TECHNICAL NOTE

TN271

Rabbit 3000, Rabbit 4000, and Rabbit 5000 Oscillator and Battery-Backup Circuits

Systems based on the Rabbit 3000A, the Rabbit 4000, or the Rabbit 5000 have special power-up requirements. The oscillator in these systems might not start oscillating when the battery is connected for the first time. The input to the internal Schmitt trigger gets stuck in a region where the Schmitt trigger is unable to latch the data high or low. Since the oscillator is not running, the output gets stuck somewhere in the linear region because of R_p. This cycle continues until some amount of random noise disrupts the stability of the system and kick-starts the oscillator. The stuck condition increases the current draw from the battery, which results in a drop in the battery voltage.

Any possible large current draw from the backup battery (VBAT_EXT) can be avoided by cycling the main power supply off/on the first time a board is used, when a backup battery is replaced, or when a RabbitCore/MiniCore module is changed out from a motherboard (since the backup battery is located on the motherboard). As long as the system is first booted from the main power supply, the oscillator begins operating normally, and when main power is removed, the circuit will switch over to the backup battery and will continue to operate reliably, drawing only a small amount of current.

Rabbit's Technical Note TN235, ***External 32.768 kHz Oscillator Circuits***, provides additional information and describes the pros and cons of other oscillator circuits.

Rabbit 3000, Rabbit 4000, 振荡 Rabbit 5000 振荡器并且电池备份电路

根据的系统 Rabbit 3000A, Rabbit 4000, 或者Rabbit5000有特别加电的要求。当电池第一次时，被连接在这些系统的振荡器也许不起动摆动。对内部Schmitt触发器无法锁上数据上流或低落的区域。因为振荡器不运行，产品在线性区域困住某处由于R_p。这个周期继续，直到某一相当数量随机噪声打乱系统的稳定并且踢开始振荡器。陷进的情况从电池增加当前凹道，导致在电池电压的下落。

从备用电池(VBAT_EXT)的所有可能的大当前凹道可以在循环主动力提供之前避免off/on，第一次使用委员会，当一个备用电池被替换时，或者，当RabbitCore/MiniCore模块从主板时被更换(因为备用电池位于主板)。只要系统从主动力提供首先被解雇，振荡器开始正常经营，并且，当免除主权，电路将转换到备用电池，并且继续可靠地经营，画仅少量潮流。

兔子的技术声明TN235, ***External 32.768 kHz Oscillator Circuits***,提供其它信息并且描述其他振荡器电路利弊。

Rabbit — A Digi International Brand

www.rabbit.com