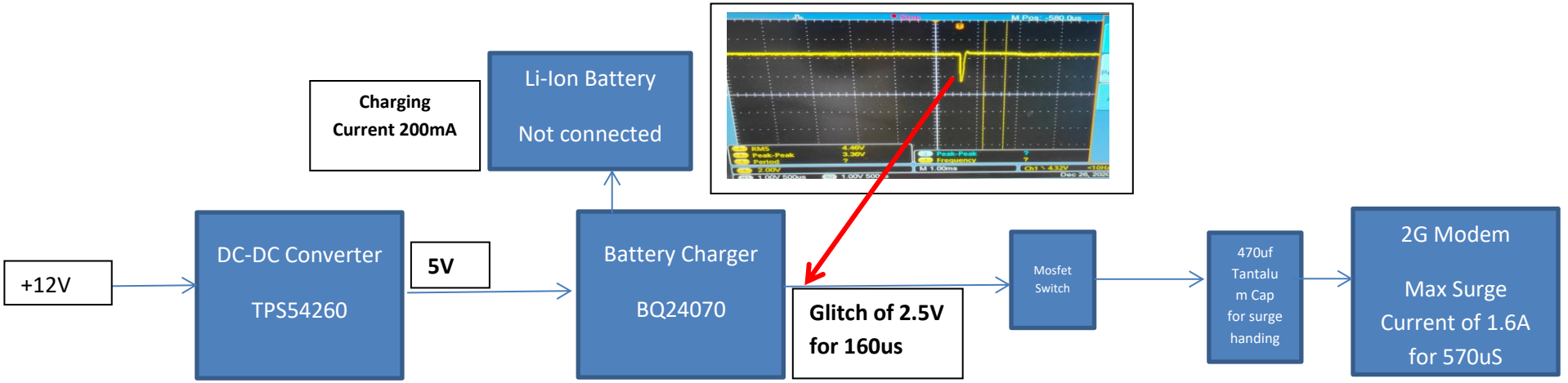
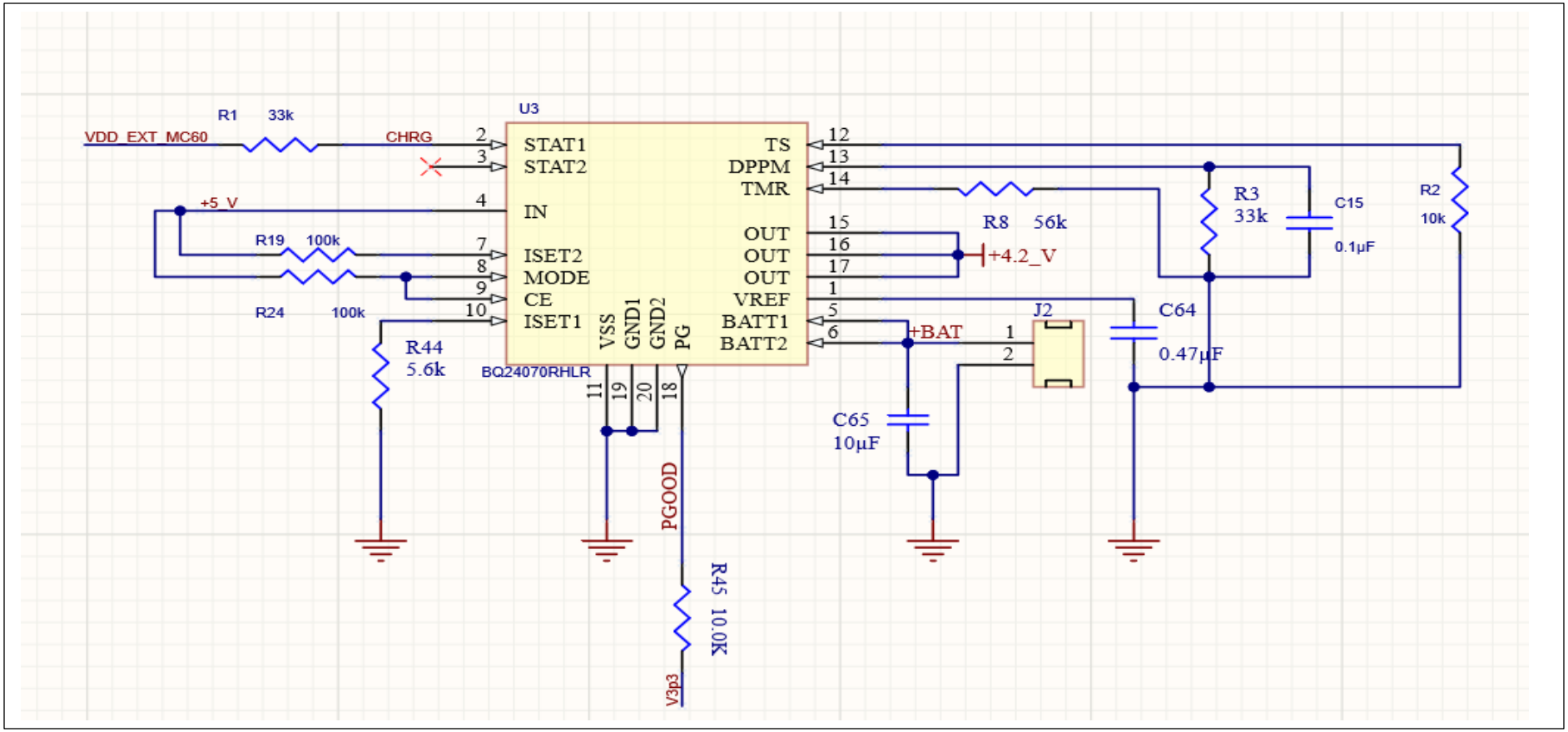

Charging
Current 200mA
Li-Ion Battery
Not connected
+12V
DC-DC Converter
TPS54260
5V
Battery Charger
BQ24070
Glitch of 2.5V
for 160us
Mosfet
Switch
470uf
Tantalu
m Cap
for surge
handing
2G Modem
Max Surge
Current of 1.6A
for 570uS

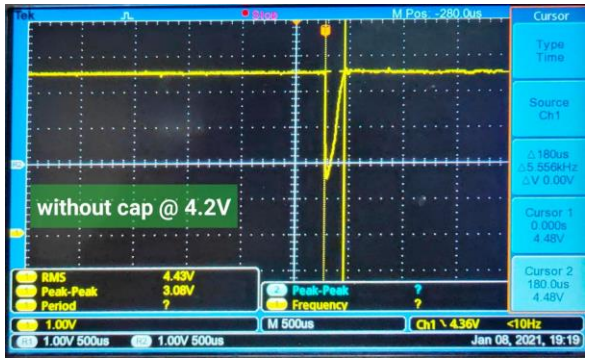

U3
R1 33k
VDD_EXT_MC60
CHRG
+5_V
R19 100k
R24 100k
R44
5.6k
STAT1
STAT2
IN
ISET2
MODE
CE
ISET1
VSS
GND1
GND2
PG
BQ24070RHLR
TS
DPPM
TMR
OUT
OUT
OUT
VREF
BATT1
BATT2
R8 56k
+4.2_V
R3
33k
C15
0.1µF
R2
10k
C64
0.47µF
J2
+BAT
C65
10µF
PGOOD
R45 10.0K
V3p3

Debugging after TI Comments-

TI Comment- It looks like this glitch would be due to the 470uF cap charging with the MOSFET switch being turned on.

This cap value (470uF) was miss-written. Actual value is 220uf which has been reduced & removed to check impact of surge current-

Glitch due to 220uf-

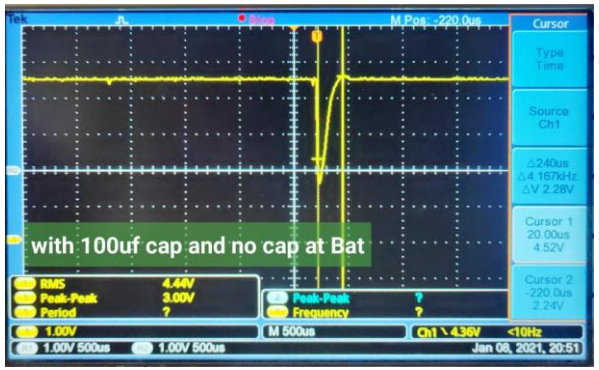


Inferences-

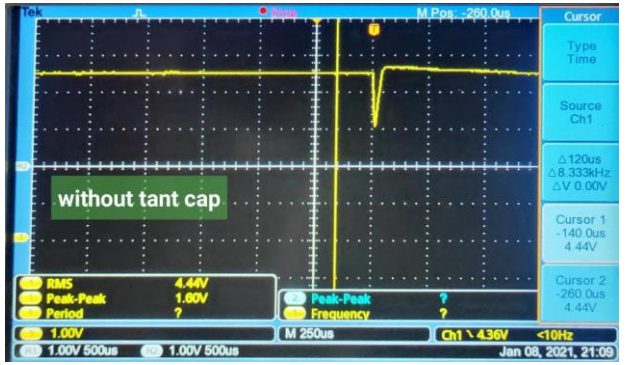
- With decreasing cap, glitch amplitude does not decrease
- Without cap also, glitch comes.

It seems surge current of Tantalum cap is not impacting much on glitch.

Glitch due to 100uf –



Glitch without tantalum cap-



TI Comment- With the schematic, this problem may be reduced with capacitors (0.1uF minimum) that are required on the IN and OUT pin.

P Gupta Comments- We kept 0.1uf with 10uf at Input and output which is not impacting much on glitch amplitude

TI Comment- We also recommends a 33uF capacitor on the BAT pin for operation when battery is not attached.

P Gupta Comments- We tried with 33uf cap at BAT pin. But it is not impacting any in glitch amplitude but increases charging slope.

(Without 33uf cap at BAT Pin)

(With 33uf cap at BAT Pin)