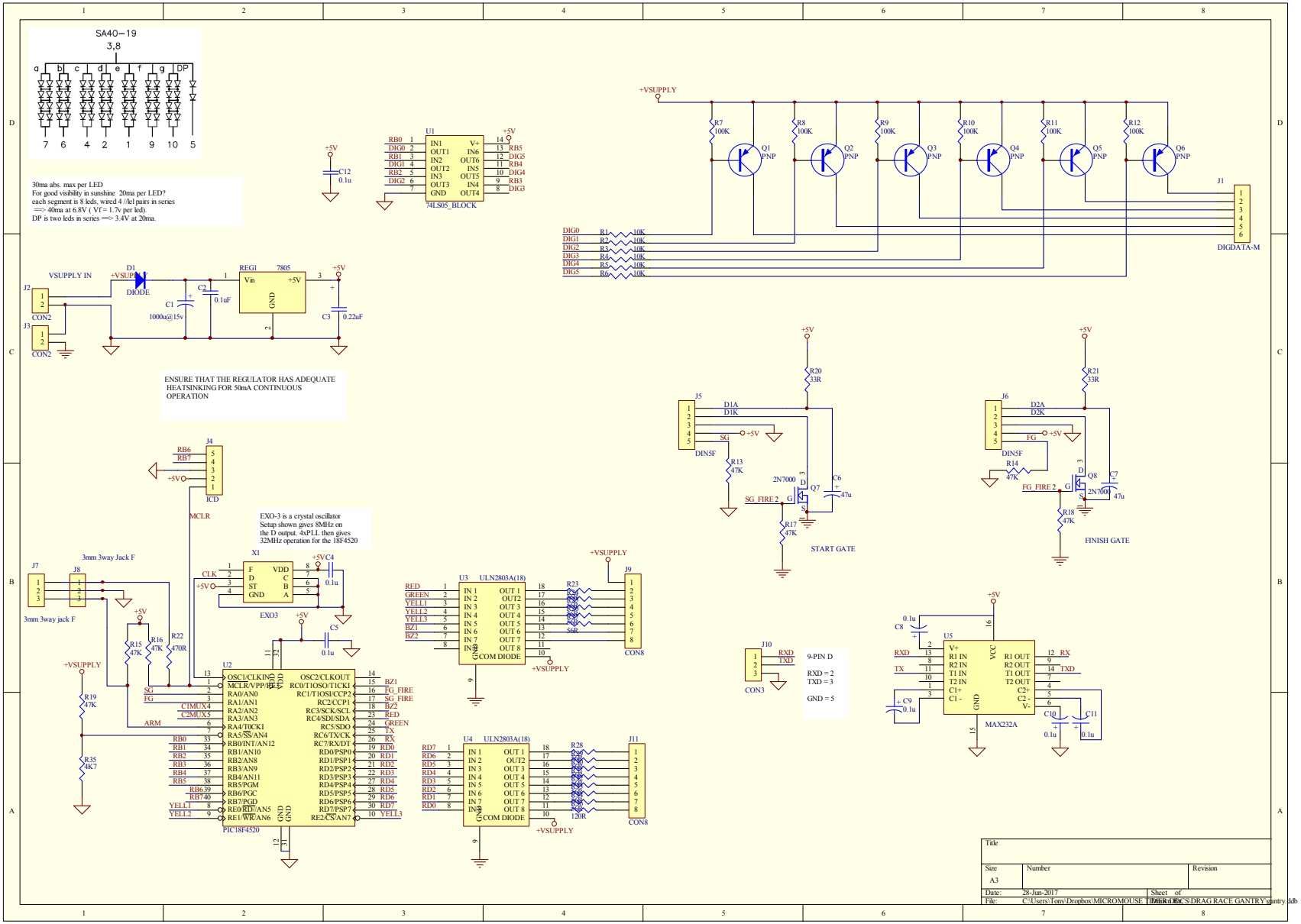
SA40-19
3,8
a b c d e f g DP
7 6 4 2 1 9 10 5
30ma abs. max per LED
For good visibility in sunshine 20ma per LED?
each segment is 8 leds, wired 4 //lel pairs in series
==> 40ma at 6.8V (Vf = 1.7v per led).
DP is two leds in series ==> 3.4V at 20ma.
+5V
C12
0.1u
U1
74LS05_BLOCK
IN1 OUT1 IN2 OUT2 IN3 OUT3 GND
V+ IN6 OUT6 IN5 OUT5 IN4 OUT4
RB0 DIG0 RB1 DIG1 RB2 DIG2
RB5 DIG5 RB4 DIG4 RB3 DIG3
+VSUPPLY
R7 100K
R8 100K
R9 100K
R10 100K
R11 100K
R12 100K
Q1 PNP
Q2 PNP
Q3 PNP
Q4 PNP
Q5 PNP
Q6 PNP
J1
DIGDATA-M
DIG0 R1 10K
DIG1 R2 10K
DIG2 R3 10K
DIG3 R4 10K
DIG4 R5 10K
DIG5 R6 10K
VSUPPLY IN
J2
CON2
J3
CON2
D1
DIODE
C1
1000u@15v
C2
0.1uF
REG1
7805
Vin
+5V
GND
C3
0.22uF
ENSURE THAT THE REGULATOR HAS ADEQUATE
HEATSINKING FOR 50mA CONTINUOUS
OPERATION
J4
ICD
RB6
RB7
MCLR
EXO-3 is a crystal oscillator
Setup shown gives 8MHz on
the D output. 4xPLL then gives
32MHz operation for the 18F4520
J7
3mm 3way jack F
J8
3mm 3way Jack F
X1
EXO3
CLK
F VDD D C ST B GND A
C4
0.1u
C5
0.1u
R22
470R
R15 47K
R16 47K
R19 47K
R35 4K7
ARM
U2
PIC18F4520
OSC1/CLKIN OSC2/CLKOUT
MCLR/VPP/RE3
RA0/AN0 RC0/T1OSO/T1CKI
RA1/AN1 RC1/T1OSI/CCP2
RA2/AN2 RC2/CCP1
RA3/AN3 RC3/SCK/SCL
RA4/T0CKI RC4/SDI/SDA
RA5/SS/AN4 RC5/SDO
RB0/INT/AN12 RC6/TX/CK
RB1/AN10 RC7/RX/DT
RB2/AN8 RD0/PSP0
RB3/AN9 RD1/PSP1
RB4/AN11 RD2/PSP2
RB5/PGM RD3/PSP3
RB6/PGC RD4/PSP4
RB7/PGD RD5/PSP5
RE0/RD/AN5 RD6/PSP6
RE1/WR/AN6 RD7/PSP7
RE2/CS/AN7
SG
FG
C1MUX
C2MUX
RB0 RB1 RB2 RB3 RB4 RB5 RB6 RB7
YELL1 YELL2
BZ1 FG_FIRE SG_FIRE BZ2 RED GREEN TX RX RD0 RD1 RD2 RD3 RD4 RD5 RD6 RD7 YELL3
U3 ULN2803A(18)
IN 1 IN 2 IN 3 IN 4 IN 5 IN 6 IN 7 IN 8
OUT 1 OUT2 OUT 3 OUT 4 OUT 5 OUT 6 OUT 7 OUT 8
COM DIODE
RED GREEN YELL1 YELL2 YELL3 BZ1 BZ2
R23 56R
+VSUPPLY
J9
CON8
U4 ULN2803A(18)
RD7 RD6 RD5 RD4 RD3 RD2 RD1 RD0
R28 120R
J11
CON8
J5
DIN5F
D1A
D1K
SG
R13 47K
R20 33R
2N7000
Q7
C6
47u
SG_FIRE 2
R17 47K
START GATE
J6
DIN5F
D2A
D2K
FG
R14 47K
R21 33R
Q8
2N7000
C7
47u
FG_FIRE 2
R18 47K
FINISH GATE
J10
CON3
RXD
TXD
9-PIN D
RXD = 2
TXD = 3
GND = 5
U5
MAX232A
V+ R1 IN R2 IN T1 IN T2 IN C1+ C1 -
R1 OUT R2 OUT T1 OUT T2 OUT C2+ C2- V-
VCC GND
C8 0.1u
C9 0.1u
C10 0.1u
C11 0.1u
Title
Size A3
Number
Revision
Date: 28-Jun-2017
Sheet of
File: C:\Users\Tony\Dropbox\MICROMOUSE TIMER\DRAG RACE GANTRY\gantry.ddb