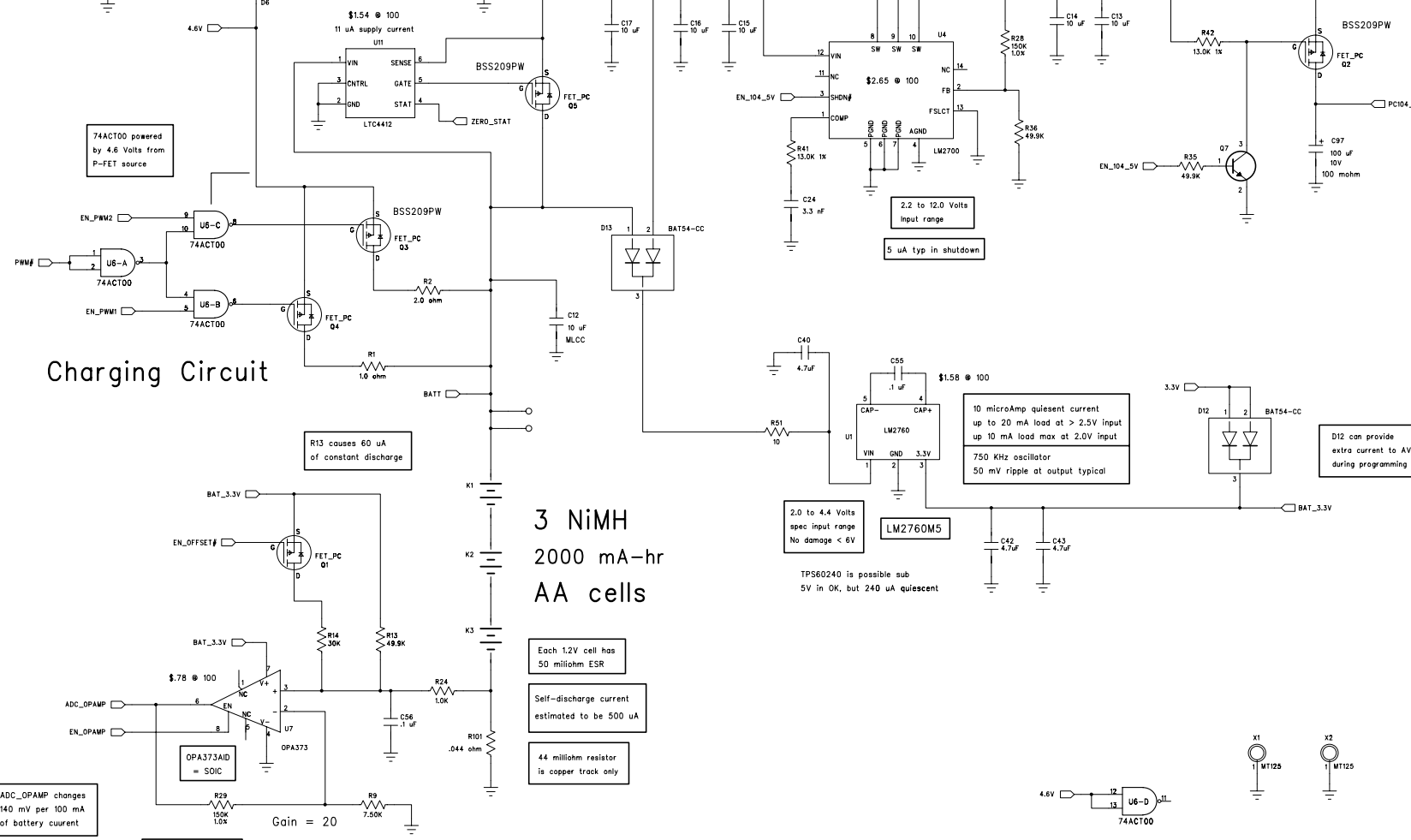


Technologic Systems	Date	June 25, 2006
Title: TS-BAT1 PC/104, MAX2		
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		Sheet 1 of 3

5V Power In

Boost Regulator to 5.0V

Switch to PC/104 5V



Charging Circuit

3 NiMH
2000 mA-hr
AA cells

ADC_OPAMP changes 140 mV per 100 mA of battery current

Maximum charging current = 400 mA

600 uA active
1 uA in Shutdown
12 uS turn-on delay

Supply Range = 2.7 to 5.5V

Inputs OK 200 mV beyond rails
Output is OK to 25 mV of rail
Guaranteed -- no inversion

R13 causes 60 uA of constant discharge

Each 1.2V cell has 50 milliohm ESR

Self-discharge current estimated to be 500 uA

44 milliohm resistor is copper track only

2.2 to 12.0 Volts Input range
5 uA typ in shutdown

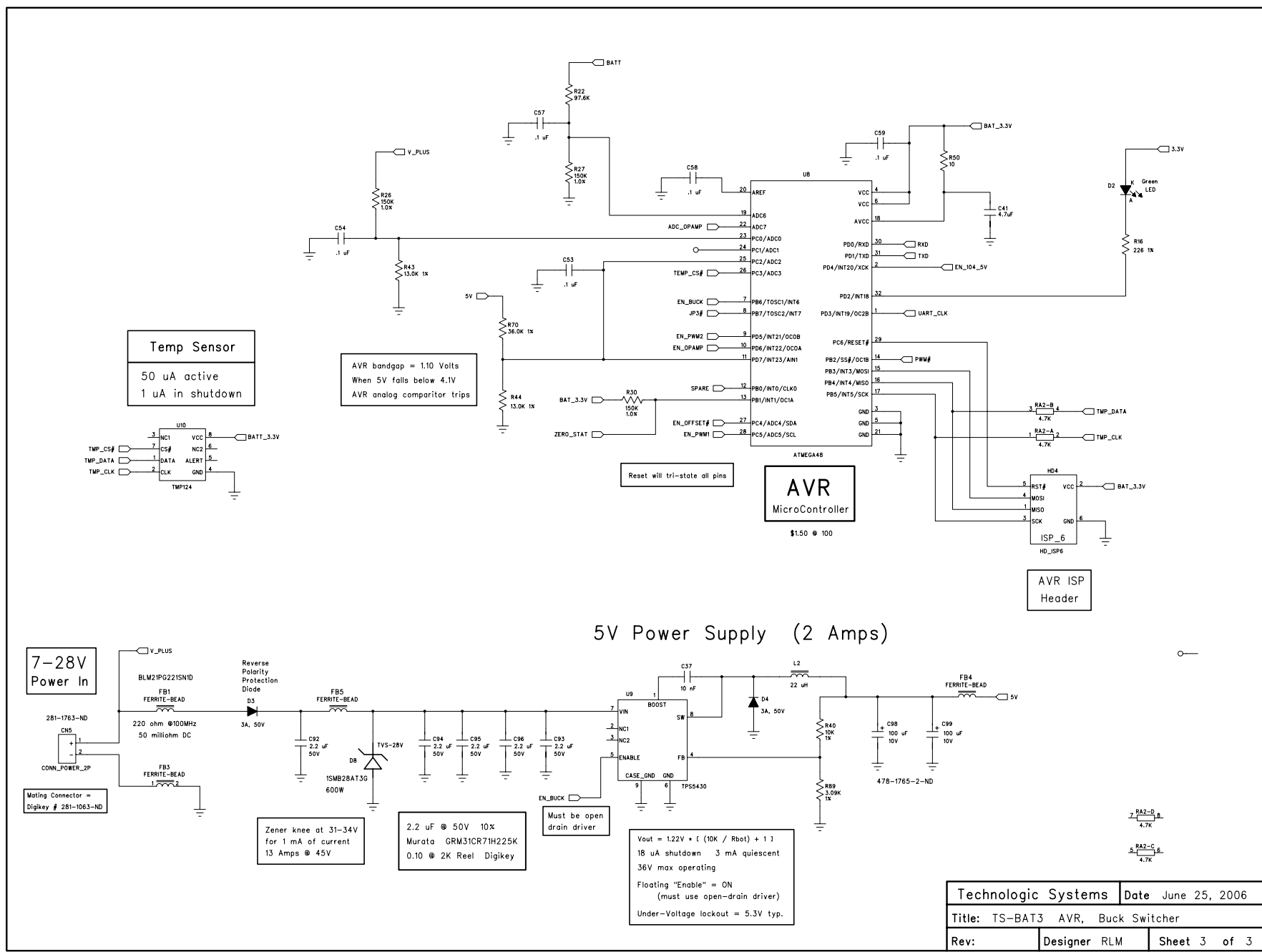
10 microAmp quiescent current up to 20 mA load at > 2.5V input up to 10 mA load max at 2.0V input
750 KHz oscillator
50 mV ripple at output typical

2.0 to 4.4 Volts spec input range
No damage < 6V

TPS60240 is possible sub 5V in OK, but 240 uA quiescent

D12 can provide extra current to AVR during programming

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Temp Sensor
50 uA active
1 uA in shutdown

AVR bandgap = 1.10 Volts
When 5V falls below 4.1V
AVR analog comparator trips

Reset will tri-state all pins

AVR
MicroController
\$1.50 @ 100

AVR ISP
Header

5V Power Supply (2 Amps)

7-28V
Power In

Mating Connector =
Digkey # 281-1063-ND

Zener knee at 31-34V
for 1 mA of current
13 Amps @ 45V

2.2 uF @ 50V 10%
Murata GRM31CR71H225K
0.10 @ 2K Reel Digkey

Must be open
drain driver

$V_{out} = 1.22V \times \left[\left(\frac{I_{Load}}{R_{Bot}} \right) + 1 \right]$
18 uA shutdown 3 mA quiescent
36V max operating
Floating "Enable" = ON
(must use open-drain driver)
Under-Voltage lockout = 5.3V typ.

Technologic Systems	Date June 25, 2006
Title: TS-BAT3 AVR, Buck Switcher	
Rev:	Designer RLM Sheet 3 of 3