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## Technical Note.

**Power Supplies: from 6.0V...8.4V to 3.8V (for GM862 Modules).**

### Preliminary considerations.

The maximum power consumption, for TDMA mode, is about 2.0A...2.5A for 577 $\mu$ s (1154 $\mu$ s for GPRS class 10) and very low current during the following 4ms (3.5ms for GPRS class 10). So, it is necessary a power supply with output maximum current of 2.5A (maximum TX RF power with mismatched antenna).

The ST device L5973D can supply a Telit Module GPRS class10.

On [www.st.com/stonline/books/pdf/docs/8588.pdf](http://www.st.com/stonline/books/pdf/docs/8588.pdf) you can find the complete data sheet with applications. Obviously, the output divider will be for 3.8V...3.9V output voltage. It is better for the output capacitor 1000 $\mu$ F instead of 330 $\mu$ F.

During the TX slots, the two Lilon cells in series must provide high peaks of current (about 2.5A @ 250KHz).

There is a solution to reduce those high peaks of current. We can make use of a switching step-down power supply with peak current of 800mA for example. We can suppose 700mA the average current in the inductor. During TX slots, there is the necessity for 1.8A for 1.15 ms (worst case). The output voltage of the step-down could be 4.0V and the output voltage after 1.15ms could be 3.5V. With  $CV=It$ , we can calculate the capacitor at the step down output:  $C = It/V = (1.8A \cdot 1.15ms)/0.5V = 4140 \mu F$ .

A 4700 $\mu$ F capacitor with low ESR should be sufficient. During the following 3.5ms, the capacitor can recharge to 4.0V.

With that technique, we reduce the peaks of current for the Lilon battery, but we can also make use of a switching step-down cheaper: IC device, schottky diode and inductor with less peak current intensity.

A suitable device could be the MAX1776 with  $ILIM = ILIM2 = IN$ .

The above are two solutions, if you need more information or explanations, do not hesitate to contact us.

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