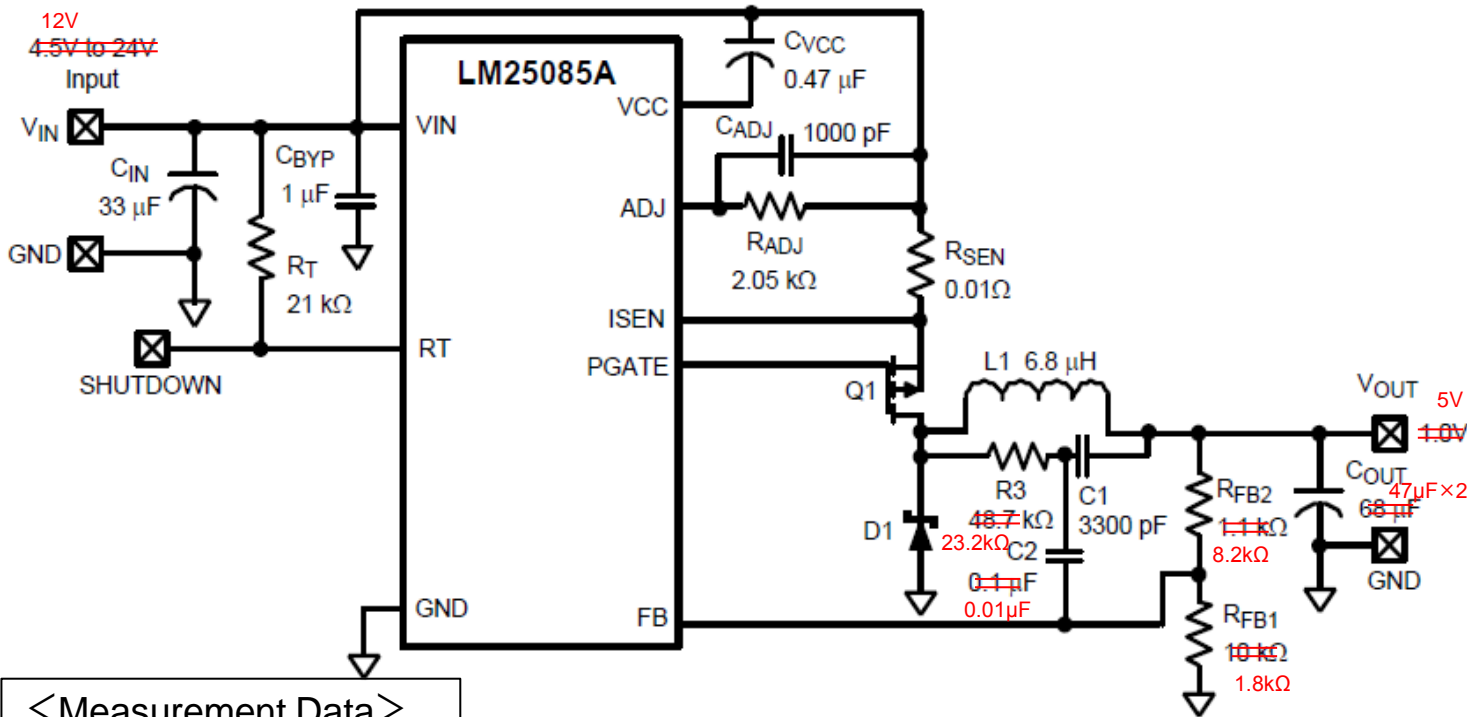


# About LM25085A Vout Calculation



<Specification condition>  
 Vin:12V  
 Vout:5V  
 Iout:7A  
 fsw:300kHz  
  
 L:6.8μH  
 Cout:94μF、 ESR:5mΩ  
 RFB2 : 8.2kΩ  
 RFB1 : 1.8kΩ  
 R3 : 23.2kΩ  
 C1 : 3.3nF  
 C2 : 0.01μF  
 Duty:0.416  
 Iripple:1.43A

<Measurement Data>

Iout	Vout
1A	5.425V
2A	5.4V
3A	5.4V
4A	5.375V
5A	5.36V
6A	5.36V
7A	5.35V

Figure 28. Example Circuit

LM25085A Data Sheet 10Page (2)  
 $V_{OUT} = 0.9V \times (R_{FB2} + R_{FB1}) / R_{FB1}$   
 $V_{out} = 0.9V \times (8.2k\Omega + 1.8k\Omega) / 1.8k\Omega$   
 = 5V

Is it no problem to use the same formula to say that it is similar?

TPS53318 Data Sheet 19Page (9),(10),(11),(12)

$$V_{INJ\_SW} = \frac{V_{IN} - V_{OUT}}{R7 \times C1} \times \frac{D}{f_{SW}}$$

$$V_{INJ\_OUT} = ESR \times I_{IND(ripple)} + \frac{I_{IND(ripple)}}{8 \times C_{OUT} \times f_{SW}}$$

$$V_{VFB} = 0.9 + \frac{V_{INJ\_SW} + V_{INJ\_OUT}}{2}$$

$$R1 = \frac{V_{OUT} - V_{VFB}}{V_{VFB}} \times R2$$

VINJ\_SW = (12 - 5) / (23.2 × 10<sup>3</sup> × 3300 × 10<sup>-12</sup>) × 0.416 / 300 × 10<sup>3</sup> = 0.1268

VINJ\_OUT = 5 × 10<sup>-3</sup> × 1.43 + 1.43 / (8 × 94 × 10<sup>-6</sup> × 300 × 10<sup>3</sup>) = 0.0135

VFB = 0.9 + (0.1268 + 0.0135) / 2 = 0.9702

Vout = 0.9702 × (8.2kΩ + 1.8kΩ) / 1.8kΩ = 5.39V