

PG160-B02

8GB GDDR6, 256b, X16

Tall DVI-D + USBC/DP + DP + HDMI/DP + DP

TABLE OF CONTENTS

Page Description

1	Table of Contents
2	Block Diagram
3	PCI Express
4	PCIE RC TERM
5	MEMORY: GPU FB_AB
6	MEMORY: FBA[31:0]
7	MEMORY: FBA[63:32]
8	MEMORY: FBB[31:0]
9	MEMORY: FBB[63:32]
10	MEMORY: GPU FB_CD
11	MEMORY: FBC[31:0]
12	MEMORY: FBC[63:32]
13	MEMORY: FBD[31:0]
14	MEMORY: FBD[63:32]
15	GPU PWR & GND
16	GPU Decoupling
17	GPU Decoupling2
18	IO: IFPAB DVI-D-DL
19	IO: IFPE DP
20	IO: IFPF USBC
21	IO: IFPC HDMI/DP
22	IO: IFPD DP
23	IO: NVHS Interface and Frame Lock
24	MISC1: Thermal, JTAG, GPIO,STEREO
25	MISC2: ROM, XTAL,STRAPS

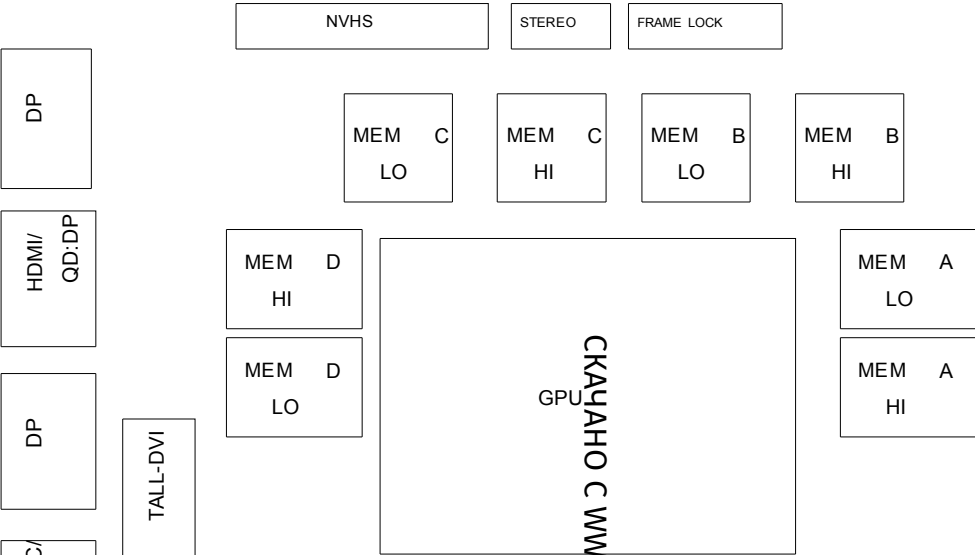
Page Description

26	PS: 1V8_PLL, 1V8_AON
27	PS: 5V
28	PS: PEXVDD
29	PS: FBVDDQ
30	PS: FBVDDQ PH2
31	PS: NVVDD Controller
32	PS: NVVDD Controller OVR3i
33	PS: NVVDD Phase 1,2
34	PS: NVVDD Phase 3,4
35	PS: NVVDD Phase 5,6
36	PS: Input Power Balancing Switcher
37	PS: Input, Filtering, and Monitoring
38	PS: STEERING, UPB & HOT-UNPLUG
39	PS: Type-C BuckBoost
40	PD PPC
41	PS: 12V & 3V3_A SWITCHER
42	SEQ: 5V, 1V8, NV3V3 ENABLE
43	SEQ: NV, PEX, FB ENABLE
44	SEQ: VOLTAGE MONITOR
45	SEQ: DISCHARGE
46	SEQ: MISC
47	LOGO LED
48	LED DRIVER & BOOST
49	DUAL FAN
50	PS: Pre-filter

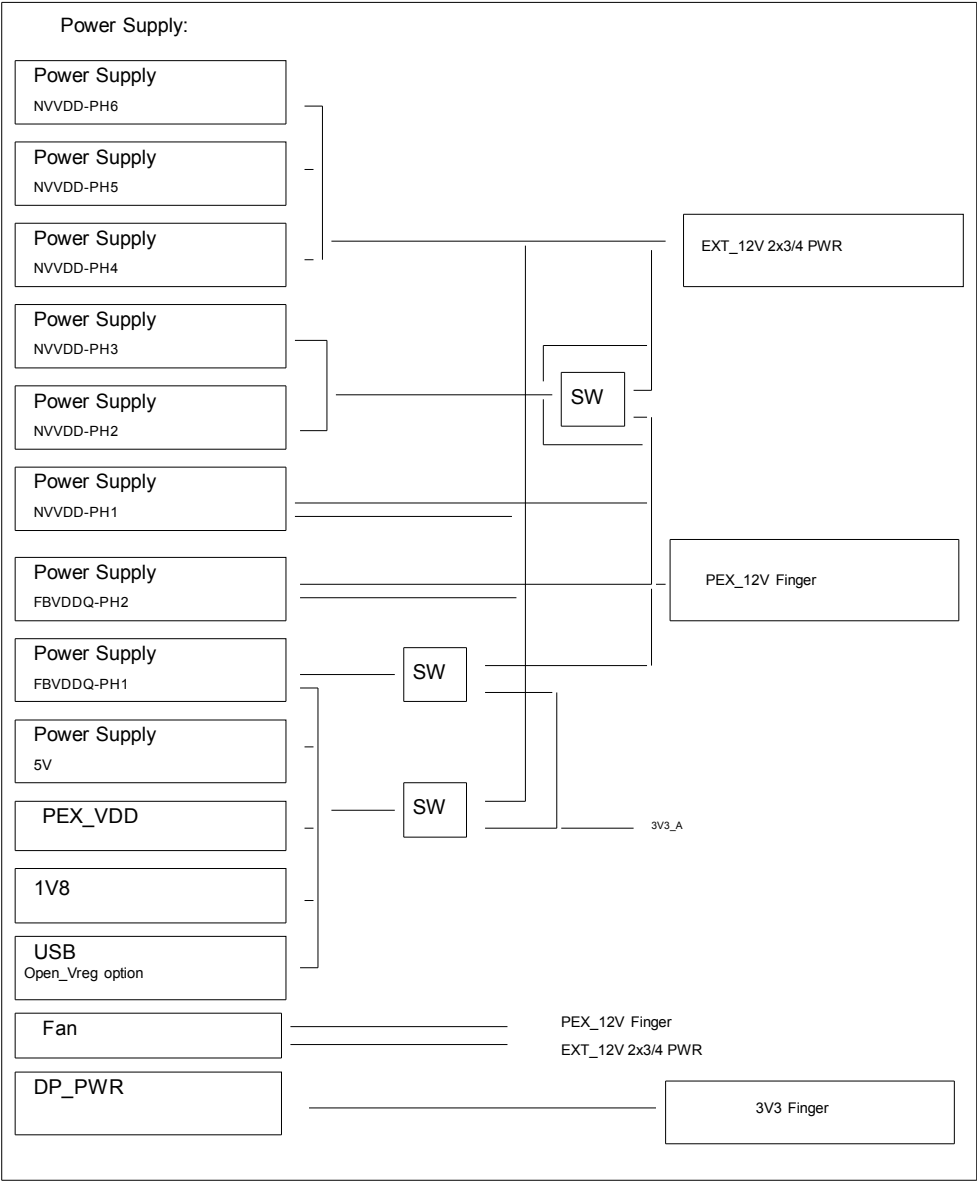
Page Description

51	MECH
52	PTC
53	Power Delivery
54	LED_CONTROLLER_IT8295

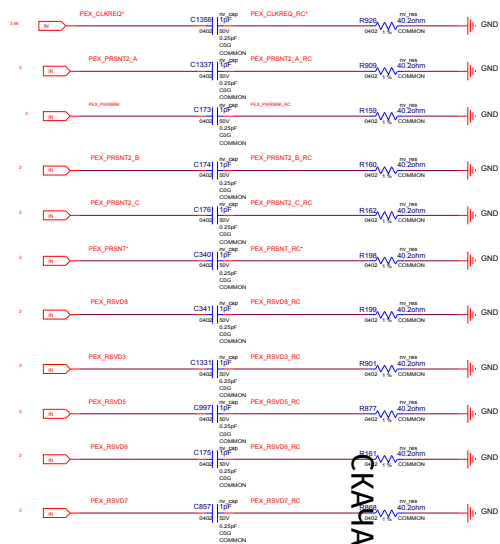
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



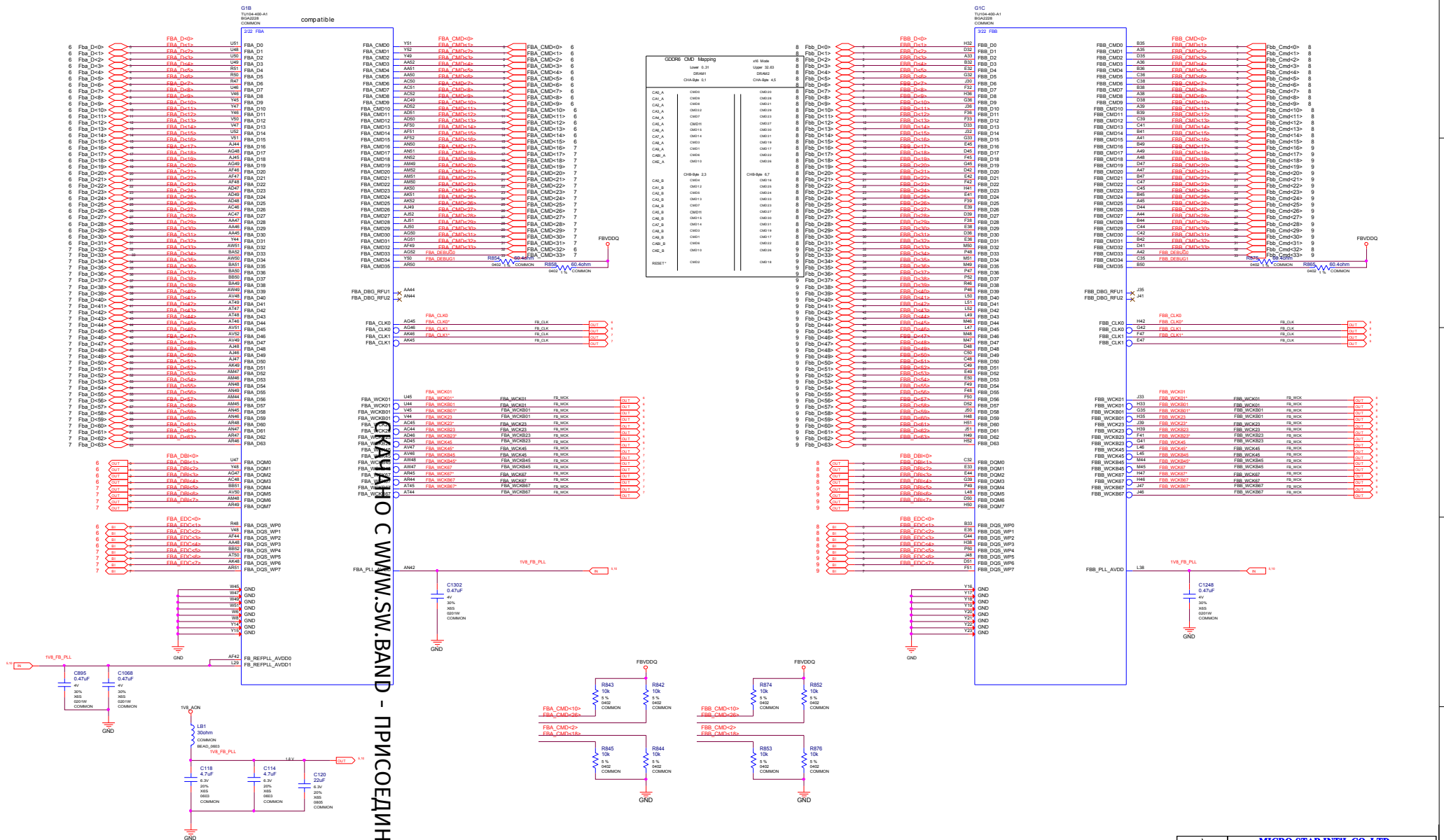


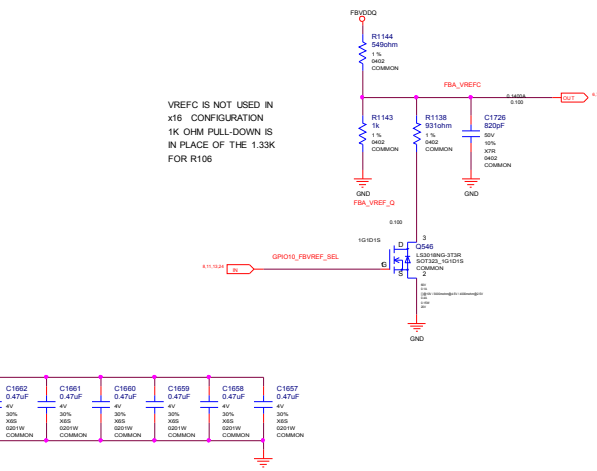
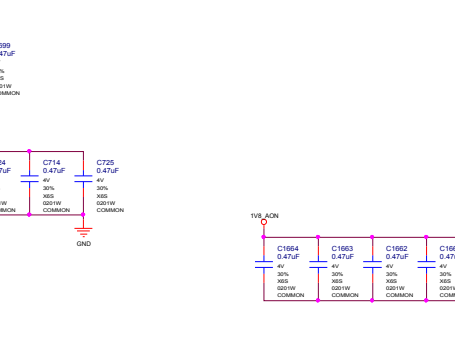
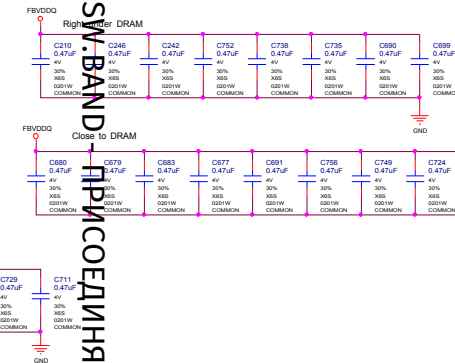
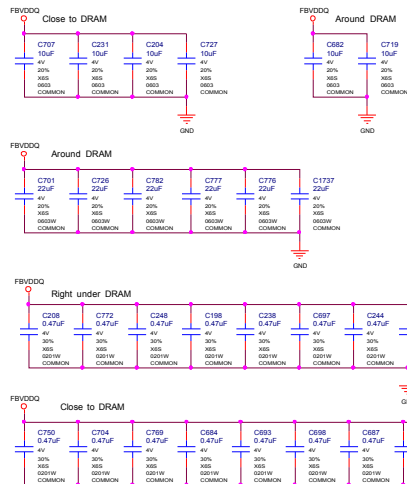


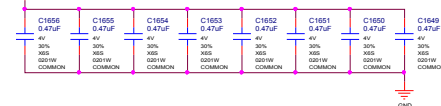
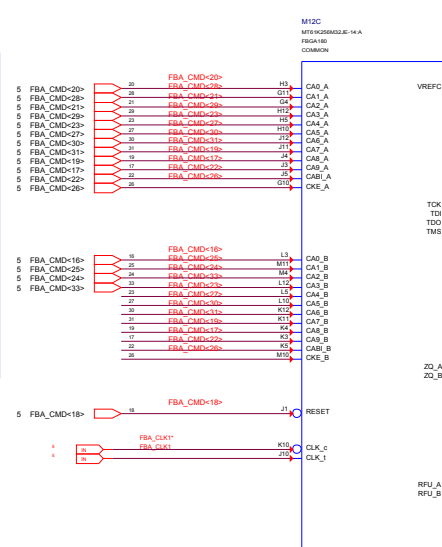
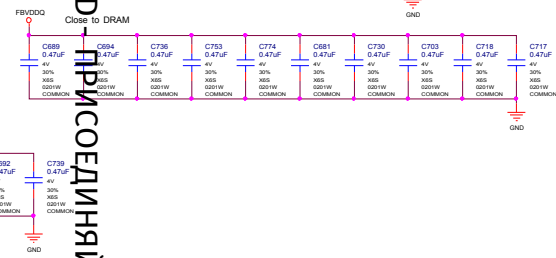
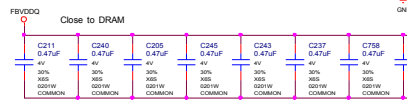
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

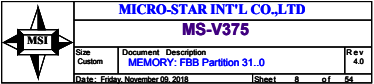


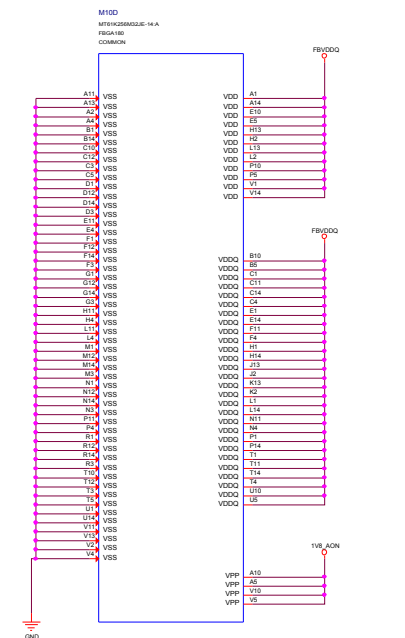
MICRO-STAR INT'L CO.,LTD			
MS-V375			
Size Custom	Document PCI Termination	Description	Rev 4.1
Date: Friday, November 09, 2018		Sheet 4	of 54



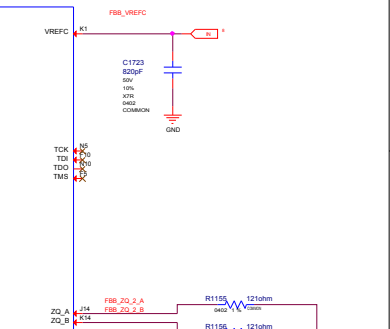
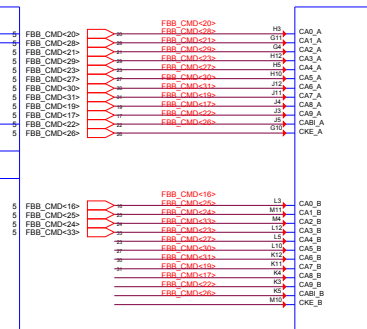
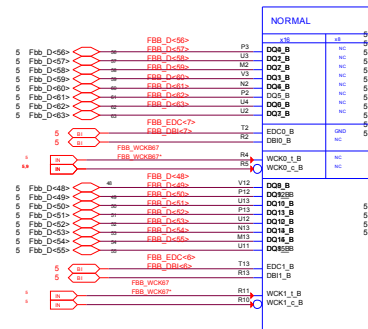
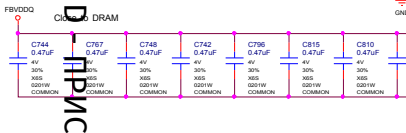
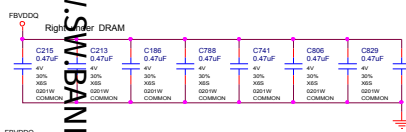
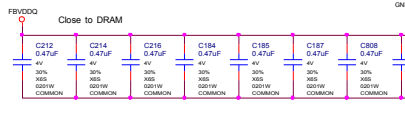
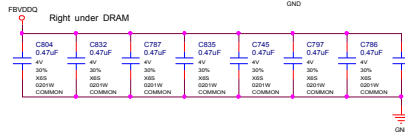
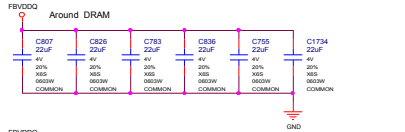
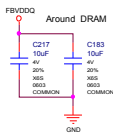
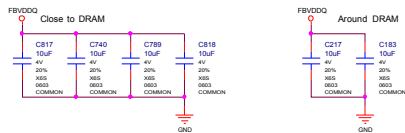


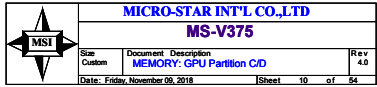


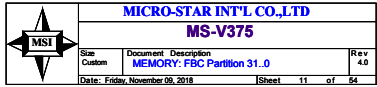


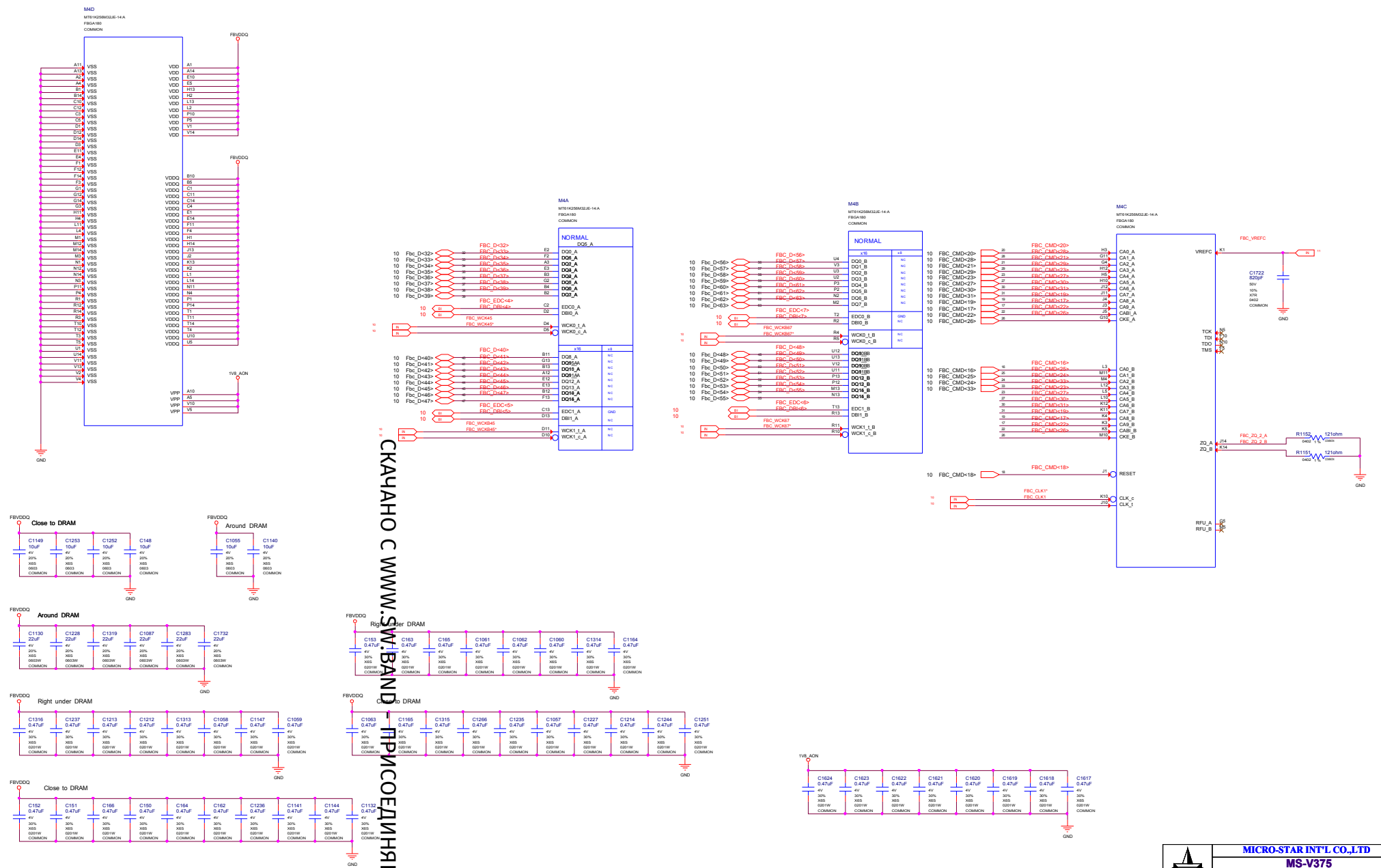


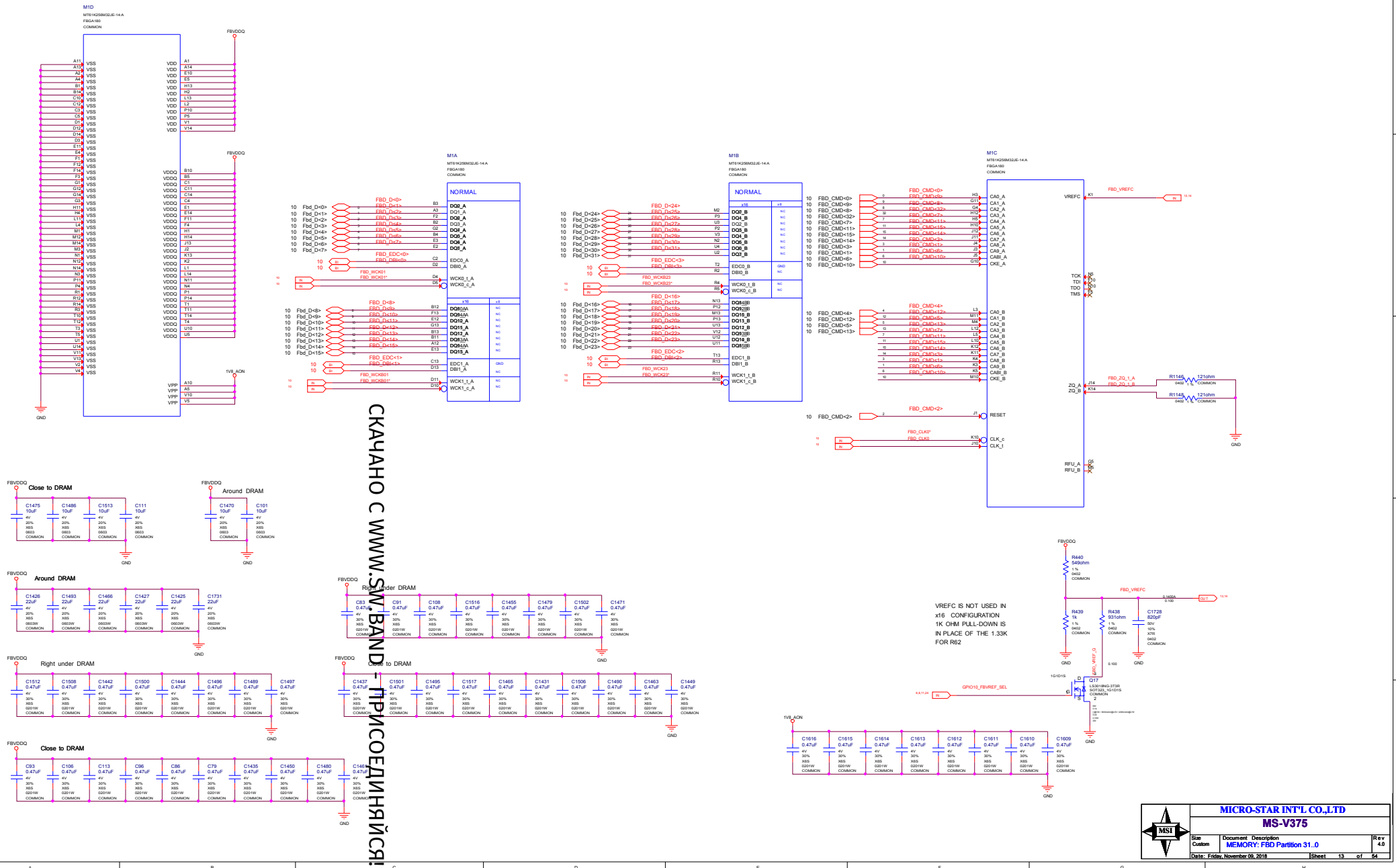
СКАЧАНО С WWW.SW.BAND-ПРИСОЕДИНЯЙСЯ!

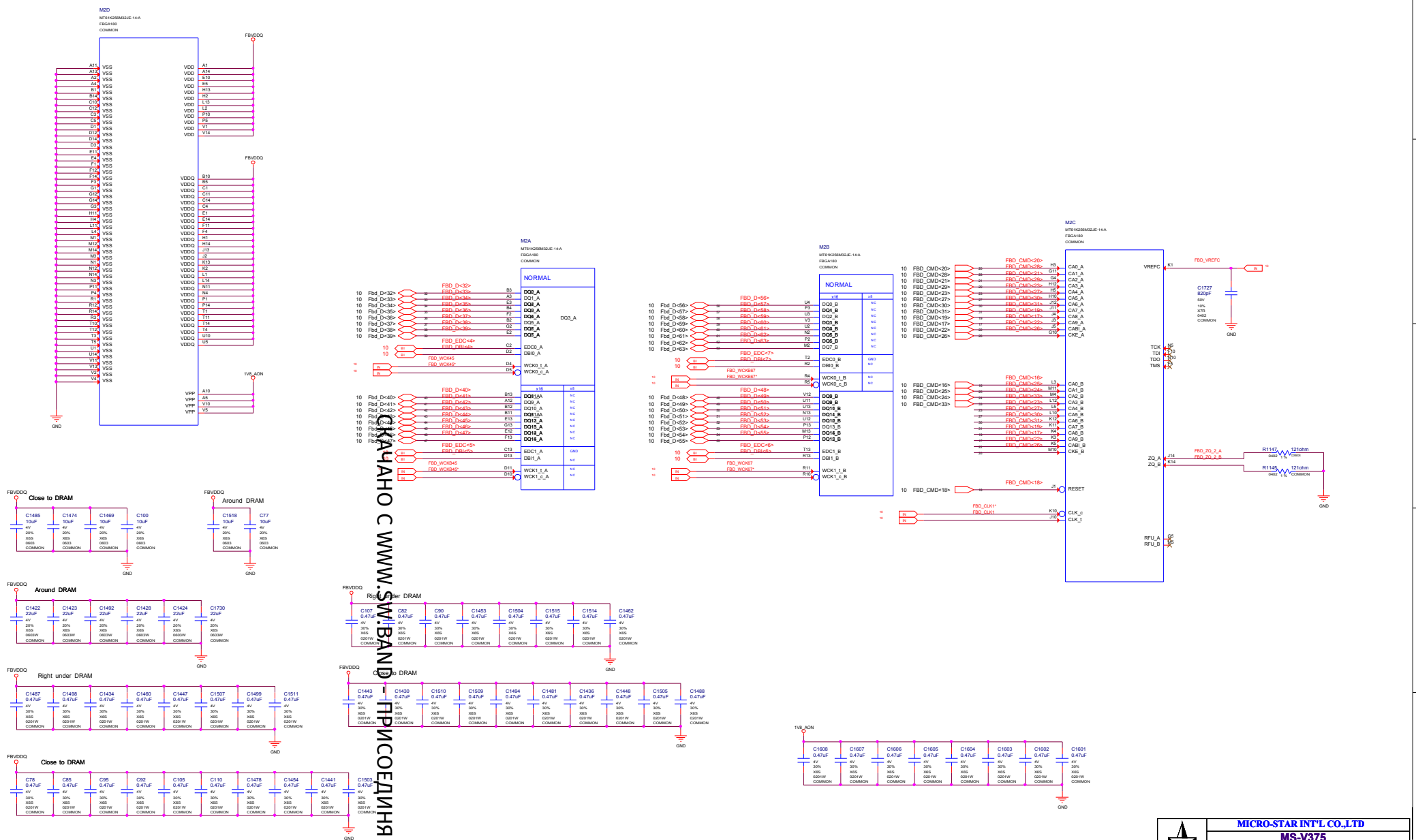


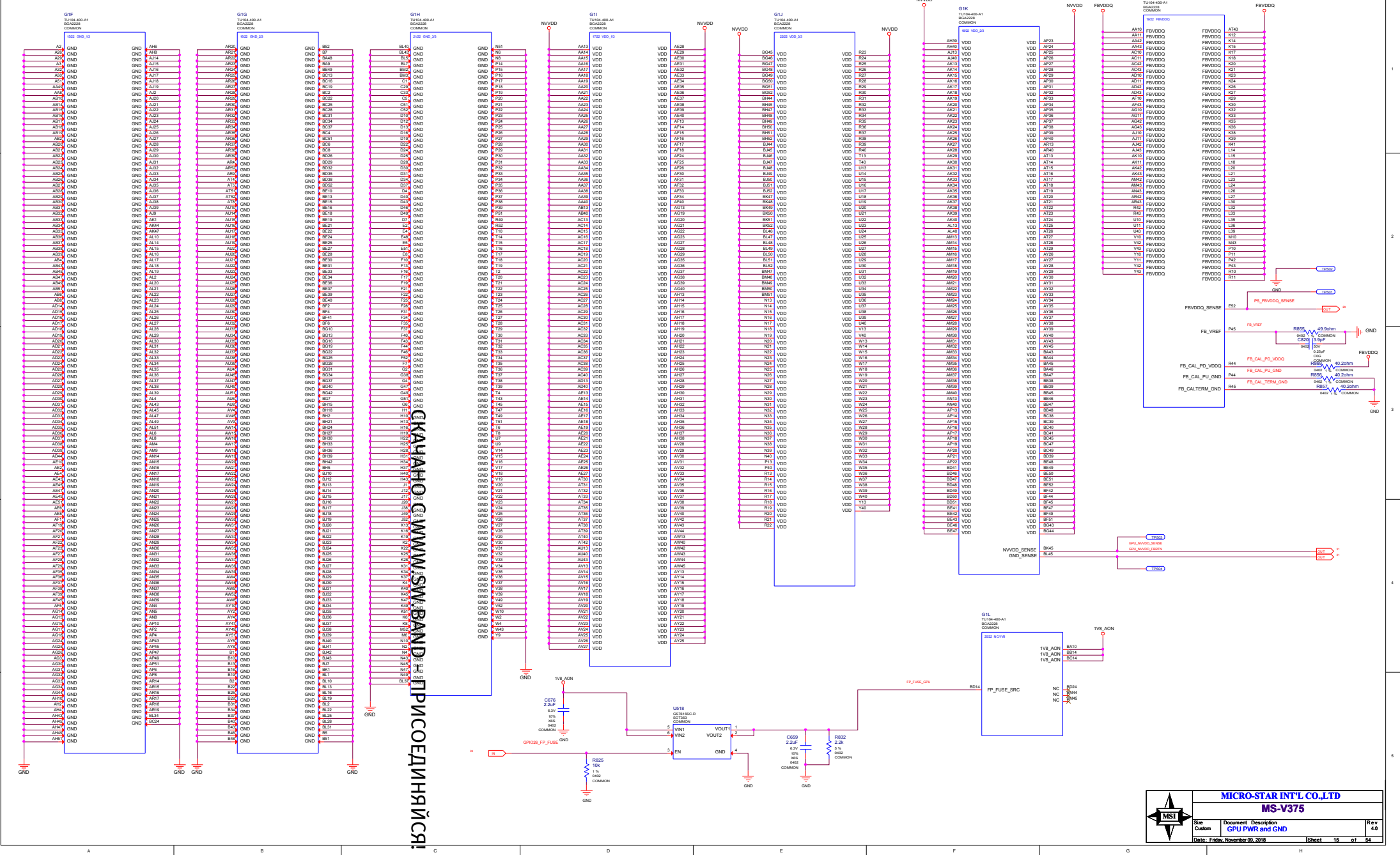




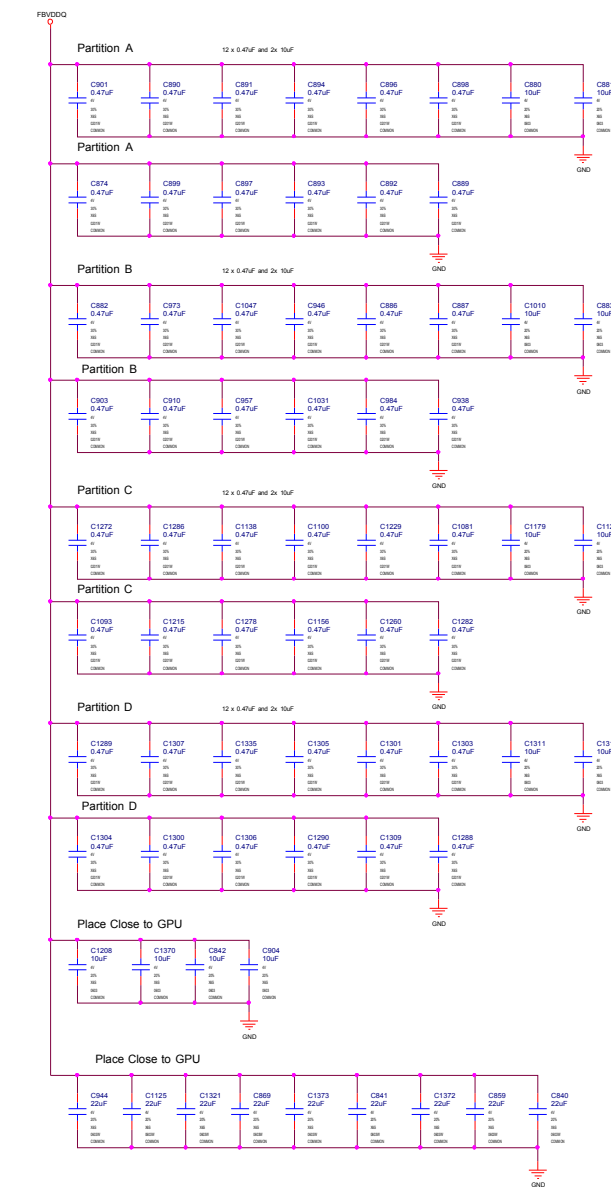






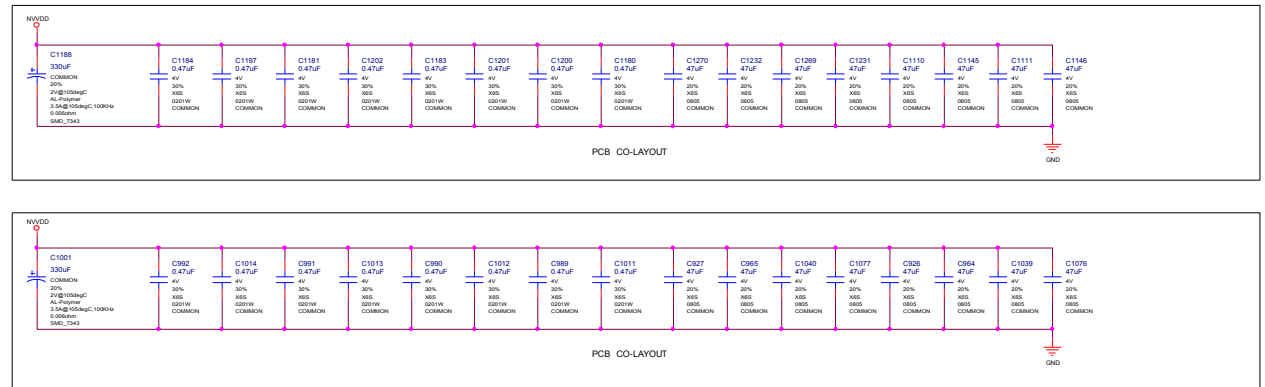


FBVDDQ

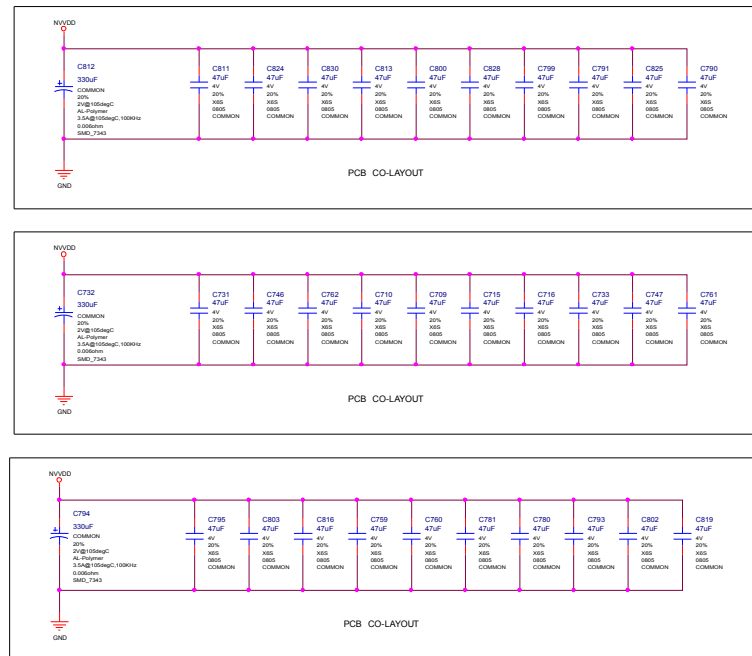


СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

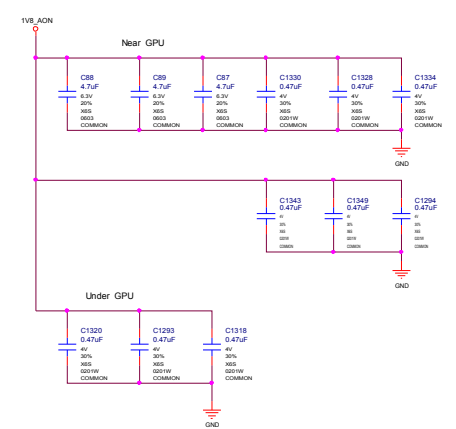
Under GPU



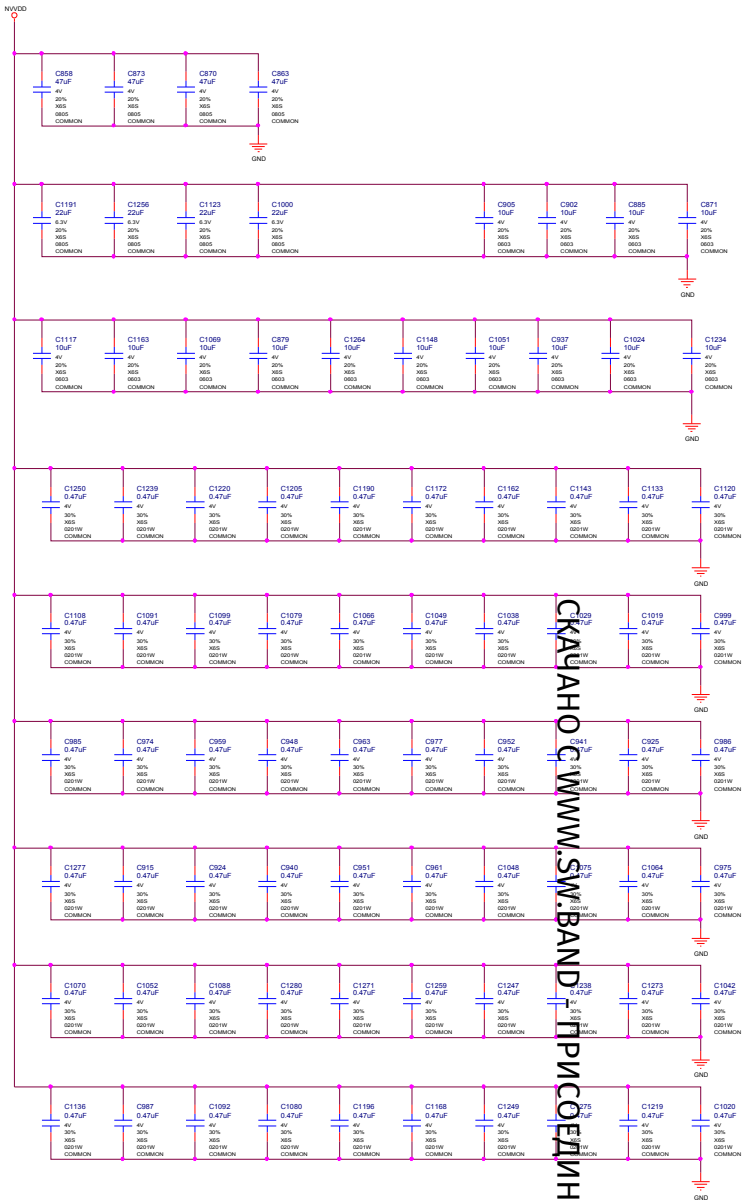
Near GPU



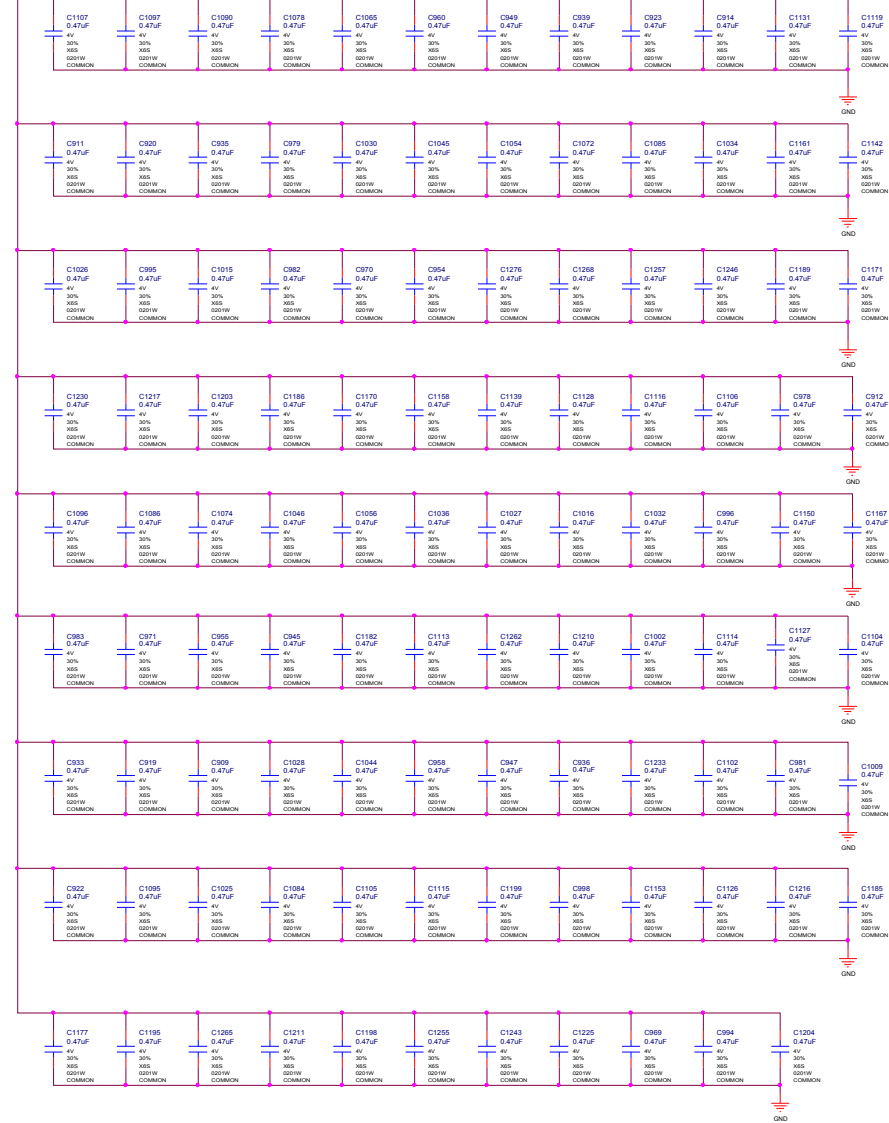
1V8_AON



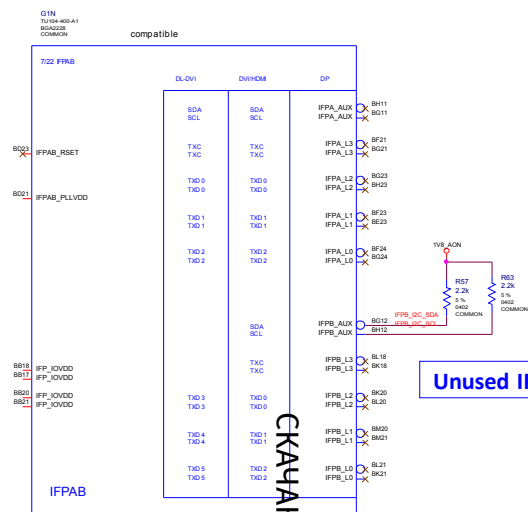
NVDD



NVDD



СКАЧАНО С WWW.SV.BAND.ПРИСОЕДИНЯЙСЯ!

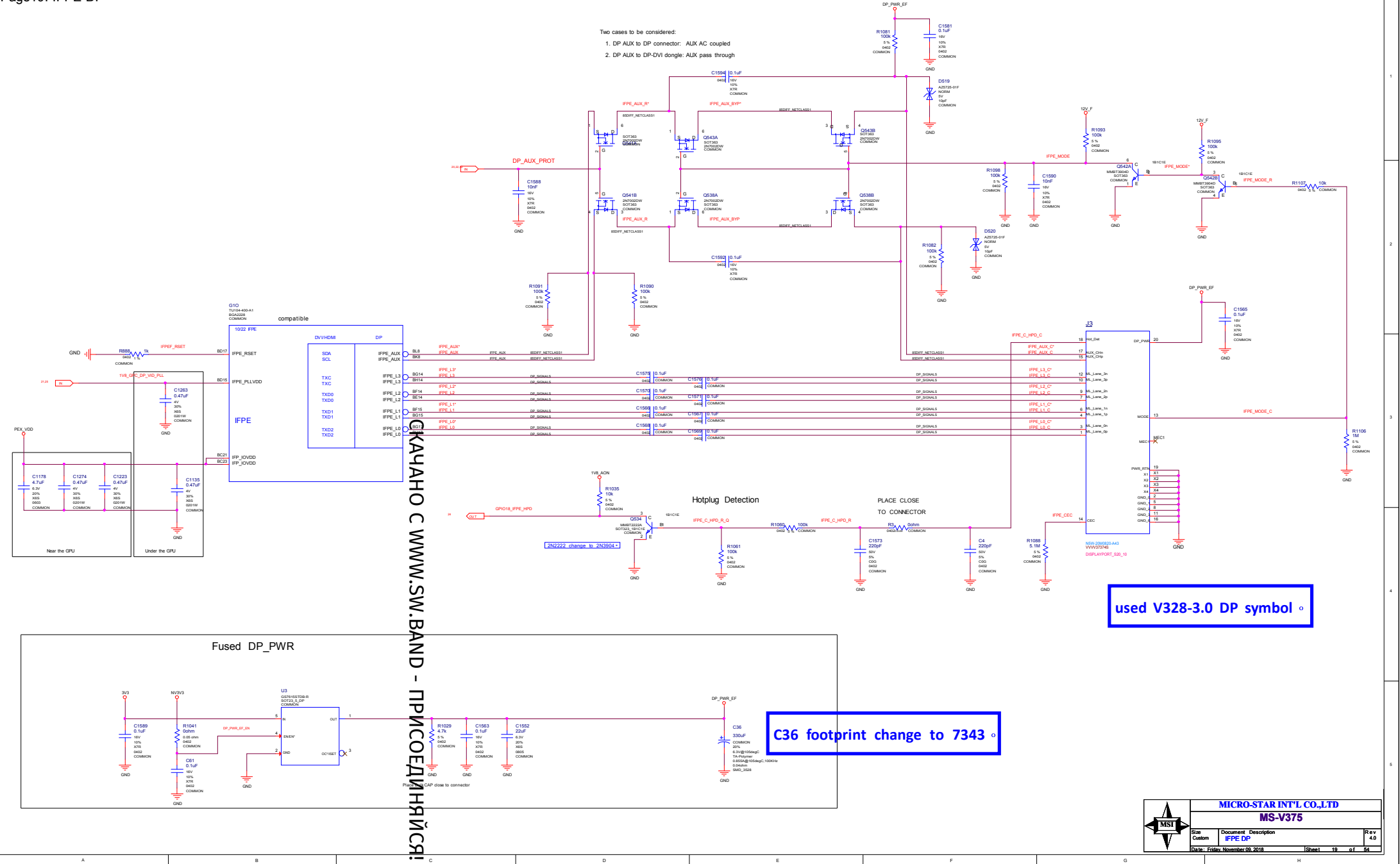


If an IFP link is unused, in general it should be left unconnected. This includes Main and Aux links. IFPxy_RSET and IFPxy_PLLVDD (xy=AB,CD,EF) can be left unconnected if neither of IFPx /IFPy is in use. For example, If neither link of the IFPA/IFPB macro is to be used, then IFPAB_PLLVDD and IFPAB_RSET should be left disconnected, and all signals and references associated with Link A and Link B should also be left unconnected.

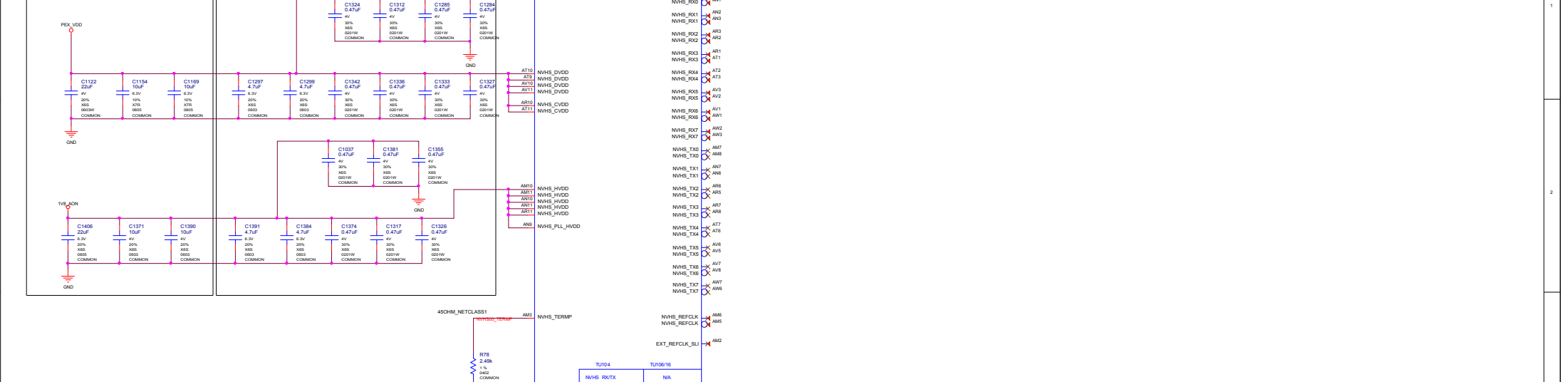
IFP_IOVDD rail can be unconnected if no IFP link is used.If any IFP is used, all IFP_IOVDD balls must be connected to power rail.

Unused IFPB_I2C* leaving Pull high resistor to 1.8V ◦

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!







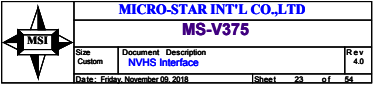
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

delete Frame Lock °

3	4	5
3	4	5

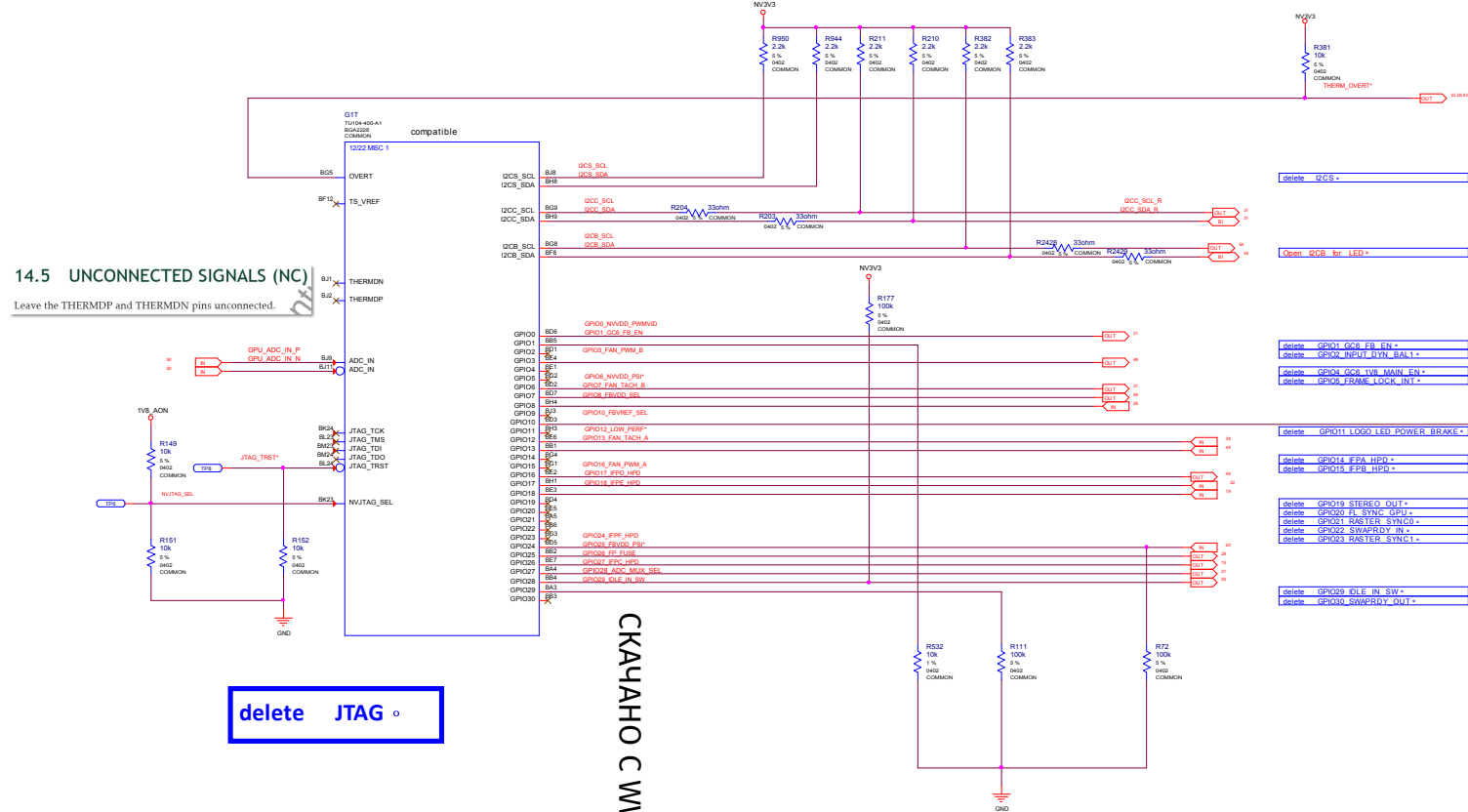
MICRO-STAR INT'L CO.,LTD			
MS-V375			
Size	Document	Description	Rev
Custom	NVHS Interface		4.0
Date: Friday, November 09, 2018			Sheet 23 of 54

delete Frame Lock ◦



14.5 UNCONNECTED SIGNALS (NC)

Leave the THERMDP and THERMDN pins unconnected.



delete JTAG °

Unused delete GPIO11_LED_POWER_BRAKE °

16.3.3.1.1 Unconnected I2C Pins
Do not route unused I2C signals on the PCB in order to protect the CPU from outside ESD risk. For unused I2C signals, pull up both the I2C_SCL and I2C_SDA lines to 1.8V or 3.3V using a 2.2kΩ resistor. Although unused I2C lines can be soft-grounded (that is, grounded using a resistor), NVDA's diagnostic program expects them to be pulled up and will flag an error. So it is strongly recommended that unused I2C lines be pulled up.

15.2.1 Unconnected Signals
Unused GPIOs may be left floating (NC) on the board design.

Unused delete STEREO °

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]
L	L	L	00000
L	L	H	00001
L	H	L	00010
L	H	H	00011
H	H	L	00110
H	H	H	00111
L	L	M	01000

RAMCFG[4:0]	DENSITY	WIDTH	VENDOR	DIE
00000	8Gb	256-bit	Samsung	C
00001	8Gb	256-bit	Micron	A
00010	8Gb	256-bit	Hynix	M
00011	8Gb	256-bit	Samsung	C
00100	8Gb	256-bit	Micron	A
00101	8Gb	256-bit	Hynix	M
00110	16Gb	256-bit	Samsung	M
00111				

ROM_SO	ROM_SI	ROM_SCLK	DUMMY[2:0].FS_OVERT	1.ENABLE 0.DISABLE	DEFAULT
L	L	L	XXX1	FS_OVERT ENABLE	
L	L	M	XXX0	FS_OVERT DISABLE	

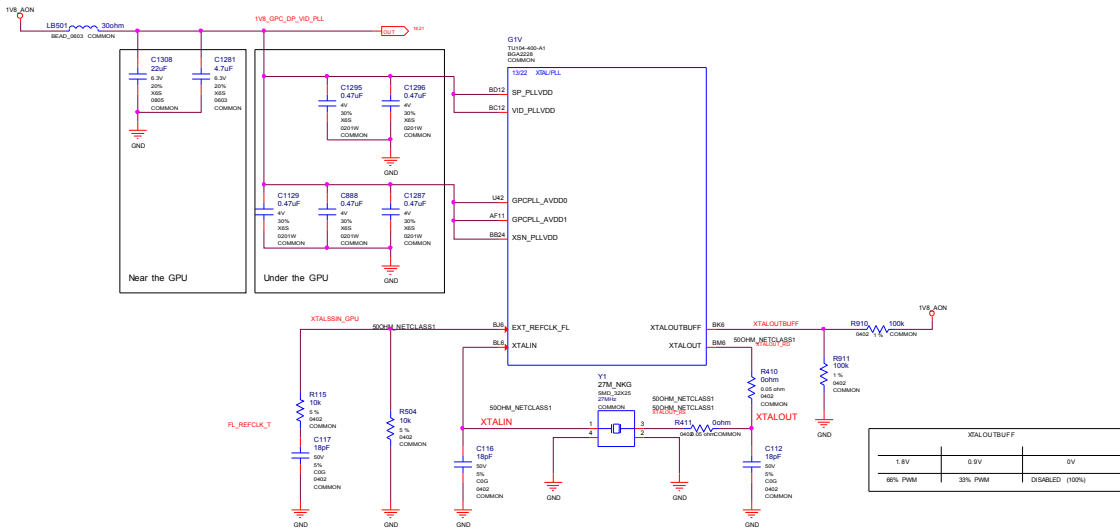
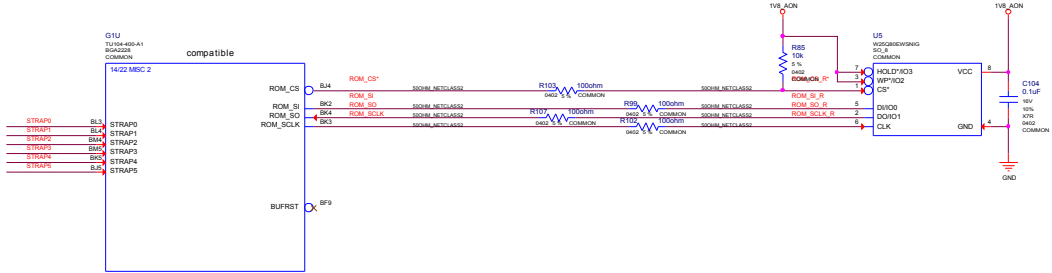
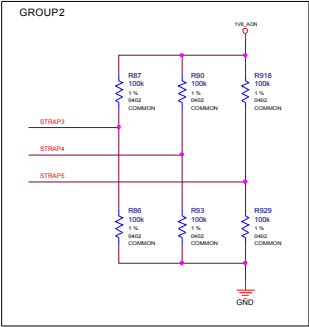
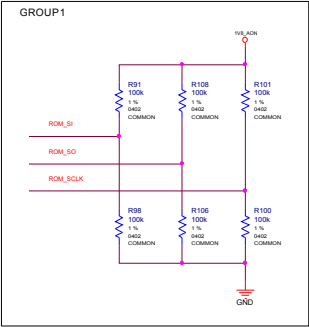
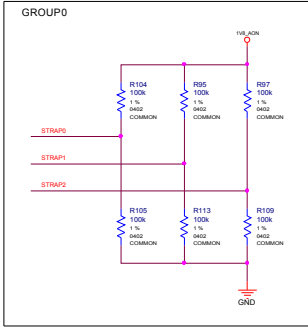
STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1		1	1
M	H	L	1		1	0
M	L	H	1		0	1
M	L	L	1		0	0
L	H	M	1		1	1
L	M	H	1		1	0
L	M	L	1		0	1
L	L	M	1		0	0
H	H	H	0		1	1
H	H	L	0		1	0
H	L	H	0		0	1
H	L	L	0		0	0
L	H	H	0		1	1
L	H	L	0		1	0
L	L	H	0		0	1 DEFAULT
L	L	L	0		0	0

H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

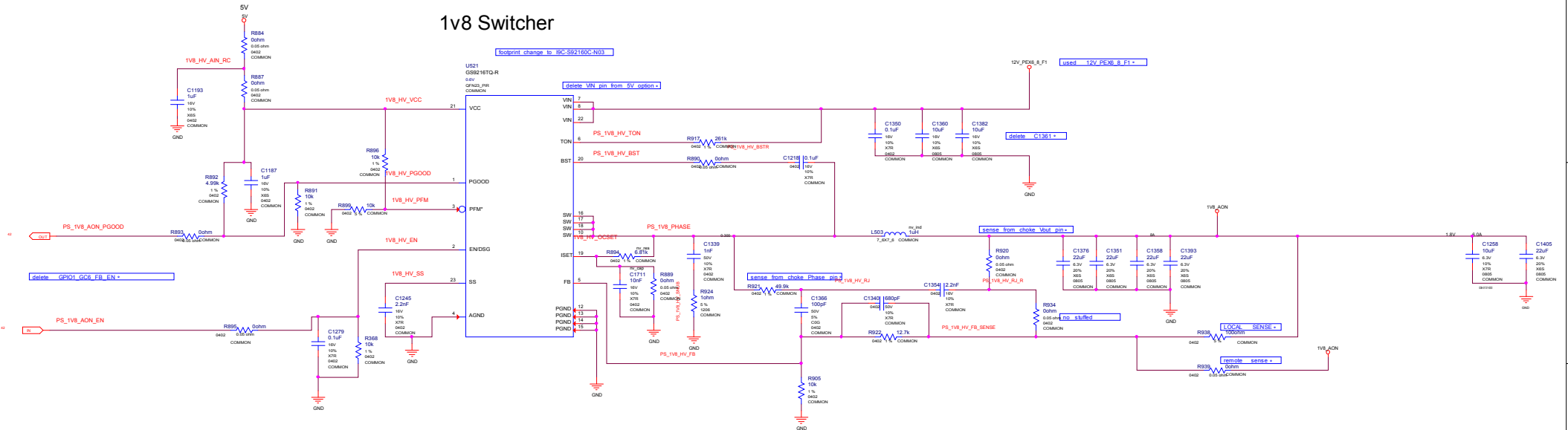
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGINAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER
1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

СКАЧАНО С WWW.SW.BAND.PRISоединяйся



XTALOUTBUFF		
1.8V	0.9V	0V
80% PWM	33% PWM	DISABLED (100%)



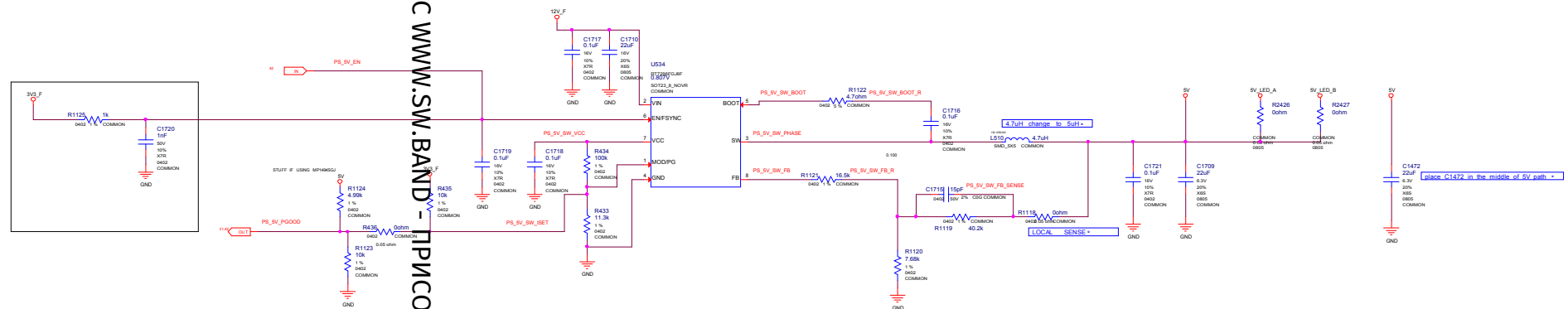
```

1 L503 PN L04-0107410-L65 / footprint : CHK_S2_3X6_61
2 delete colayout P WM ouput choke
3 delete 1V8_MA N and merged to 1V8_AON

```

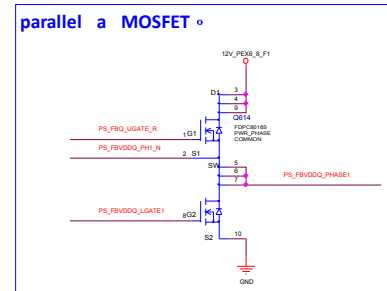
СКАЧАНО С WWW.SV.BAND - ПРИСОЕДИНЯЙСЯ!

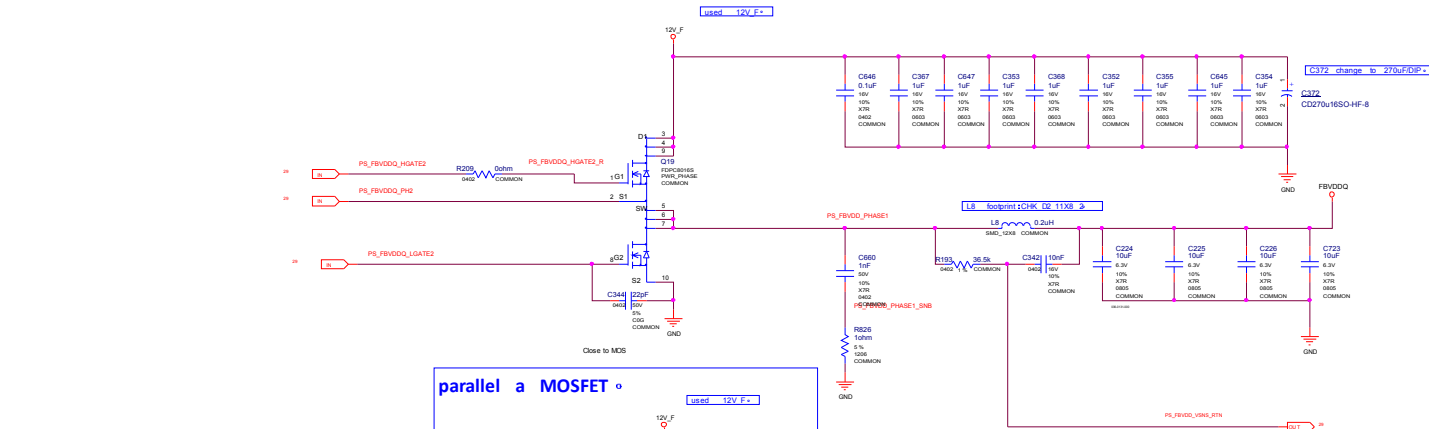
- 1 L510 PNL04-0507010-L65 / footprint : CHK_S2_5_4X5_23
2 delete colayout PWM output choke
3 unused RTD3 delete Buck-Boost regulator



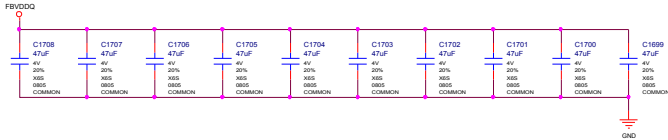
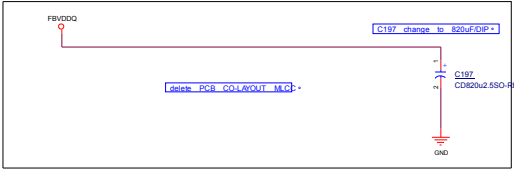
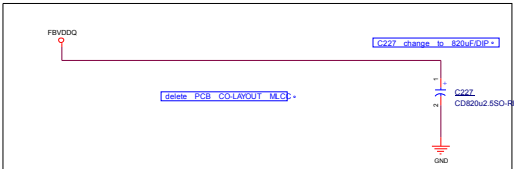
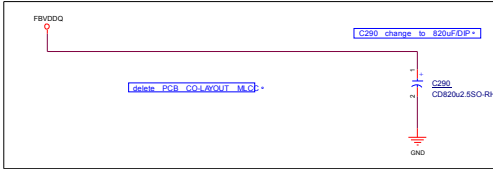
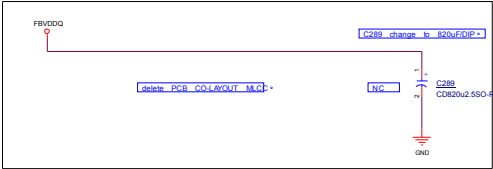
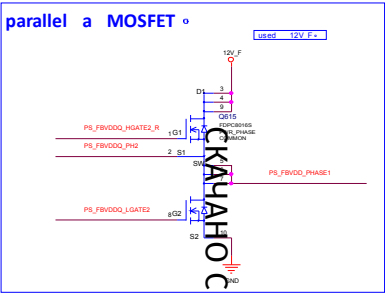
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



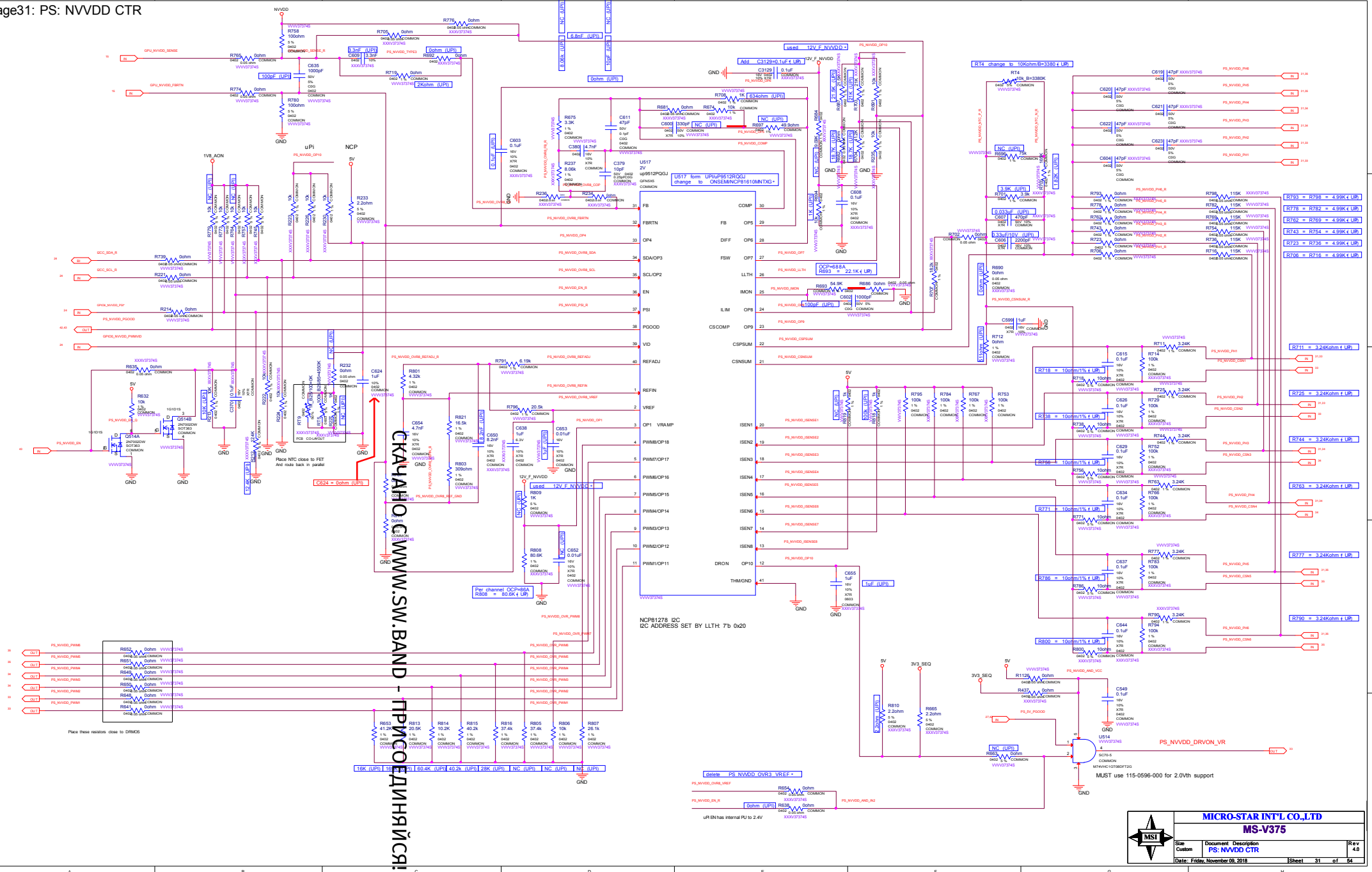




delete RTD3 backdrive °

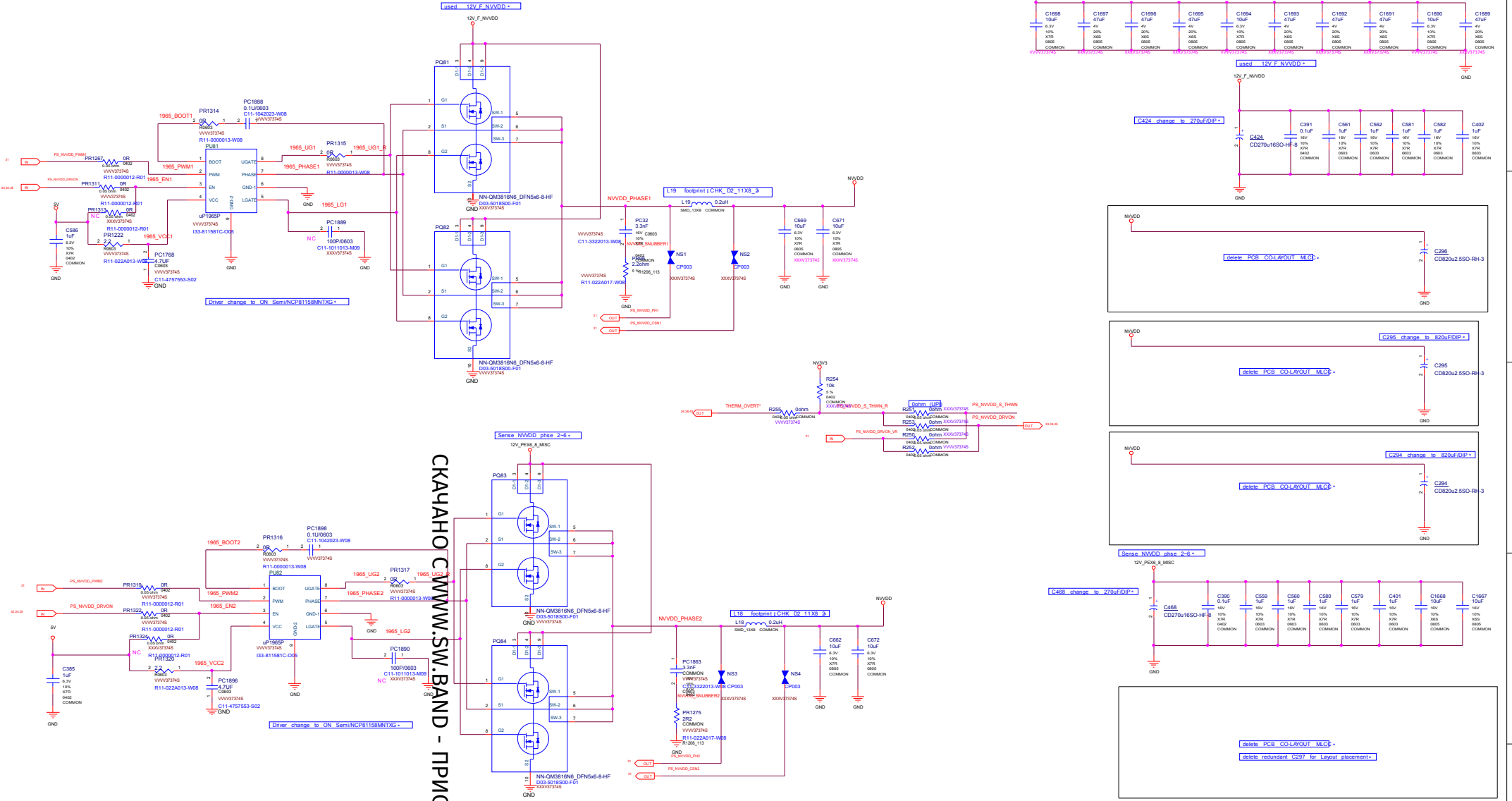


СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

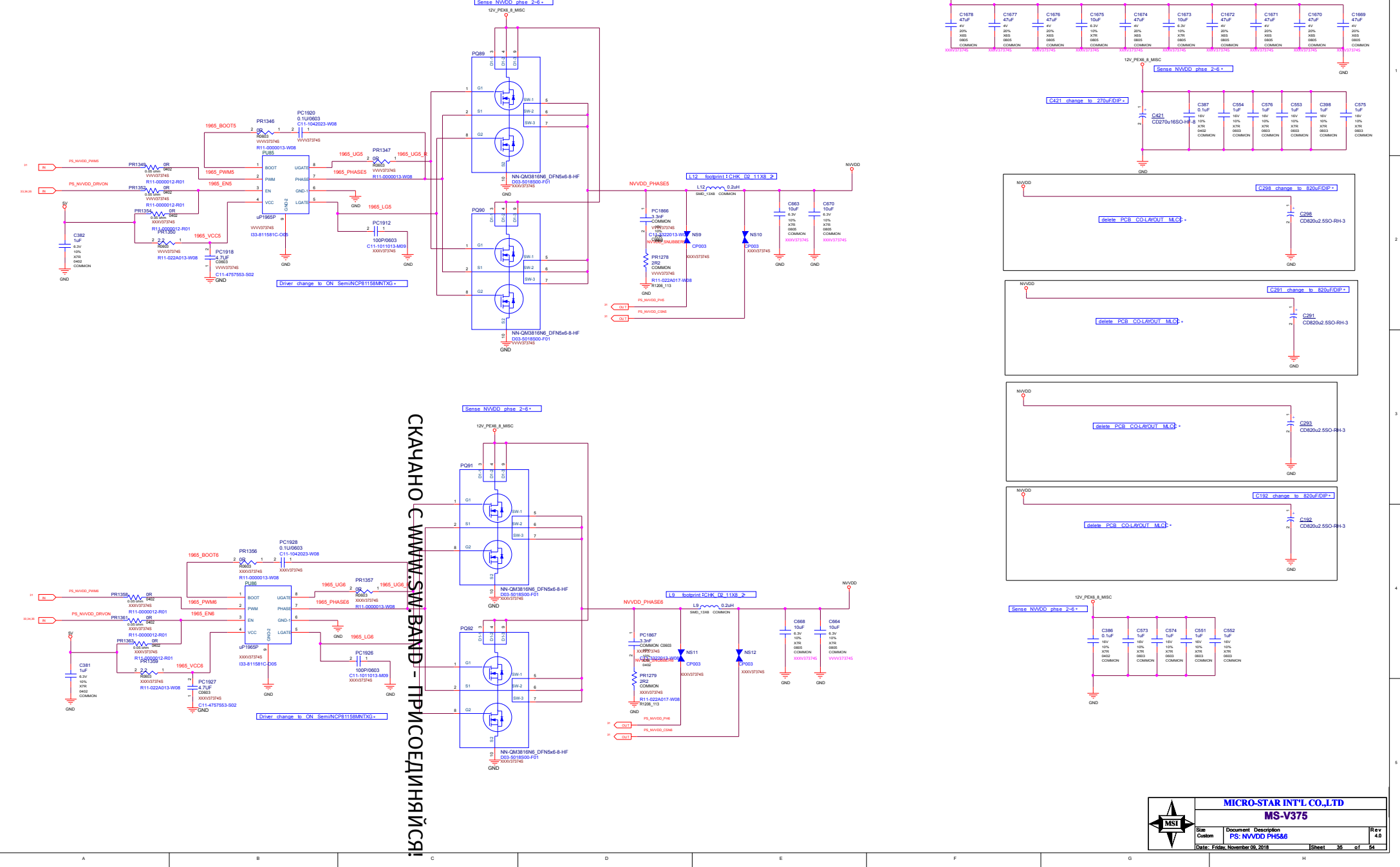


delete all unused

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



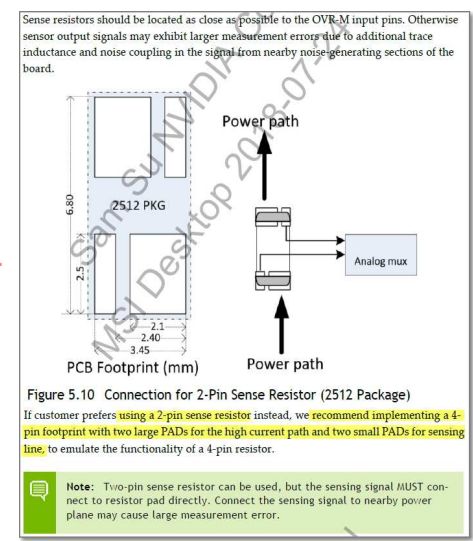
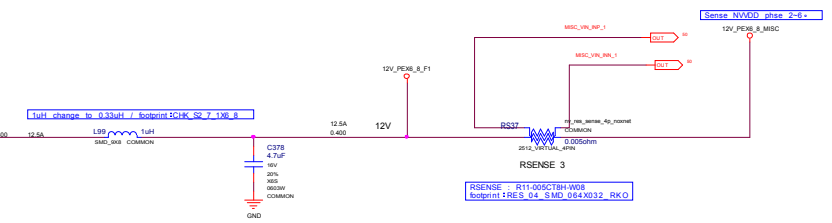
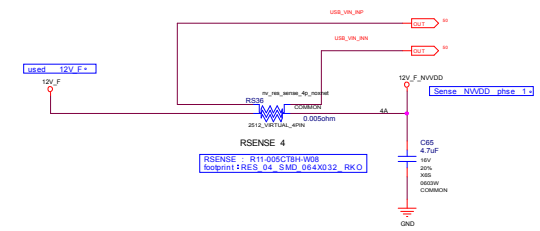
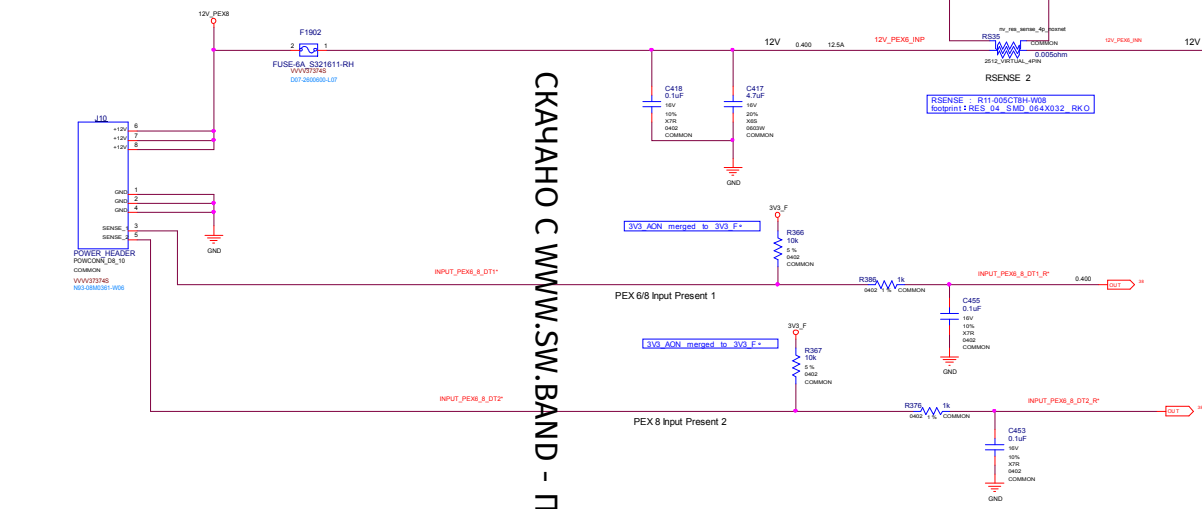
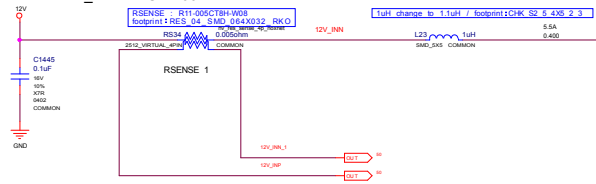
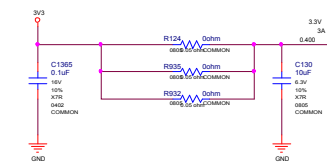
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



removed U511 for fi xed NVVDD 12Vi nput:
1 \merged 3V3_AON to 3V3_F
2 unused and dēēē 3V3_AUX
3 unused and dēēē 3V3_AUX_CON
4 \NVVDD_DYN_V N merged to 12V_PEX6_8_F1

Delete GPOL_INPUT_DYN_BAL1
Delete INPUT_PEX6_DT1_STEER

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



delete regulator for USBC_VBUS °

Unused USB_I2C* leaving Pull high resistor to 1.8V °

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

delete PPC °

Unused USB_I2C* leaving Pull high resistor to 1.8V °

Unused IFPB_I2C* leaving Pull high resistor to 1.8V °

delete GPIO4_I2C_HPD °

delete PEX_RST_BUF* °

delete GPIO1_GPIO_FB_EN °

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

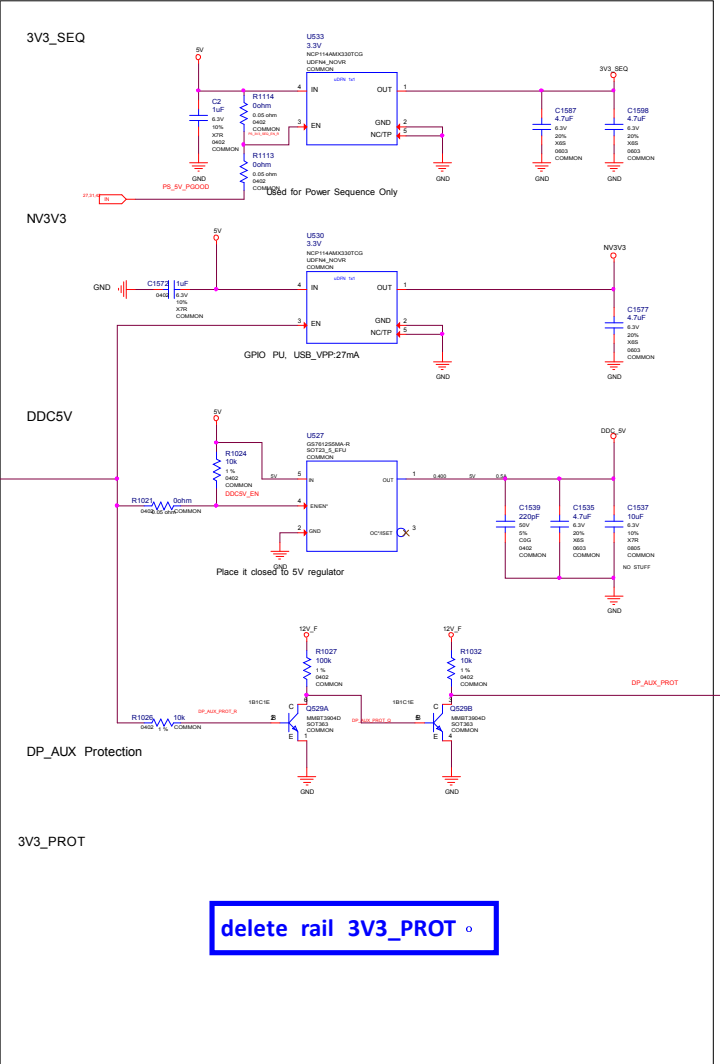
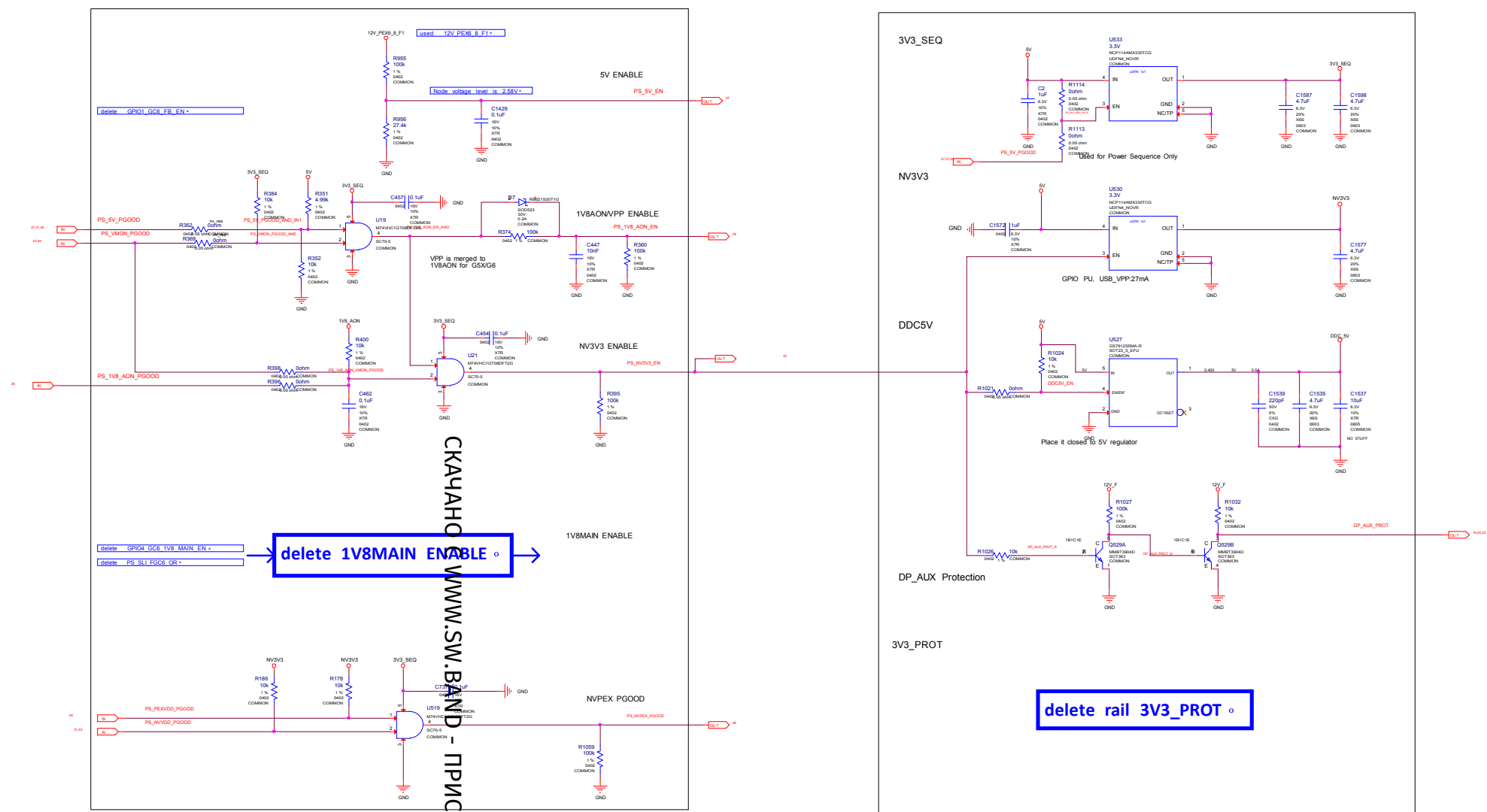
unused and delete all °

delete _GP001_GCS_FB_EN+
delete _GP002_DUE_IN_SW1

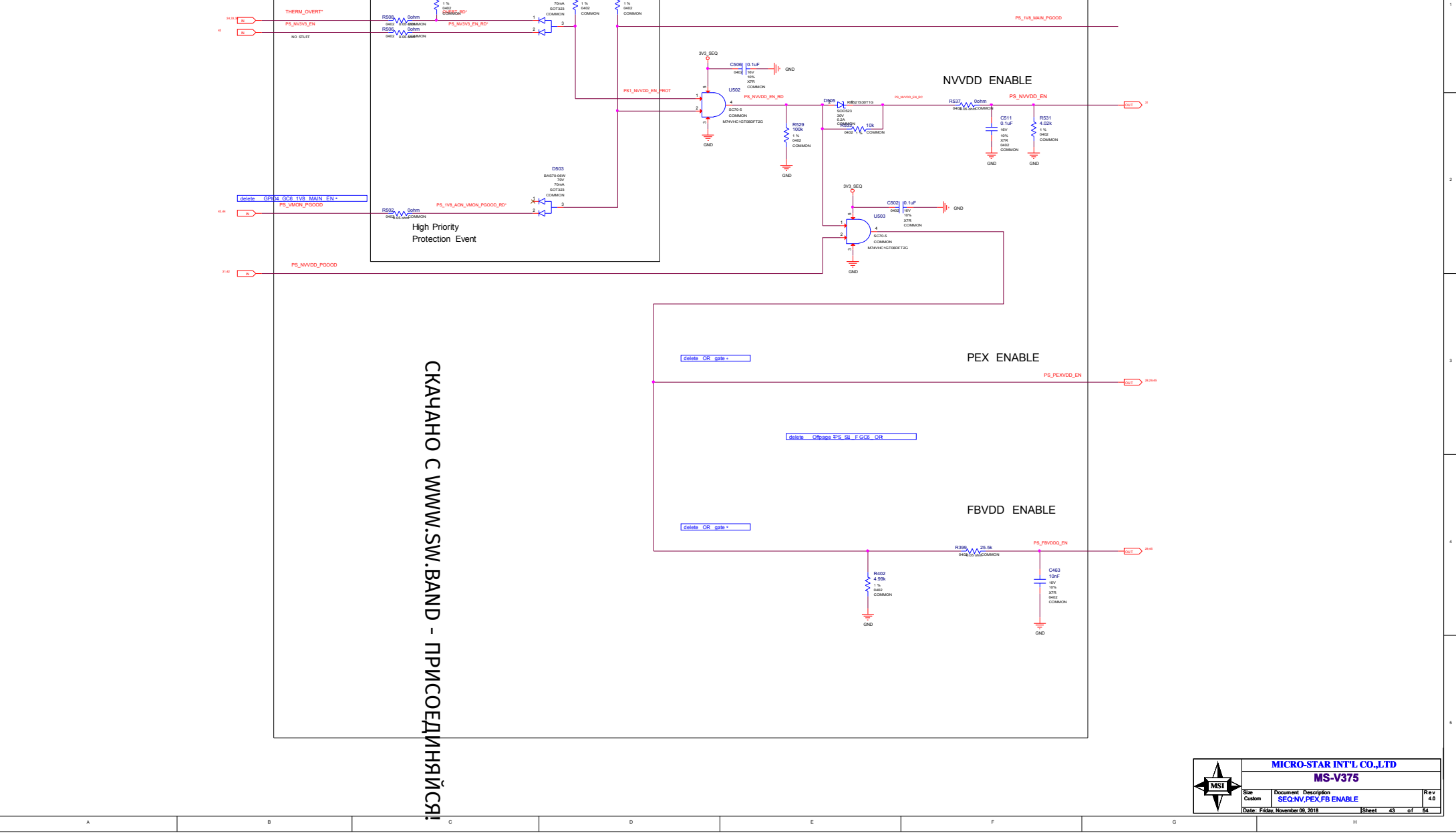
delete _offpage_P5_BTD_SWITCH

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

unused_and_delete_C404

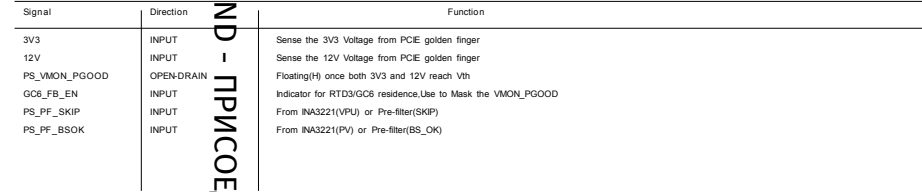


СКАЧАНО WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ

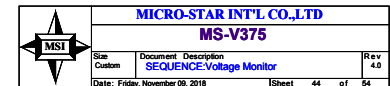


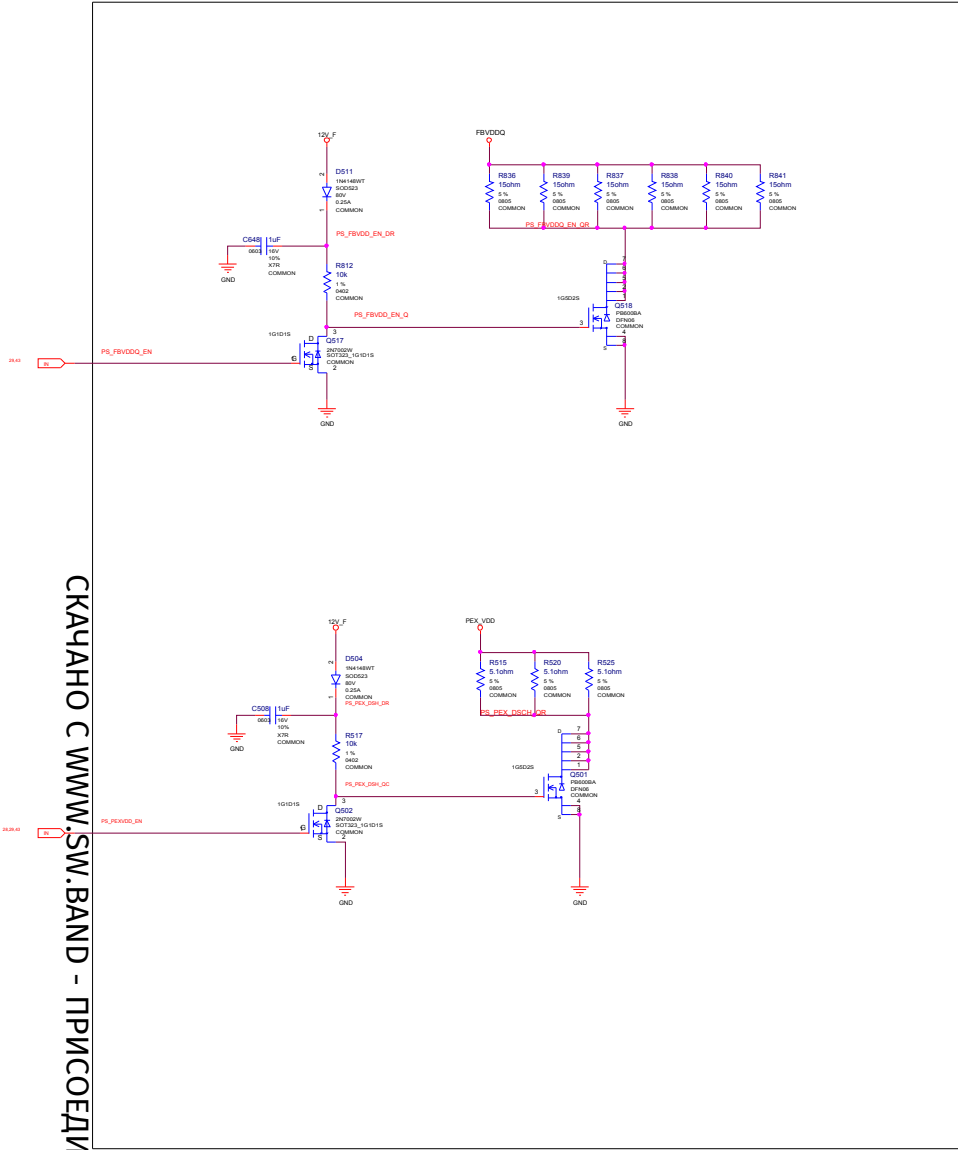
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

Route the trace to PCX Golden Finge

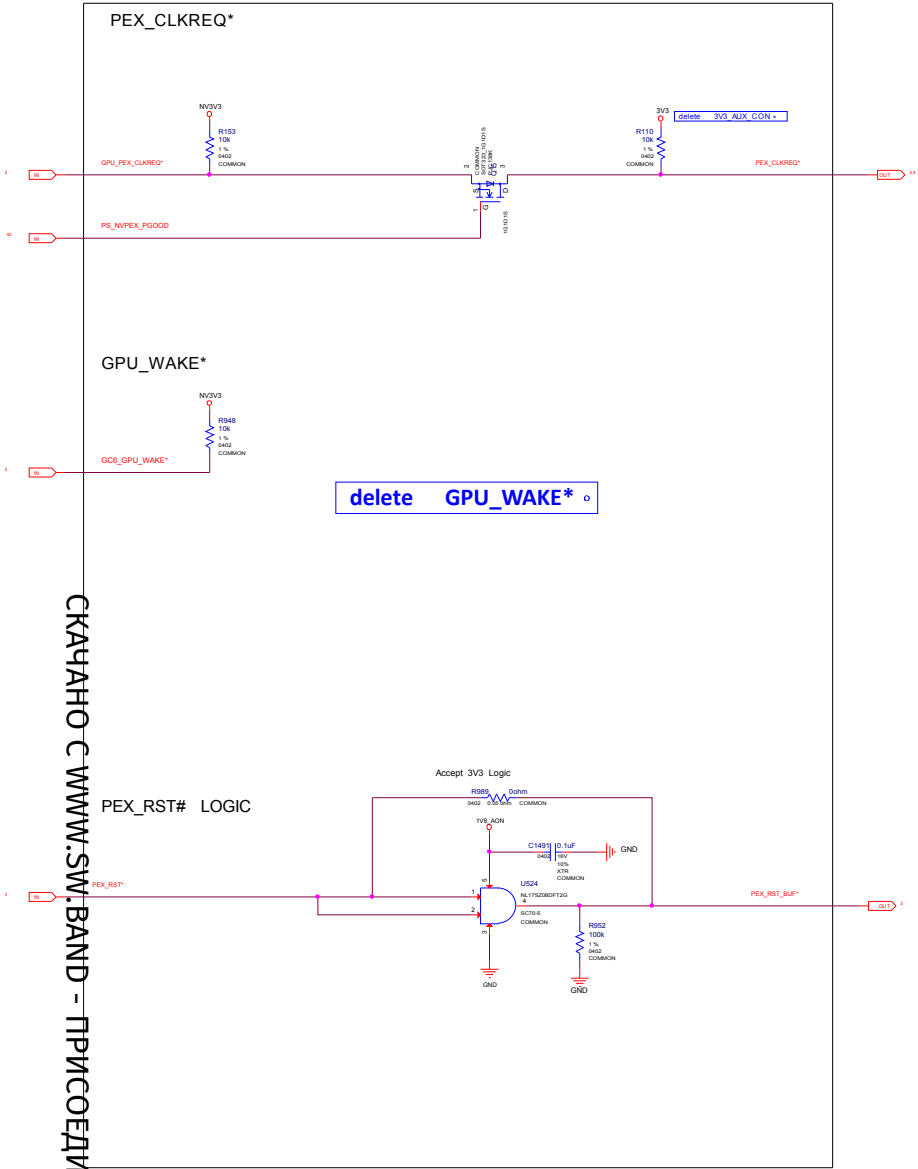


OPTIONS	PEX3V3_SENSE	PEX12V_SENSE	OTHER_12V_SENSE
Use Pre-Filter	Pre-Filter	Pre-Filter	Pre-Filter
Use INA3221	Voltage_Monitor	INA3221	INA3221
NO INA3221 NO Pre-Filter	Voltage_Monitor	Voltage_Monitor	N/A





СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

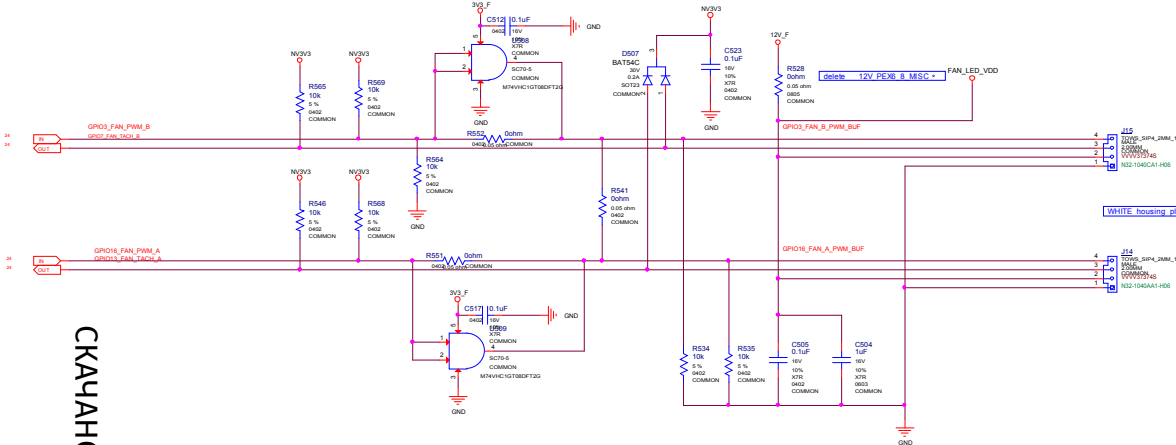
delete all unused

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

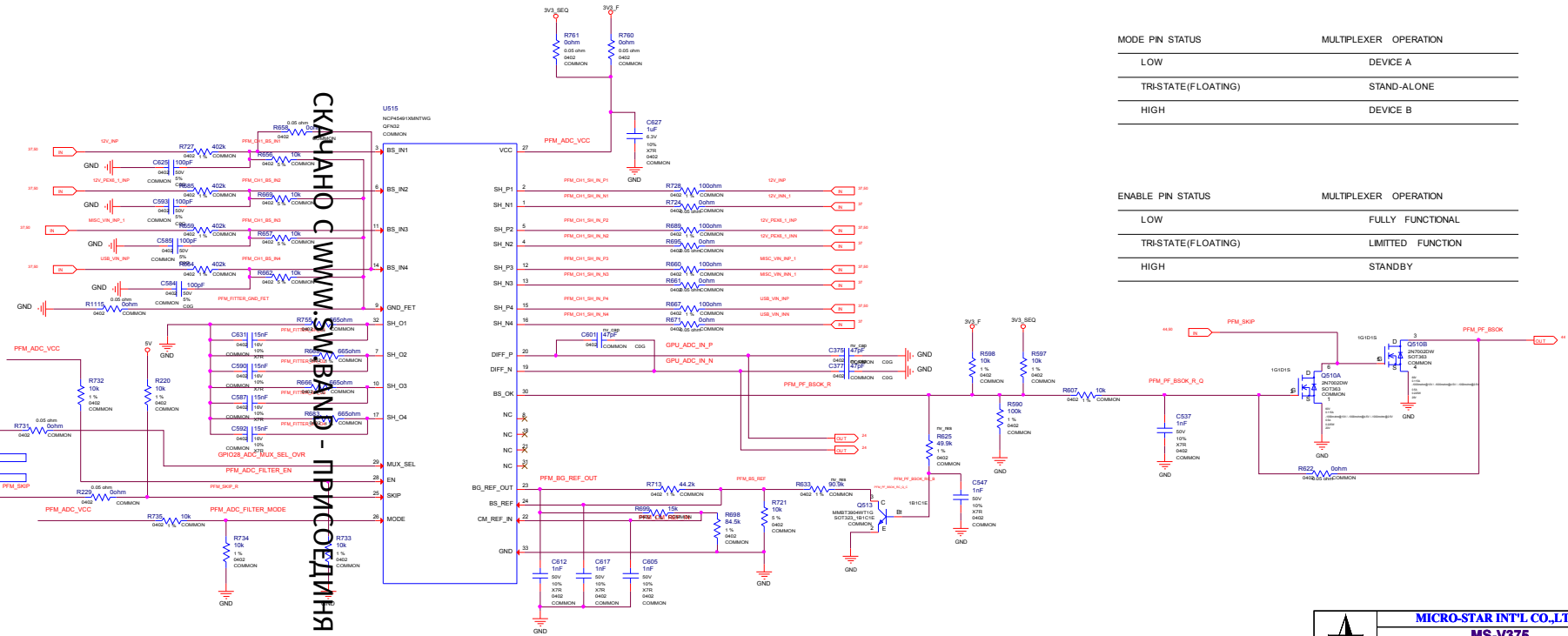
delete all unused

СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

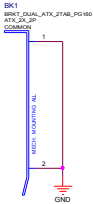
copied V373-2.0 housing PN and footprint °



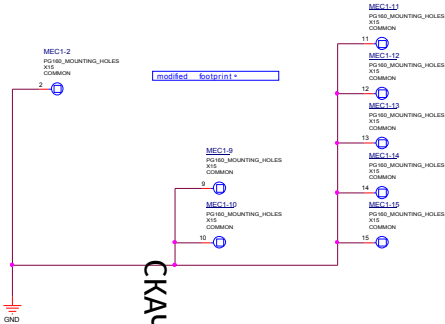
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



Brackets:

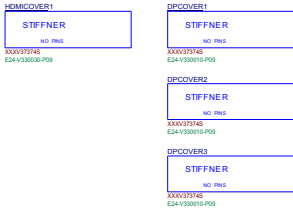
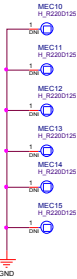


MOUNTING HOLES FOR HS:

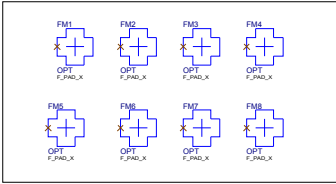
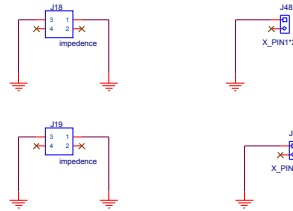


СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!

Mechanical Holes Symbol



Bracket Screw

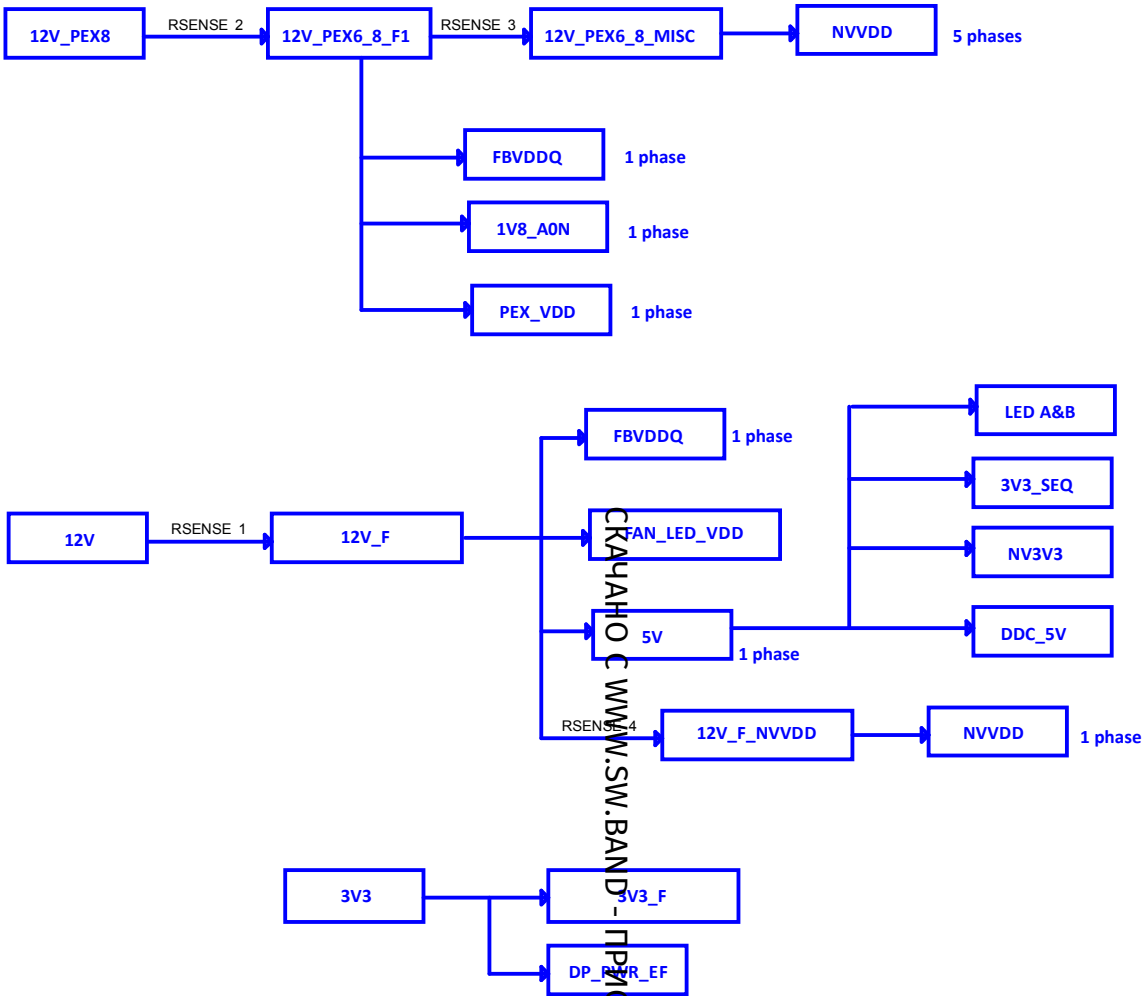


improved FBVDDQ PSU parts don't require a PTC

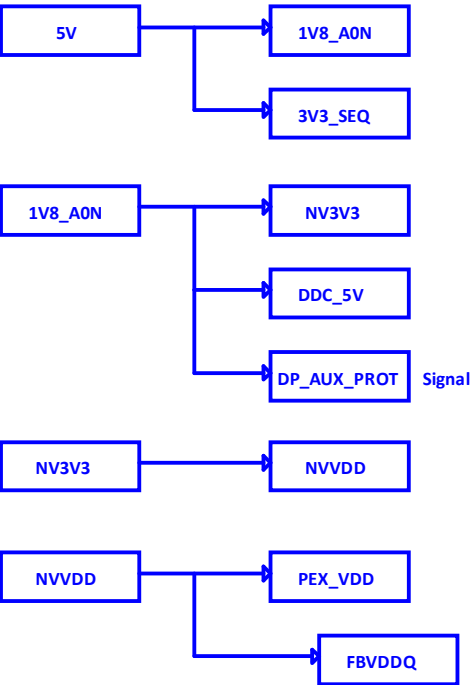
СКАЧАНО С WWW.SW.BAND - ПРИСОЕДИНЯЙСЯ!



MICRO-STAR INT'L CO.,LTD			
MS-V375			
Size	Document	Description	Rev
Custom	PTC		4.0
Date: Friday, November 09, 2018		Sheet	92 of 94



Power on Sequence



СКАЧАНО С WWW.SW.BAND-ПРИСОЕДИНЯЙСЯ!

