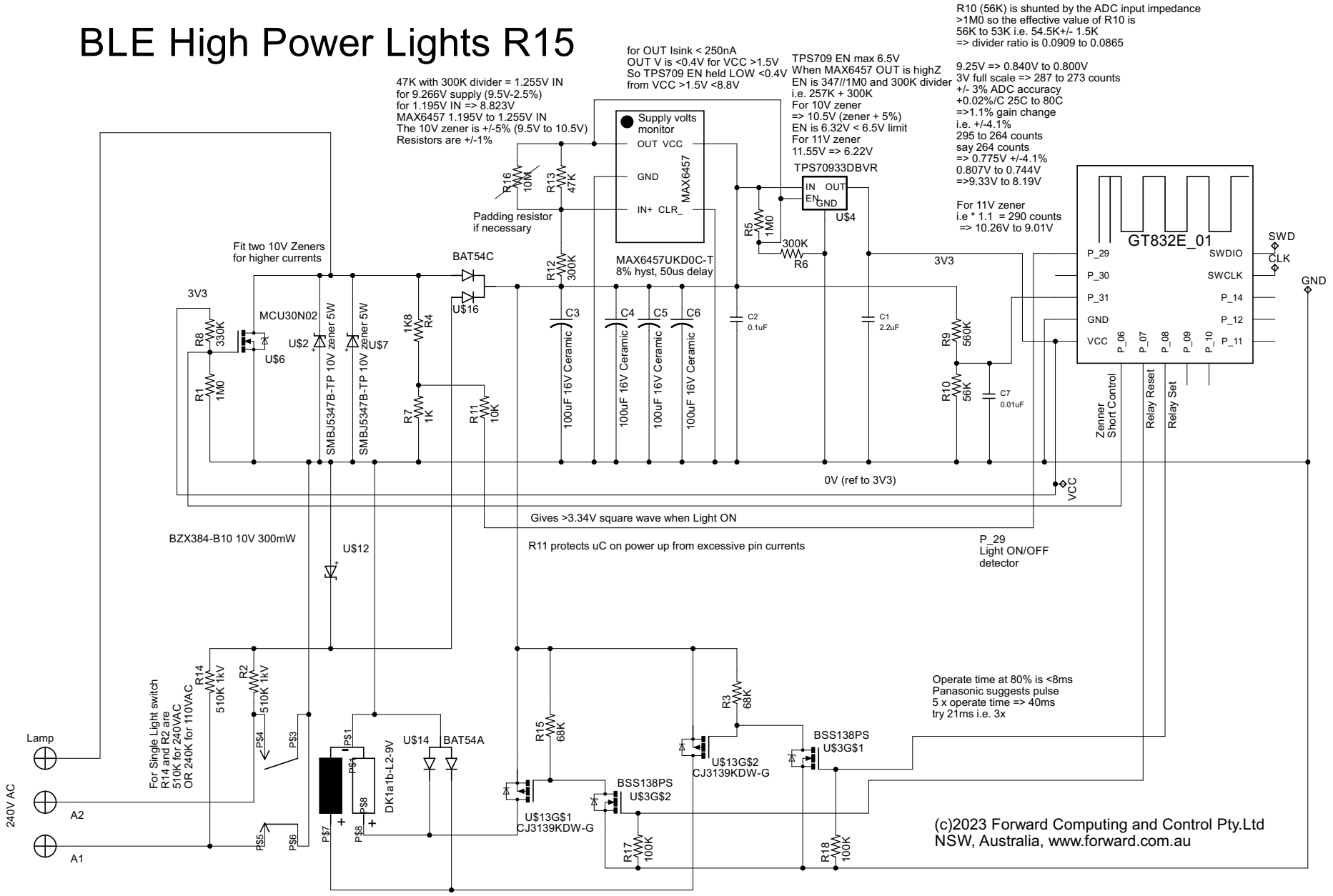


# BLE High Power Lights R15



47K with 300K divider = 1.255V IN  
 for 9.266V supply (9.5V-2.5%)  
 for 1.195V IN => 8.823V  
 MAX6457 1.195V to 1.255V IN  
 The 10V zener is +/-5% (9.5V to 10.5V)  
 Resistors are +/-1%

for OUT Isink < 250nA  
 OUT V is <0.4V for VCC >1.5V  
 So TPS709 EN held LOW <0.4V  
 from VCC >1.5V <8.8V

TPS709 EN max 6.5V  
 When MAX6457 OUT is highZ  
 EN is 347//1M0 and 300K divider  
 i.e. 257K + 300K  
 For 10V zener  
 => 10.5V (zener + 5%)  
 EN is 6.32V < 6.5V limit  
 For 11V zener  
 11.55V => 6.22V  
 TPS70933DBVR

R10 (56K) is shunted by the ADC input impedance  
 >1M0 so the effective value of R10 is  
 56K to 53K i.e. 54.5K +/- 1.5K  
 => divider ratio is 0.0909 to 0.0865

9.25V => 0.840V to 0.800V  
 3V full scale => 287 to 273 counts  
 +/- 3% ADC accuracy  
 +0.02%/C 25C to 80C  
 => 1.1% gain change  
 i.e. +/-4.1%  
 295 to 264 counts  
 say 264 counts  
 => 0.775V +/-4.1%  
 0.807V to 0.744V  
 => 9.33V to 8.19V

For 11V zener  
 i.e. \* 1.1 = 290 counts  
 => 10.26V to 9.01V

Gives >3.34V square wave when Light ON

R11 protects uC on power up from excessive pin currents

Operate time at 80% is <8ms  
 Panasonic suggests pulse  
 5 x operate time => 40ms  
 try 21ms i.e. 3x