Dual Port SuperSpeed USB 3.0 Redriver
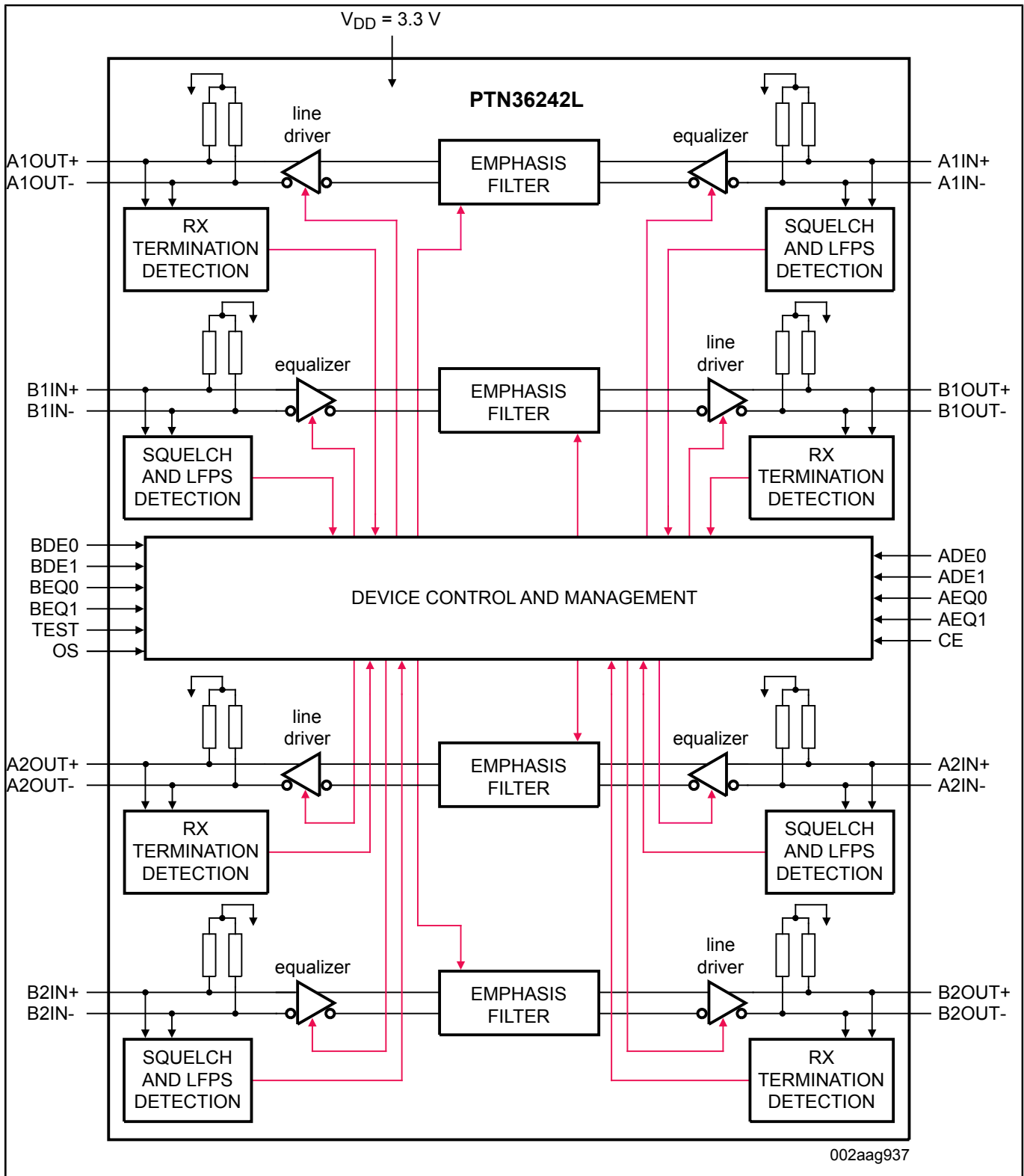
PTN36242L

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The PTN36242L is a dual port SuperSpeed USB 3.0 redriver IC that enhances signal quality by performing receive equalization on the deteriorated input signal followed by transmit de-emphasis maximizing system link performance. With its superior differential signal conditioning and enhancement capability, the device delivers significant flexibility and performance scaling for various systems with different PCB trace and cable channel conditions and still benefit from optimum power consumption.

The PTN36242L is a dual port device that supports data signaling rate of 5 Gbit/s through each channel. PTN36242L has four channels (two ports): one port has two channels. Port 1 has A1 and B1 channels and Port 2 has A2 and B2 channels. The data flow of one channel is facing the USB host and another channel is facing the USB peripheral or device. Each channel consists of a high-speed Transmit (Tx) differential lane and a high-speed Receive (Rx) differential lane.

The PTN36242L has built-in advanced power management capability that enables significant power saving under various different USB 3.0 Low-power modes (U2/U3). It detects LFPS signaling and link electrical conditions and can dynamically activate/de-activate internal circuitry and logic. The device performs these actions without host software intervention and conserves power.

The PTN36242L is powered from a 3.3 V supply and it is available in HVQFN32 3 mm x 6 mm x 0.85 mm package with 0.4 mm pitch.

PTN36242L Block Diagram Block Diagram

$V_{DD} = 3.3$ V

PTN36242L

line driver

line driver

equalizer

equalizer

A1OUT+
A1OUT−

A1IN+
A1IN−

B1IN+
B1IN−

B1OUT+
B1OUT−

A2OUT+
A2OUT−

A2IN+
A2IN−

B2IN+
B2IN−

B2OUT+
B2OUT−

EMPHASIS FILTER

RX TERMINATION DETECTION

SQUELCH AND LFPS DETECTION

DEVICE CONTROL AND MANAGEMENT

BDE0
BDE1
BEQ0
BEQ1
TEST
OS

ADE0
ADE1
AEQ0
AEQ1
CE

002aag937

View additional information for Dual Port SuperSpeed USB 3.0 Redriver.

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