



#### Resistors:

R1 47R  
 R2 220R  
 R3 10K  
 R4 10K  
 R5 10K  
 R6 1K  
 R7 100K  
 R8 220R  
 R9 56K  
 R10 200R  
 R11 306R  
 R12 29.4R  
 VR1 22K  
 VR2 10K  
 VR3 100K

#### Semiconductors:

Q1 SI9430DY or similar  
 Q2 Any small signal PNP transistor  
 Q3 Any small signal PNP transistor  
 Q4 MGSF1P02LT1 or similar  
 Q5 Any small signal NPN transistor  
 Q6 2N2905, or any small signal PNP transistor  
 D1 LED, green  
 D2 1N4148 or similar  
 D3 LED, red  
 Z1 Zener, 6.8V  
 U1 ISL21009BFB850Z voltage reference  
 U2 LM358 op-amp for single supply

#### Capacitors:

C1 10uF (or larger) tantalum  
 C2 10uF (or larger) tantalum

TITLE 5v + 176mV + Var Precision reference

FILE: reference-final-1.sch

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REVISION:

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