

MGPA-A  
MGPA-A.sch

ADC-A  
ADC-A.SCH

Channel A

MGPA-B  
MGPA-B.sch

ADC-B  
ADC-B.SCH

Channel B

MGPA-C  
MGPA-C.sch

ADC-C  
ADC-C.SCH

Channel C  
Module Temperature

MGPA-D  
MGPA-D.sch

ADC-D  
ADC-D.SCH

Channel D

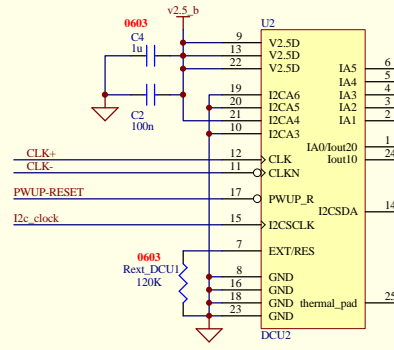
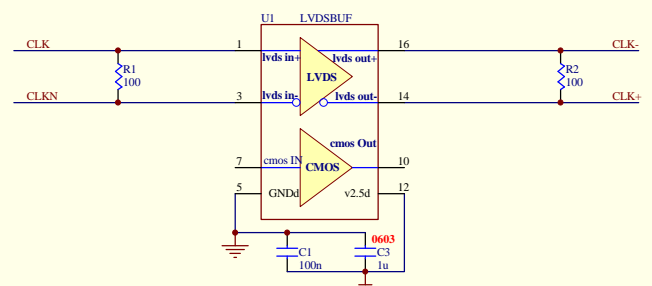
MGPA-E  
MGPA-E.sch

ADC-E  
ADC-E.SCH

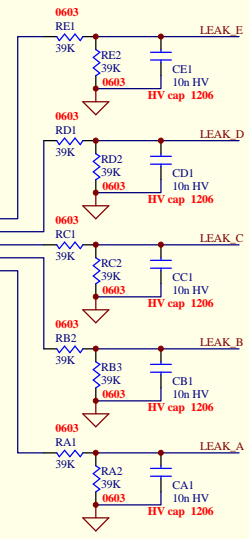
Channel E

VFE MB  
VFE MB.SCH

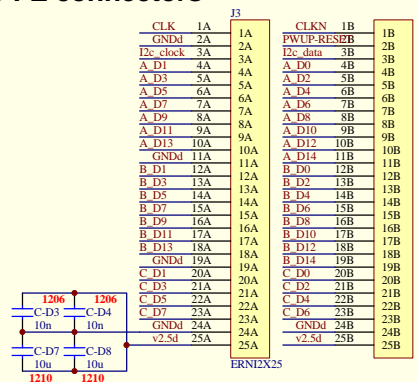
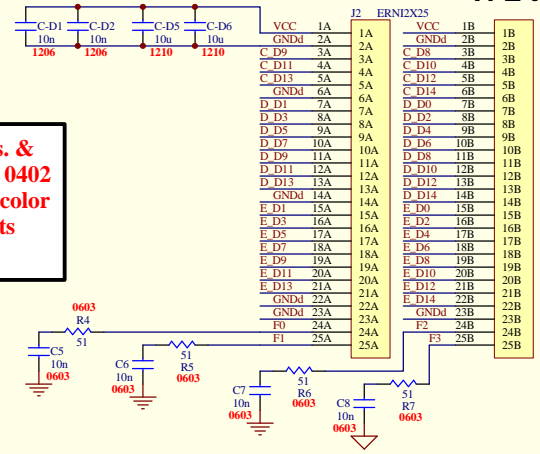
Footprints for Res. & Cap. different than 0402 are specified in red color near components



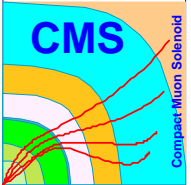
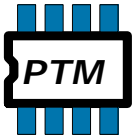
R & C near Mother Board Connector



VFE to FE connectors



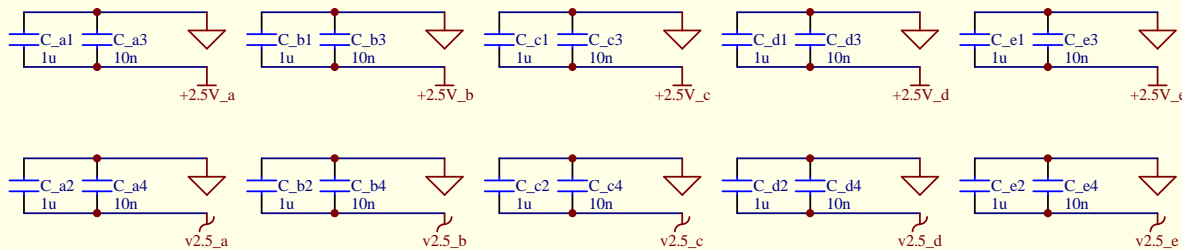
v1 VFE MGPA



## VFE to Mother Board

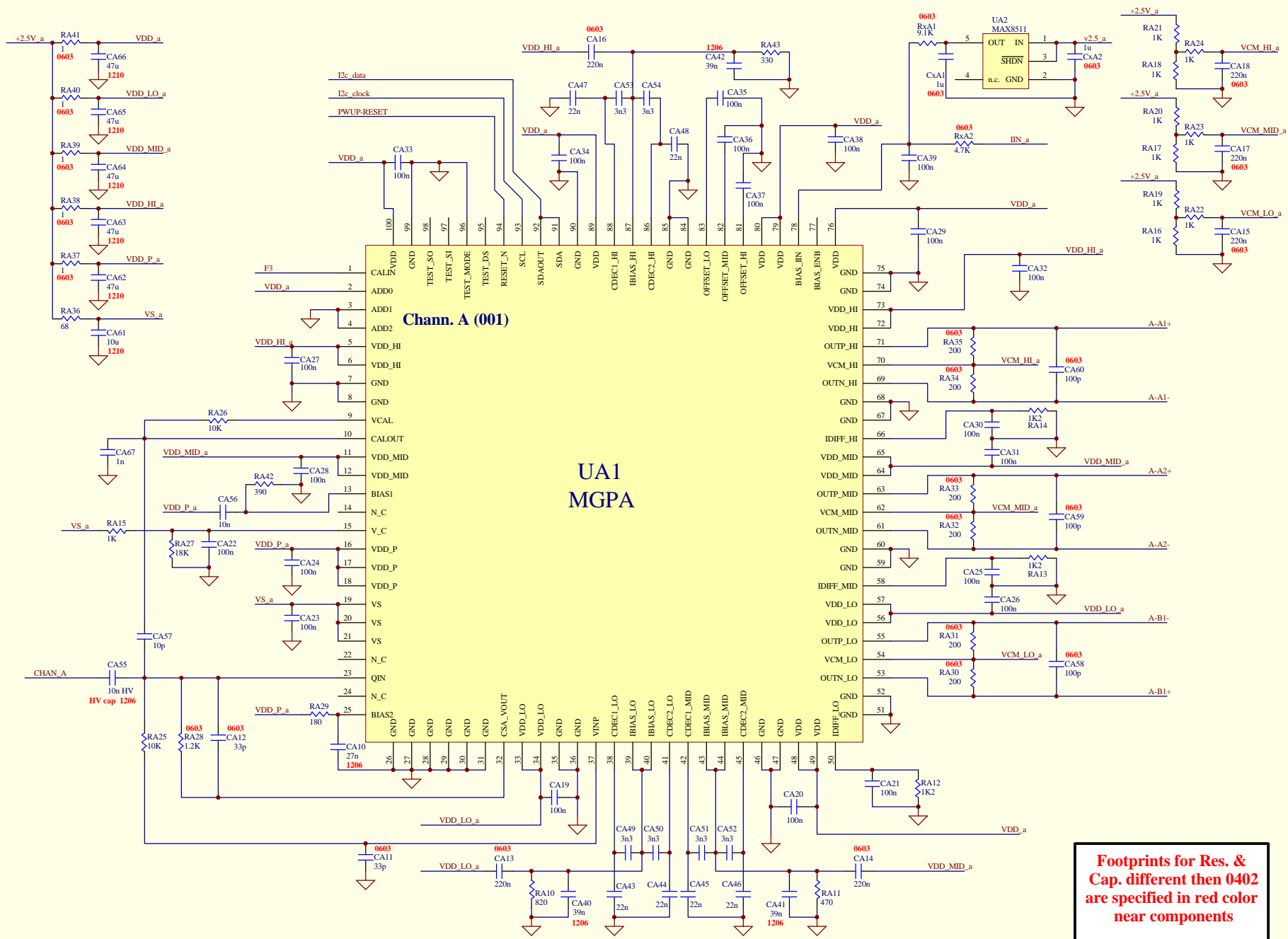
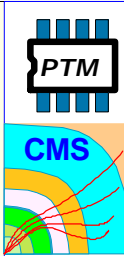
J1			
+2.5V_e	1	GND_e	2
v2.5_e	3	CHAN_E	4
GND_e	5	LEAK_E	6
GND_d	7	GND_e	8
+2.5V_d	9	GND_d	10
v2.5_d	11	CHAN_D	12
GND_d	13	LEAK_D	14
GND_c	15	GND_d	16
GND_c	17	GND_c	18
GND_c	19	GND_c	20
GND_c	21	TMP1	22
GND_c	23	TMP2	24
GND_c	25	GND_c	26
GND_c	27	GND_c	28
+2.5V_c	29	CHAN_C	30
v2.5_c	31	LEAK_C	32
GND_c	33	GND_c	34
GND_b	35	GND_b	36
+2.5V_b	37	CHAN_B	38
v2.5_b	39	LEAK_B	40
GND_b	41	GND_b	42
GND_a	43	GND_a	44
+2.5V_a	45	CHAN_A	46
v2.5_a	47	LEAK_A	48
GND_a	49	GND_a	50

SAMTEC 50 PIN

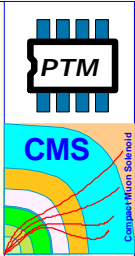


**Footprint Capacitors 0603**

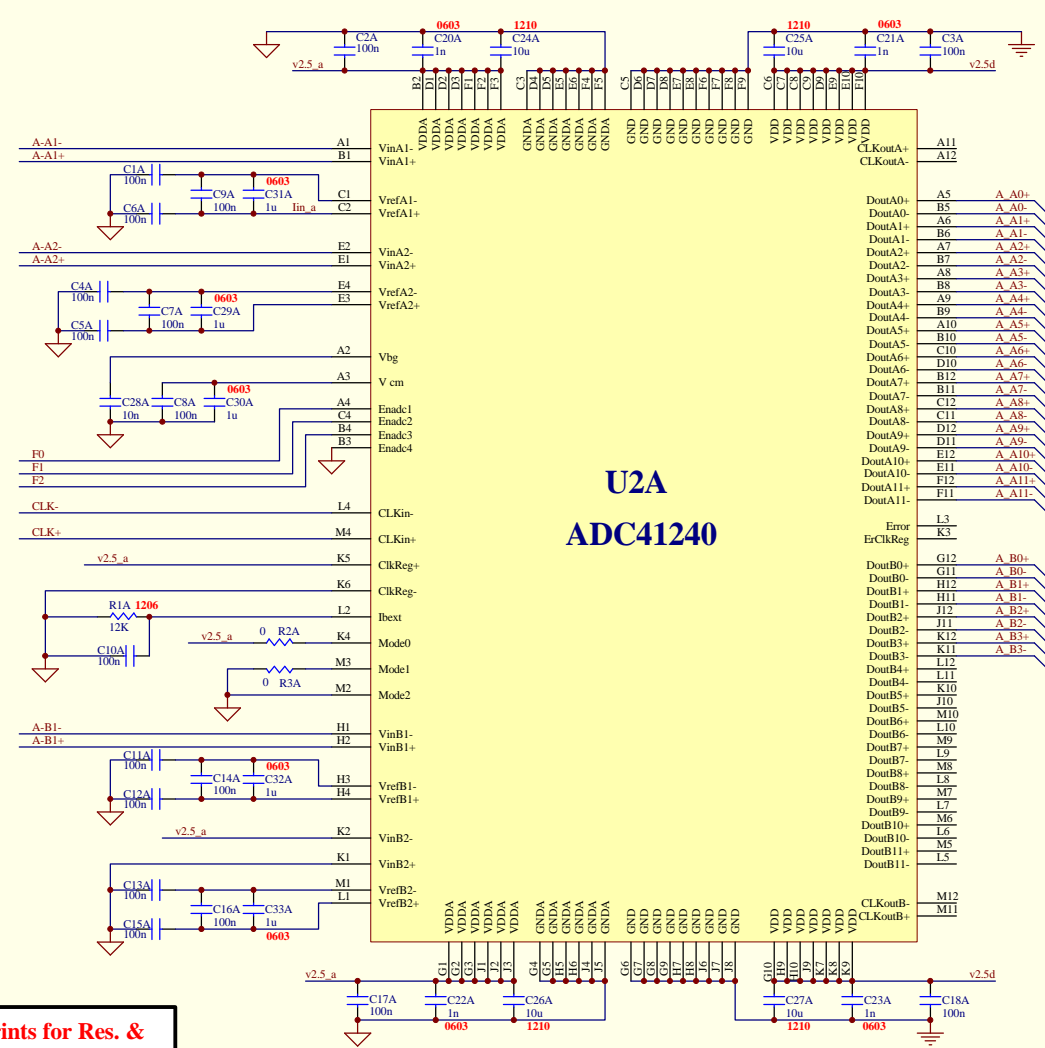
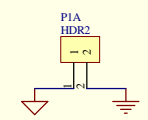
VFE MB



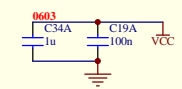
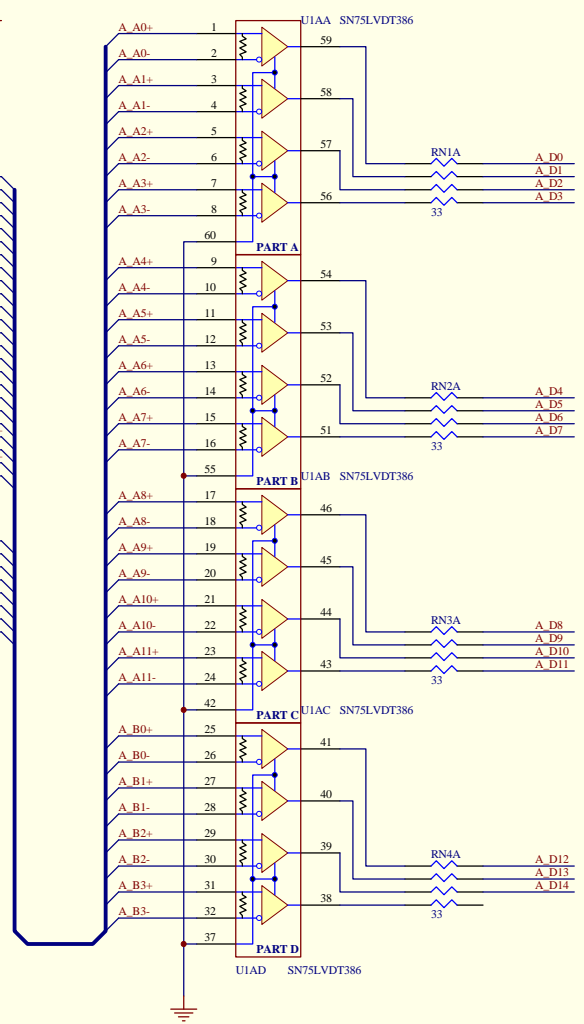
**VFE-MGPA Channel #A**



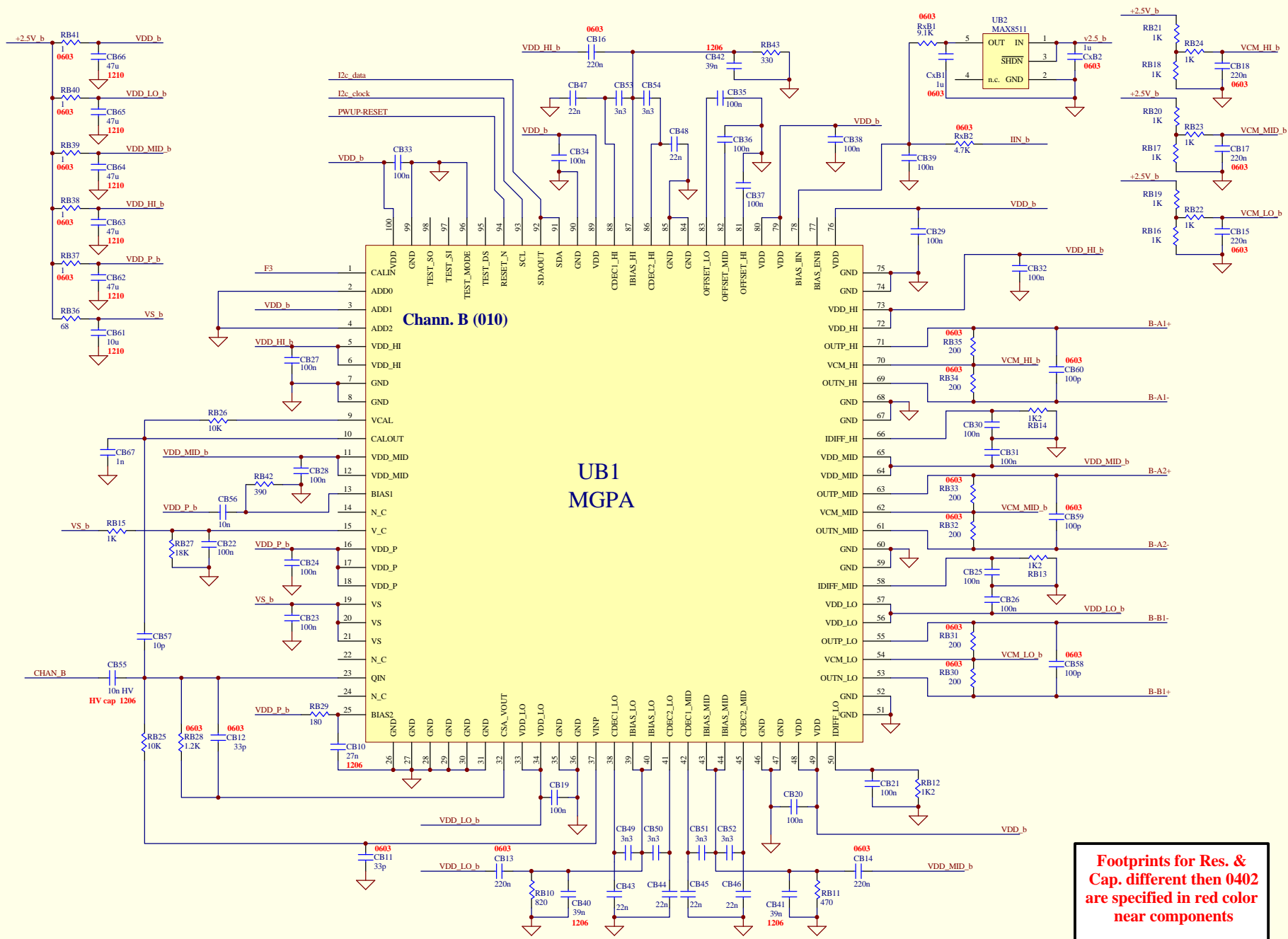
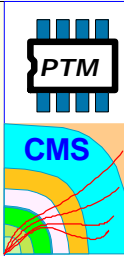
**Analog & Digital GND Connection**



**Footprints for Res. & Cap. different than 0402 are specified in red color near components**



**VFE-ADC Channel #A**

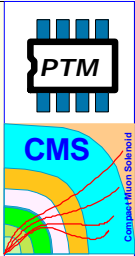


Chan. B (010)

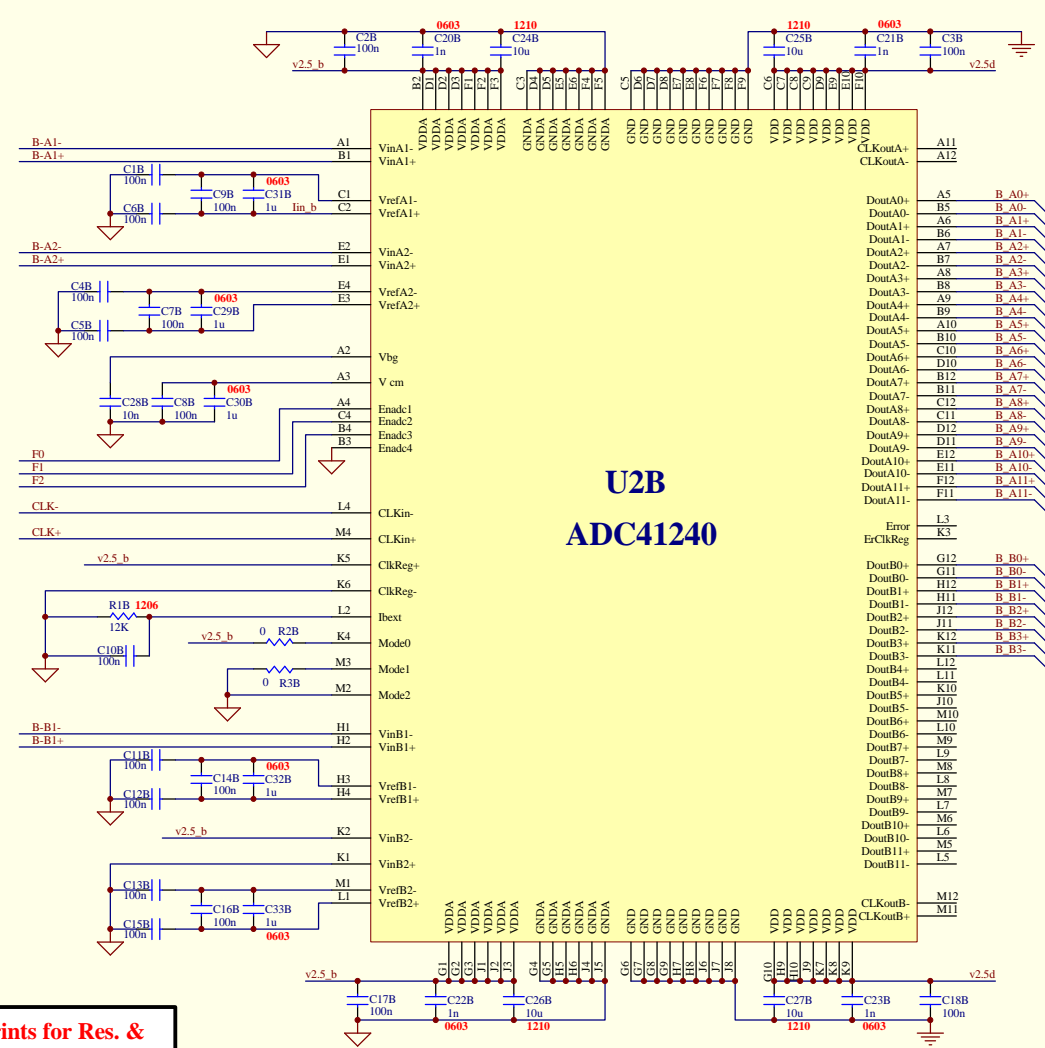
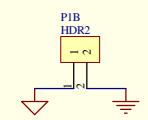
UBI  
MGPA

**Footprints for Res. & Cap. different then 0402 are specified in red color near components**

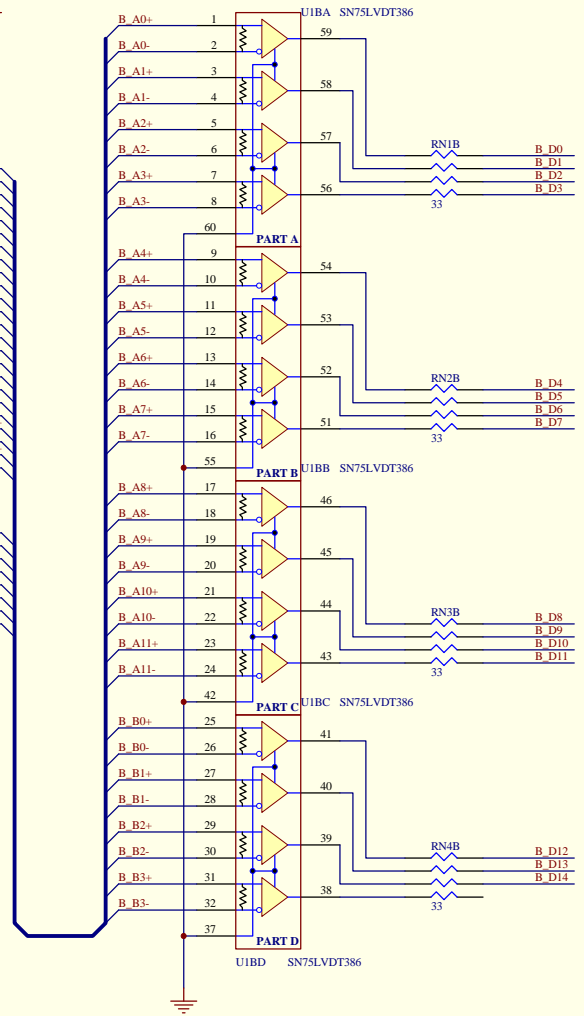
**VFE-MGPA Channel #B**



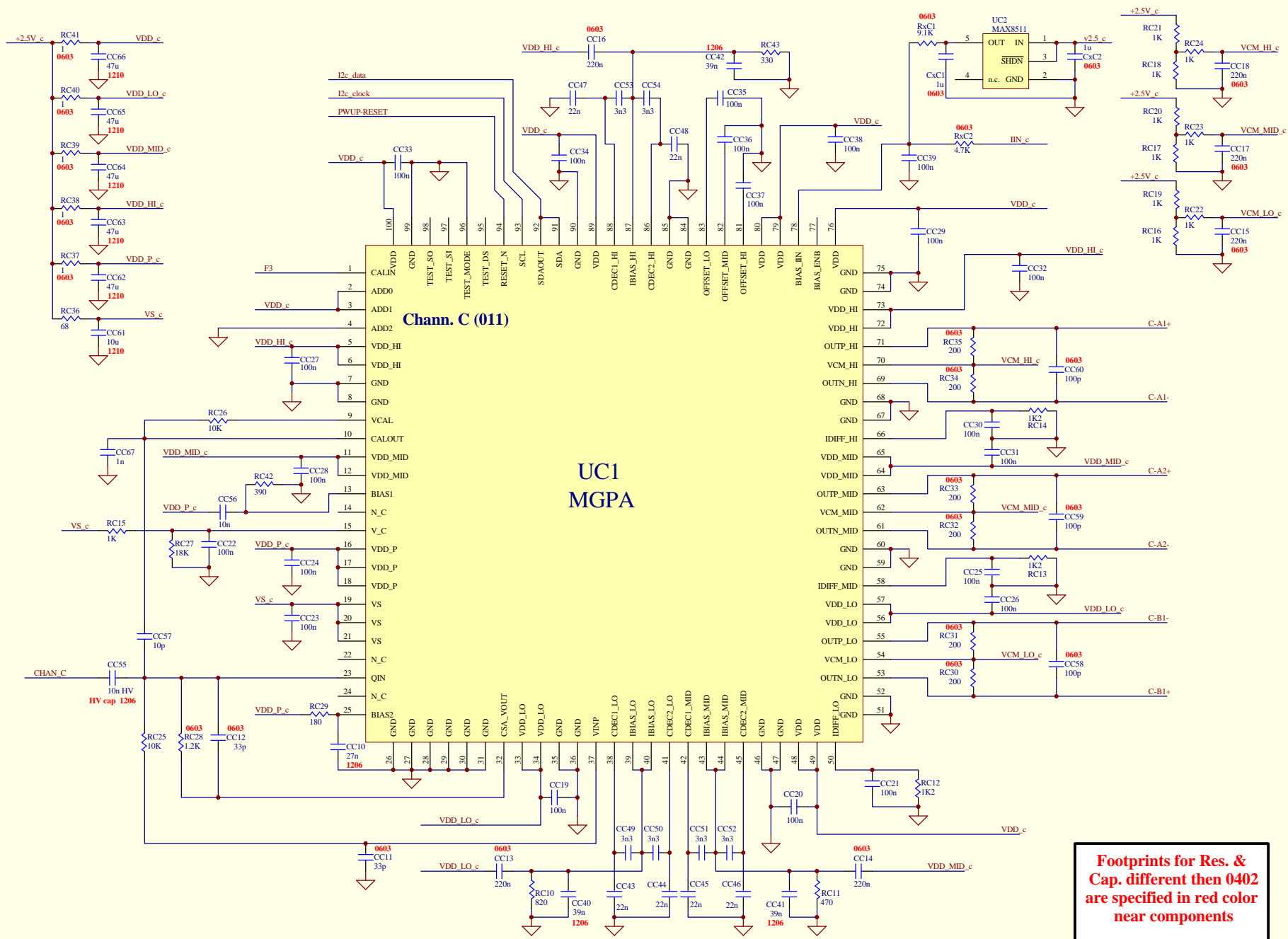
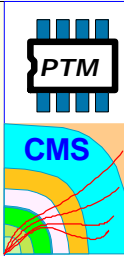
**Analog & Digital GND Connection**



**U2B  
ADC41240**



**VFE-ADC Channel #B**

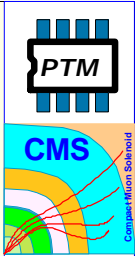


Chan. C (011)

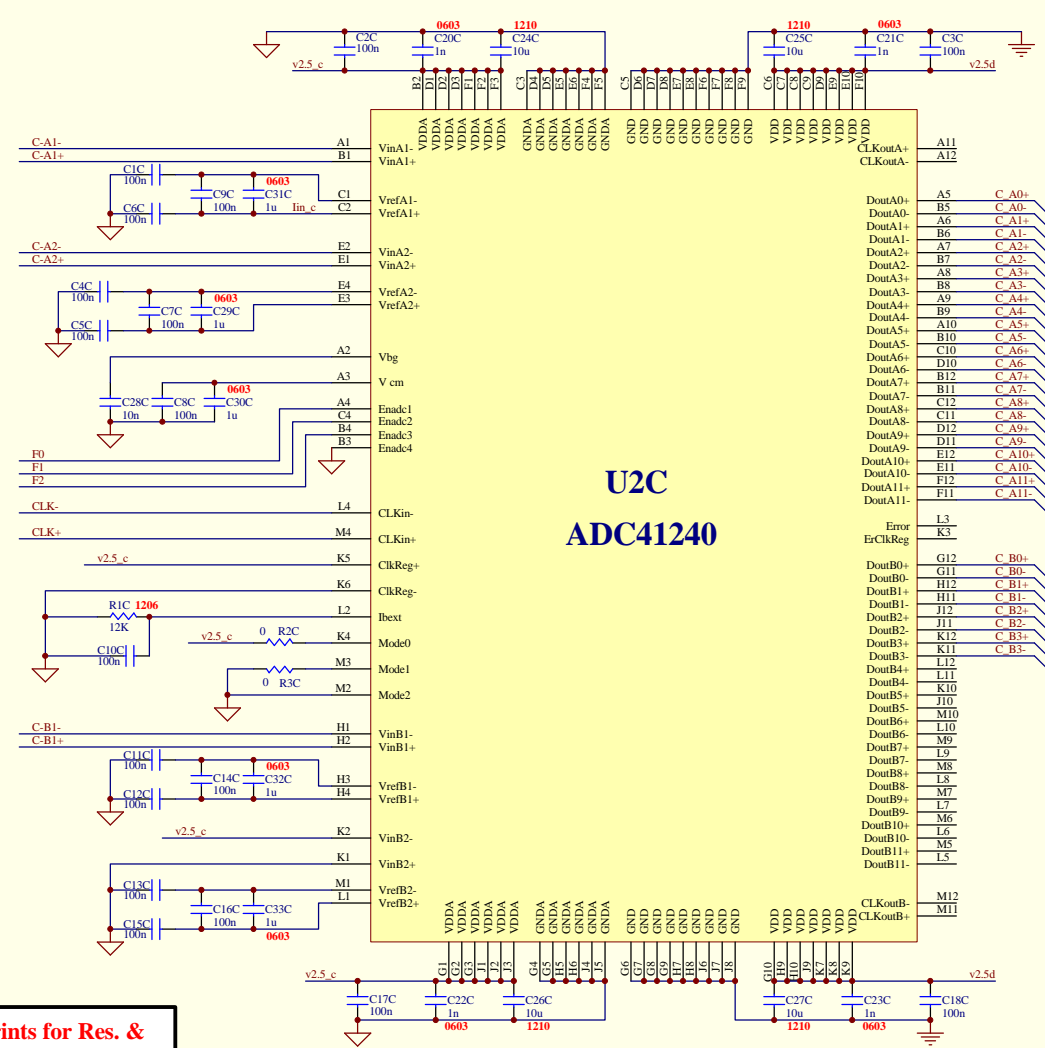
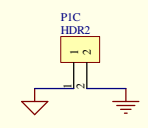
UC1  
MGPA

**Footprints for Res. & Cap. different then 0402 are specified in red color near components**

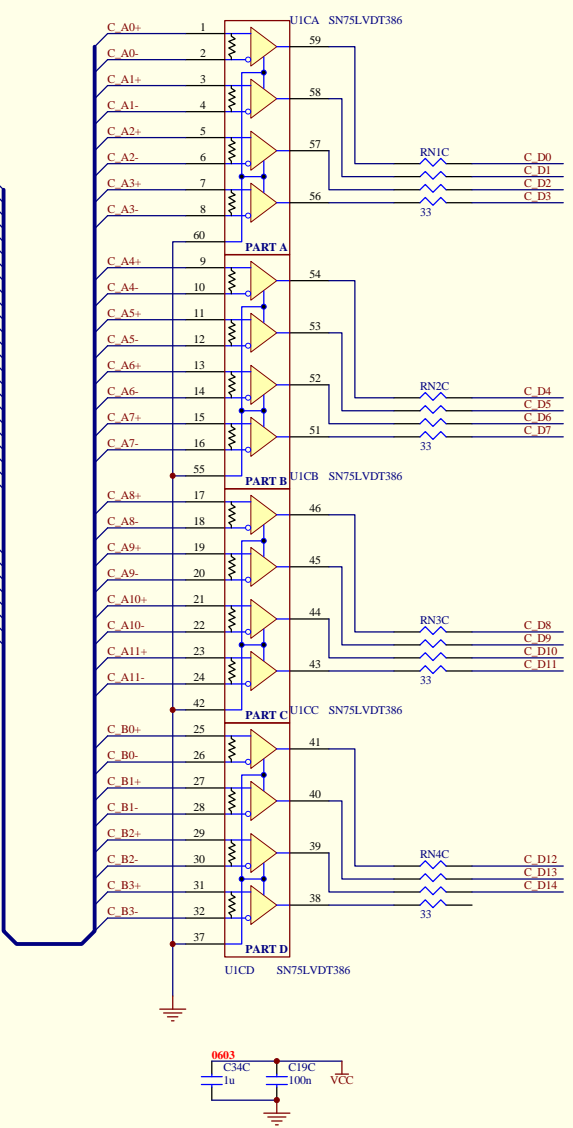
**VFE-MGPA Channel #C**



**Analog & Digital GND Connection**

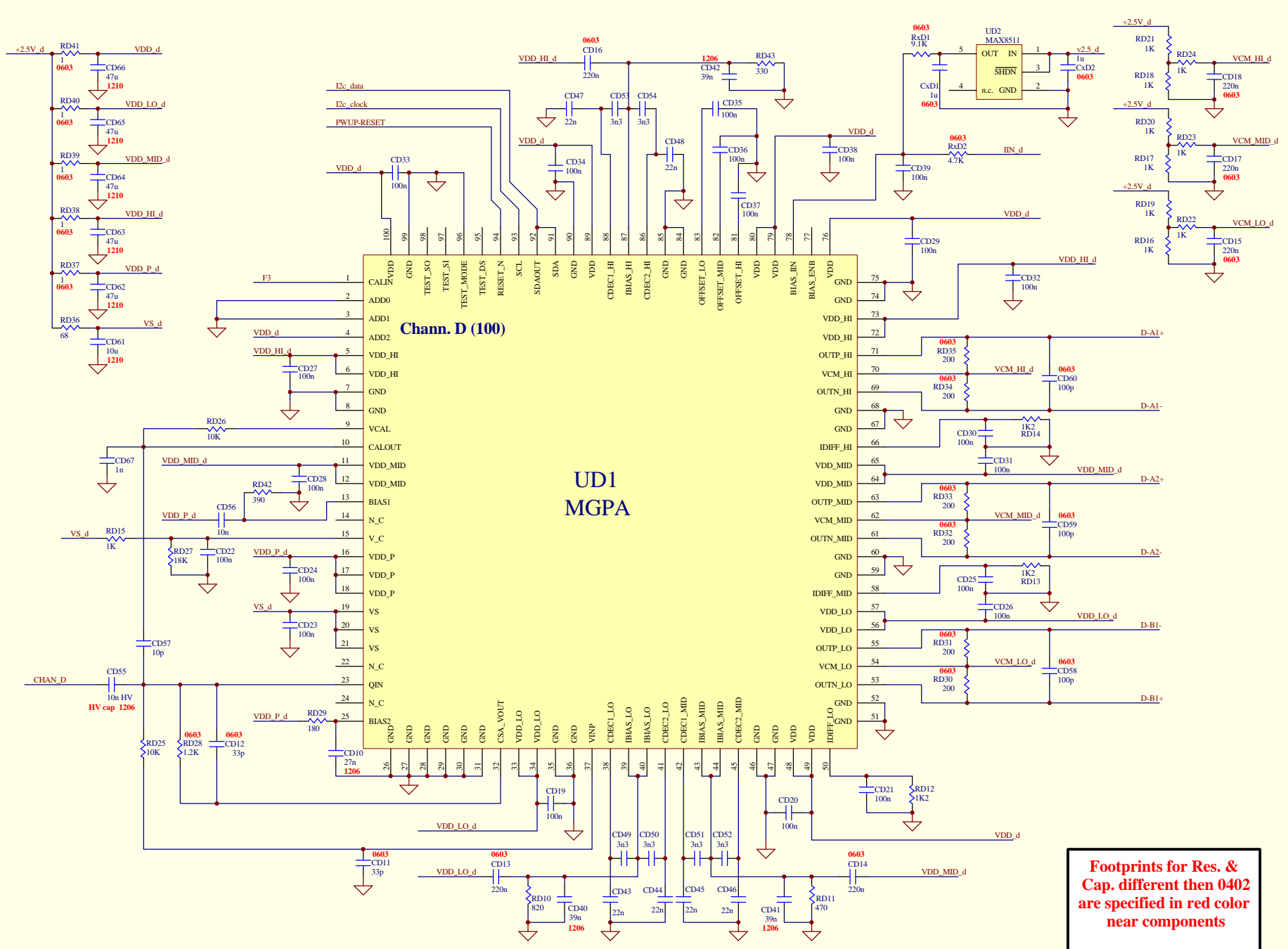
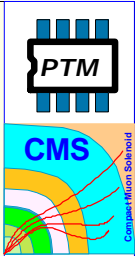


**Footprints for Res. & Cap. different than 0402 are specified in red color near components**



**VFE-ADC Channel #C**



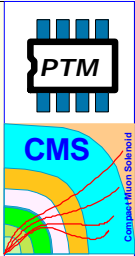


Chan. D (100)

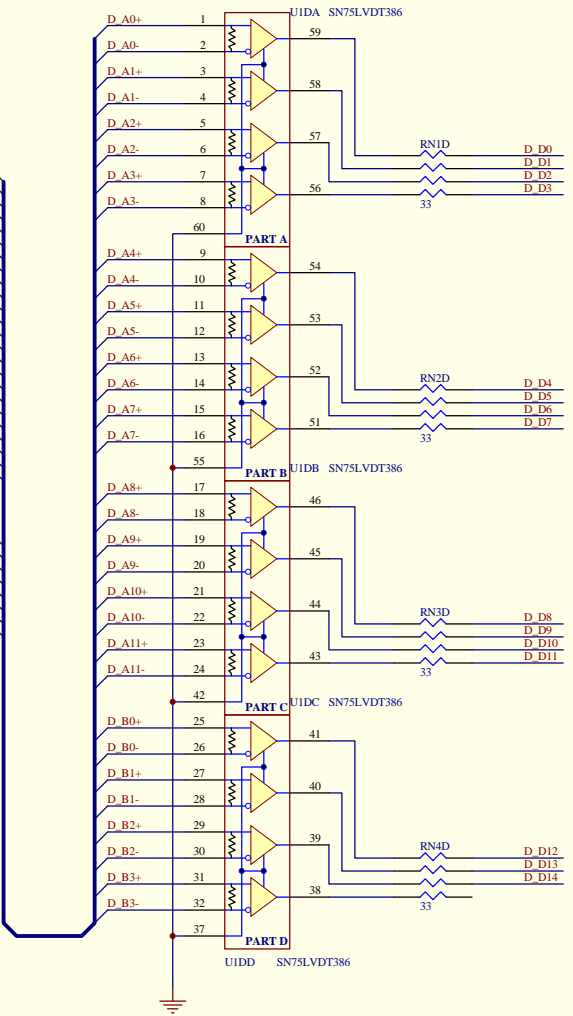
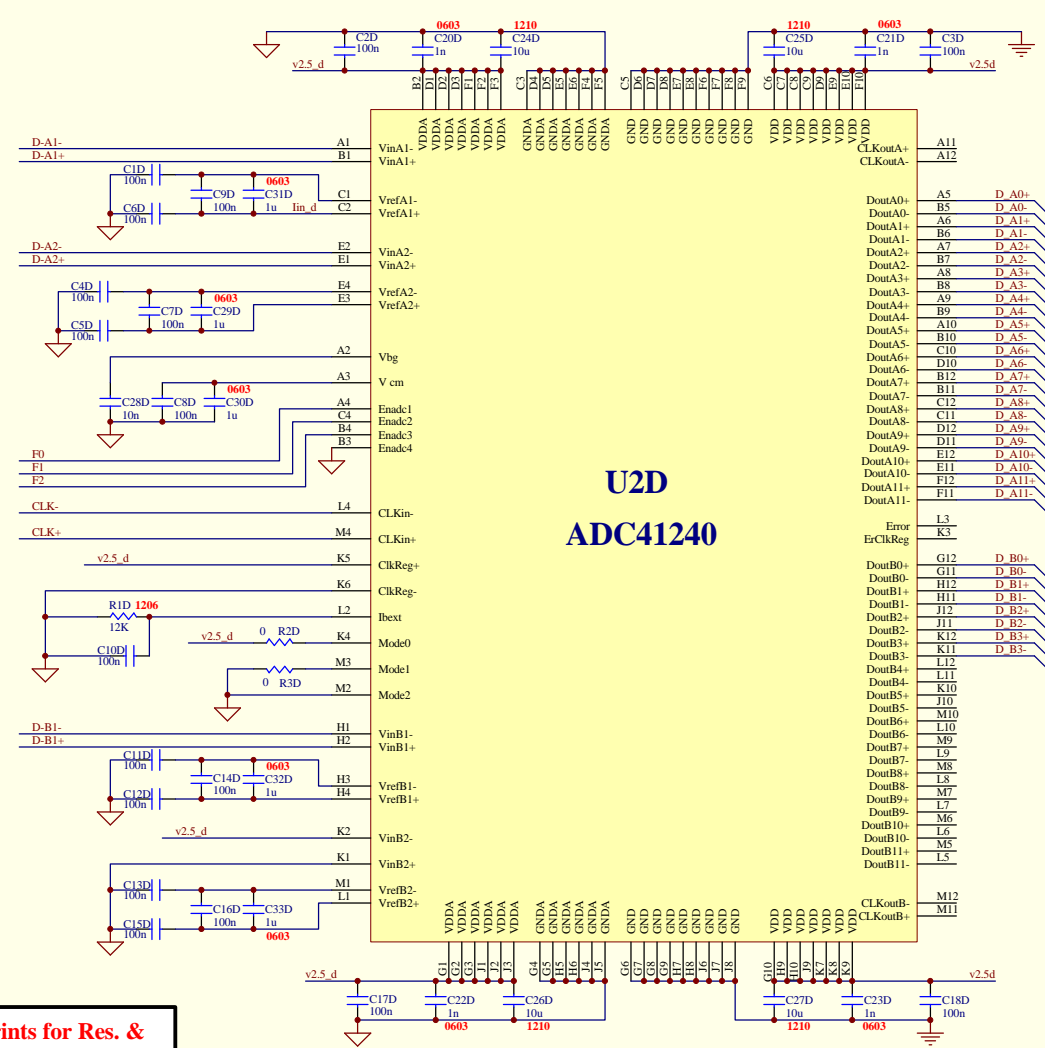
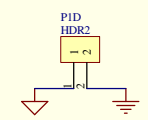
UD1  
MGPA

**Footprints for Res. & Cap. different then 0402 are specified in red color near components**

**VFE-MGPA Channel #D**

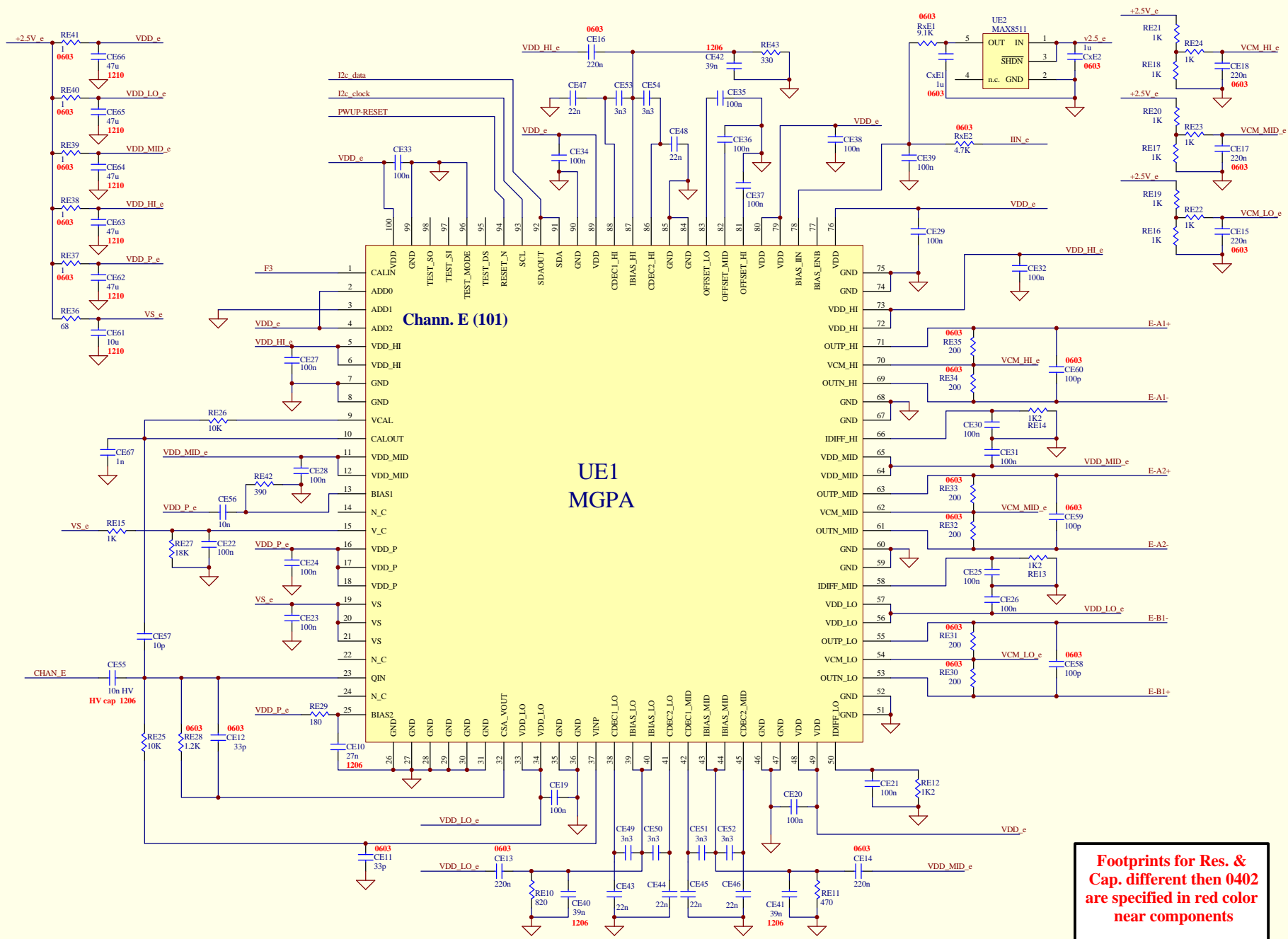
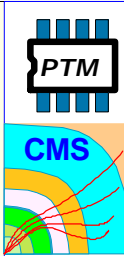


**Analog & Digital GND Connection**



**Footprints for Res. & Cap. different than 0402 are specified in red color near components**

**VFE-ADC Channel #D**

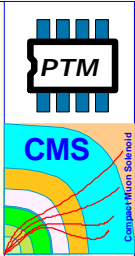


Chann. E (101)

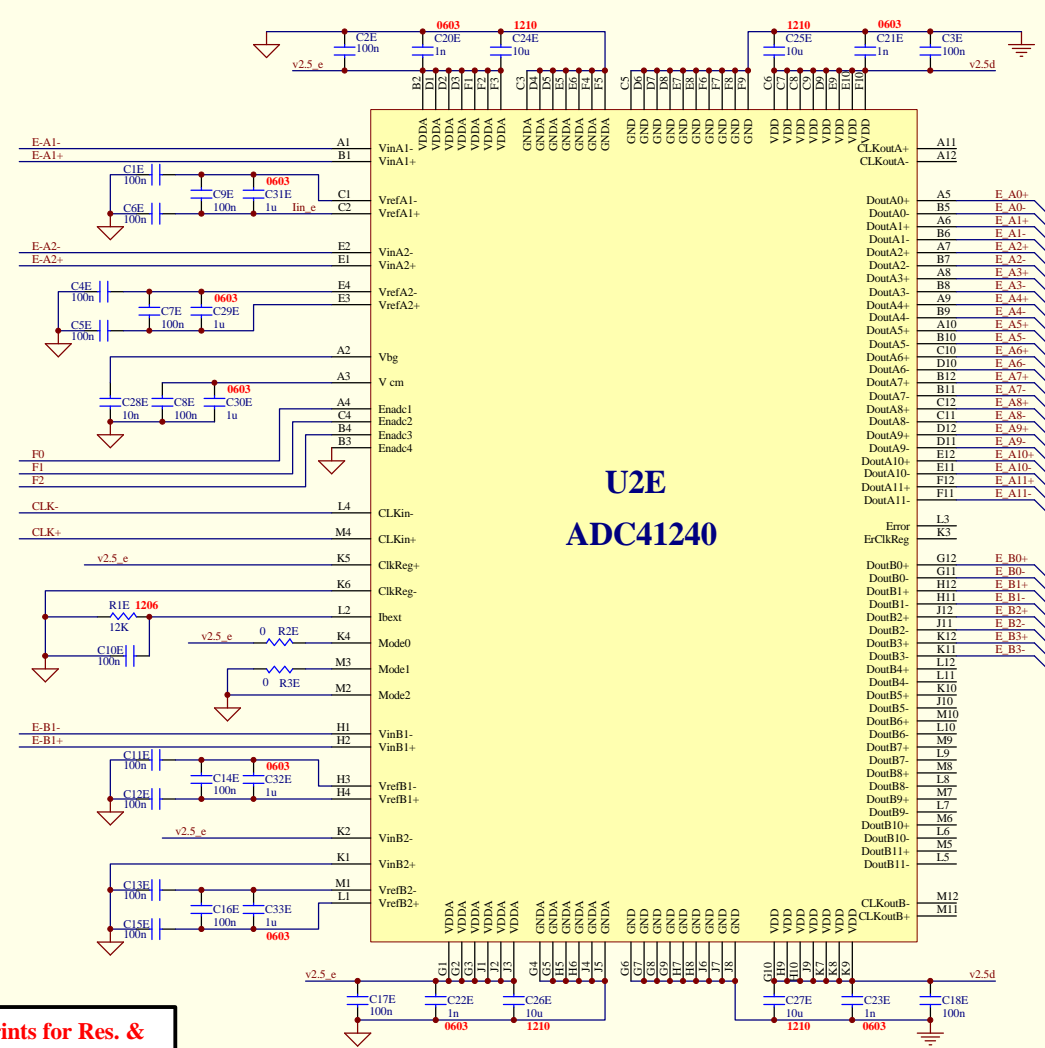
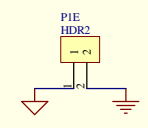
UE1  
MGPA

**Footprints for Res. & Cap. different then 0402 are specified in red color near components**

**VFE-MGPA Channel #E**

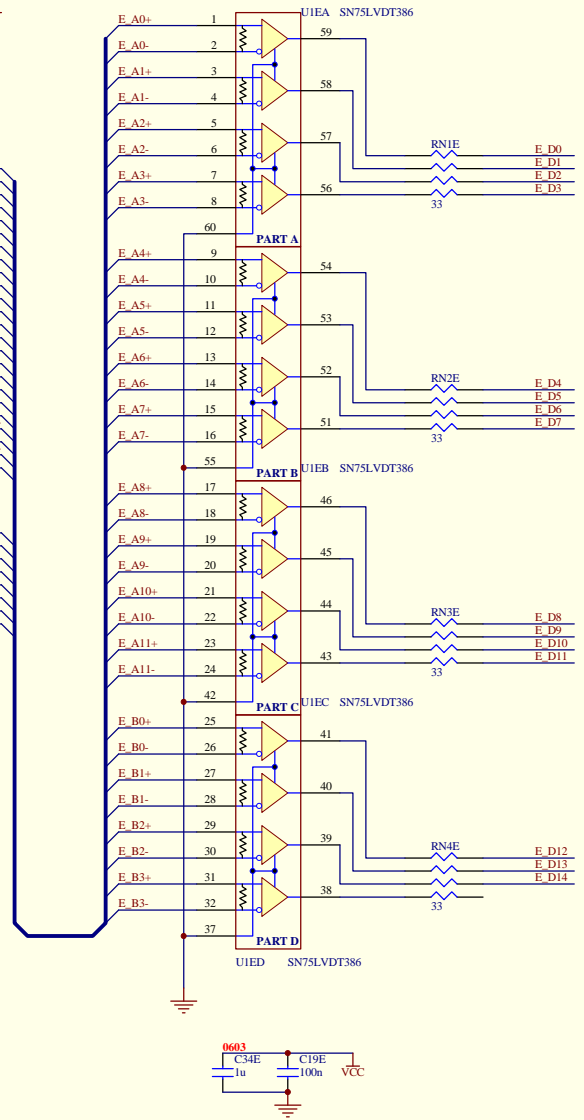


**Analog & Digital GND Connection**



**U2E  
ADC41240**

**Footprints for Res. & Cap. different than 0402 are specified in red color near components**



**VFE-ADC Channel #E**

## Bill of Material for one VFE\_MGPA

#	Used	Part Type	Designator	Footprint	Description
1	10	0	R2A R3A R2B R3B R2C R3C R2D R3D R2E R3E	402	from Stock R 5%
2	5	68	RA36 RB36 RC36 RD36 RE36	402	from Stock R 1%
3	2	100	R1 R2	402	from Stock R 1%
4	5	180	RA29 RB29 RC29 RD29 RE29	402	Stock R 1%
5	5	330	RA43 RB43 RC43 RD43 RE43	402	from Stock R 1%
6	5	390	RA42 RB42 RC42 RD42 RE42	402	Stock R 1%
7	5	470	RA11 RB11 RC11 RD11 RE11	402	from Stock R 1%
8	5	820	RA10 RB10 RC10 RD10 RE10	402	from Stock R 1%
9	51	1K	R3 RA15 RA16 RA17 RA18 RA19 RA20 RA21 RA22 RA23 RA24 RB15 RB16 RB17 RB18 RB19 RB20 RB21 RB22 RB23 RB24 RC15 RC16 RC17 RC18 RC19 RC20 RC21 RC22 RC23 RC24 RD15 RD16 RD17 RD18 RD19 RD20 RD21 RD22 RD23 RD24 RE15 RE16 RE17 RE18 RE19 RE20 RE21 RE22 RE23 RE24	402	from Stock R 1%
10	15	1K2	RA12 RA13 RA14 RB12 RB13 RB14 RC12 RC13 RC15 RD12 RD13 RD16 RE12 RE13 RE17	402	from Stock R 1%
11	10	10K	RA25 RA26 RB25 RB26 RC25 RC26 RD25 RD26 RE25 RE26	402	from Stock R 1%
12	5	18K	RA27 RB27 RC27 RD27 RE27	402	Stock R 1%
13	25	1	RA37 RA38 RA39 RA40 RA41 RB37 RB38 RB39 RB40 RB41 RC37 RC38 RC39 RC40 RC41 RD37 RD38 RD39 RD40 RD41 RE37 RE38 RE39 RE40 RE41	603	from / our Stock R 1%
14	30	200	RA30 RA31 RA32 RA33 RA34 RA35 RB30 RB31 RB32 RB33 RB34 RB35 RC30 RC31 RC32 RC33 RC34 RC35 RD30 RD31 RD32 RD33 RD34 RD35 RE30 RE31 RE32 RE33 RE34 RE35	603	from Stock R 1%
15	4	51	R4 R5 R6 R7	603	from our Stock R 1%
16	5	1.2K	RA28 RB28 RC28 RD28 RE28	603	from Stock R 1%
17	5	4.7K	RxA2 RxB2 RxC2 RxD2 RxE2	603	from Stock R 1%
18	5	9.1K	RxA1 RxB1 RxC1 RxD1 RxE1	603	from Stock R 1%
19	10	39K	RA1 RA2 RB2 RB3 RC1 RC2 RD1 RD2 RE1 RE2	603	from Stock R 1%
20	1	120K	Rext_DCU1	603	from Stock R 1%

21	5	12K	R1A R1B R1C R1D R1E	805 or 1206	Precision R Vishay 0.01% ???
22	1	220K	Rtmp	1206	from Stock R 0.5%
23	5	10p	CA57 CB57 CC57 CD57 CE57	402	Cap. muRata 2.5% 8-10-> weeks
24	5	1n	CA67 CB67 CC67 CD67 CE67	402	from Stock Capacitor 10%
25	30	3n3	CA49 CA50 CA51 CA52 CA53 CA54 CB49 CB50 CB51 CB52 CB53 CB54 CC49 CC50 CC51 CC52 CC53 CC54 CD49 CD50 CD51 CD52 CD53 CD54 CE49 CE50 CE51 CE52 CE53 CE54	402	from Stock Capacitor 10%
26	10	10n	C28A CA56 C28B CB56 C28C CC56 C28D CD56 C28E CE56	402	from Stock Capacitor 10%
27	30	22n	CA43 CA44 CA45 CA46 CA47 CA48 CB43 CB44 CB45 CB46 CB47 CB48 CC43 CC44 CC45 CC46 CC47 CC48 CD43 CD44 CD45 CD46 CD47 CD48 CE43 CE44 CE45 CE46 CE47 CE48	402	from Stock Capacitor 10%
29	202	100n	C1 C2 C1A C2A C3A C4A C5A C6A C7A C8A C9A C10A C1B C2B C3B C4B C5B C6B C7B C8B C9B C10B C1C C2C C3C C4C C5C C6C C7C C8C C9C C10C C1D C2D C3D C4D C5D C6D C7D C8D C9D C10D C1E C2E C3E C4E C5E C6E C7E C8E C9E C10E C11A C12A C13A C14A C15A C16A C17A C18A C19A C11B C12B C13B C14B C15B C16B C17B C18B C19B C11C C12C C13C C14C C15C C16C C17C C18C C19C C11D C12D C13D C14D C15D C16D C17D C18D C19D C11E C12E C13E C14E C15E C16E C17E C18E C19E CA19 CA20 CA21 CA22 CA23 CA24 CA25 CA26 CA27 CA28 CA29 CA30 CA31 CA32 CA33 CA34 CA35 CA36 CA37 CA38 CA39 CB19 CB20 CB21 CB22 CB23 CB24 CB25 CB26 CB27 CB28 CB29 CB30 CB31 CB32 CB33 CB34 CB35 CB36 CB37 CB38 CB39 CC19 CC20 CC21 CC22 CC23 CC24 CC25 CC26 CC27 CC28 CC29 CC30 CC31 CC32 CC33 CC34 CC35 CC36 CC37 CC38 CC39 CD19 CD20 CD21 CD22 CD23 CD24 CD25 CD26 CD27 CD28 CD29 CD30 CD31 CD32 CD33 CD34 CD35 CD36 CD37 CD38 CD39 CE19 CE20 CE21 CE22 CE23 CE24 CE25 CE26 CE27 CE28 CE29 CE30 CE31 CE32 CE33 CE34 CE35 CE36 CE37 CE38 CE39	402	from Stock Capacitor 10%
30	10	33p	CA11 CA12 CB11 CB12 CC11 CC12 CD11 CD12 CE11 CE12	603	from Stock Capacitor 5%
31	15	100p	CA58 CA59 CA60 CB58 CB59 CB60 CC58 CC59 CC60 CD58 CD59 CD60 CE58 CE59 CE60	603	from Stock Capacitor 5%
32	20	1n	C20A C21A C22A C23A C20B C21B C22B C23B C20C C21C C22C C23C	603	from Stock Capacitor 10%

			C20D C21D C22D C23D C20E C21E C22E C23E		
33	14	10n	C_a3 C_a4 C_b3 C_b4 C_c3 C_c4 C_d3 C_d4 C_e3 C_e4 C5 C6 C7 C8	603	from Stock Capacitor 10%
35	30	220n	CA13 CA14 CA15 CA16 CA17 CA18 CB13 CB14 CB15 CB16 CB17 CB18 CC13 CC14 CC15 CC16 CC17 CC18 CD13 CD14 CD15 CD16 CD17 CD18 CE13 CE14 CE15 CE16 CE17 CE18	603	Stock Capacitor 10%
36	52	1u	C29A C30A C31A C32A C33A C34A C29B C30B C31B C32B C33B C34B C29C C30C C31C C32C C33C C34C C29D C30D C31D C32D C33D C34D C29E C30E C31E C32E C33E C34E C3 C4 C_a1 C_a2 C_b1 C_b2 C_c1 C_c2 C_d1 C_d2 C_e1 C_e2 CxA1 CxA2 CxB1 CxB2 CxC1 CxC2 CxD1 CxD2 CxE1 CxE2	603	from Stock Capacitor 20%
37	4	10n	C-D1 C-D2 C-D3 C-D4	1206	from Stock Capacitor 10%
38	10	10n HV 500V	CA1 CA55 CB1 CB55 CC1 CC55 CD1 CD55 CE1 CE55	1206	Cap. HV 500V 10% from our Stock
28	5	27n	CA10 CB10 CC10 CD10 CE10	1206	Cap. muRata 5% 8-10-> weeks
34	15	39n	CA40 CA41 CA42 CB40 CB41 CB42 CC40 CC41 CC42 CD40 CD41 CD42 CE40 CE41 CE42	1206	Cap. muRata 5% 8-10-> weeks
39	29	10u	C24A C25A C26A C27A CA61 C24B C25B C26B C27B CB61 C24C C25C C26C C27C CC61 C24D C25D C26D C27D CD61 C24E C25E C26E C27E CE61 C-D5 C-D6 C-D7 C-D8	1210	from Stock Capacitor 20%
40	25	47u	CA62 CA63 CA64 CA65 CA66 CB62 CB63 CB64 CB65 CB66 CC62 CC63 CC64 CC65 CC66 CD62 CD63 CD64 CD65 CD66 CE62 CE63 CE64 CE65 CE66	1210	Cap. muRata 20% 6-> weeks
41	20	33	RN1A RN2A RN3A RN4A RN1B RN2B RN3B RN4B RN1C RN2C RN3C RN4C RN1D RN2D RN3D RN4D RN1E RN2E RN3E RN4E	R4EXB	Resistor Network Stock 5%
42	5	MGPA	UA1 UB1 UC1 UD1 UE1	LQFP100	MGPA
43	5	ADC41240	U2A U2B U2C U2D U2E	L-FPBGA-144	ADC

44	5	SN75LVDT386	U1A U1B U1C U1D U1E from AVNET or EBV 5-6 weeks	DGG(R-PDSO-G**)	SN75LVDT386
45	5	MAX8511	UA2 UB2 UC2 UD2 UE2 from MAXIM 2 weeks	SC70	Low-Dropout 120mA Linear Regulator
46	1	LVDS BUFF	U1	SSOP-16	LVDS BUFF
47	1	DCU2	U2	LPCC-24	DCU2
48	1	SAMTEC 50 PIN	J1	SAMTEC 50 PIN	SAMTEC 50pin from our Stock
49	2	ERNI2X25	J2 J3	ERNI2X25 SMD BENT	ERNI2X25 from CERN Stock