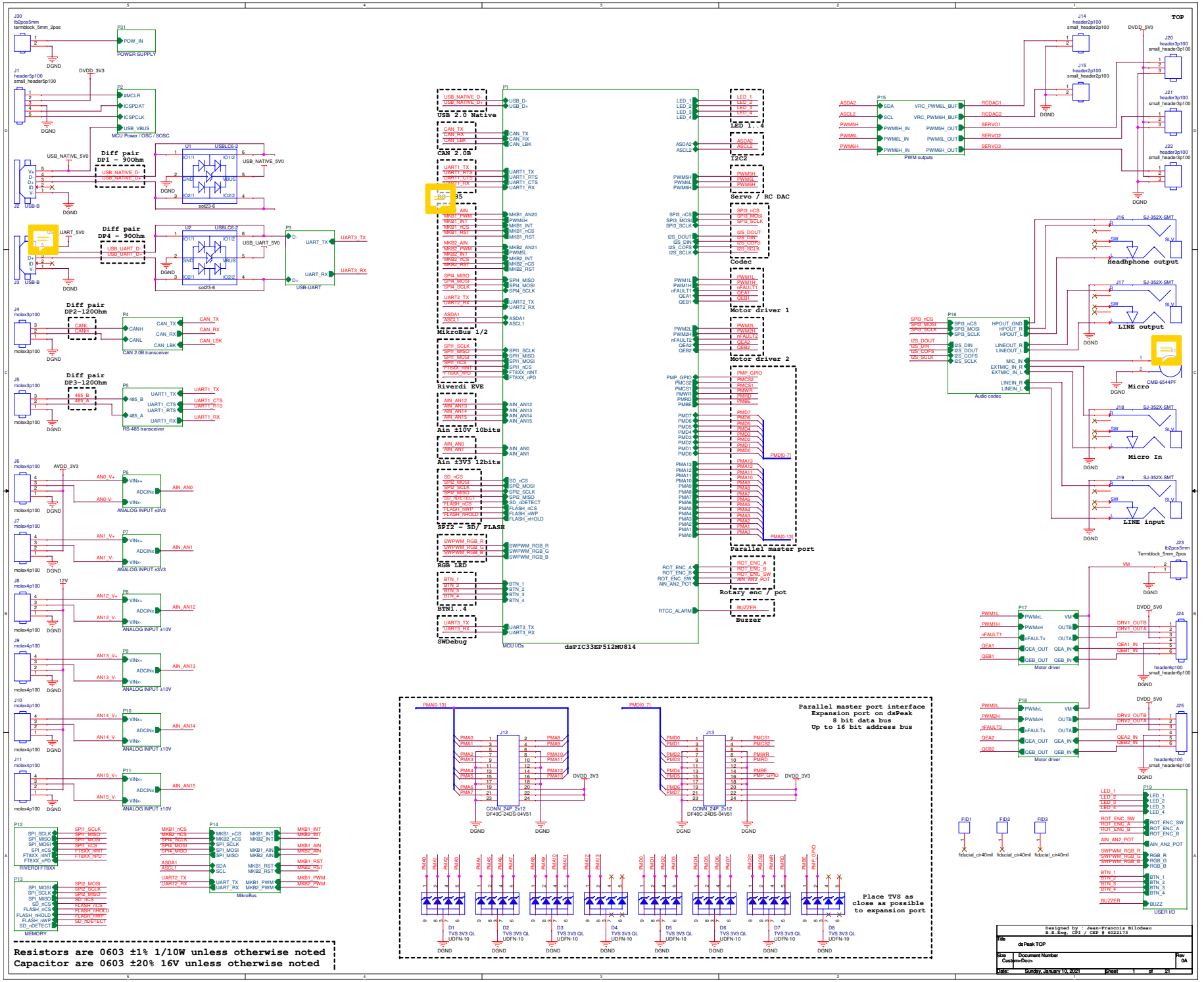
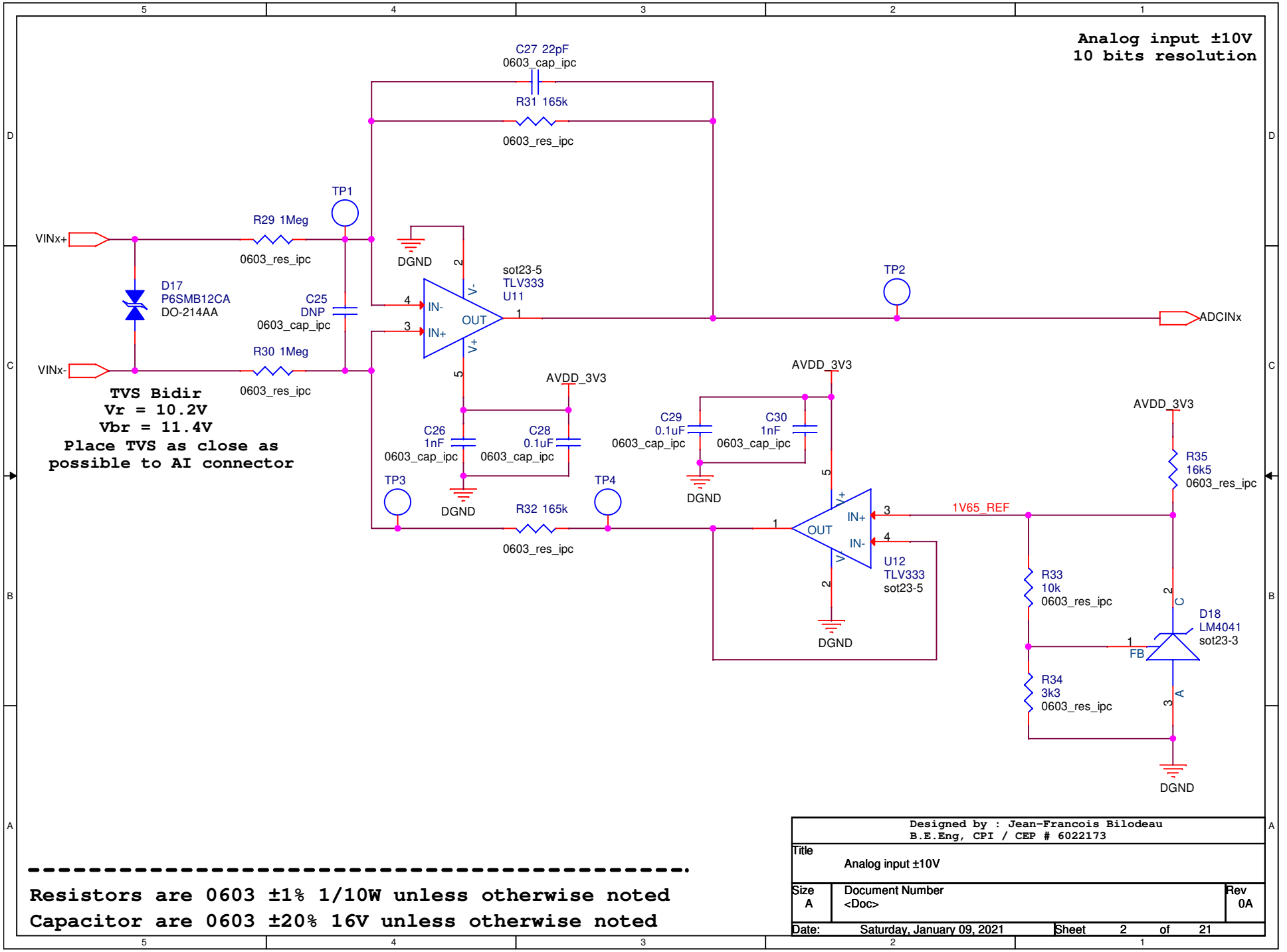

TOP
dsPIC33EP512MU814
USB 2.0 Native
CAN 2.0B
I2C2
Servo / RC DAC
Codec
Motor driver 1
Motor driver 2
Parallel master port
Rotary enc / pot
Buzzer
LED 1..4
RIVERDI FT8XX
SPI2 - SD/ FLASH
RGB LED
SWDebug
MCU I/Os
Ain ±10V 10bits
Ain ±3V3 12bits
MikroBus 1/2
Diff pair DP1 - 90Ohm
Diff pair DP4 - 90Ohm
Diff pair DP2-120Ohm
Diff pair DP3-120Ohm
Headphone output
LINE output
Micro
Micro In
LINE input
Parallel master port interface
Expansion port on dsPeak
8 bit data bus
Up to 16 bit address bus
Place TVS as close as possible to expansion port
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
dsPeak TOP
Sunday, January 10, 2021


Analog input ±10V
10 bits resolution
C27 22pF
0603_cap_ipc
R31 165k
0603_res_ipc
TP1
R29 1Meg
VINx+
0603_res_ipc
DGND
sot23-5
TLV333
U11
TP2
ADCINx
D17
P6SMB12CA
DO-214AA
C25
DNP
0603_cap_ipc
IN-
IN+
OUT
V-
V+
R30 1Meg
VINx-
0603_res_ipc
TVS Bidir
Vr = 10.2V
Vbr = 11.4V
Place TVS as close as
possible to AI connector
AVDD_3V3
C26
1nF
0603_cap_ipc
C28
0.1uF
0603_cap_ipc
TP3
TP4
R32 165k
0603_res_ipc
C29
0.1uF
0603_cap_ipc
C30
1nF
0603_cap_ipc
U12
TLV333
sot23-5
1V65_REF
R35
16k5
0603_res_ipc
R33
10k
0603_res_ipc
R34
3k3
0603_res_ipc
D18
LM4041
sot23-3
FB
C
A
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Analog input ±10V
Size
A
Document Number
<Doc>
Rev
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Date:
Saturday, January 09, 2021
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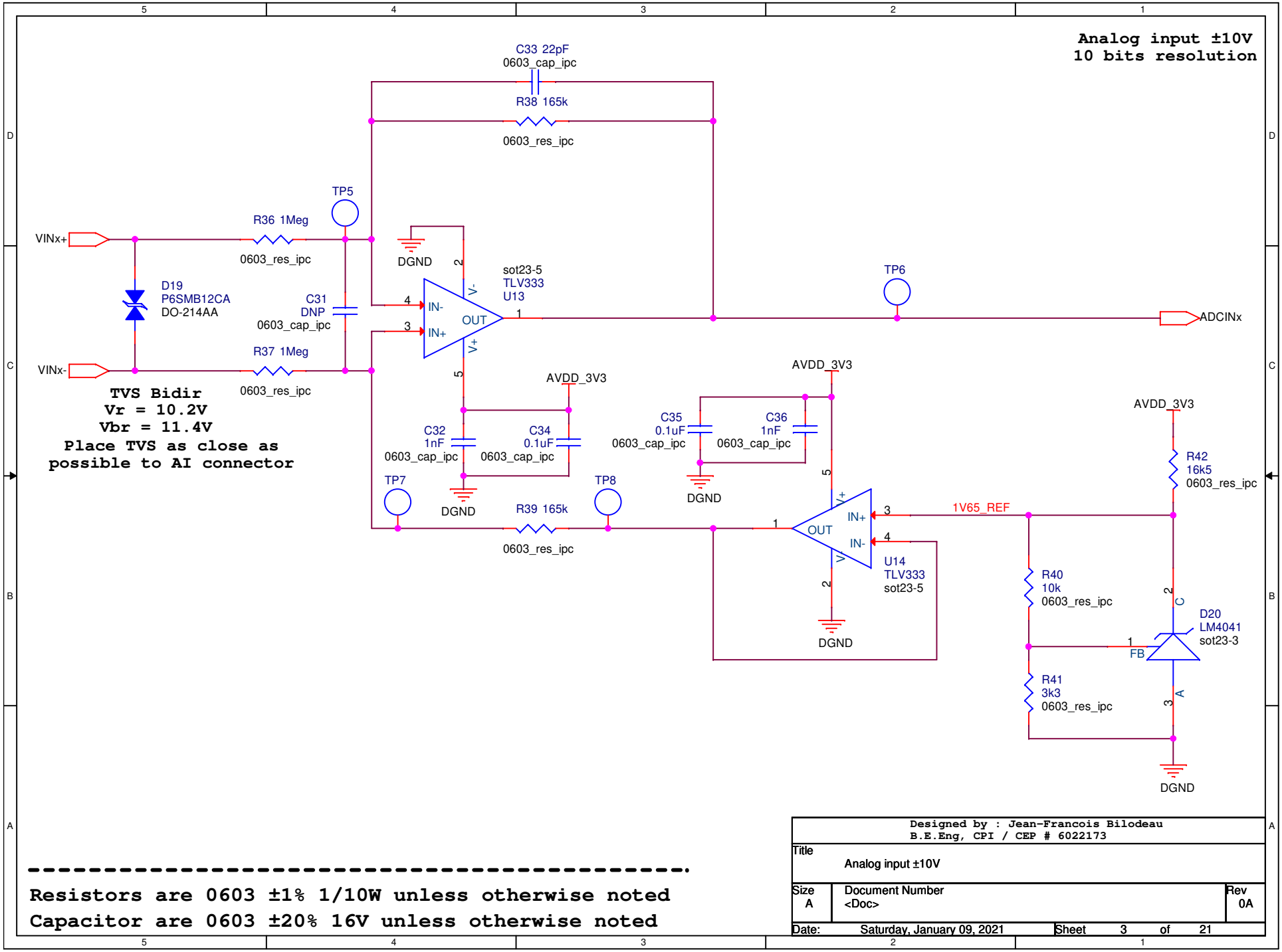
of
21
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted


Analog input ±10V
10 bits resolution
C33 22pF
0603_cap_ipc
R38 165k
0603_res_ipc
TP5
R36 1Meg
VINx+
0603_res_ipc
DGND
sot23-5
TLV333
U13
TP6
ADCINx
D19
P6SMB12CA
DO-214AA
C31
DNP
0603_cap_ipc
VINx-
R37 1Meg
0603_res_ipc
TVS Bidir
Vr = 10.2V
Vbr = 11.4V
Place TVS as close as
possible to AI connector
AVDD_3V3
C32
1nF
0603_cap_ipc
C34
0.1uF
0603_cap_ipc
C35
0.1uF
0603_cap_ipc
C36
1nF
0603_cap_ipc
TP7
TP8
R39 165k
0603_res_ipc
1V65_REF
U14
TLV333
sot23-5
R42
16k5
0603_res_ipc
R40
10k
0603_res_ipc
D20
LM4041
sot23-3
FB
R41
3k3
0603_res_ipc
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Analog input ±10V
Size
A
Document Number
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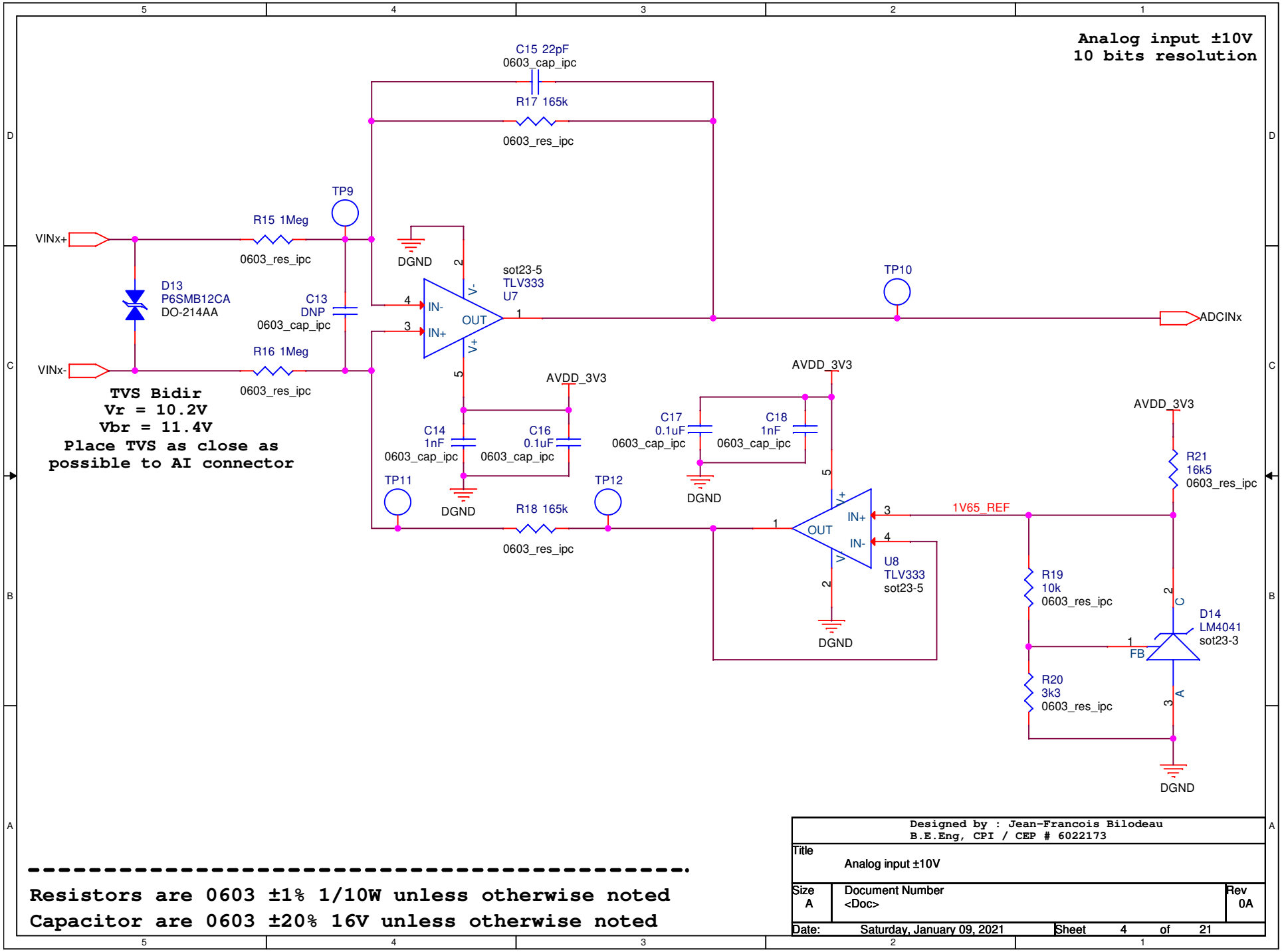
Date: Saturday, January 09, 2021
Sheet 3 of 21
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted


Analog input ±10V
10 bits resolution
C15 22pF
0603_cap_ipc
R17 165k
0603_res_ipc
TP9
R15 1Meg
VINx+
0603_res_ipc
DGND
sot23-5
TLV333
U7
TP10
ADCINx
D13
P6SMB12CA
DO-214AA
C13
DNP
0603_cap_ipc
R16 1Meg
VINx-
0603_res_ipc
TVS Bidir
Vr = 10.2V
Vbr = 11.4V
Place TVS as close as
possible to AI connector
AVDD_3V3
C14
1nF
0603_cap_ipc
C16
0.1uF
0603_cap_ipc
C17
0.1uF
0603_cap_ipc
C18
1nF
0603_cap_ipc
TP11
TP12
R18 165k
0603_res_ipc
1V65_REF
U8
TLV333
sot23-5
R19
10k
0603_res_ipc
R21
16k5
0603_res_ipc
D14
LM4041
sot23-3
FB
R20
3k3
0603_res_ipc
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Analog input ±10V
Size
A
Document Number
<Doc>
Rev
0A
Date:
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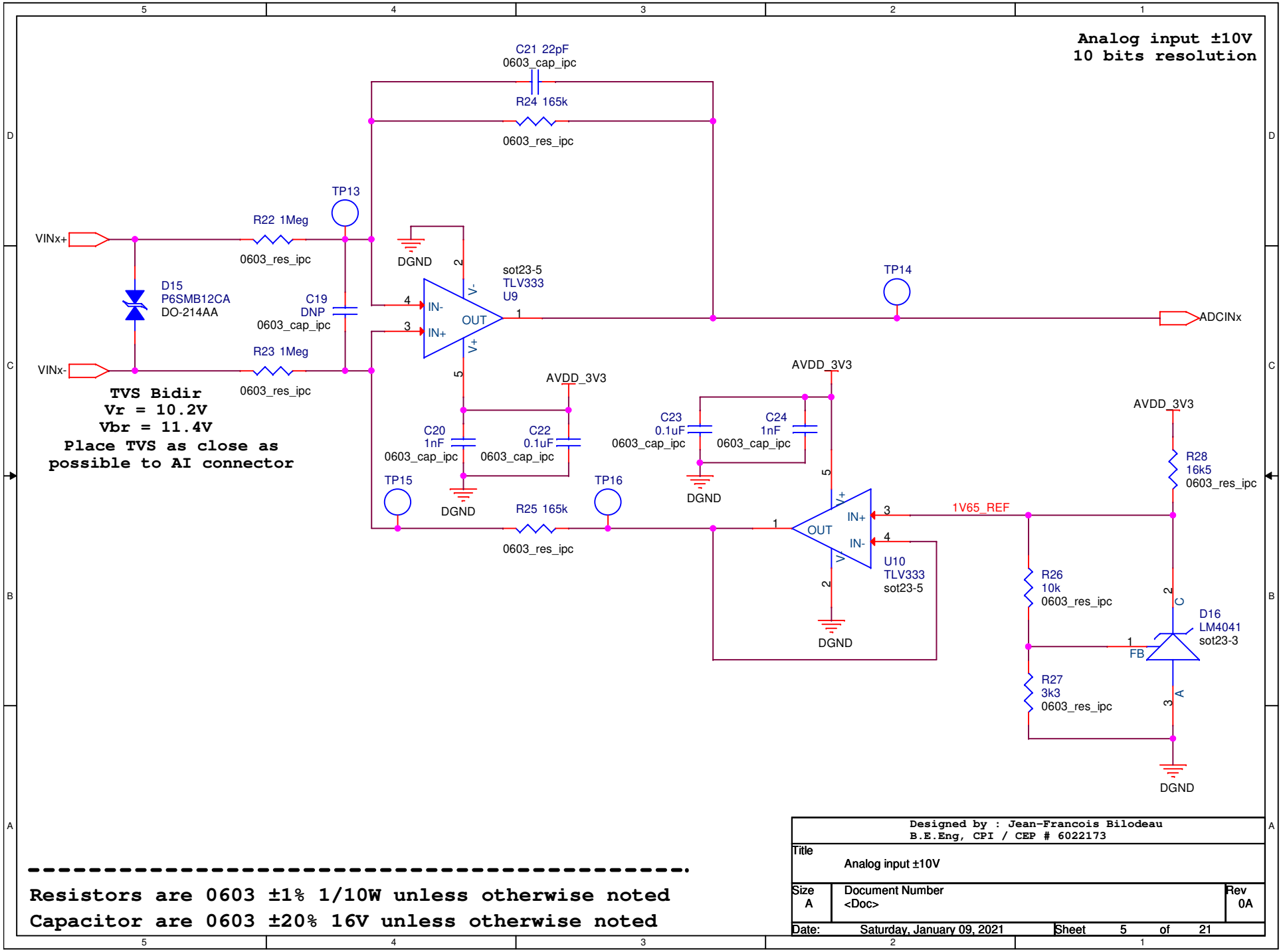
of
21
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted


Analog input ±10V
10 bits resolution
C21 22pF
0603_cap_ipc
R24 165k
0603_res_ipc
TP13
R22 1Meg
VINx+
0603_res_ipc
DGND
sot23-5
TLV333
U9
TP14
ADCINx
D15
P6SMB12CA
DO-214AA
C19
DNP
0603_cap_ipc
R23 1Meg
VINx-
0603_res_ipc
TVS Bidir
Vr = 10.2V
Vbr = 11.4V
Place TVS as close as
possible to AI connector
AVDD_3V3
C20
1nF
0603_cap_ipc
C22
0.1uF
0603_cap_ipc
C23
0.1uF
0603_cap_ipc
C24
1nF
0603_cap_ipc
TP15
TP16
R25 165k
0603_res_ipc
1V65_REF
U10
TLV333
sot23-5
R28
16k5
0603_res_ipc
R26
10k
0603_res_ipc
D16
LM4041
sot23-3
FB
R27
3k3
0603_res_ipc
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Analog input ±10V
Size
A
Document Number
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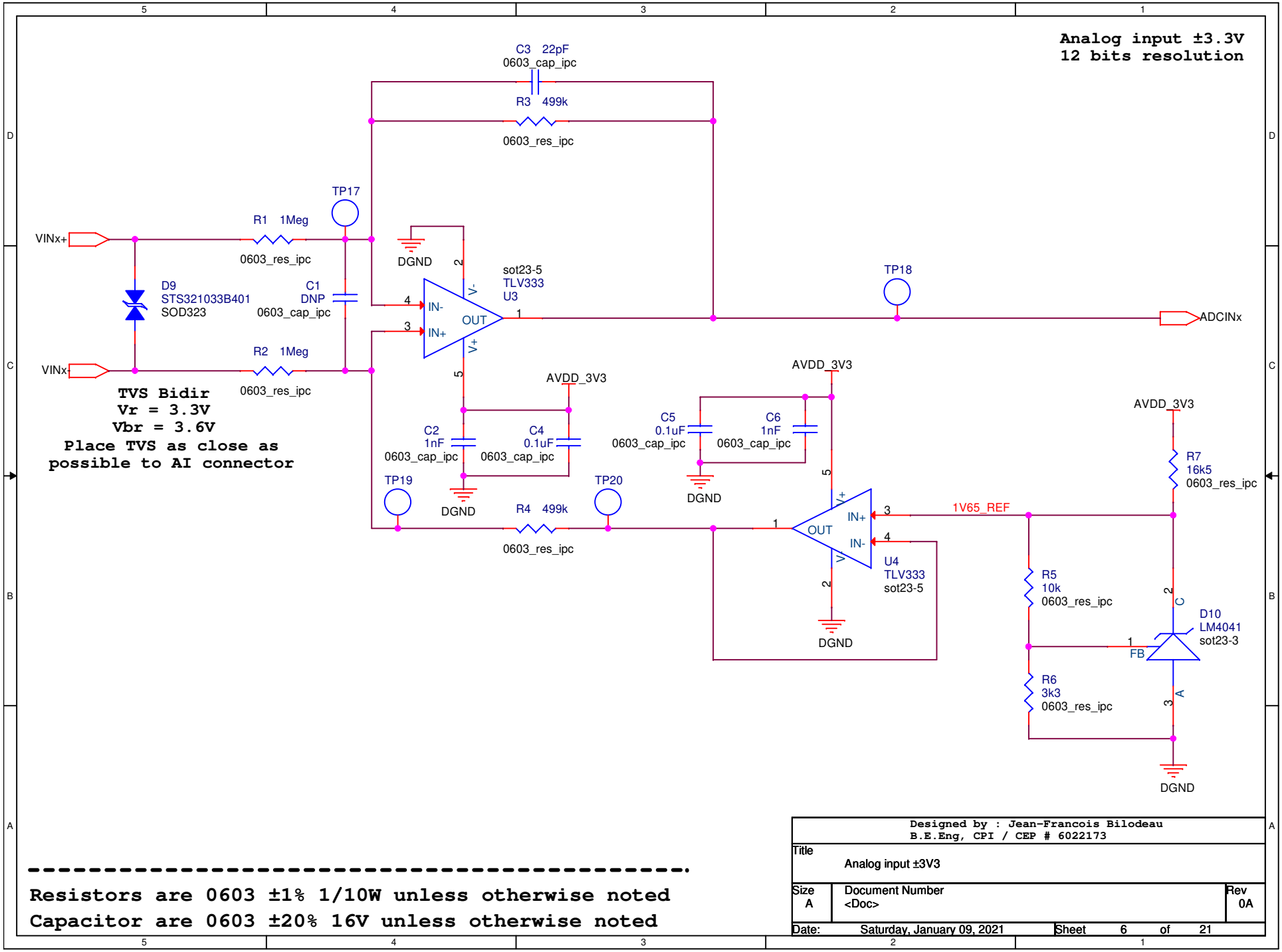
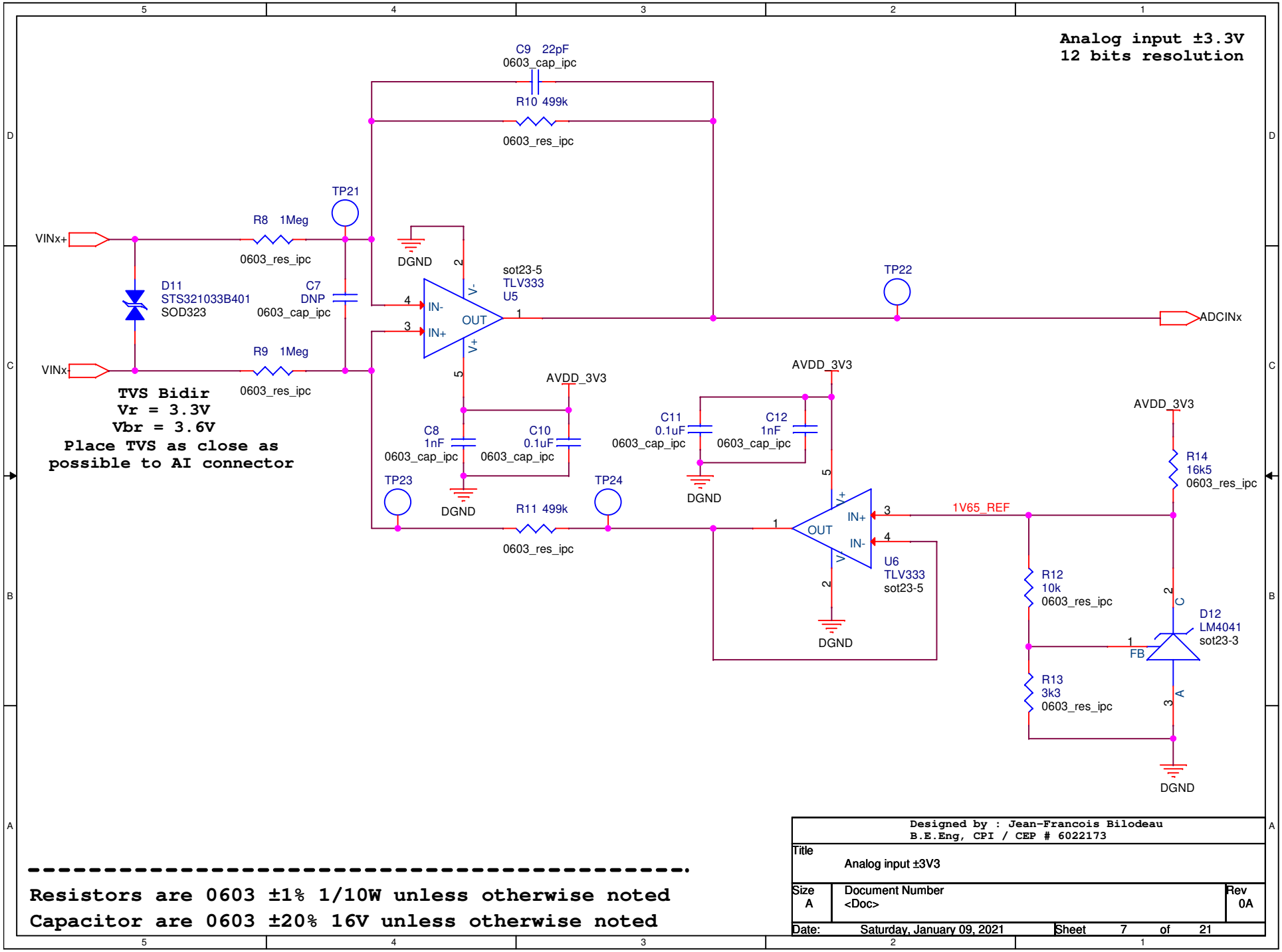

Analog input ±3.3V
12 bits resolution
C3 22pF
0603_cap_ipc
R3 499k
0603_res_ipc
TP17
R1 1Meg
VINx+
0603_res_ipc
DGND
sot23-5
TLV333
U3
TP18
ADCINx
D9
STS321033B401
SOD323
C1
DNP
0603_cap_ipc
IN-
IN+
OUT
V-
V+
VINx-
R2 1Meg
0603_res_ipc
TVS Bidir
Vr = 3.3V
Vbr = 3.6V
Place TVS as close as
possible to AI connector
AVDD_3V3
C2
1nF
0603_cap_ipc
C4
0.1uF
0603_cap_ipc
TP19
TP20
DGND
R4 499k
0603_res_ipc
C5
0.1uF
0603_cap_ipc
C6
1nF
0603_cap_ipc
U4
TLV333
sot23-5
1V65_REF
R7
16k5
0603_res_ipc
R5
10k
0603_res_ipc
R6
3k3
0603_res_ipc
D10
LM4041
sot23-3
FB
C
A
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Analog input ±3V3
Size
A
Document Number
<Doc>
Rev
0A
Date: Saturday, January 09, 2021
Sheet 6 of 21
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted


Analog input ±3.3V
12 bits resolution
C9 22pF
0603_cap_ipc
R10 499k
0603_res_ipc
TP21
R8 1Meg
VINx+
0603_res_ipc
DGND
sot23-5
TLV333
U5
TP22
ADCINx
D11
STS321033B401
SOD323
C7
DNP
0603_cap_ipc
IN-
IN+
OUT
V-
V+
VINx-
R9 1Meg
0603_res_ipc
TVS Bidir
Vr = 3.3V
Vbr = 3.6V
Place TVS as close as
possible to AI connector
AVDD_3V3
C8
1nF
0603_cap_ipc
C10
0.1uF
0603_cap_ipc
TP23
TP24
R11 499k
0603_res_ipc
C11
0.1uF
0603_cap_ipc
C12
1nF
0603_cap_ipc
U6
TLV333
sot23-5
1V65_REF
R14
16k5
0603_res_ipc
R12
10k
0603_res_ipc
D12
LM4041
sot23-3
FB
R13
3k3
0603_res_ipc
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Analog input ±3V3
Size
A
Document Number
<Doc>
Rev
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Date: Saturday, January 09, 2021
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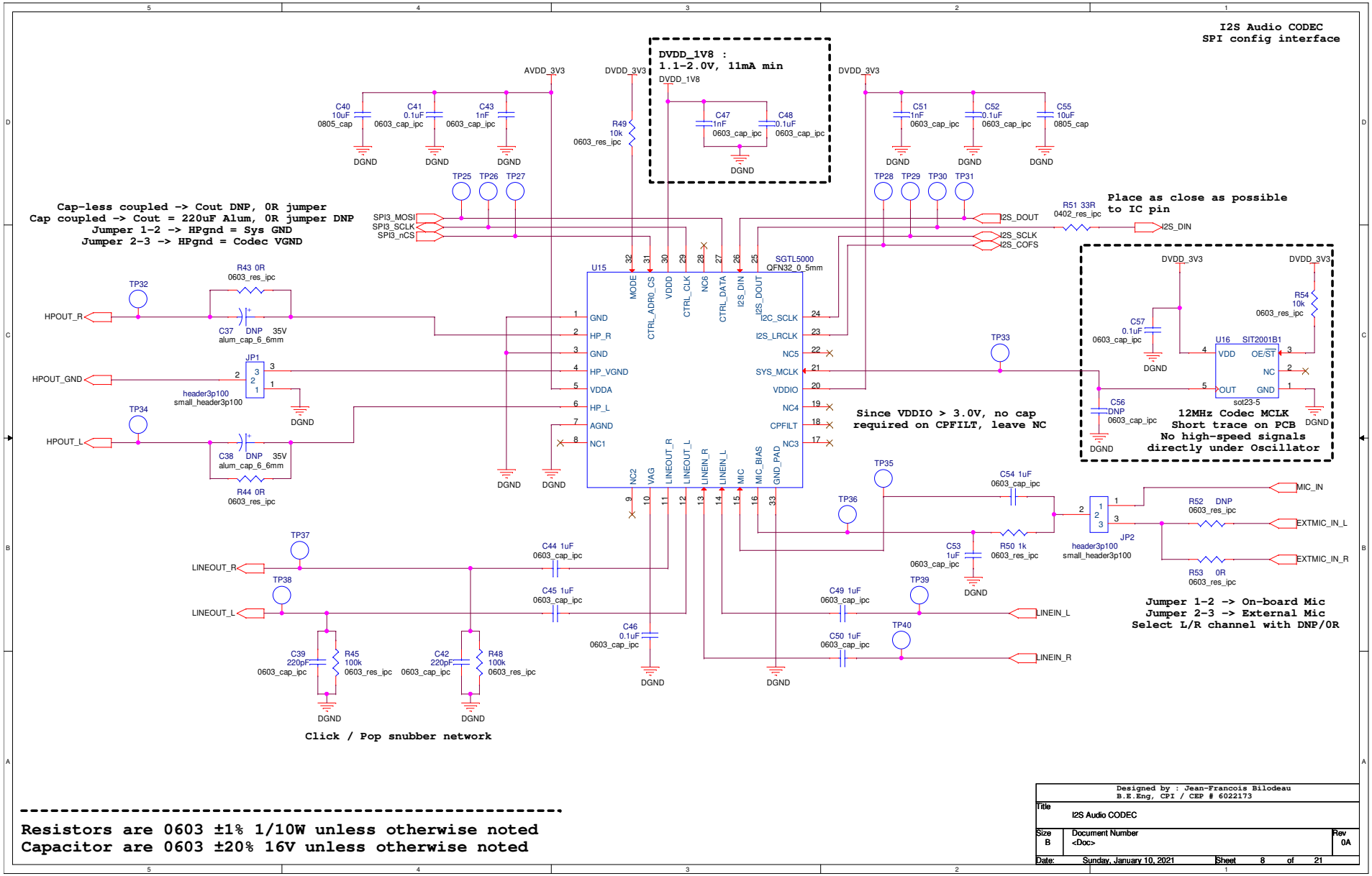
I2S Audio CODEC
SPI config interface
DVDD_1V8 :
1.1-2.0V, 11mA min
Cap-less coupled -> Cout DNP, 0R jumper
Cap coupled -> Cout = 220uF Alum, 0R jumper DNP
Jumper 1-2 -> HPgnd = Sys GND
Jumper 2-3 -> HPgnd = Codec VGND
Place as close as possible
to IC pin
SGTL5000
QFN32_0_5mm
Since VDDIO > 3.0V, no cap
required on CPFILT, leave NC
12MHz Codec MCLK
Short trace on PCB
No high-speed signals
directly under Oscillator
Jumper 1-2 -> On-board Mic
Jumper 2-3 -> External Mic
Select L/R channel with DNP/0R
Click / Pop snubber network
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
I2S Audio CODEC
Size
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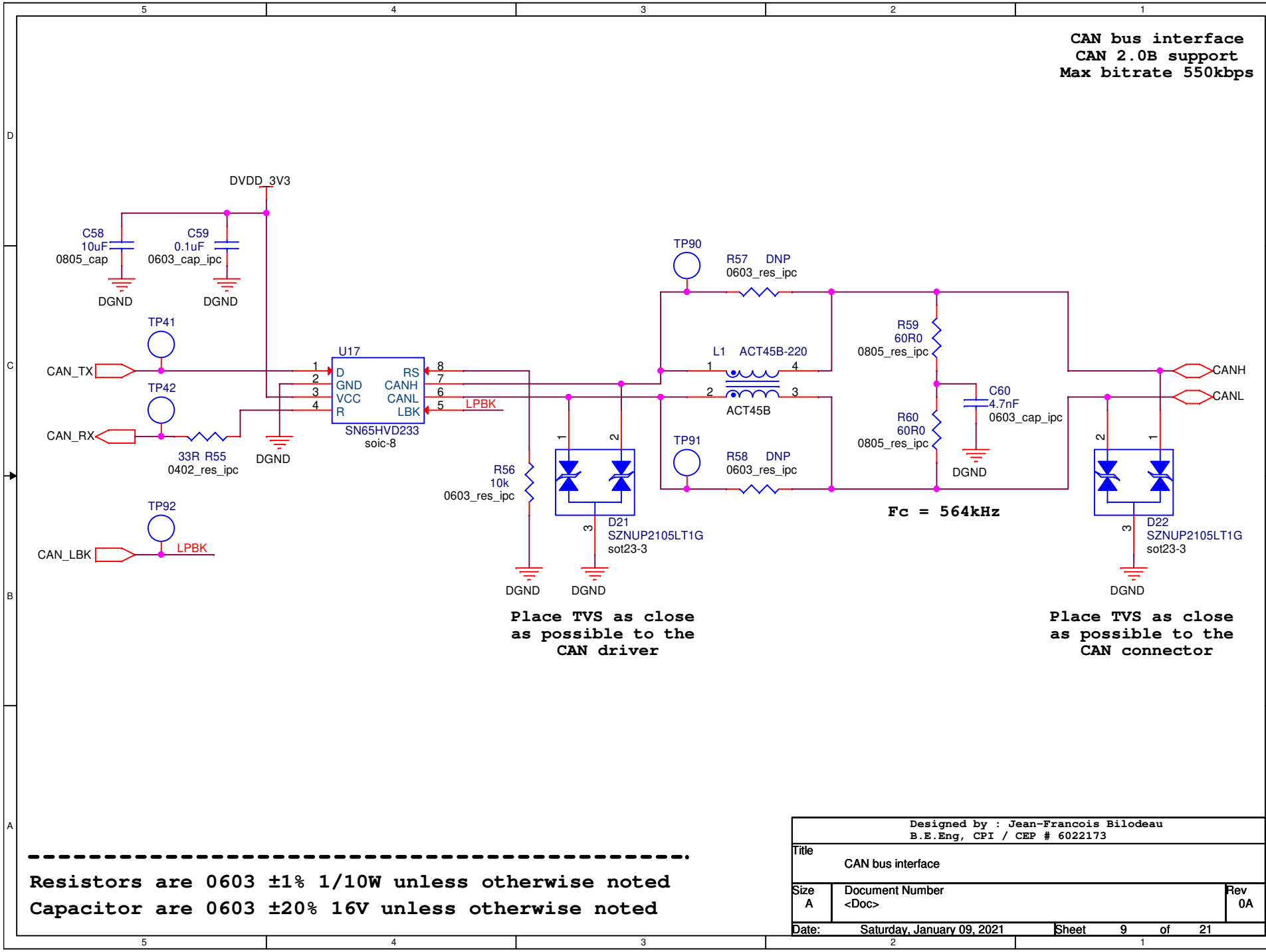
CAN bus interface
CAN 2.0B support
Max bitrate 550kbps
DVDD_3V3
C58
10uF
0805_cap
C59
0.1uF
0603_cap_ipc
DGND
DGND
TP41
CAN_TX
TP42
CAN_RX
33R R55
0402_res_ipc
DGND
U17
D
GND
VCC
R
RS
CANH
CANL
LBK
SN65HVD233
soic-8
LPBK
TP92
CAN_LBK
LPBK
R56
10k
0603_res_ipc
D21
SZNUP2105LT1G
sot23-3
DGND
DGND
TP90
R57 DNP
0603_res_ipc
L1 ACT45B-220
ACT45B
TP91
R58 DNP
0603_res_ipc
R59
60R0
0805_res_ipc
R60
60R0
0805_res_ipc
C60
4.7nF
0603_cap_ipc
DGND
Fc = 564kHz
D22
SZNUP2105LT1G
sot23-3
DGND
CANH
CANL
Place TVS as close as possible to the CAN driver
Place TVS as close as possible to the CAN connector
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
CAN bus interface
Size
A
Document Number
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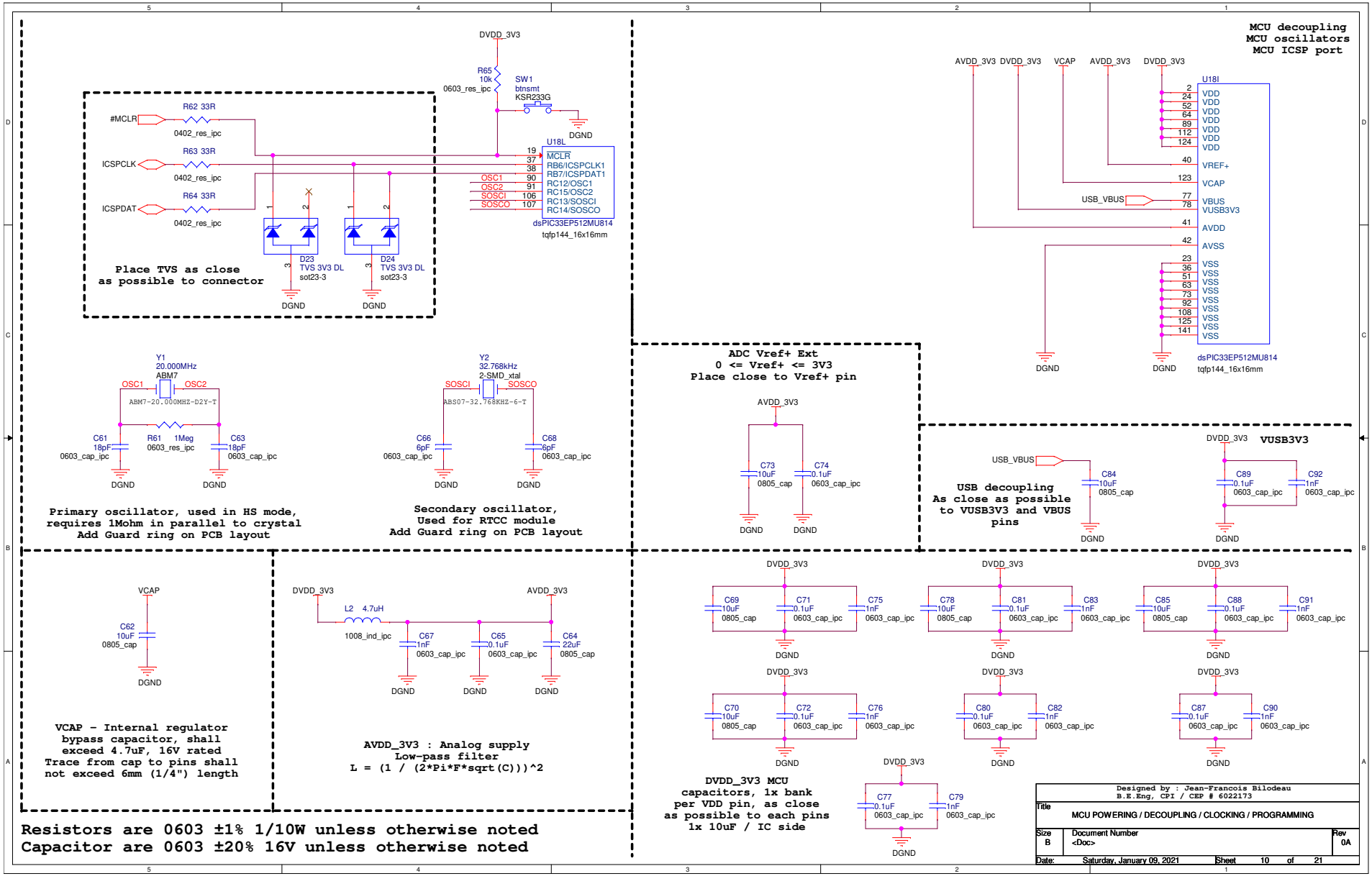
21


MCU decoupling
MCU oscillators
MCU ICSP port
DVDD_3V3
R65 10k 0603_res_ipc
SW1 btnsmt KSR233G
DGND
R62 33R
#MCLR
0402_res_ipc
R63 33R
ICSPCLK
0402_res_ipc
R64 33R
ICSPDAT
0402_res_ipc
U18L
MCLR
RB6/ICSPCLK1
RB7/ICSPDAT1
RC12/OSC1
RC15/OSC2
RC13/SOSCI
RC14/SOSCO
dsPIC33EP512MU814
tqfp144_16x16mm
D23 TVS 3V3 DL sot23-3
D24 TVS 3V3 DL sot23-3
Place TVS as close as possible to connector
AVDD_3V3 DVDD_3V3 VCAP AVDD_3V3 DVDD_3V3
U18I
VDD
VREF+
VCAP
USB_VBUS
VBUS
VUSB3V3
AVDD
AVSS
VSS
dsPIC33EP512MU814
tqfp144_16x16mm
Y1 20.000MHz ABM7
OSC1 OSC2
ABM7-20.000MHZ-D2Y-T
C61 18pF 0603_cap_ipc
R61 1Meg 0603_res_ipc
C63 18pF 0603_cap_ipc
Primary oscillator, used in HS mode, requires 1Mohm in parallel to crystal
Add Guard ring on PCB layout
Y2 32.768kHz 2-SMD_xtal
SOSCI SOSCO
ABS07-32.768KHZ-6-T
C66 6pF 0603_cap_ipc
C68 6pF 0603_cap_ipc
Secondary oscillator, Used for RTCC module
Add Guard ring on PCB layout
ADC Vref+ Ext
0 <= Vref+ <= 3V3
Place close to Vref+ pin
C73 10uF 0805_cap
C74 0.1uF 0603_cap_ipc
USB decoupling
As close as possible to VUSB3V3 and VBUS pins
C84 10uF 0805_cap
VUSB3V3
C89 0.1uF 0603_cap_ipc
C92 1nF 0603_cap_ipc
VCAP
C62 10uF 0805_cap
VCAP - Internal regulator bypass capacitor, shall exceed 4.7uF, 16V rated
Trace from cap to pins shall not exceed 6mm (1/4") length
L2 4.7uH 1008_ind_ipc
C67 1nF 0603_cap_ipc
C65 0.1uF 0603_cap_ipc
C64 22uF 0805_cap
AVDD_3V3 : Analog supply
Low-pass filter
L = (1 / (2*Pi*F*sqrt(C)))^2
C69 10uF 0805_cap
C71 0.1uF 0603_cap_ipc
C75 1nF 0603_cap_ipc
C78 10uF 0805_cap
C81 0.1uF 0603_cap_ipc
C83 1nF 0603_cap_ipc
C85 10uF 0805_cap
C88 0.1uF 0603_cap_ipc
C91 1nF 0603_cap_ipc
C70 10uF 0805_cap
C72 0.1uF 0603_cap_ipc
C76 1nF 0603_cap_ipc
C80 0.1uF 0603_cap_ipc
C82 1nF 0603_cap_ipc
C87 0.1uF 0603_cap_ipc
C90 1nF 0603_cap_ipc
C77 0.1uF 0603_cap_ipc
C79 1nF 0603_cap_ipc
DVDD_3V3 MCU capacitors, 1x bank per VDD pin, as close as possible to each pins
1x 10uF / IC side
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
MCU POWERING / DECOUPLING / CLOCKING / PROGRAMMING
Size B
Document Number
<Doc>
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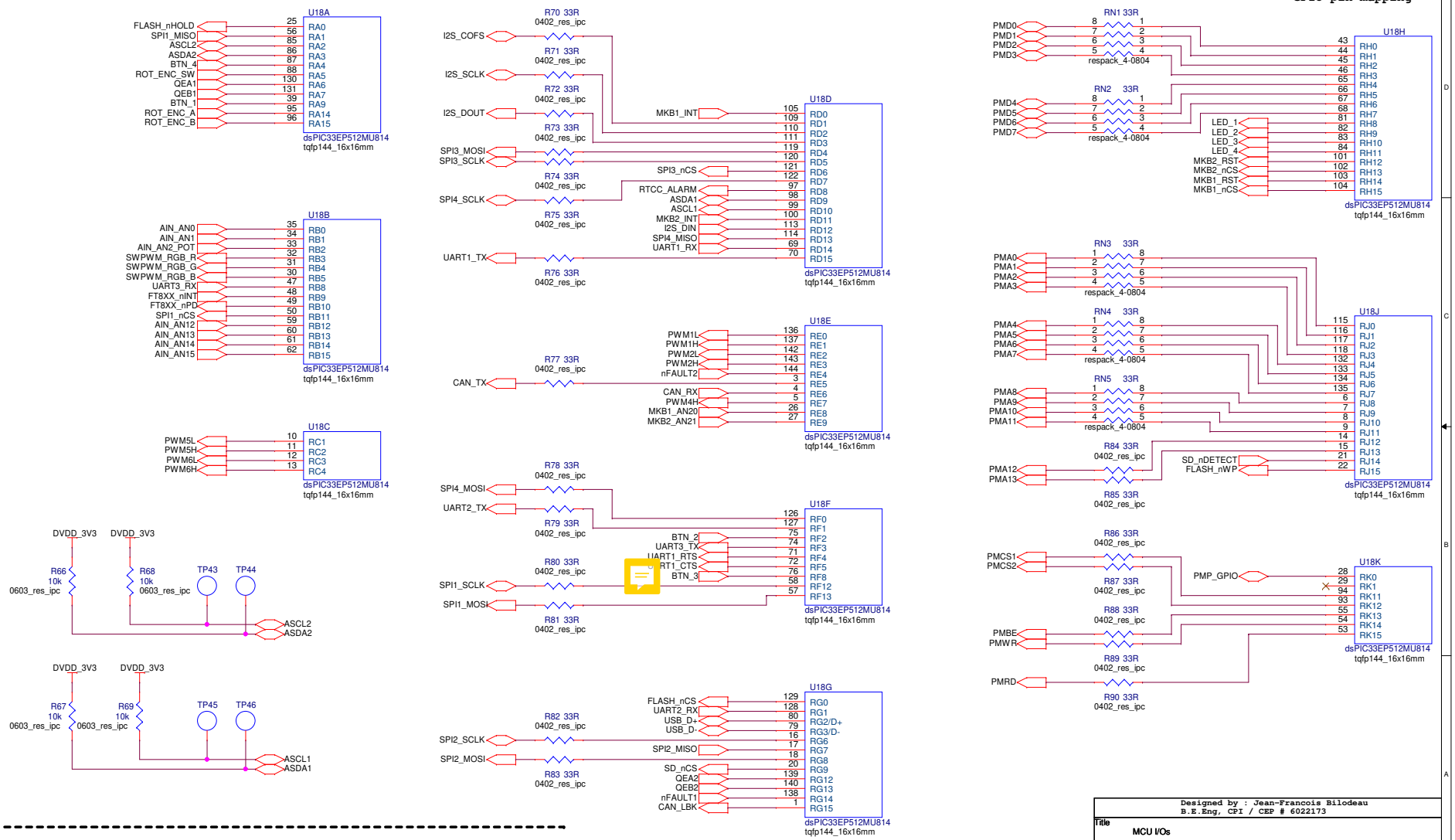
dsPIC33EP512MU814
GPIO pin mapping
U18A
FLASH_nHOLD
SPI1_MISO
ASCL2
ASDA2
BTN_4
ROT_ENC_SW
QEA1
QEB1
BTN_1
ROT_ENC_A
ROT_ENC_B
RA0
RA1
RA2
RA3
RA4
RA5
RA6
RA7
RA9
RA14
RA15
dsPIC33EP512MU814
tqfp144_16x16mm
U18B
AIN_AN0
AIN_AN1
AIN_AN2_POT
SWPWM_RGB_R
SWPWM_RGB_G
SWPWM_RGB_B
UART3_RX
FT8XX_nINT
FT8XX_nPD
SPI1_nCS
AIN_AN12
AIN_AN13
AIN_AN14
AIN_AN15
RB0
RB1
RB2
RB3
RB4
RB5
RB8
RB9
RB10
RB11
RB12
RB13
RB14
RB15
U18C
PWM5L
PWM5H
PWM6L
PWM6H
RC1
RC2
RC3
RC4
DVDD_3V3
R66
10k
0603_res_ipc
R68
TP43
TP44
ASCL2
ASDA2
R67
R69
TP45
TP46
ASCL1
ASDA1
R70 33R
0402_res_ipc
I2S_COFS
R71 33R
I2S_SCLK
R72 33R
I2S_DOUT
R73 33R
SPI3_MOSI
SPI3_SCLK
R74 33R
SPI4_SCLK
R75 33R
UART1_TX
R76 33R
U18D
MKB1_INT
SPI3_nCS
RTCC_ALARM
ASDA1
ASCL1
MKB2_INT
I2S_DIN
SPI4_MISO
UART1_RX
RD0
RD1
RD2
RD3
RD4
RD5
RD6
RD7
RD8
RD9
RD10
RD11
RD12
RD13
RD14
RD15
R77 33R
CAN_TX
U18E
PWM1L
PWM1H
PWM2L
PWM2H
nFAULT2
CAN_RX
PWM4H
MKB1_AN20
MKB2_AN21
RE0
RE1
RE2
RE3
RE4
RE5
RE6
RE7
RE8
RE9
R78 33R
SPI4_MOSI
UART2_TX
R79 33R
R80 33R
SPI1_SCLK
SPI1_MOSI
R81 33R
U18F
BTN_2
UART3_TX
UART1_RTS
UART1_CTS
BTN_3
RF0
RF1
RF2
RF3
RF4
RF5
RF8
RF12
RF13
R82 33R
SPI2_SCLK
SPI2_MOSI
R83 33R
U18G
FLASH_nCS
UART2_RX
USB_D+
USB_D-
SPI2_MISO
SD_nCS
QEA2
QEB2
nFAULT1
CAN_LBK
RG0
RG1
RG2/D+
RG3/D-
RG6
RG7
RG8
RG9
RG12
RG13
RG14
RG15
RN1 33R
PMD0
PMD1
PMD2
PMD3
respack_4-0804
RN2 33R
PMD4
PMD5
PMD6
PMD7
U18H
LED_1
LED_2
LED_3
LED_4
MKB2_RST
MKB2_nCS
MKB1_RST
MKB1_nCS
RH0
RH1
RH2
RH3
RH4
RH5
RH6
RH7
RH8
RH9
RH10
RH11
RH12
RH13
RH14
RH15
RN3 33R
PMA0
PMA1
PMA2
PMA3
RN4 33R
PMA4
PMA5
PMA6
PMA7
RN5 33R
PMA8
PMA9
PMA10
PMA11
R84 33R
PMA12
PMA13
R85 33R
U18J
SD_nDETECT
FLASH_nWP
RJ0
RJ1
RJ2
RJ3
RJ4
RJ5
RJ6
RJ7
RJ8
RJ9
RJ10
RJ11
RJ12
RJ13
RJ14
RJ15
R86 33R
PMCS1
PMCS2
R87 33R
R88 33R
PMBE
PMWR
R89 33R
PMRD
R90 33R
U18K
PMP_GPIO
RK0
RK1
RK11
RK12
RK13
RK14
RK15
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
MCU I/Os
Size
B
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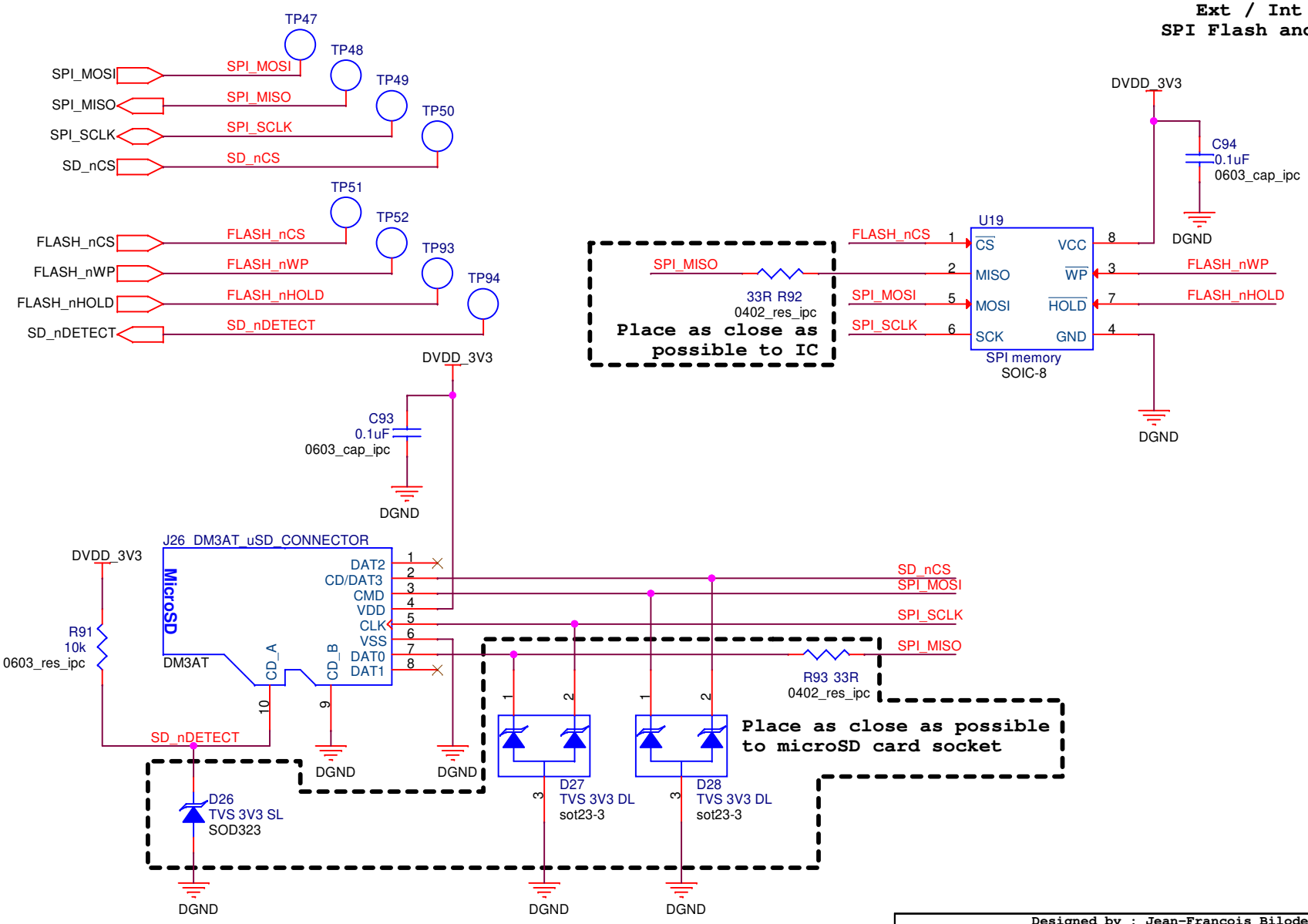
Ext / Int memory
SPI Flash and uSD card

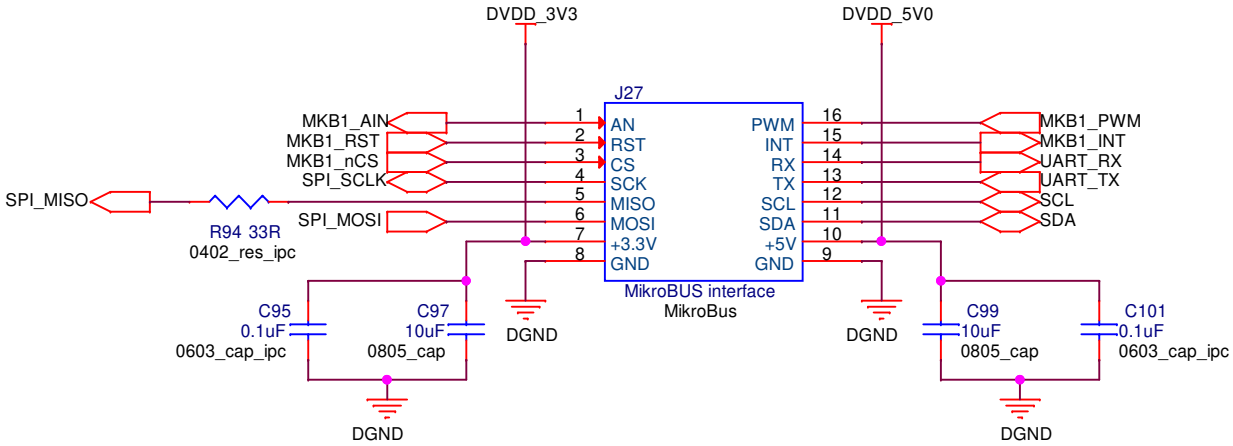


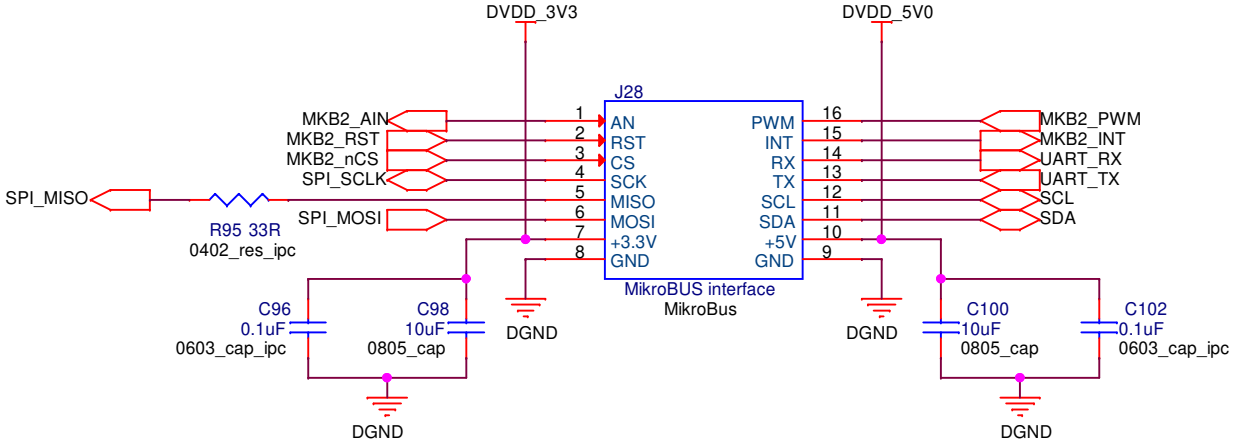
Resistors are 0603 ±1% 1/10W unless otherwise noted

Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau B.E.Eng, CPI / CEP # 6022173	
Title	SD CARD / Flash - EEPROM memory
Size: A	Document Number: <Doc> — Rev: 0A
Date: Saturday, January 09, 2021	Sheet 12 of 21

MikroBus port
Click Board compatible
General purpose I/Os

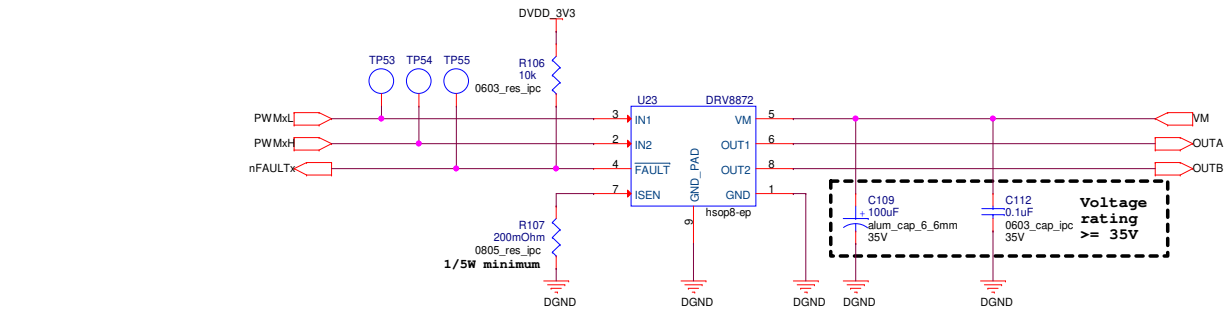




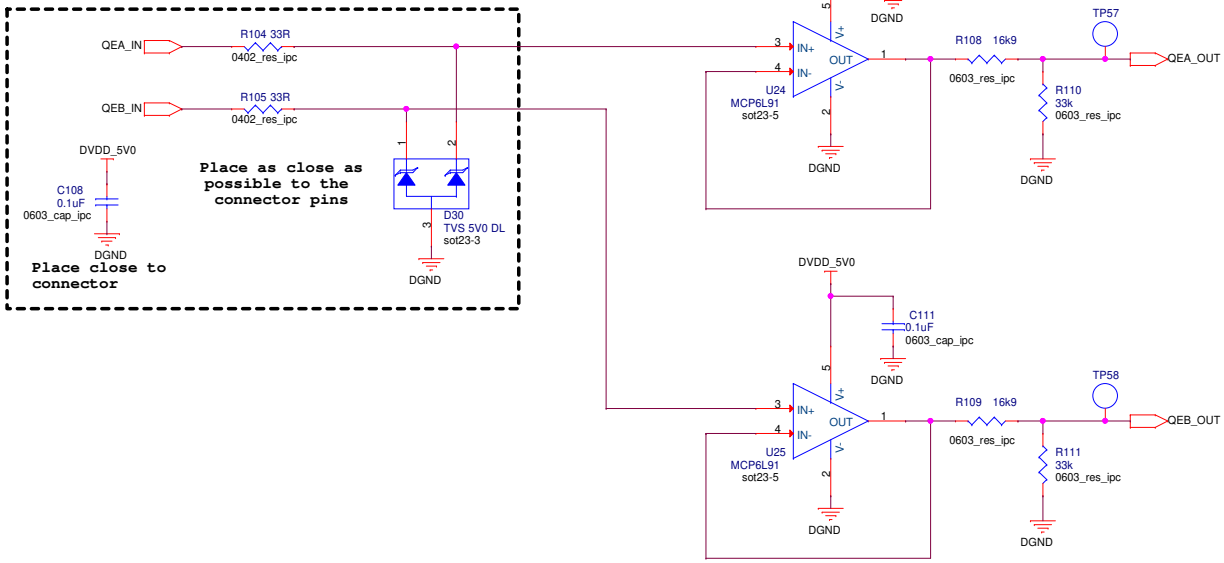
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau B.E.Eng, CPI / CEP # 6022173		
Title: MikroBUS interface		
Size: A	Document Number: <Doc>	Rev: 0A
Date: Saturday, January 09, 2021	Sheet 13 of 21	

Brushed DC motor driver
QEI encoder feedback



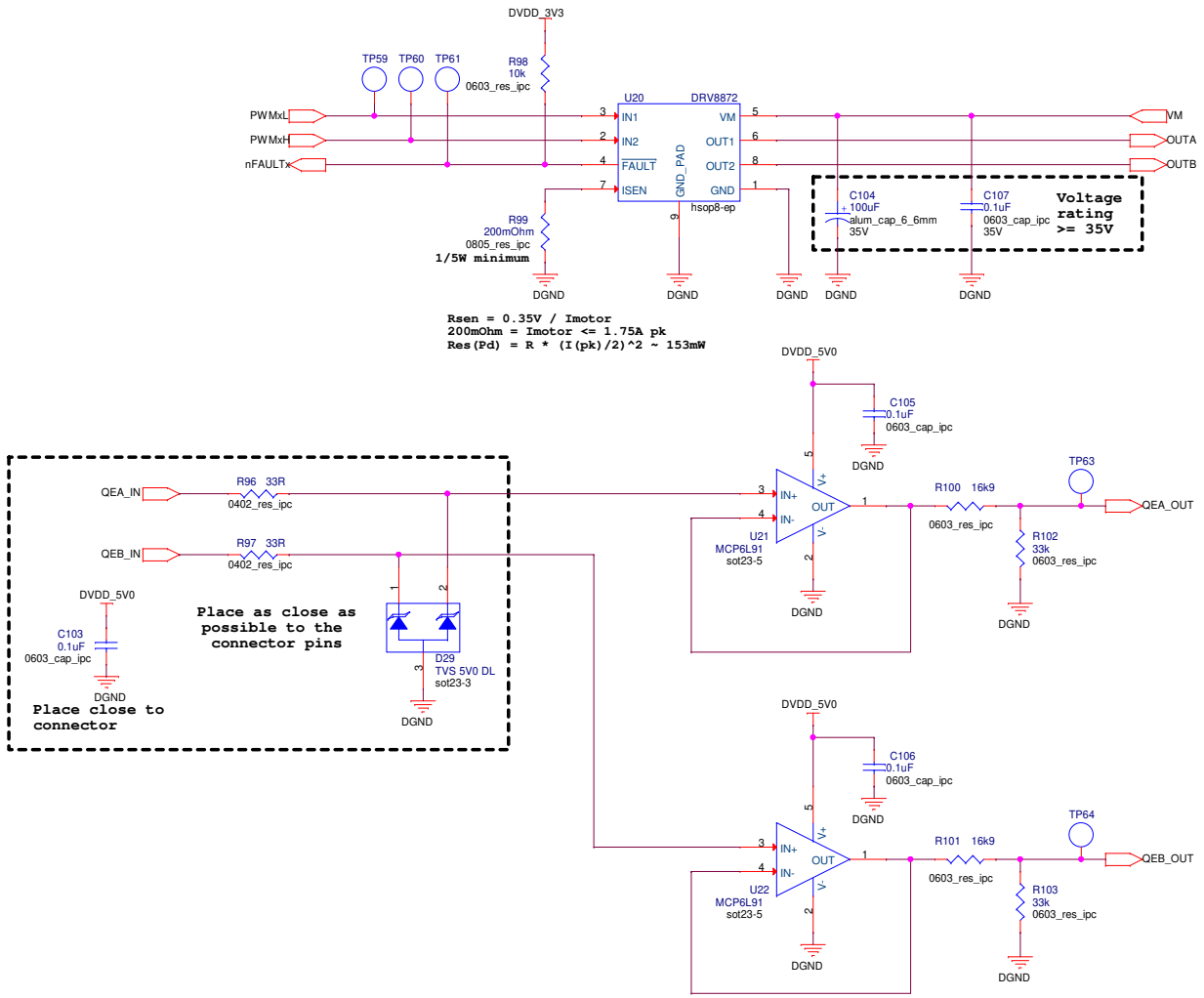
Rsen = 0.35V / Imotor
200mOhm = Imotor <= 1.75A pk
Res(Pd) = R * (I(pk)/2)^2 ~ 153mW



Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau B.E.Eng, CPI / CEP # 6022173		
Title: H-Bridge motor driver with encoder feedback		
Size: B	Document Number: <Doc>	Rev: 0A
Date: Saturday, January 09, 2021	Sheet 14 of 21	

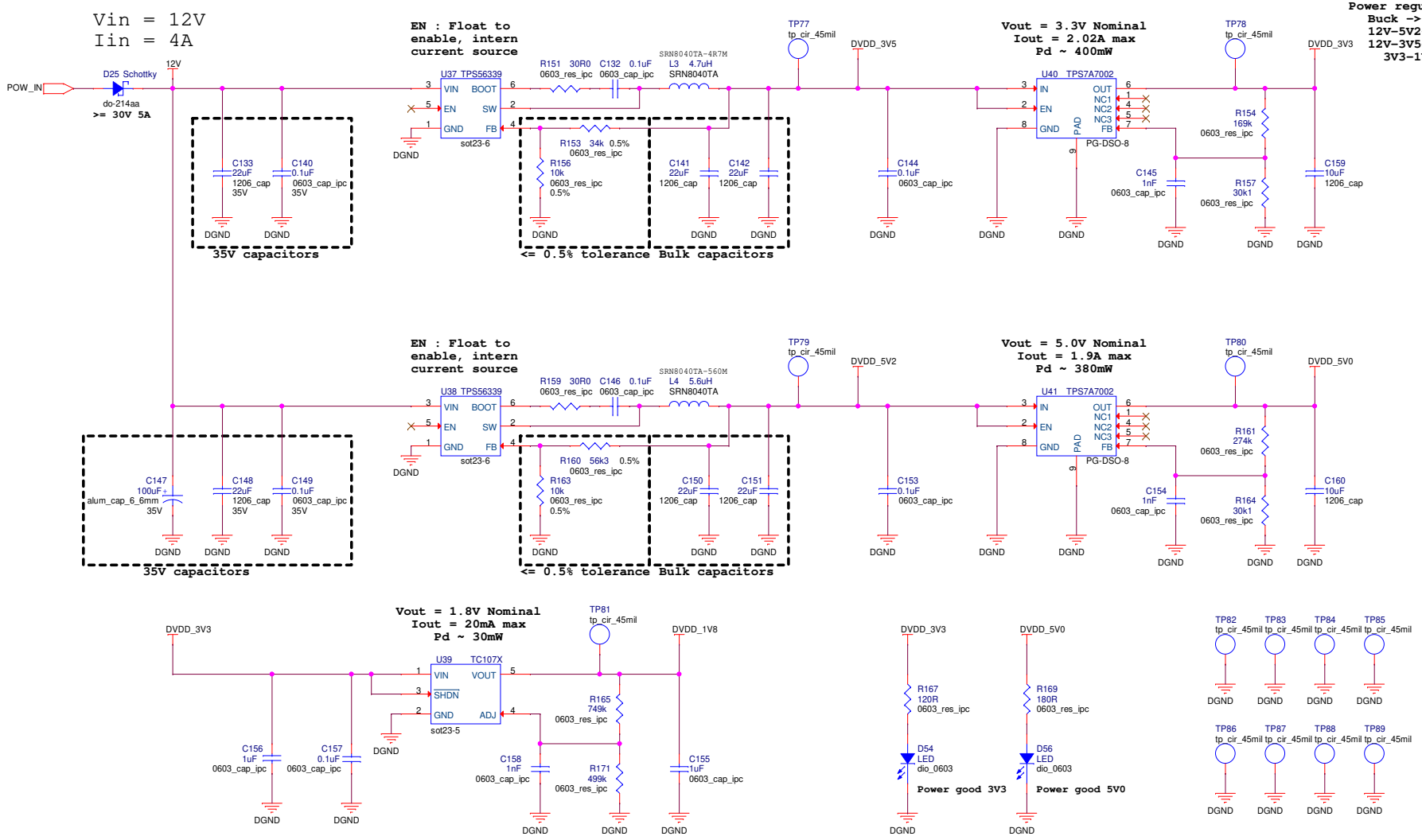
Brushed DC motor driver
QEI encoder feedback



Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173

Title	H-Bridge motor driver with encoder feedback	
Size B	Document Number <Doc>	Rev 0A
Date: Saturday, January 09, 2021	Sheet 15 of 21	


Vin = 12V
Iin = 4A
Power regulators
Buck -> LDO
12V-5V2-5V0
12V-3V5-3V3
3V3-1V8
POW_IN
D25 Schottky
do-214aa
>= 30V 5A
12V
EN : Float to enable, intern current source
U37 TPS56339
VIN BOOT EN SW GND FB
sot23-6
R151 30R0 0603_res_ipc
C132 0.1uF 0603_cap_ipc
L3 4.7uH SRN8040TA
SRN8040TA-4R7M
R153 34k 0.5% 0603_res_ipc
R156 10k 0603_res_ipc 0.5%
C133 22uF 1206_cap 35V
C140 0.1uF 0603_cap_ipc 35V
35V capacitors
C141 22uF 1206_cap
C142 22uF 1206_cap
<= 0.5% tolerance Bulk capacitors
TP77 tp_cir_45mil
DVDD_3V5
C144 0.1uF 0603_cap_ipc
Vout = 3.3V Nominal
Iout = 2.02A max
Pd ~ 400mW
U40 TPS7A7002
IN EN GND OUT NC1 NC2 NC3 FB PAD
PG-DSO-8
C145 1nF 0603_cap_ipc
R154 169k 0603_res_ipc
R157 30k1 0603_res_ipc
TP78 tp_cir_45mil
DVDD_3V3
C159 10uF 1206_cap
EN : Float to enable, intern current source
U38 TPS56339
VIN BOOT EN SW GND FB
sot23-6
R159 30R0 0603_res_ipc
C146 0.1uF 0603_cap_ipc
L4 5.6uH SRN8040TA
SRN8040TA-560M
R160 56k3 0.5% 0603_res_ipc
R163 10k 0603_res_ipc 0.5%
C147 100uF alum_cap_6_6mm 35V
C148 22uF 1206_cap 35V
C149 0.1uF 0603_cap_ipc 35V
35V capacitors
C150 22uF 1206_cap
C151 22uF 1206_cap
<= 0.5% tolerance Bulk capacitors
TP79 tp_cir_45mil
DVDD_5V2
C153 0.1uF 0603_cap_ipc
Vout = 5.0V Nominal
Iout = 1.9A max
Pd ~ 380mW
U41 TPS7A7002
IN EN GND OUT NC1 NC2 NC3 FB PAD
PG-DSO-8
C154 1nF 0603_cap_ipc
R161 274k 0603_res_ipc
R164 30k1 0603_res_ipc
TP80 tp_cir_45mil
DVDD_5V0
C160 10uF 1206_cap
Vout = 1.8V Nominal
Iout = 20mA max
Pd ~ 30mW
DVDD_3V3
U39 TC107X
VIN VOUT SHDN GND ADJ
sot23-5
C156 1uF 0603_cap_ipc
C157 0.1uF 0603_cap_ipc
R165 749k 0603_res_ipc
R171 499k 0603_res_ipc
C158 1nF 0603_cap_ipc
C155 1uF 0603_cap_ipc
TP81 tp_cir_45mil
DVDD_1V8
DVDD_3V3
R167 120R 0603_res_ipc
D54 LED dio_0603
Power good 3V3
DVDD_5V0
R169 180R 0603_res_ipc
D56 LED dio_0603
Power good 5V0
TP82 tp_cir_45mil
TP83 tp_cir_45mil
TP84 tp_cir_45mil
TP85 tp_cir_45mil
TP86 tp_cir_45mil
TP87 tp_cir_45mil
TP88 tp_cir_45mil
TP89 tp_cir_45mil
DGND
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
Power supplies
Size B
Document Number
<Doc>
Rev 0A
Date: Sunday, January 10, 2021
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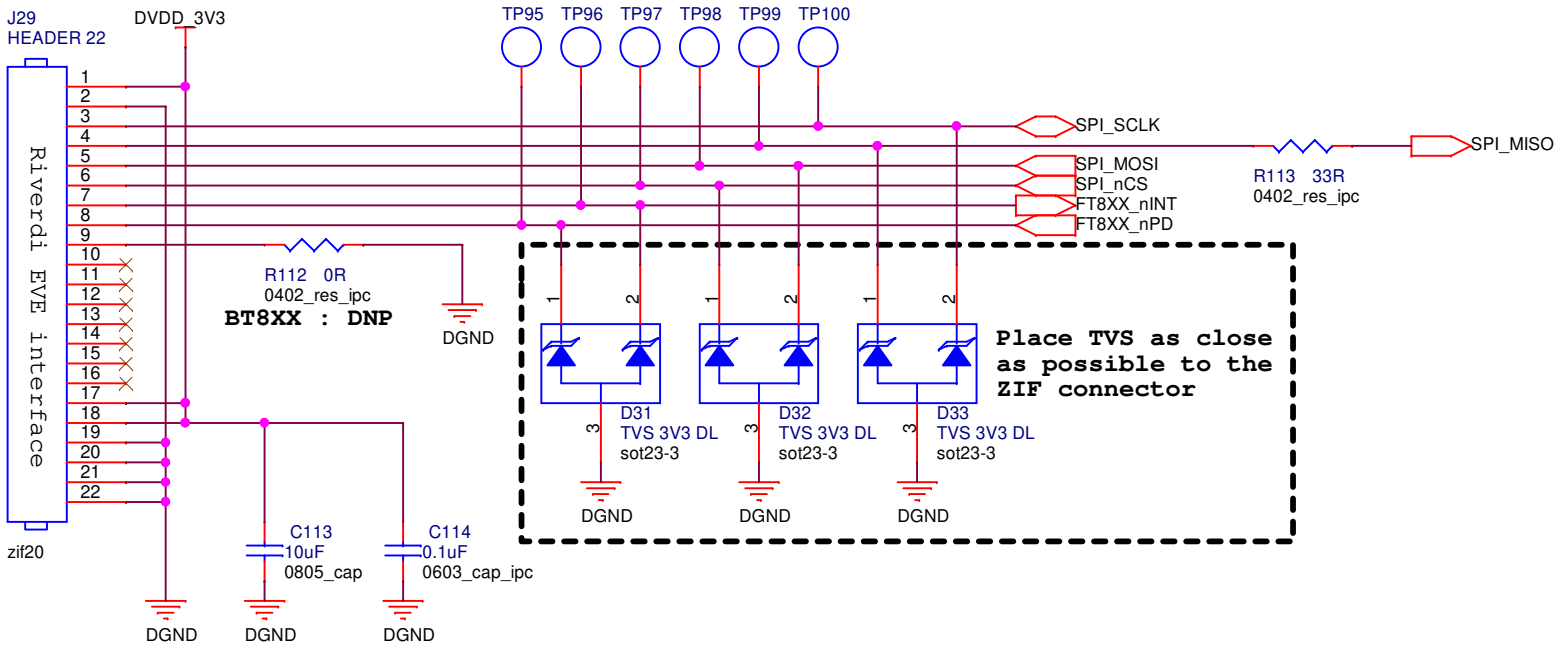
Riverdi EVE TFT Interface with FT/BT8xx



Resistors are 0603 ±1% 1/10W unless otherwise noted

Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau B.E.Eng, CPI / CEP # 6022173		
Title: Riverdi EVE LCD interface		
Size: A	Document Number: <Doc>	Rev: 0A
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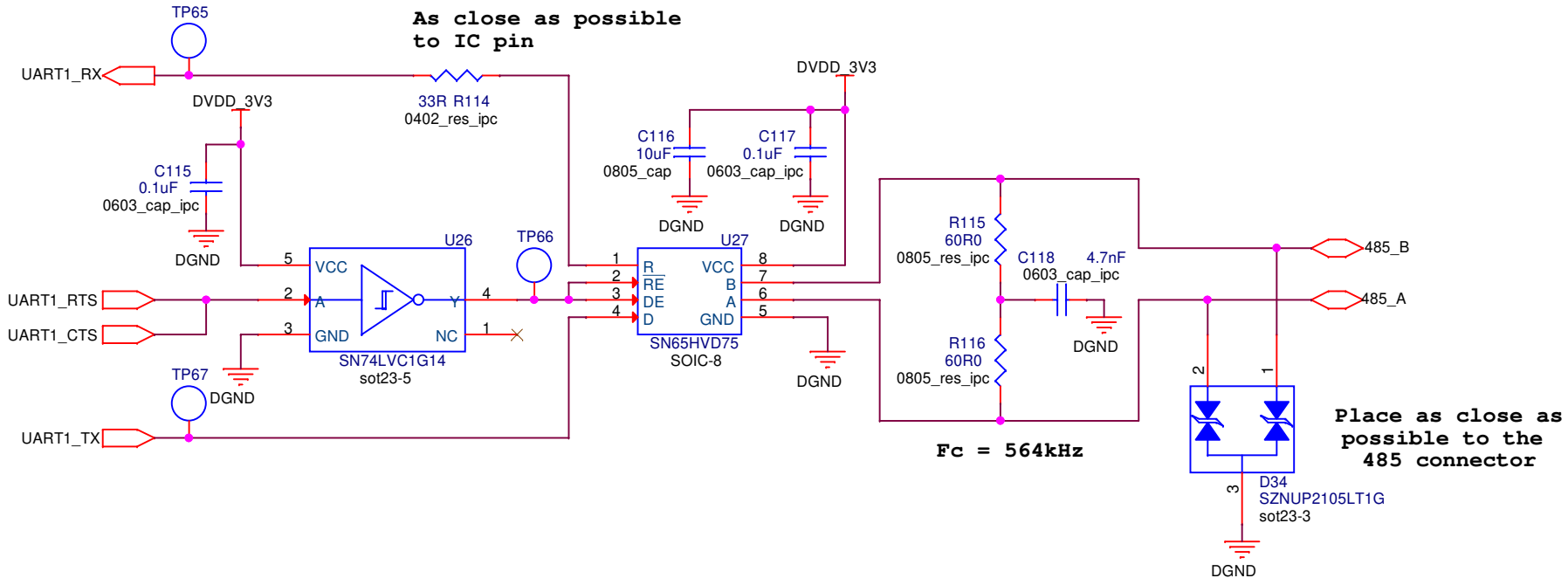
RS485 bus interface
Max bitrate 550kbps



Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau B.E.Eng, CPI / CEP # 6022173		
Title: RS485 bus interface		
Size: A	Document Number: <Doc>	Rev: 0A
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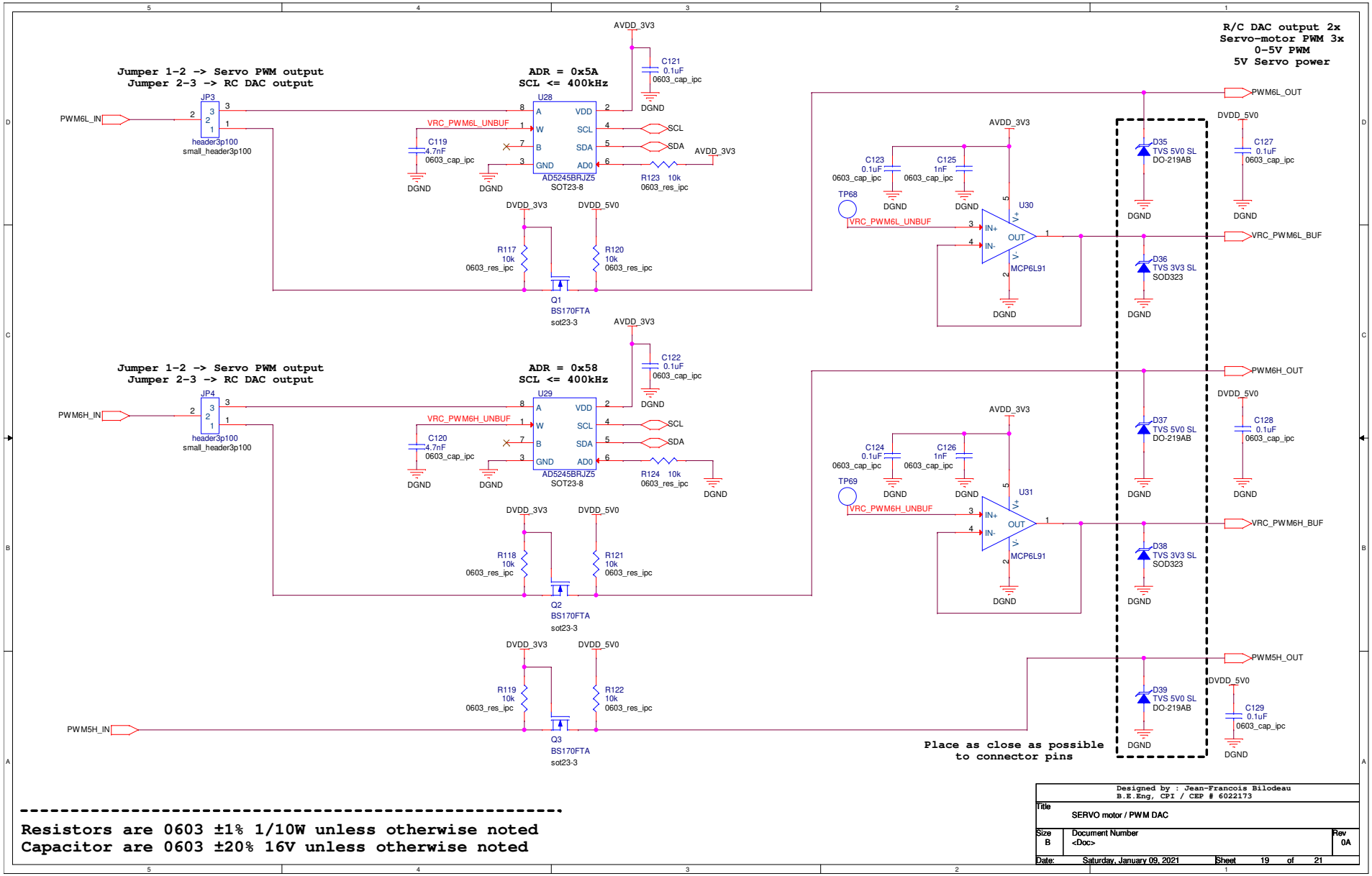
R/C DAC output 2x
Servo-motor PWM 3x
0-5V PWM
5V Servo power
Jumper 1-2 -> Servo PWM output
Jumper 2-3 -> RC DAC output
ADR = 0x5A
SCL <= 400kHz
JP3
PWM6L_IN
header3p100
small_header3p100
U28
AD5245BRJZ5
SOT23-8
VRC_PWM6L_UNBUF
C119
4.7nF
0603_cap_ipc
C121
0.1uF
0603_cap_ipc
R123 10k
0603_res_ipc
R117
10k
0603_res_ipc
R120
10k
0603_res_ipc
Q1
BS170FTA
sot23-3
AVDD_3V3
DVDD_3V3
DVDD_5V0
DGND
SCL
SDA
TP68
U30
MCP6L91
C123
0.1uF
C125
1nF
PWM6L_OUT
VRC_PWM6L_BUF
D35
TVS 5V0 SL
DO-219AB
D36
TVS 3V3 SL
SOD323
C127
0.1uF
Jumper 1-2 -> Servo PWM output
Jumper 2-3 -> RC DAC output
ADR = 0x58
SCL <= 400kHz
JP4
PWM6H_IN
U29
VRC_PWM6H_UNBUF
C120
4.7nF
C122
0.1uF
R124 10k
R118
10k
R121
10k
Q2
BS170FTA
TP69
U31
C124
0.1uF
C126
1nF
PWM6H_OUT
VRC_PWM6H_BUF
D37
TVS 5V0 SL
DO-219AB
D38
TVS 3V3 SL
SOD323
C128
0.1uF
PWM5H_IN
R119
10k
R122
10k
Q3
BS170FTA
D39
TVS 5V0 SL
DO-219AB
C129
0.1uF
Place as close as possible
to connector pins
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
SERVO motor / PWM DAC
Size
B
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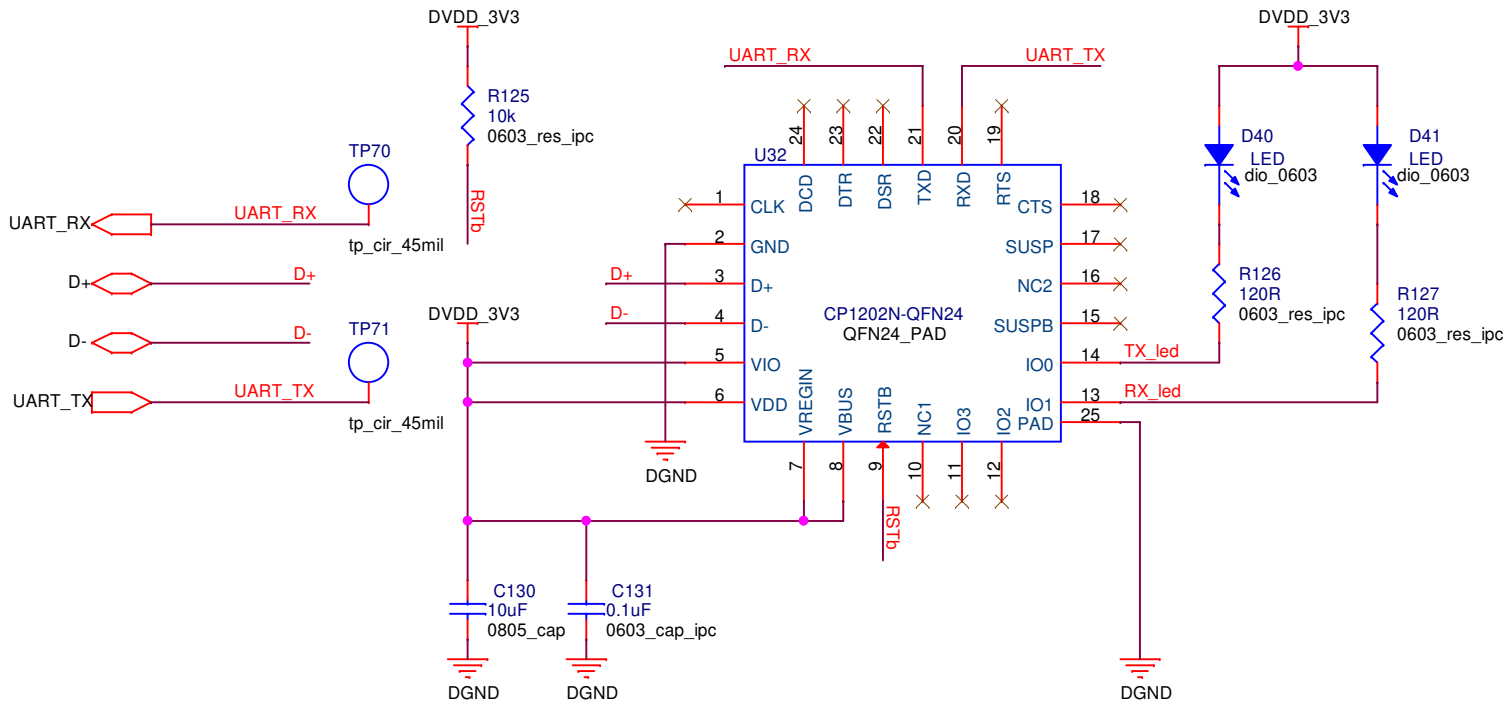
USB-UART Converter
SW debug interface



Resistors are 0603 ±1% 1/10W unless otherwise noted

Capacitor are 0603 ±20% 16V unless otherwise noted

Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173

Title: USB-UART debug interface		
Size: A	Document Number: <Doc>	Rev: 0A
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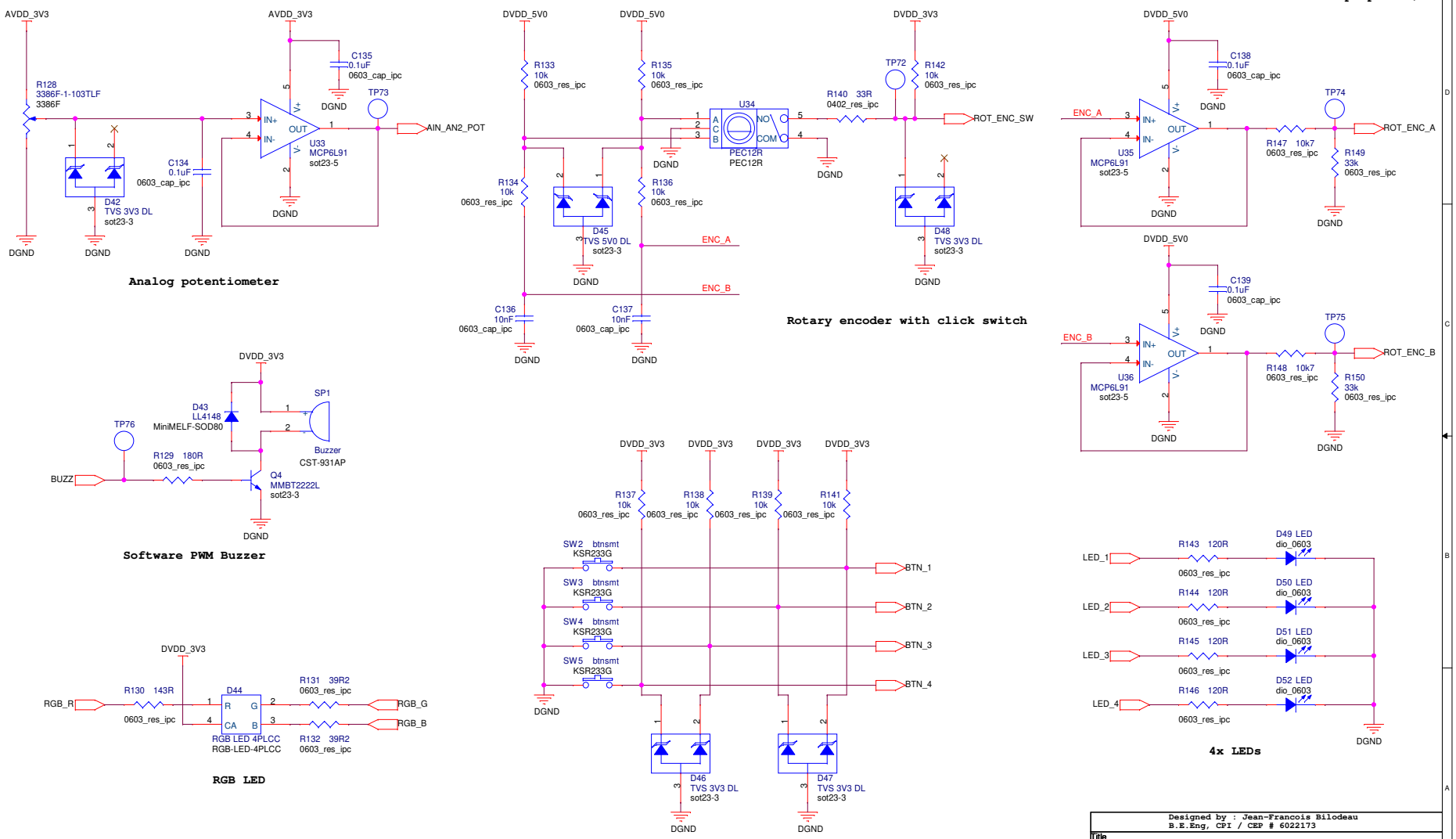
General purpose I/O
AVDD_3V3
R128
3386F-1-103TLF
3386F
C134
0.1uF
0603_cap_ipc
D42
TVS 3V3 DL
sot23-3
C135
0.1uF
0603_cap_ipc
TP73
U33
MCP6L91
sot23-5
AIN_AN2_POT
DGND
Analog potentiometer
DVDD_5V0
DVDD_3V3
R133
10k
0603_res_ipc
R135
10k
0603_res_ipc
R134
10k
0603_res_ipc
R136
10k
0603_res_ipc
D45
TVS 5V0 DL
sot23-3
U34
PEC12R
PEC12R
TP72
R142
10k
0603_res_ipc
R140 33R
0402_res_ipc
ROT_ENC_SW
D48
TVS 3V3 DL
sot23-3
ENC_A
ENC_B
C136
10nF
0603_cap_ipc
C137
10nF
0603_cap_ipc
Rotary encoder with click switch
C138
0.1uF
0603_cap_ipc
TP74
U35
MCP6L91
sot23-5
R147 10k7
0603_res_ipc
R149
33k
0603_res_ipc
ROT_ENC_A
C139
0.1uF
0603_cap_ipc
TP75
U36
MCP6L91
sot23-5
R148 10k7
0603_res_ipc
R150
33k
0603_res_ipc
ROT_ENC_B
DVDD_3V3
TP76
D43
LL4148
MiniMELF-SOD80
SP1
Buzzer
CST-931AP
R129 180R
0603_res_ipc
BUZZ
Q4
MMBT2222L
sot23-3
Software PWM Buzzer
R137
10k
0603_res_ipc
R138
10k
0603_res_ipc
R139
10k
0603_res_ipc
R141
10k
0603_res_ipc
SW2 btnsmt
KSR233G
SW3 btnsmt
KSR233G
SW4 btnsmt
KSR233G
SW5 btnsmt
KSR233G
BTN_1
BTN_2
BTN_3
BTN_4
D46
TVS 3V3 DL
sot23-3
D47
TVS 3V3 DL
sot23-3
4x SPST buttons
R130 143R
0603_res_ipc
D44
RGB LED 4PLCC
RGB-LED-4PLCC
R131 39R2
0603_res_ipc
R132 39R2
0603_res_ipc
RGB_R
RGB_G
RGB_B
RGB LED
R143 120R
R144 120R
R145 120R
R146 120R
D49 LED
D50 LED
D51 LED
D52 LED
dio_0603
LED_1
LED_2
LED_3
LED_4
4x LEDs
Resistors are 0603 ±1% 1/10W unless otherwise noted
Capacitor are 0603 ±20% 16V unless otherwise noted
Designed by : Jean-Francois Bilodeau
B.E.Eng, CPI / CEP # 6022173
Title
User I/Os
Size
B
Document Number
<Doc>
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