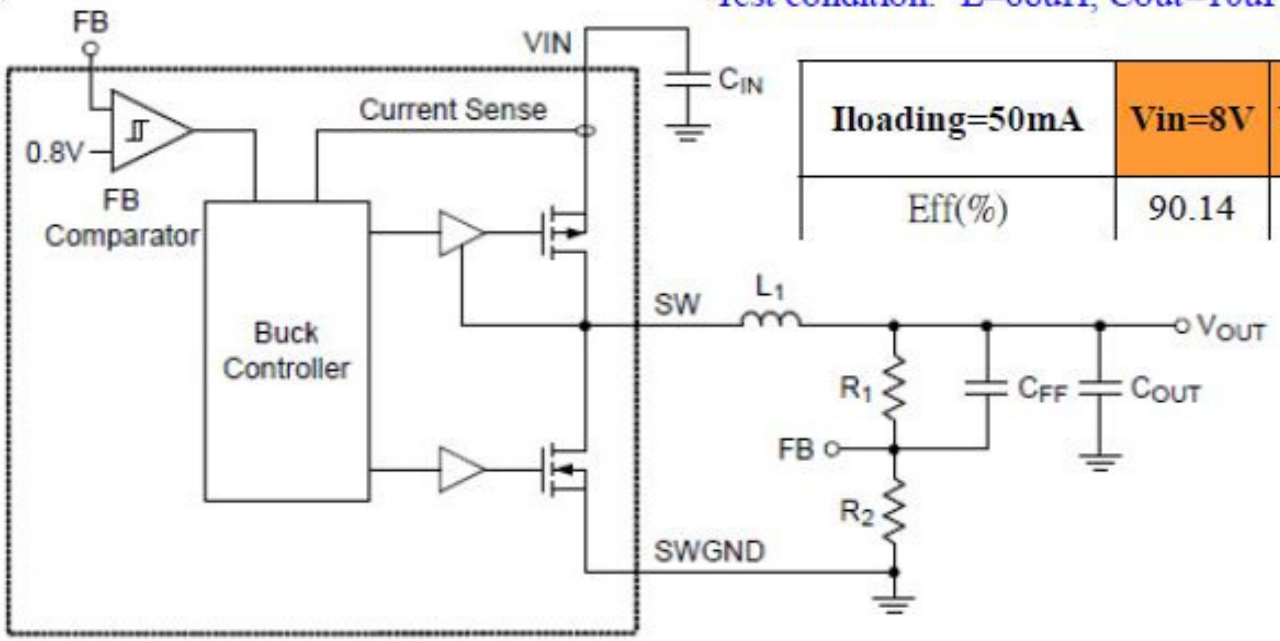
RT7079 DC Buck和7815线路对比

Test condition: L=68uH, Cout=10uF, Input Voltage=7~58V, Vout=7.14V, **Iloading=50mA**



Iloading=50mA	Vin=8V	Vin=12V	Vin=20V	Vin=30V	Vin=40V	Vin=58V
Eff(%)	90.14	88.24	87.65	85.16	82.68	78.77

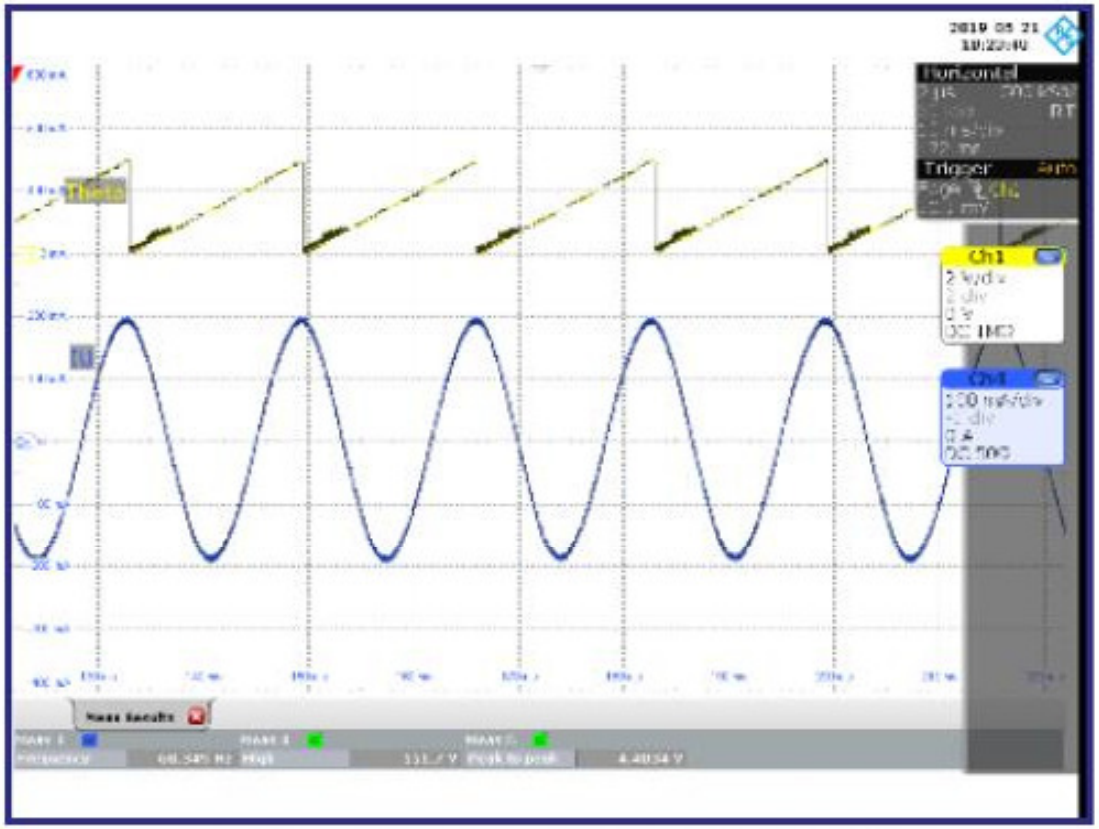
DC Buck电源模块，输入电压范围大，最大可以到58V，输出电压可调，负载电流相应迅速，关键是转换效率高，降低发热。

7815的线路效率，输入是30V时，效率50%，随电流越大，损耗越大，损耗最终变成发热。

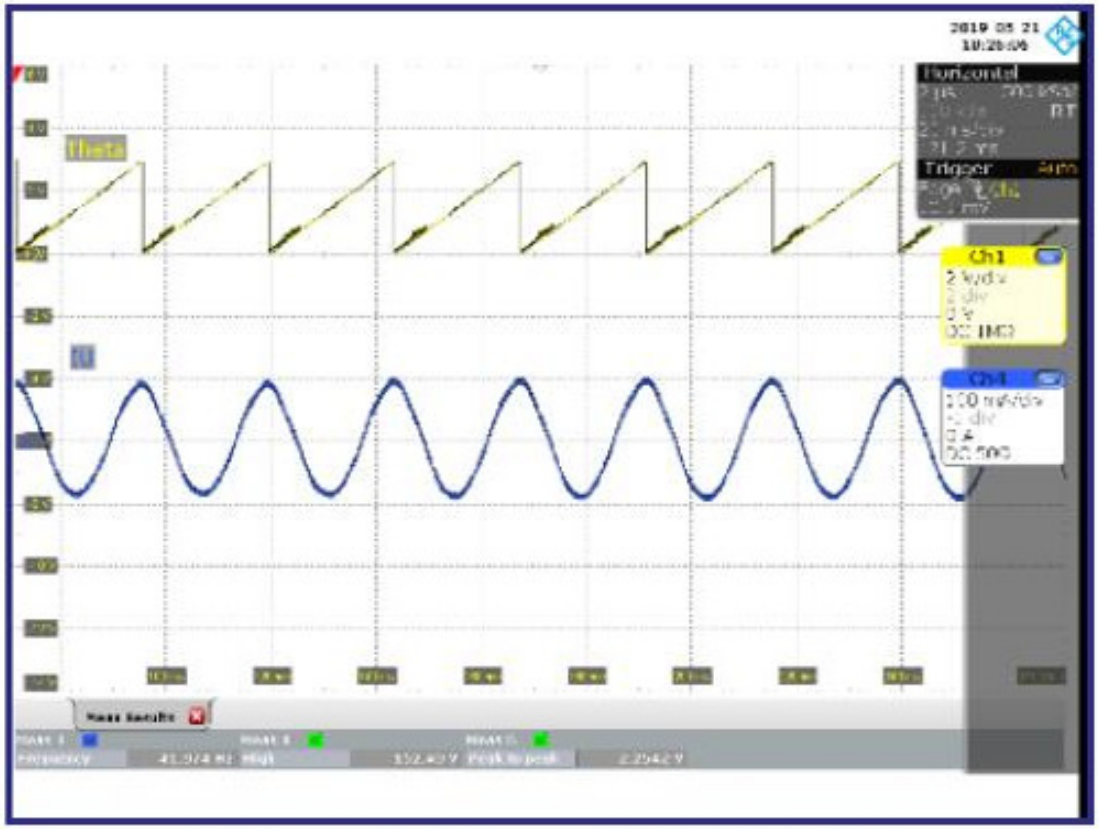
DC Buck，40V输入，效率是82.7%。同样20ma负载电流，DC Buck损耗是40*0.02*0.173=0.14W。比7815线路的0.5W功耗和7815本体0.31的功耗，都小非常多。这样器件选型也不需要封装非常大的电阻，因为损耗小，发热小。

FOC-I_d Control

- *Optimize efficiency at full speed range.*
- *Adaptive loading capacity. (Support wide load range)*



$\theta_{\text{-Rotor}}$ vs. $I_{\text{-Phase}}$ @ Heavy Load

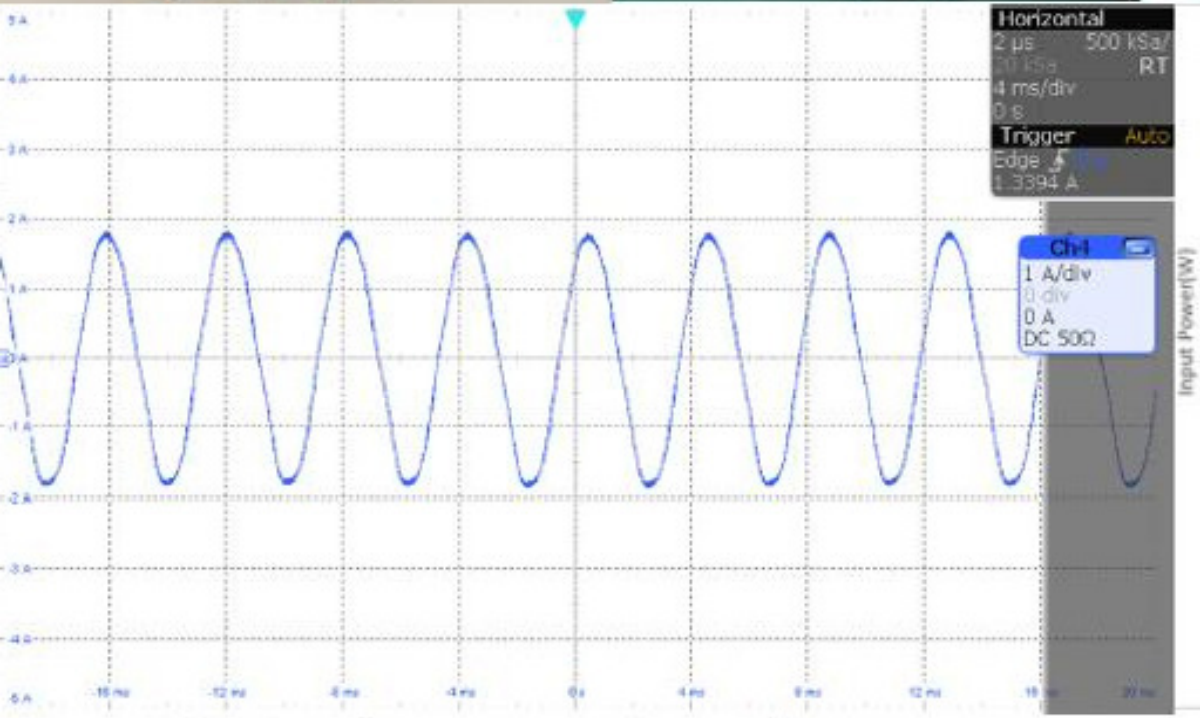


$\theta_{\text{-Rotor}}$ vs. $I_{\text{-Phase}}$ @ Light Load

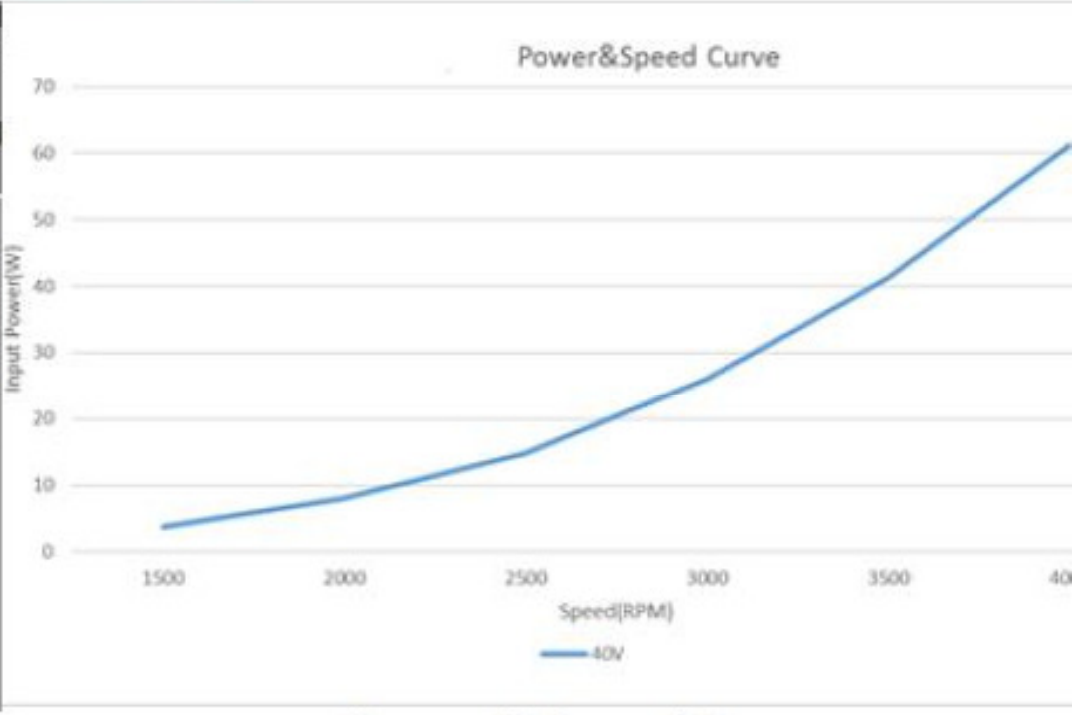
RT7079 Real Size Board & Exhaust Fan

Motor spec:
Vin=24~48V , pole=8,
Max Speed=4000rpm,
Max Power= 60W

Test condition:
Vin=40V , PWM freq=20kHz , Maxi
Duty=98% , DT=1uS



Motor phase current waveform



Power & Speed Curve