

Introduction

3.3V regulator is needed to supply the following loads.

Table 1: 3,3V loads and their maximum consumption.

Load	MAX[mA]	Notes
RS485	83,5	
MCU	203	
Ethernet PHY	129	
Current measurement	84	8 devices 10,5 mA maximum
Total	499,5	mA

Switch mode power supply is used. Input voltage for the regulator is the 5V from upstream regulator.

Circuit design

AP61100Q is selected from Krakul library. It has been used before, it can supply up to 1A and it's efficient.

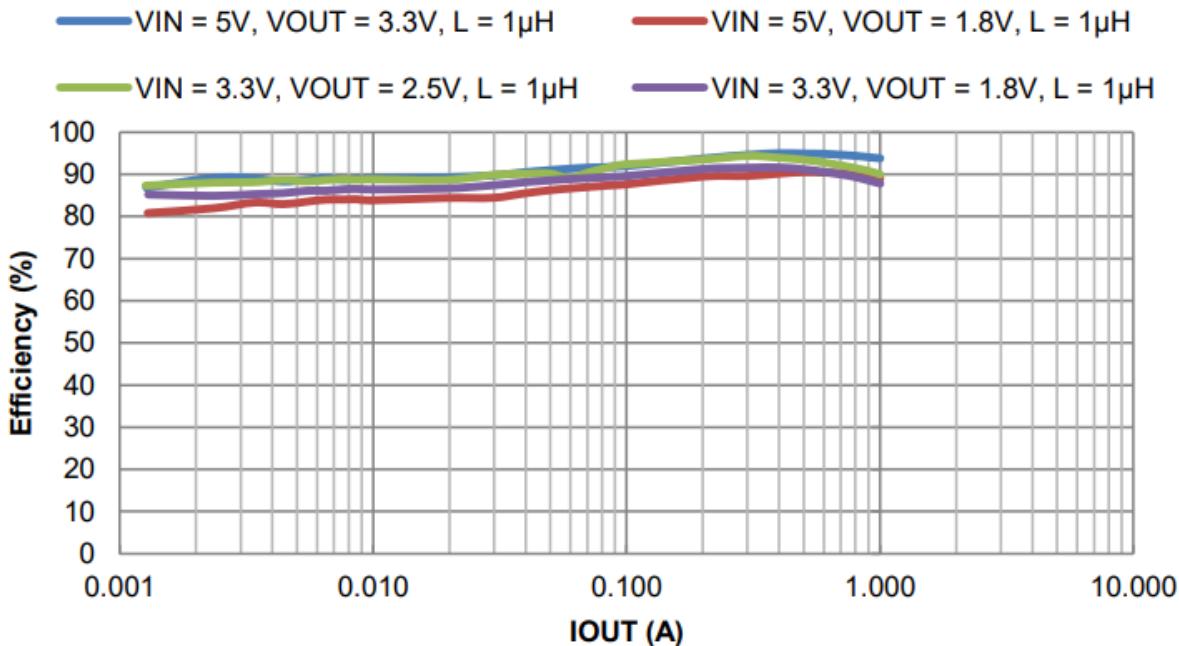


Figure 1: Efficiency of AP61100Q

Typical application circuit is followed.

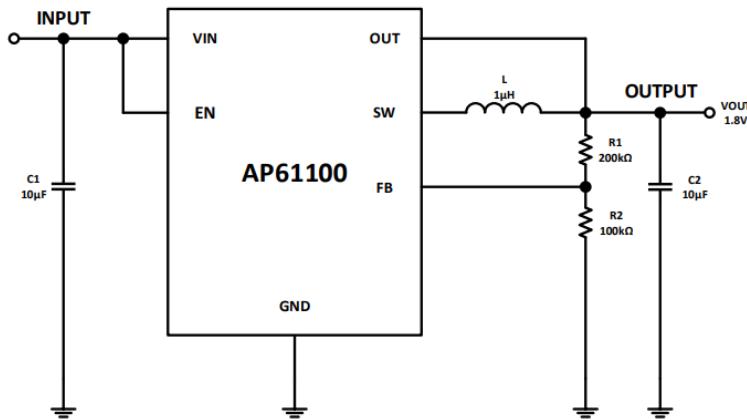


Figure 2: Typical application circuit

Recommended component values are used.

AP61100/AP61102						
Output Voltage (V)	R1 (kΩ)	R2 (kΩ)	L (µH)	C1 (µF)	C2 (µF)	C3 (pF)
						AP61100 AP61102
1.0	200.0	301.0	1.0	10	10	OPEN 33
1.2	200.0	200.0	1.0	10	10	OPEN 33
1.5	200.0	133.0	1.0	10	10	OPEN 33
1.8	200.0	100.0	1.0	10	10	OPEN 33
2.5	200.0	63.2	1.0	10	10	OPEN 33
3.3	200.0	44.2	1.0	10	10	OPEN 33

Figure 3: Recommended component values

100nF capacitors are added to input and output to further decouple high frequency switching noise.

0,001ms time constant RC filter made from 10kΩ and 100nF is added to the EN pin. This will delay regulator startup to help preventing it turning on before supply is stable.