Keywords: The MAX1864 Generates 1.2V or Lower Output Voltage

Dec 27, 2001

APPLICATION NOTE 906

The MAX1864 Generates 1.2V or Lower Output Voltage

With most regulators, it is difficult to generate an output voltage that is less than the reference voltage. This note describes a way to use the MAX1864 to achieve an output voltage less than its 1.236V reference.

The MAX1864 includes a positive linear regulator gain block. With a few external resistors, it can achieve an output voltage below 1.236V. **Figure 1** shows the schematic of the implementation. Since the voltage at the FB pin is the reference voltage, a lower output voltage, VOUT1, is obtained if a voltage (V2) higher than the reference voltage is generated. Due to the high input impedance at the FB pin, if R5 is chosen to be equal to R6, we have

$V2-V_{FB} = V_{FB}-VOUT1,$

This yields $V2 = 2V_{FB}-VOUT1$.

To generate a 1.0V output voltage with $V_{FB}=1.236V$, V2 should then be 1.472V. This can be achieved by properly choosing the resistance of R8 and R9:

$$R_9 = \frac{V_{FB}}{V_2 - V_{FB}} R_8,$$

If R8 = 10k, then R9 will be 52.4k. Therefore, a 1.0V output voltage is generated.

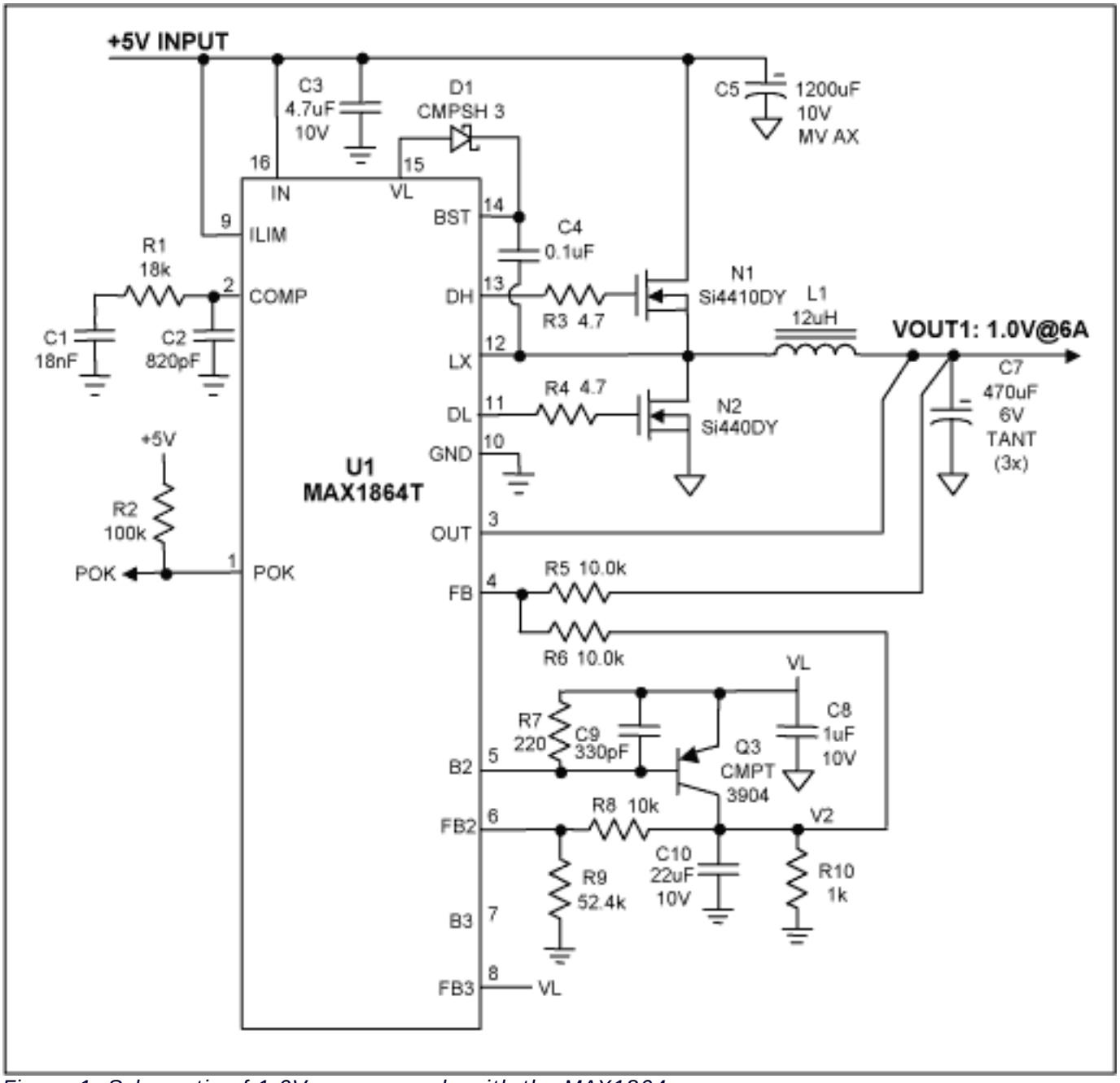

Figure 1. Schematic of 1.0V power supply with the MAX1864.

Application Note 906: http://www.maxim-ic.com/an906

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MAX1864: QuickView -- Full (PDF) Data Sheet -- Free Samples

AN906, AN 906, APP906, Appnote906, Appnote 906