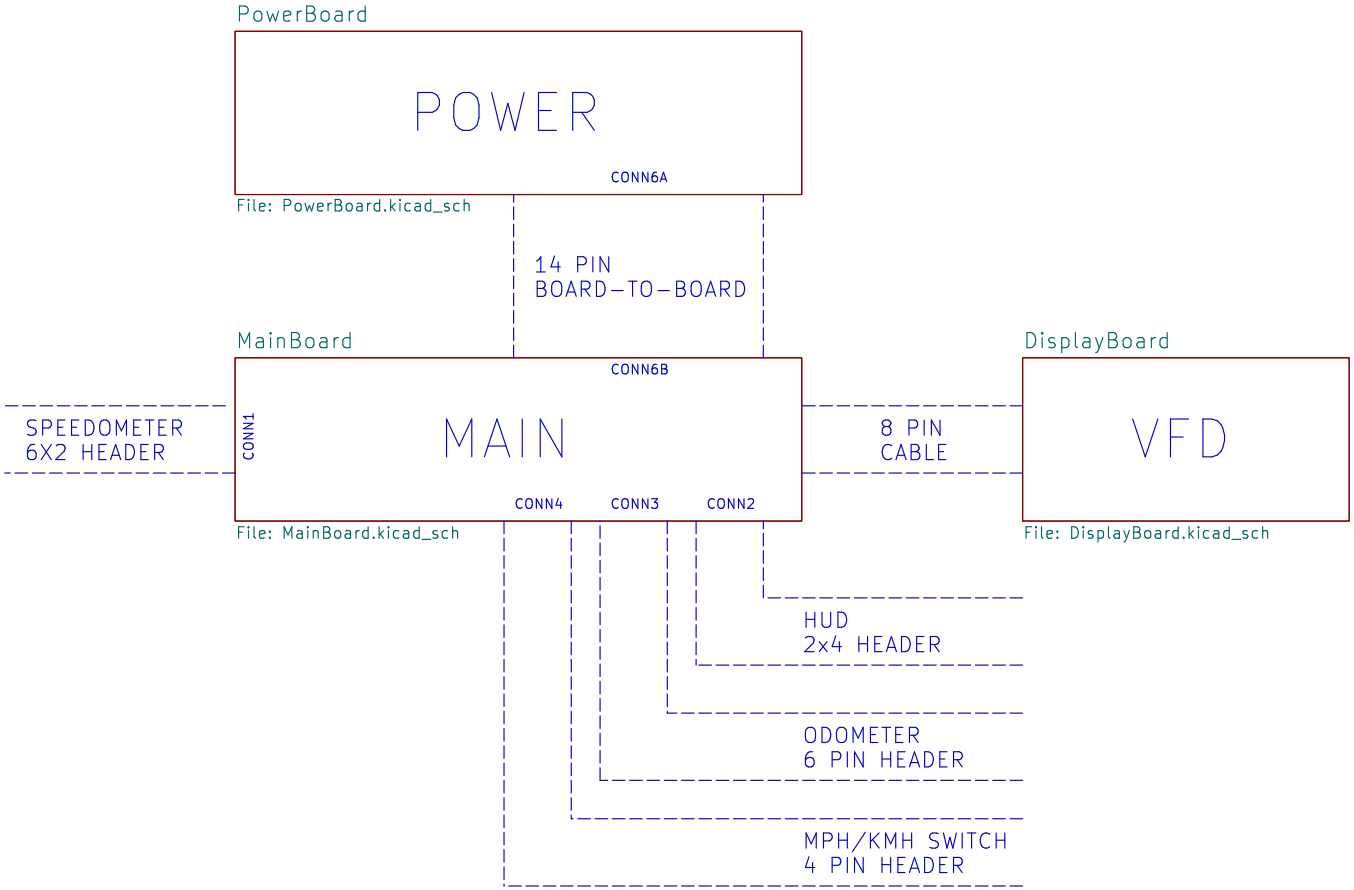

Revision notes:

REV2
Power + Main - HUB_POWER_ENABLE renamed to HUD_POWER_ENABLE (Typo)
HIC1 - TR2, TR3, TR4 transitor naming fixed from DTC114TCA to DTC144TCA
HIC1 - TR1, TR2, TR3, TR4 transitor schematic symbol changed from BEC to EBC (Swapped base-emitter numbering fixed)

NISSAN 180/240SX S13 Digital Speedometer

Sheet: /
File: 180sx-240sx-s13-digidash.kicad_sch

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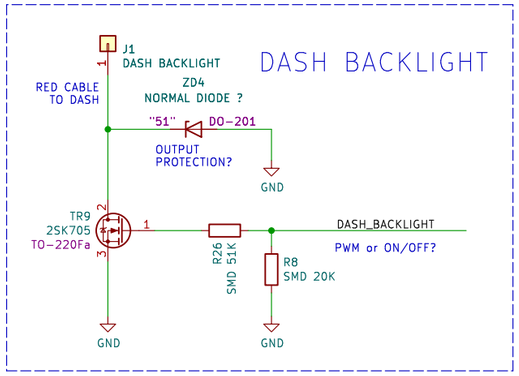
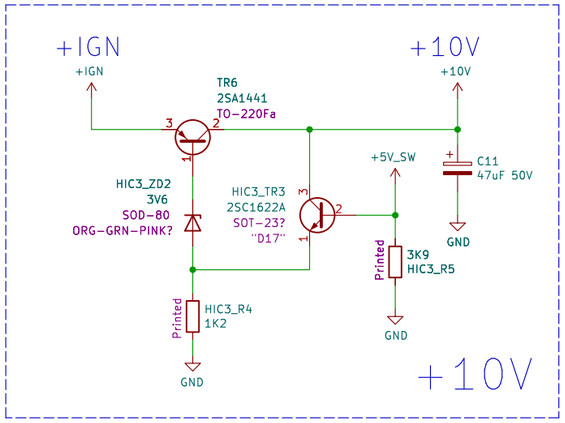
Title:

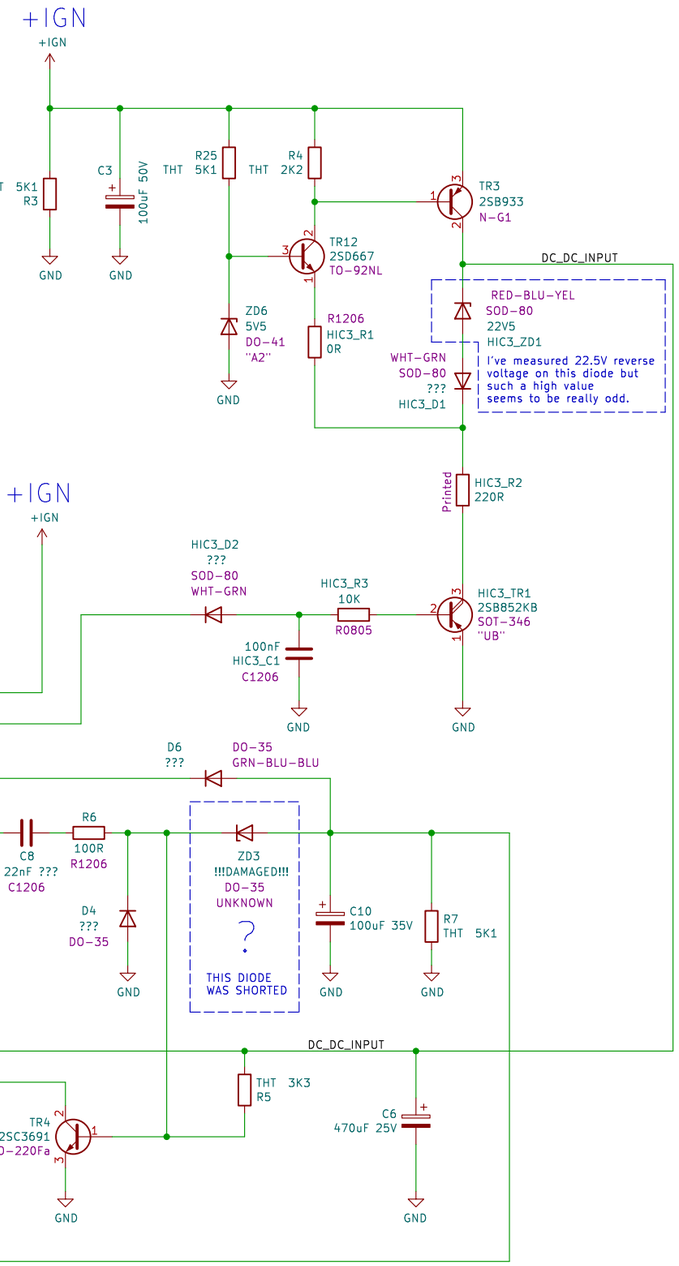
Size: A4	Date: 2026-01-31	**Rev: REV3**
KiCad E.D.A. 9.0.0		Id: 1/7

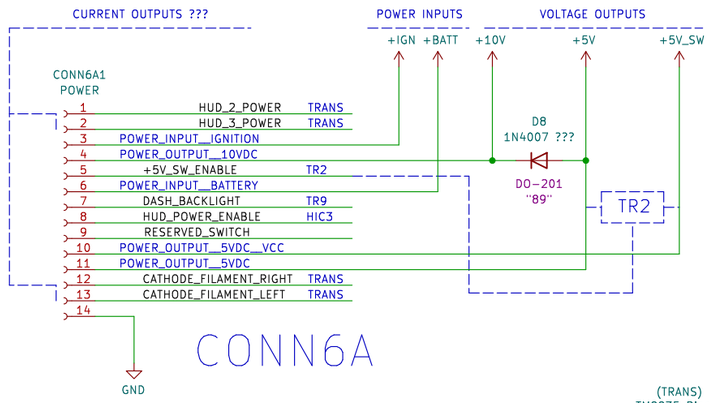


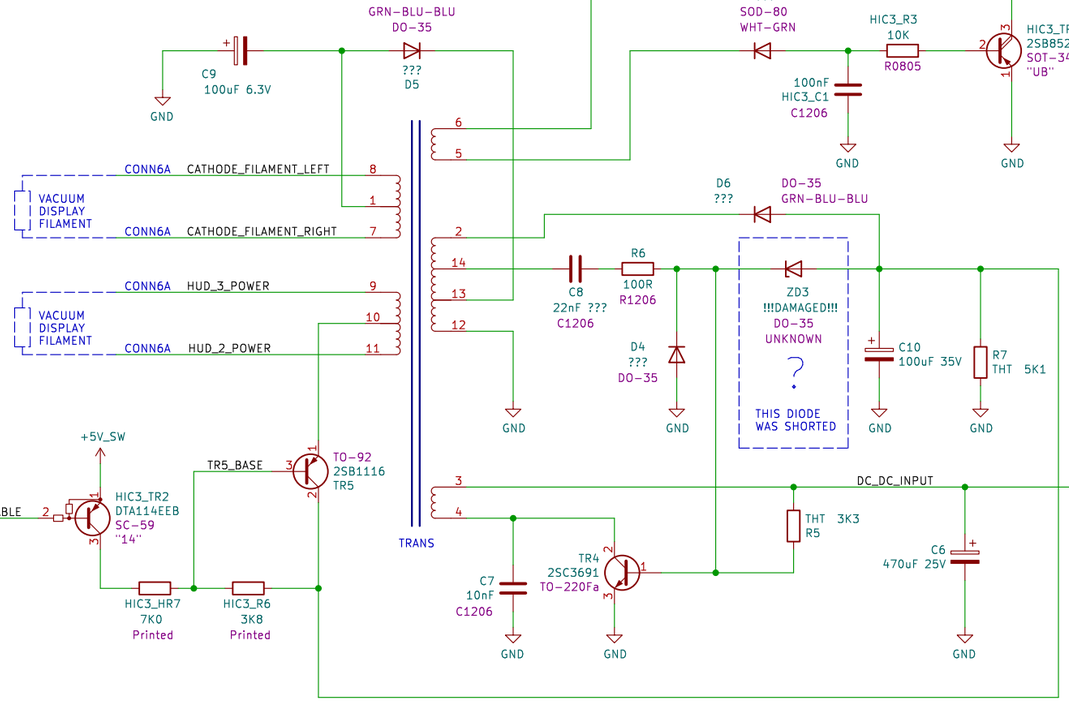


I wan't able to figure out how it actually works
so I'm not able to confirm that this circuit is correct.

If the +10V is not working check TR6 transistor.







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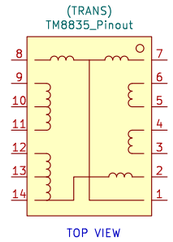
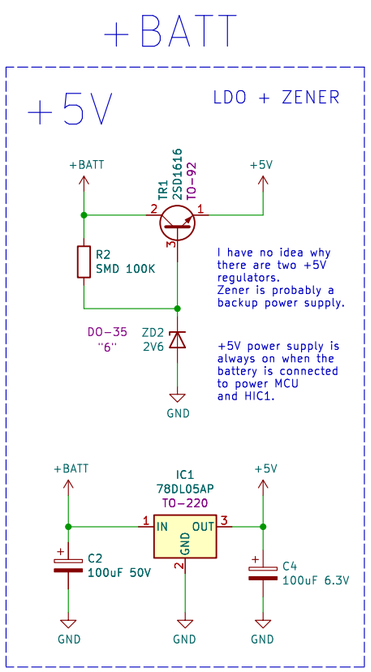
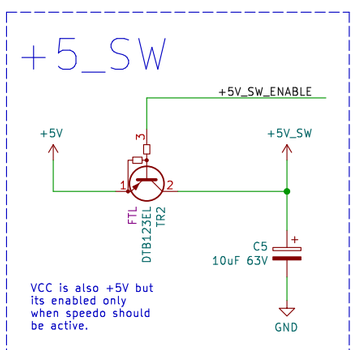
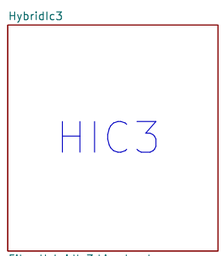
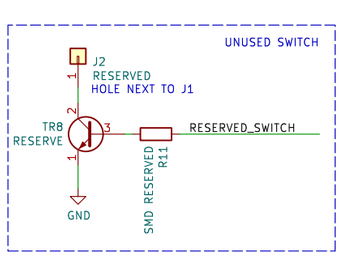


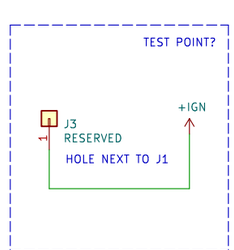
Dot on the package is not at pin 1 but at pin 7. Manufacturing error?











Be aware that this sheet coitans some errors in parts topology.

NISSAN 180/240SX S13 Digital Speedometer Power Board

Sheet: /PowerBoard/
File: PowerBoard.kicad_sch

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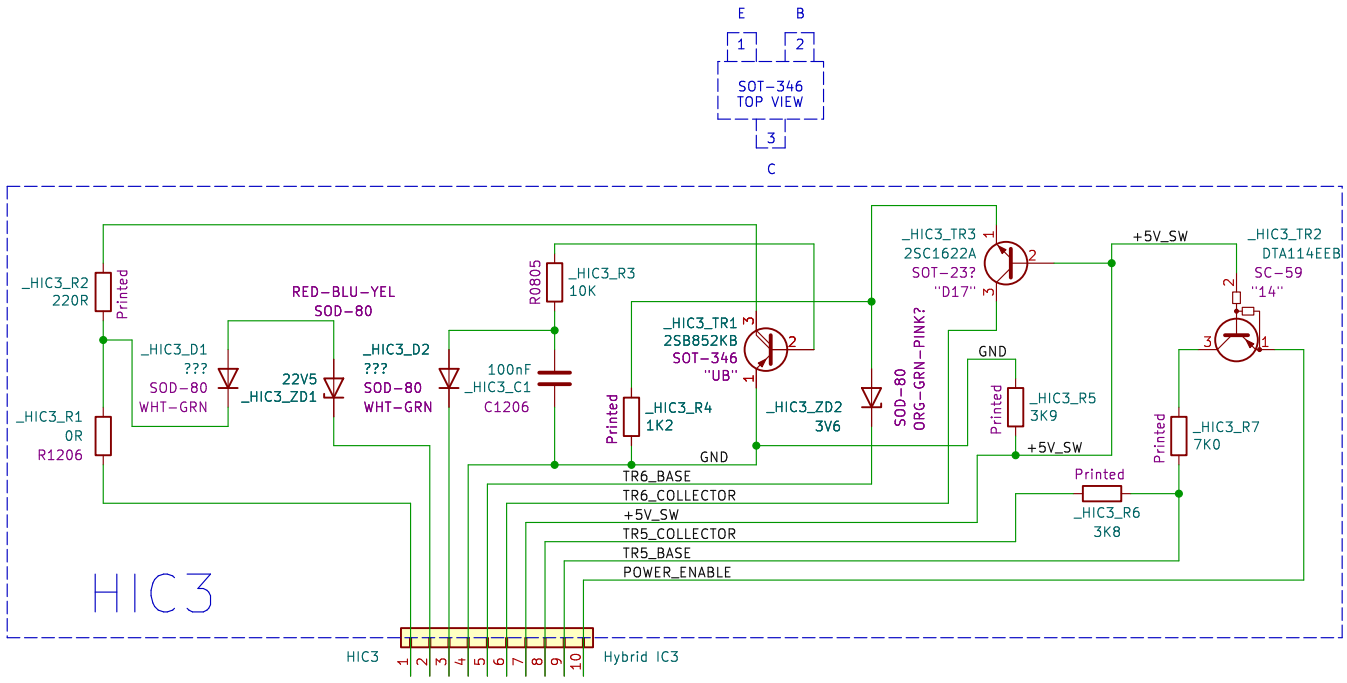

NISSAN 180/240SX S13 Digital Speedometer
Main Board – Hybrid IC 3

Sheet: /PowerBoard/HybridIc3/
File: HybridIc3.kicad_sch

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Title:

Size: A4	Date: 2026-01-31	**Rev: REV3**
KiCad E.D.A. 9.0.0		Id: 3/7

CONN2 HUD

CONN6B POWER BOARD
HUD_3_POWER
+10V
D7 1N4148 ??? DO-35
RL1 SY-9
NC C1 COM NO C2 COM
HUD_RELAY MCU
TR13 2SD1922 TO-92NL
GND
HUD_3_RELAY
HUD_2_POWER
CONN6B POWER BOARD
+10V
HUD CONN2
+5V_SW
1K R20
1K R21
1K R19
GND
TR10 DTD114EK SC-72
TR10_ENABLE MCU
HUD_8
HUD_7 IC3
HUD_6
HUD_5 IC3
TR11 DTD114EK SC-72
TR11_ENABLE MCU
C17 ??? C1206
C18 ??? C1206
GND

TODO: RESEARCH HUD PINS NAMING

CONN1 INPUT

CONN1_ECU_OUTPUT
HIC1 CONN1_IGN_ACC_ON
HIC1 CONN1_ILLUM_CTRL1
HIC2 CONN1_HUD_BRG_12V
SPEED_A
CONN1_BATTERY
CONN1_IGN_ON_START
CONN1_ILLUM_CTRL2 HIC1
CONN1_HUD_BRG_IN HIC2
CONN1_SPEED_B HIC2
INPUT CONN1
GND
BRG = BRIGHTNESS

D1 FAST DIODE ? SOD-64
C1 100nF
L1 ??? IGNITION
D3 1N4007 ??? "M1" DO-201
D2 1N4007 ??? DO-201 "M1"
R1 THT 1K5
ZD1 5V0 DO-35 "03"
C15 47uF 6.3V
+IGN +5V +5V_SW +10V
IGN_ON_START_SENSE

CONN6B

CONN6B POWER

HUD	HUD_2_POWER	1
HUD	HUD_3_POWER	2
CONN1	IGNITION	3
+10V		4
HIC1	+5V_SW_ENABLE	5
CONN1	BATTERY	6
MCU	DASH_BACKLIGHT	7
MCU	HUD_POWER_ENABLE	8
MCU	RESERVED_SWITCH	9
+5V SWITCHED BY MCU		10
+5V LDO POWERED FROM BATTERY		11
DISPLAY	CATHODE_FILAMENT_RIGHT	12
DISPLAY	CATHODE_FILAMENT_LEFT	13
		14

IC2 MCU

DASH_BACKLIGHT CONN6B
IC3_I1
IC3_I2
HIC1 MCU_STBY
IC3_I4
IC3_I5
ILLUM_CTRL1_SIGNAL HIC1
MCU_+5V_SW_ENABLE
IGN_ACC_ON_SIGNAL HIC1
WATCHDOG_SIGNAL??? HIC1
DA1 DAP209S
+5V_SW_ENABLE
GROUND TO ENABLE +5V_SV
+5V +5V_SW GND
WATCHDOG_SIGNAL???
MCU_STBY
+5V_SW_ENABLE
MCU_NMI
MCU_RESET
IGN_ON_START_SIGNAL
ILLUM_CTRL1_SIGNAL
IGN_ACC_ON_SIGNAL
ILLUM_CTRL2_SIGNAL
CONN1_ILLUM_CTRL2
CONN1_IGN_ACC_ON
CONN1_ILLUM_CTRL1
HIC1A Hybrid IC1
Hybridlc1
HIC1
File: Hybridlc1.kicad_sch

+5V
10K R12
IC3_I6
IC3_I7
HIC1 MCU_RESET
MCU_XTAL
MCU_EXTAL
MCU_MP1
MCU_MP0
HIC1 MCU_NMI
HIC1 MCU_STBY
CONN6B RESERVED_SWITCH
IC3_I3
HUD TR10_ENABLE
HUD TR11_ENABLE
HIC2 SPEED_SIGNAL
HIC1 ILLUM_CTRL2_SIGNAL
CONN6B HUD_POWER_ENABLE
PB6 PB7 RES XTAL EXTAL MP1 MP0 NMI STBY VCC PC7 PC6 PC5 PC4 PC3 PC2 PC1 PC0 PA0 PA1 PA2 PA3 PA4 PA5
PE2 PE3 PE4 PE5 PE6 PE7 VSS MP2 PF0 PF1 PF2 PF3 PF4 PF5 PF6 PF7 PJ0 PJ1 PJ2 PJ3 PJ4 PH7 PH6 PH5
PA6 AVCC PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7 AVSS PH0 PH1 PH2 PH3 PH4
IC2 HD6305Z0
XTAL1 4.021T8J
C13 xxpF SMD
C12 xxpF SMD
VDD
C14 SMD????
R13 10K
GND
SPEED
IC2_59_PE7
R22 10K
HUD_RELAY
HUD_BRG_IN
HUD_BRG_12V
ECU_OUTPUT
SCK DISPLAY
DATAIN DISPLAY
LATCH DISPLAY
IC2_40_SW2
IC2_39_SW3
IC2_38_SW1
BOARD_CODING_1???
BOARD_CODING_2???

SPEED

R9 THT 20K
CONN1_SPEED_B
SPEED_SIGNAL
SPEED_B
HUD_BRG_IN
CONN1_HUD_BRG_IN
HUD_BRG_12V
CONN1_HUD_BRG_12V
BRG = BRIGHTNESS
+5V_SW
HIC2A Hybrid IC2
Hybridlc2
HIC2
File: Hybridlc2.kicad_sch

ECU OUTPUT

ECU_OUTPUT
R10 3K3
ECU_OUTPUT_TR7_BASE
TR7 2SC1214 TO-92
CONN1_ECU_OUTPUT
ZD5 NORMAL DIODE ? DO-41 "27B"

DISPLAY

+10V
J1B CABLE TO DISPLAY

IC3	BLANKING	1
MCU	SCK	2
MCU	DATAIN	3
MCU	LATCH	4
CONN6B		5
CONN6B	CATHODE_FILAMENT_RIGHT	6
CONN6B	CATHODE_FILAMENT_LEFT	7
		8

POWER OUTPUTS FOR ODOMETER AND HUD

DISPLAY BLANKING
HUD_7
HUD_5
+10V
IC3 PA2003C
IC3_I1 IC3_I2 IC3_I3 IC3_I4 IC3_I5 IC3_I6 IC3_I7 GND
I1 I2 I3 I4 I5 I6 I7 GND
O1 O2 O3 O4 O5 O6 O7 SK
IC3_O1 IC3_O2 IC3_O3 IC3_O4 IC3_O5 IC3_O6 IC3_O7
CONN3 ODOMETER
C16 SMD????
GND
IC3

BOARD VERSION??? DEVICE CONFIG???

+5V_SW
R15 5K1
R14 RESERVED
R24 5K1
R23 RESERVED
GND

CONN4 MPH/KMH SWITCH

+5V_SW
5K1 R17
5K1 R18
5K1 R16
IC2_38_SW1
IC2_40_SW2
IC2_39_SW3
CONN4 SWITCH
GND

NISSAN 180/240SX S13 Digital Speedometer Main Board

Sheet: /MainBoard/
File: MainBoard.kicad_sch
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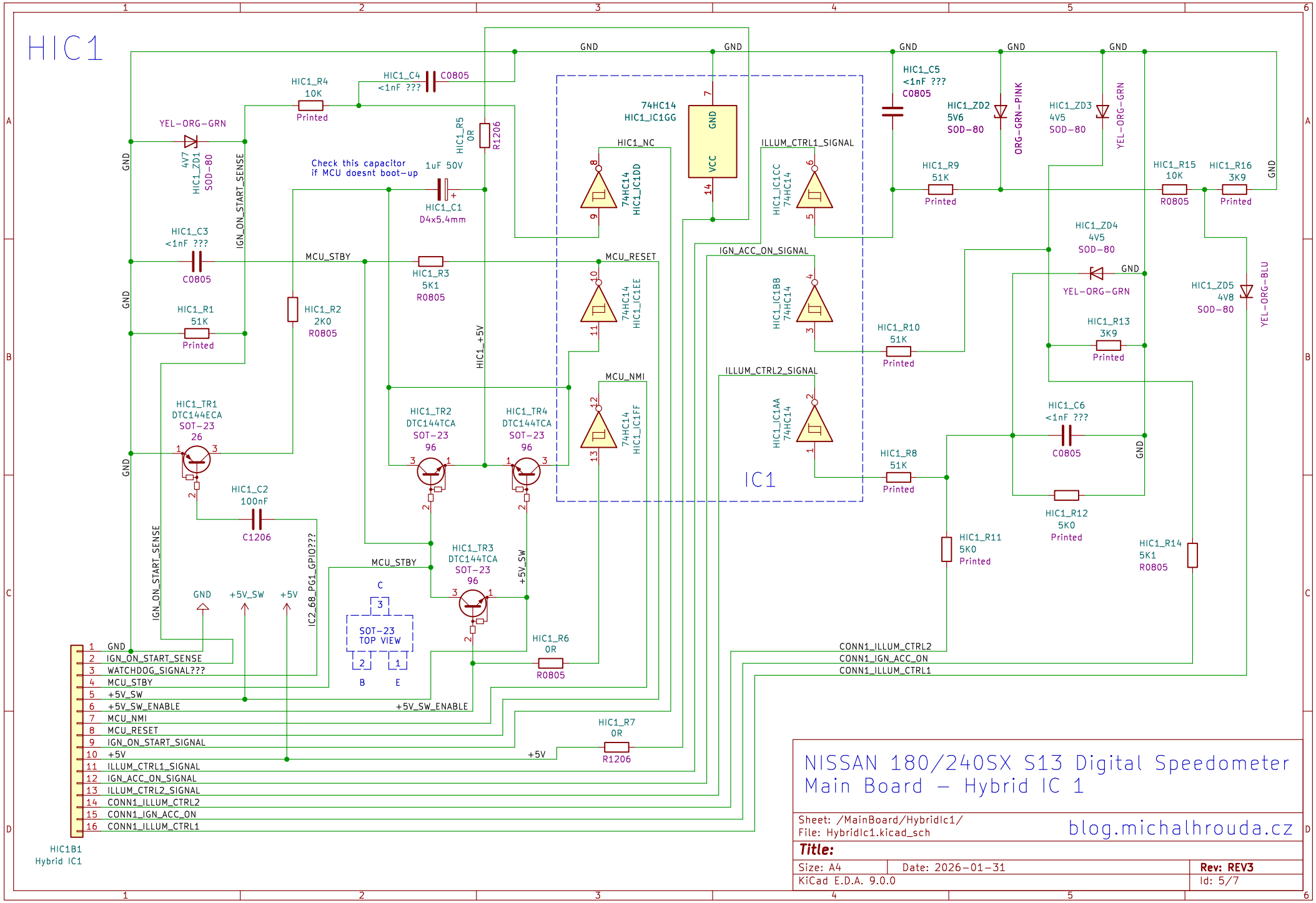
KiCad E.D.A. 9.0.0		Id: 4/7


HIC1
GND
HIC1_R4
10K
Printed
HIC1_C4
<1nF ???
C0805
YEL-ORG-GRN
4V7
HIC1_ZD1
SOD-80
IGN_ON_START_SENSE
HIC1_R5
0R
R1206
Check this capacitor
if MCU doesnt boot-up
1uF 50V
HIC1_C1
D4x5.4mm
HIC1_C3
<1nF ???
C0805
MCU_STBY
HIC1_R3
5K1
R0805
HIC1_R1
51K
Printed
HIC1_R2
2K0
R0805
HIC1_+5V
HIC1_TR1
DTC144ECA
SOT-23
26
HIC1_C2
100nF
C1206
IGN_ON_START_SENSE
IC2_68_PG1_GPIO???
HIC1_TR2
DTC144TCA
SOT-23
96
HIC1_TR4
DTC144TCA
SOT-23
96
HIC1_TR3
DTC144TCA
SOT-23
96
+5V_SW
MCU_STBY
C
SOT-23
TOP VIEW
B
E
HIC1_R6
0R
R0805
+5V_SW_ENABLE
HIC1_R7
0R
R1206
+5V
74HC14
HIC1_IC1GG
HIC1_NC
MCU_RESET
MCU_NMI
74HC14
HIC1_IC1DD
74HC14
HIC1_IC1EE
74HC14
HIC1_IC1FF
IC1
ILLUM_CTRL1_SIGNAL
IGN_ACC_ON_SIGNAL
ILLUM_CTRL2_SIGNAL
HIC1_IC1CC
74HC14
HIC1_IC1BB
74HC14
HIC1_IC1AA
74HC14
HIC1_C5
<1nF ???
C0805
HIC1_ZD2
5V6
SOD-80
ORG-GRN-PINK
HIC1_ZD3
4V5
SOD-80
YEL-ORG-GRN
HIC1_R9
51K
Printed
HIC1_R15
10K
R0805
HIC1_R16
3K9
Printed
HIC1_ZD4
4V5
SOD-80
YEL-ORG-GRN
HIC1_ZD5
4V8
SOD-80
YEL-ORG-BLU
HIC1_R10
51K
Printed
HIC1_R13
3K9
Printed
HIC1_C6
<1nF ???
C0805
HIC1_R8
51K
Printed
HIC1_R12
5K0
Printed
HIC1_R11
5K0
Printed
HIC1_R14
5K1
R0805
CONN1_ILLUM_CTRL2
CONN1_IGN_ACC_ON
CONN1_ILLUM_CTRL1
1 GND
2 IGN_ON_START_SENSE
3 WATCHDOG_SIGNAL???
4 MCU_STBY
5 +5V_SW
6 +5V_SW_ENABLE
7 MCU_NMI
8 MCU_RESET
9 IGN_ON_START_SIGNAL
10 +5V
11 ILLUM_CTRL1_SIGNAL
12 IGN_ACC_ON_SIGNAL
13 ILLUM_CTRL2_SIGNAL
14 CONN1_ILLUM_CTRL2
15 CONN1_IGN_ACC_ON
16 CONN1_ILLUM_CTRL1
HIC1B1
Hybrid IC1
NISSAN 180/240SX S13 Digital Speedometer
Main Board – Hybrid IC 1
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Size: A4
Date: 2026-01-31
Rev: REV3
KiCad E.D.A. 9.0.0
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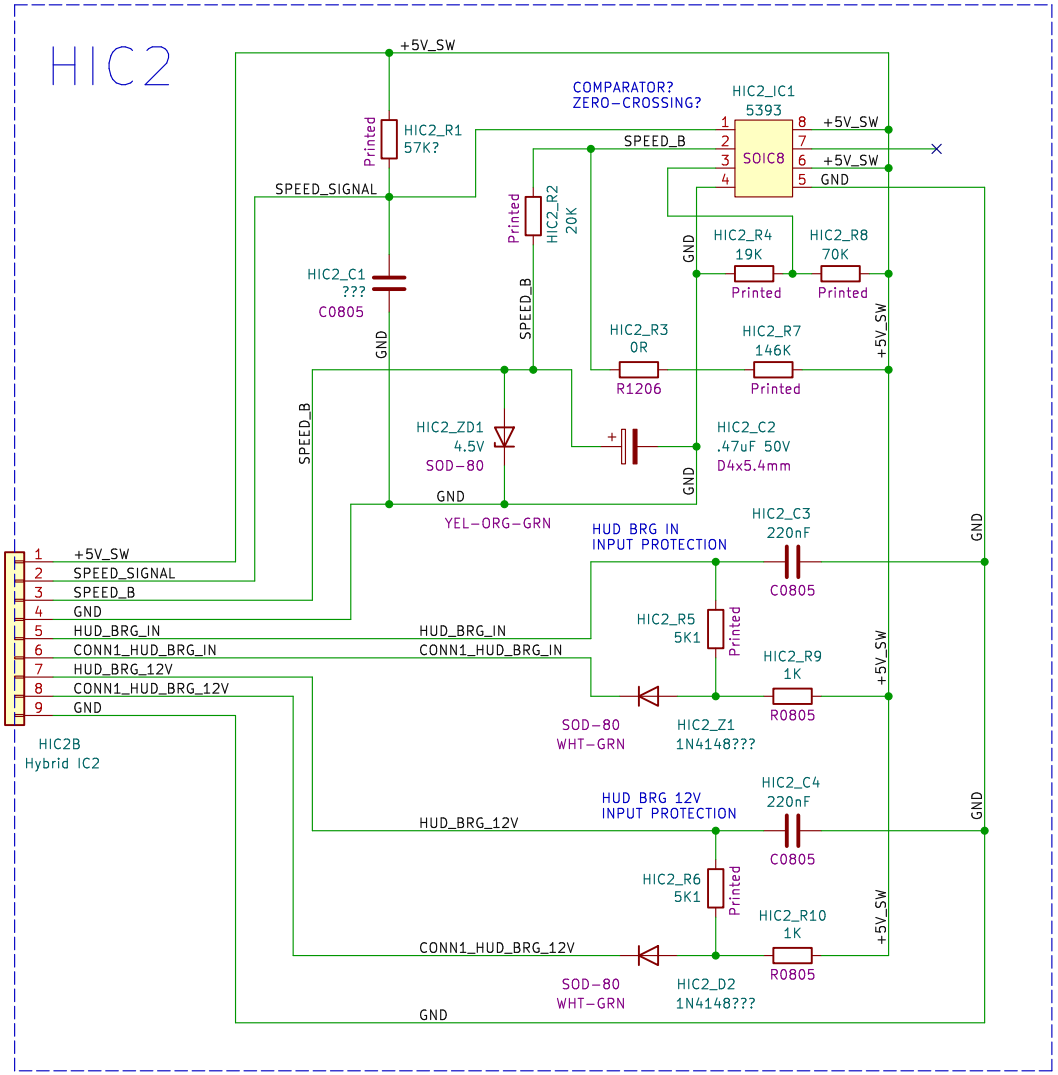

NISSAN 180/240SX S13 Digital Speedometer
Main Board – Hybrid IC 2

Sheet: /MainBoard/HybridIc2/
File: HybridIc2.kicad_sch

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Title:

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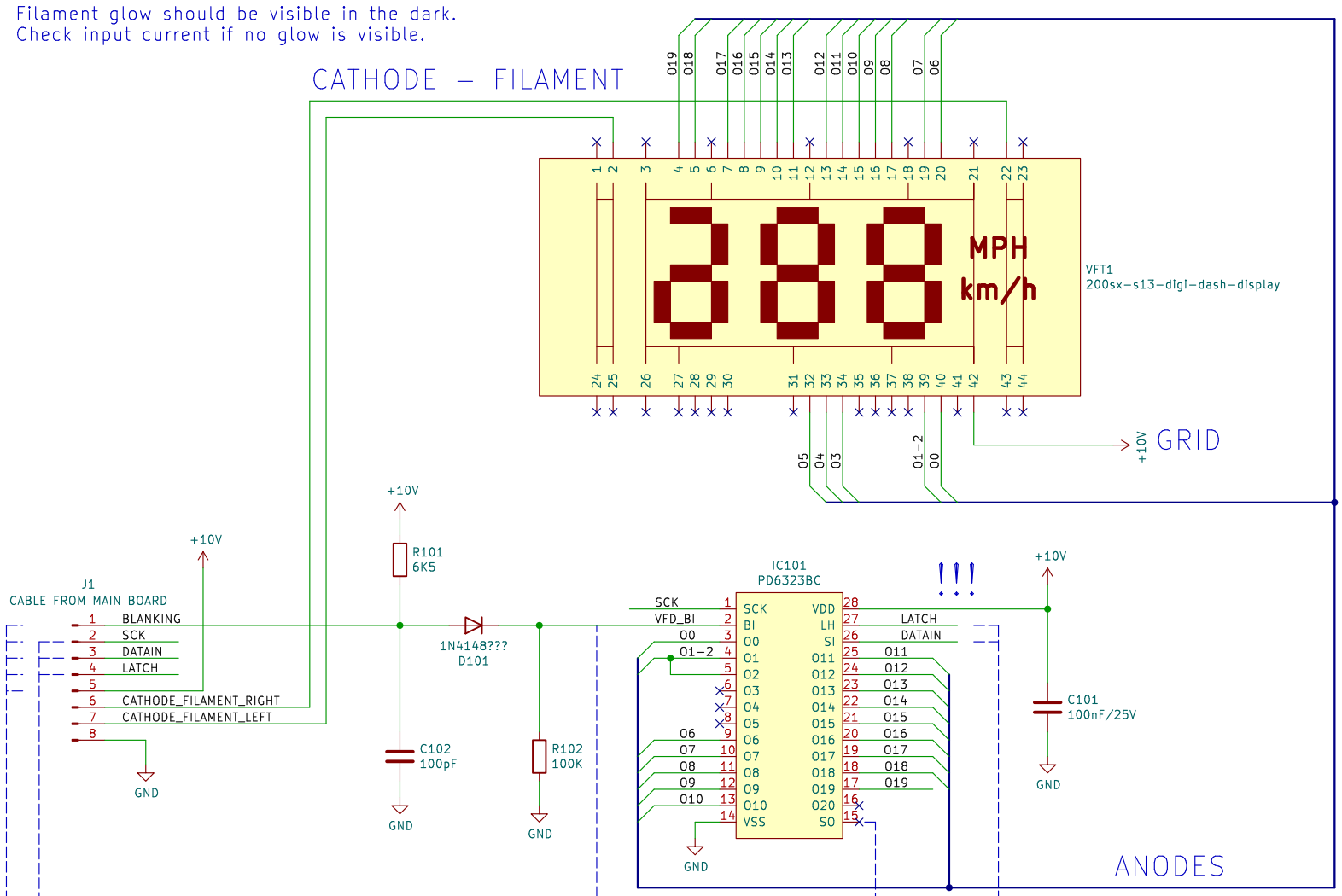

NISSAN 180/240SX S13 Digital Speedometer Display Board

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Title:

Size: A4	Date: 2026-01-31	**Rev: REV3**
KiCad E.D.A. 9.0.0		Id: 7/7