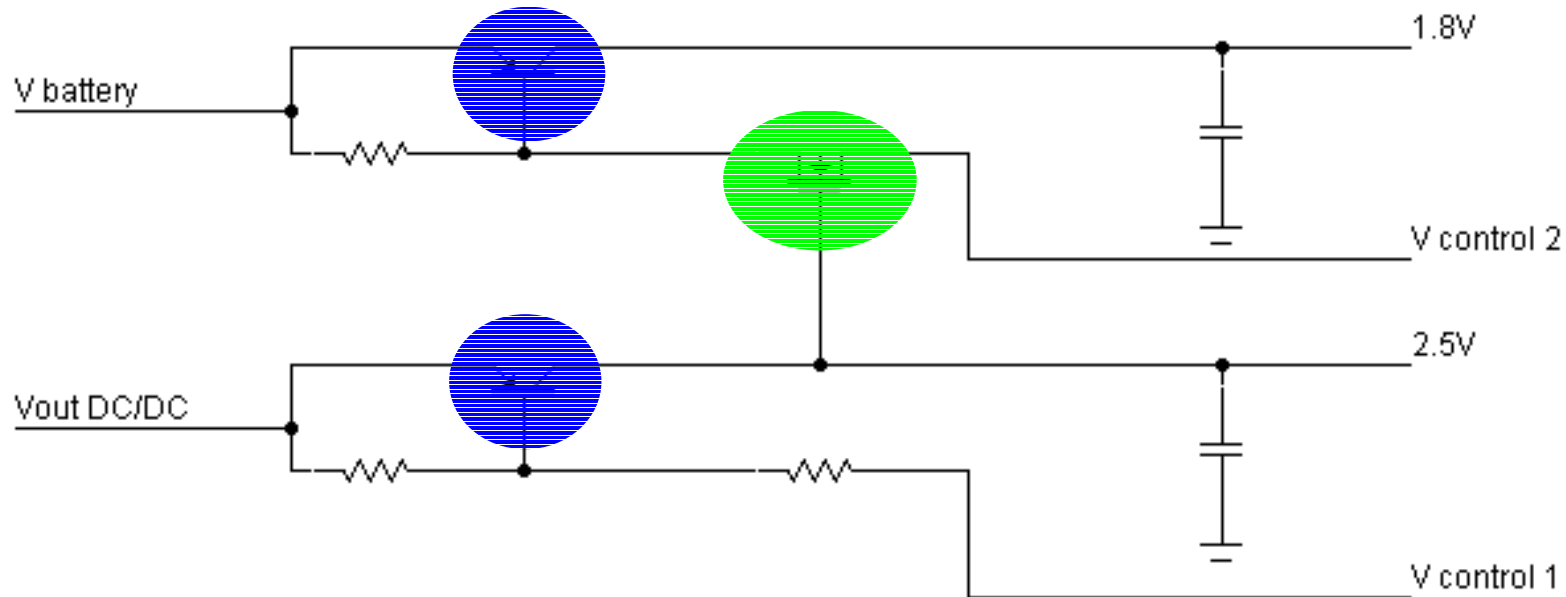


Philips Schottky diodes:

PRL58-series

PMEG-series

BYG90-series



MOSFET N-type:

BSN20

BSH103

BSH105

BSH108

BSH111

Philips PNP bipolar transistors:

Low V_{CEsat}

- PBSS5140D/T/U/V 40V, 1A, SOT457/SOT23/SOT323/SOT666
- PBSS3515VS (double) 15V, 0.5A, SOT666

General purpose

- BC857B 45V, 0.1A, SOT23
- BC807-25 45V, 0.5A, SOT23
- BC857BS (double) 45V, 0.1A, SOT363
- BC857BV (double) 45V, 0.1A, SOT666

Analysis of the DECT devices showed:

- Lots of small signal transistors (PNP/NPN).
- Mains adapter assembled by Friwo.
- No known battery management in DECT phones found.

