Schematic for the NCV7520GEVB Evaluation Board
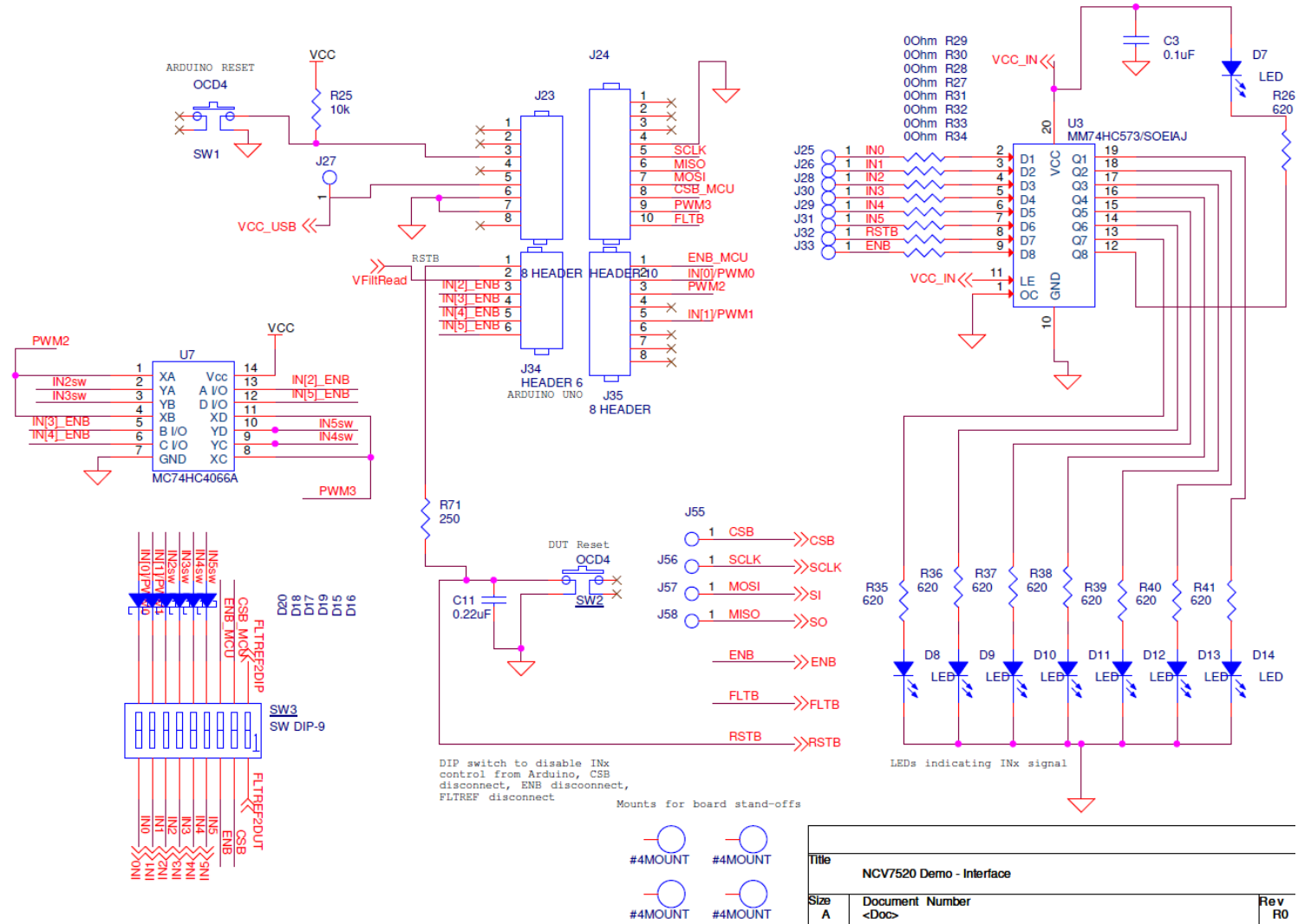
Interface MCU

ON Semiconductor®

ARDUINO RESET
OCD4
SW1
VCC
R25 10k
J27
VCC_USB

J23
J24
1 2 3 4 5 6 7 8
5 SCLK
6 MISO
7 MOSI
8 CSB_MCU
9 PWM3
10 FLTB

RSTB
VFiltRead
8 HEADER
HEADER10
ENB_MCU
IN[0]/PWM0
PWM2
IN[1]/PWM1
IN[2]_ENB
IN[3]_ENB
IN[4]_ENB
IN[5]_ENB

J34
HEADER 6
ARDUINO UNO
J35
8 HEADER

PWM2
U7
1 XA   Vcc 14
2 YA   A I/O 13   IN[2]_ENB
3 IN2sw YB D I/O 12 IN[5]_ENB
4 IN3sw XB XD 11
5 IN[3]_ENB B I/O YD 10 IN5sw
6 IN[4]_ENB C I/O YC 9   IN4sw
7 GND   XC 8
MC74HC4066A
PWM3
VCC

0Ohm R29
0Ohm R30
0Ohm R28
0Ohm R27
0Ohm R31
0Ohm R32
0Ohm R33
0Ohm R34
VCC_IN
C3 0.1uF
D7 LED
R26 620

J25 1 IN0
J26 1 IN1
J28 1 IN2
J30 1 IN3
J29 1 IN4
J31 1 IN5
J32 1 RSTB
J33 1 ENB

U3
MM74HC573/SOEIAJ
D1 Q1
D2 Q2
D3 Q3
D4 Q4
D5 Q5
D6 Q6
D7 Q7
D8 Q8
VCC_IN LE
OC GND

R71 250
DUT Reset
OCD4
SW2
C11 0.22uF

J55 1 CSB >> CSB
J56 1 SCLK >> SCLK
J57 1 MOSI >> SI
J58 1 MISO >> SO
ENB >> ENB
FLTB >> FLTB
RSTB >> RSTB

R35 620 R36 620 R37 620 R38 620 R39 620 R40 620 R41 620
D8 LED D9 LED D10 LED D11 LED D12 LED D13 LED D14 LED
LEDs indicating INx signal

SW3
SW DIP-9
FLTREF2DIP
CSB MCS
ENB_MCU
FLTREF2DUT
IN0 IN1 IN2 IN3 IN4 IN5 ENB CSB

DIP switch to disable INx
control from Arduino, CSB
disconnect, ENB discoonnect,
FLTREF disconnect

Mounts for board stand-offs
#4MOUNT #4MOUNT
#4MOUNT #4MOUNT

Title	NCV7520 Demo - Interface			
Size A	Document Number <Doc>			Rev R0
Date:	Tuesday, December 04, 2018	Sheet 2	of 4	

Schematic for the NCV7520GEVB Evaluation Board

Loads
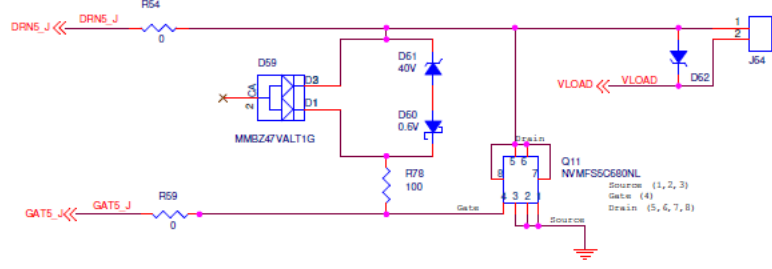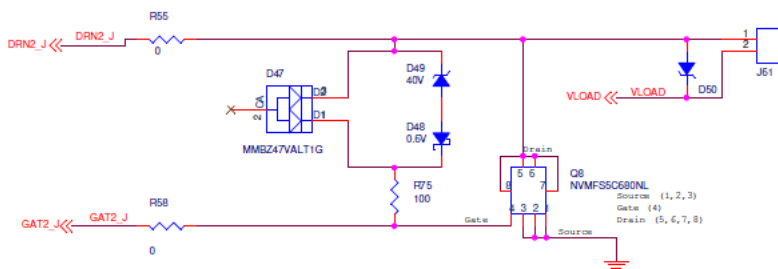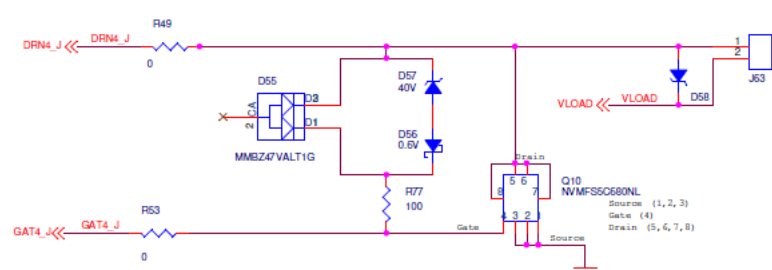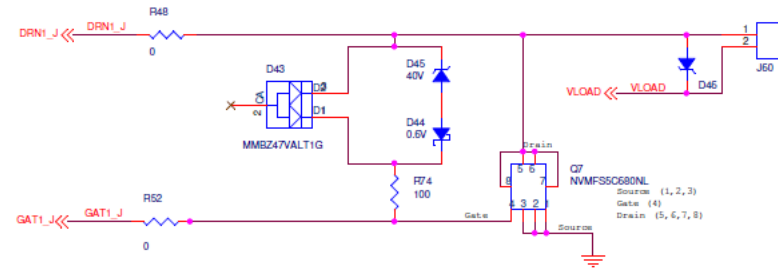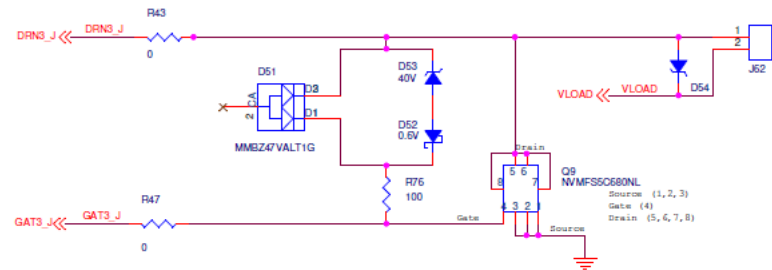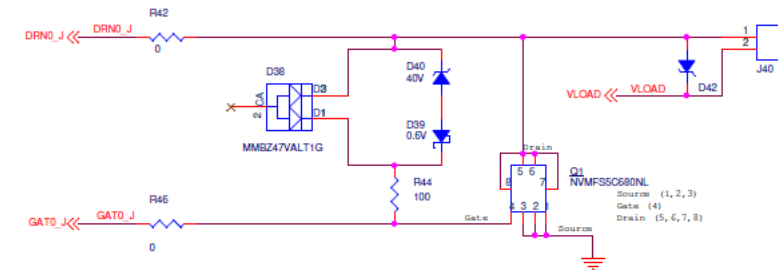
Three options for clamping diodes:

1) (Populated on Demo) Common anode package, Gate to Drain clamp, SOT-23 footprint
2) (Unpopulated) Gate to drain clamp, two SMB footprints
3) (Unpopulated) Current dissapation loop, VLOAD to Drain, SMB footprint
(For best results, only populate one of these options at a time)

Title			
NCV7520 Demo - Loads			
Size	Document Number		Rev
B	<Doc>		R0
Date:	Monday, May 13, 2019	Sheet 3 of 4	

Schematic for the NCV7520GEVB Evaluation Board

Power

JUMPER
VIN_RAW

VLOAD ≪ VLOAD 1 J45 2
To DUT
VIN

D33
MBRS140

VIN
J16
VIN_DUT ≪
VIN_RAW
CON3
Bypasses D33

J65
1 VLOAD
3
2

Remove for external 5V supply

VCC
JUMPER
VCC_IN ≪
VCC_IN
2 J49 1

D35
LED
C9
22uF

R64
620

U5
NCV4274C
5V Version
VOUT   VIN
GND
C10
1uF
C8
0.1nF
VIN

VDD
VCC
J47
3
2
1
3V3   JP3

Switch jumper to set
VDD to 5V or 3.3V
Remove for external VDD supply

Remove for external 3.3V supply

3V3
JUMPER
2 J59 1

D37
LED
C12
10uF

R72
620

U6
NCV4274C
3.3V Version
VOUT   VIN
GND
C13
1uF
C14
0.1nF
VIN

Banana Plugs
J53   J54
VLOAD   GND

Screw Terminals
J52   J51   J50
VDD   VCC   3V3
VLOAD
VLOAD

Title
NCV7520 Demo - Power

Size
A

Document Number
<Doc>

Rev
R0

Date:
Monday, May 13, 2019

Sheet   4   of   4

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Schematic for the NCV7520GEVB Evaluation Board

DUT

VCC

R1
16.5K

C1
1nF

R2
10

C2
1uF

Replaces jumper
with a dip switch
for disabling
potentiometer

R3
20K
3352E-1-203LF

FLTREF2DIP

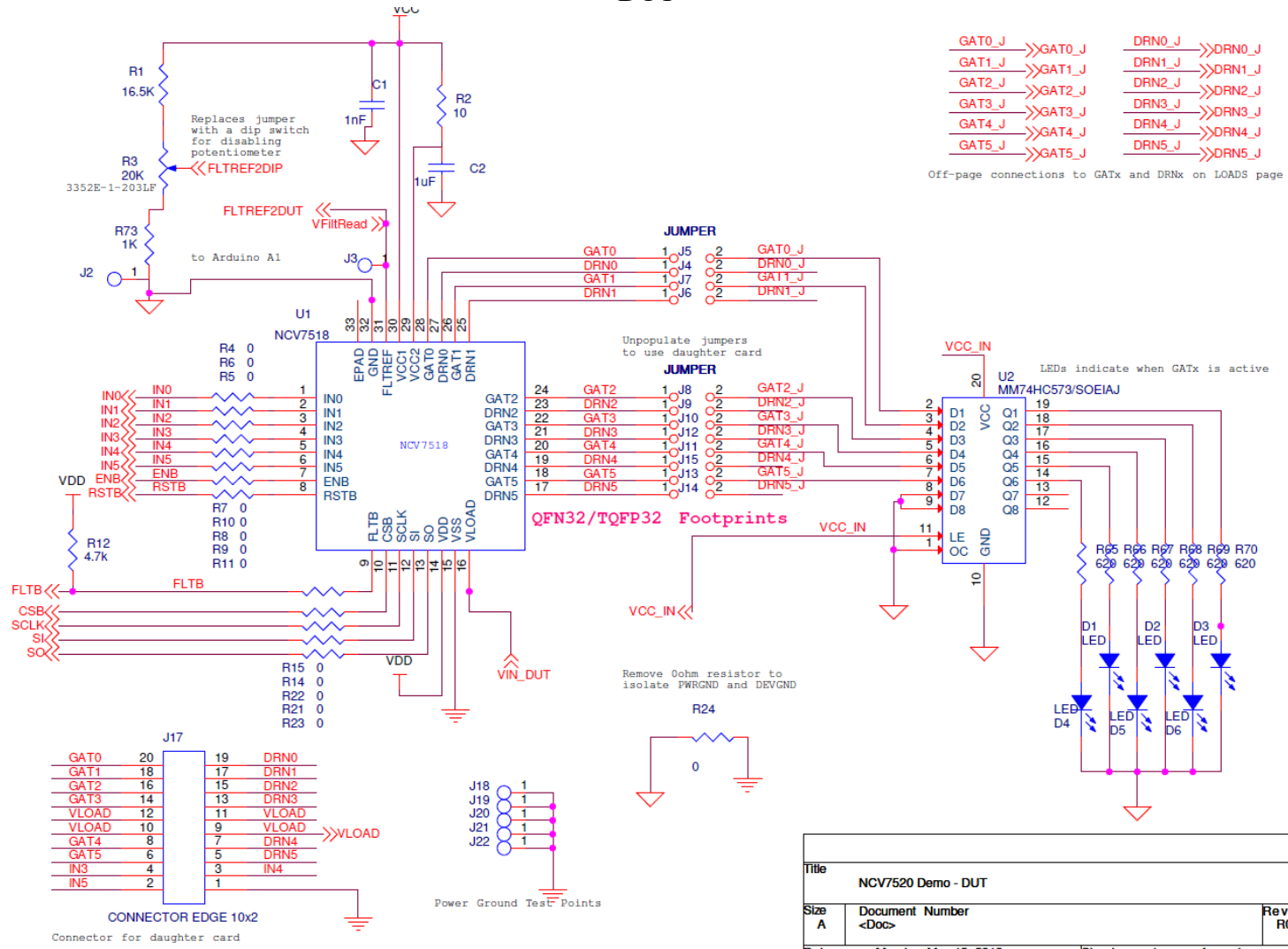FLTREF2DUT

VFiltRead

to Arduino A1

J2   1

J3   1

GAT0_J >> GAT0_J   DRN0_J >> DRN0_J
GAT1_J >> GAT1_J   DRN1_J >> DRN1_J
GAT2_J >> GAT2_J   DRN2_J >> DRN2_J
GAT3_J >> GAT3_J   DRN3_J >> DRN3_J
GAT4_J >> GAT4_J   DRN4_J >> DRN4_J
GAT5_J >> GAT5_J   DRN5_J >> DRN5_J

Off-page connections to GATx and DRNx on LOADS page

JUMPER
GAT0   1 J5   2   GAT0_J
DRN0   1 J4   2   DRN0_J
GAT1   1 J7   2   GAT1_J
DRN1   1 J6   2   DRN1_J

Unpopulate jumpers
to use daughter card

JUMPER
GAT2   1 J8   2   GAT2_J
DRN2   1 J9   2   DRN2_J
GAT3   1 J10 2   GAT3_J
DRN3   1 J12 2   DRN3_J
GAT4   1 J11 2   GAT4_J
DRN4   1 J15 2   DRN4_J
GAT5   1 J13 2   GAT5_J
DRN5   1 J14 2   DRN5_J

QFN32/TQFP32 Footprints

VCC_IN

U2
MM74HC573/SOEIAJ

LEDs indicate when GATx is active

U1
NCV7518

R4 0
R6 0
R5 0

IN0   1   IN0
IN1   2   IN1
IN2   3   IN2
IN3   4   IN3
IN4   5   IN4
IN5   6   IN5
ENB   7   ENB
RSTB 8   RSTB

EPAD GND FLTREF VCC1 VCC2 GAT0 DRN0 GAT1 DRN1
33 32 31 30 29 28 27 26 25

NCV7518

24 GAT2   GAT2
23 DRN2   DRN2
22 GAT3   GAT3
21 DRN3   DRN3
20 GAT4   GAT4
19 DRN4   DRN4
18 GAT5   GAT5
17 DRN5   DRN5

FLTB CSB SCLK SI SO VDD VSS VLOAD
9 10 11 12 13 14 15 16

VDD
RSTB

R12
4.7k

R7 0
R10 0
R8 0
R9 0
R11 0

FLTB   FLTB
CSB
SCLK
SI
SO

R15 0
R14 0
R22 0
R21 0
R23 0

VDD

VIN_DUT

VCC_IN

VCC_IN

D1 2   Q1 19
D2 3   Q2 18
D3 4   Q3 17
D4 5   Q4 16
D5 6   Q5 15
D6 7   Q6 14
D7 8   Q7 13
D8 9   Q8 12
LE 11
OC 1

VCC 20
GND 10

R65 R66 R67 R68 R69 R70
620 620 620 620 620 620

D1   D2   D3
LED LED LED

LED LED LED
D4   D5   D6

Remove 0ohm resistor to
isolate PWRGND and DEVGND

R24
0

J17
GAT0   20   19   DRN0
GAT1   18   17   DRN1
GAT2   16   15   DRN2
GAT3   14   13   DRN3
VLOAD 12   11   VLOAD
VLOAD 10   9   VLOAD
GAT4   8   7   DRN4
GAT5   6   5   DRN5
IN3   4   3   IN4
IN5   2   1

CONNECTOR EDGE 10x2
Connector for daughter card

J18   1
J19   1
J20   1
J21   1
J22   1

Power Ground Test Points

VLOAD

Title	NCV7520 Demo - DUT		
Size A	Document Number <Doc>		Rev R0
Date:	Monday, May 13, 2019	Sheet 1 of 4	