

ET30000-5
ET25000-5
ET20000-5
ET15000-5
ET10000-5
ET5000
ET3500
ET2500

SOLID STATE FM TRANSMITTER

Index..... 2

Revision..... 3

Block diagrams..... 4

 6-WAY DUMMY LOAD..... 4

 5-WAY DUMMY LOAD..... 5

 4-WAY DUMMY LOAD..... 6

 6-WAY COMBINER..... 7

 5-WAY COMBINER..... 8

 4-WAY COMBINER..... 9

 CONTROL UNIT IN ET30000-5 ET25000-5 ET20000-5..... 10

 CONTROL UNIT AND 3-WAY COMBINER..... 11

 CONTROL UNIT AND 2-WAY COMBINER..... 12

 E5000 AMPLIFIER..... 13

 E3500 AMPLIFIER..... 16

 E2500 AMPLIFIER..... 19

 ETG20 EXCITER..... 22

Schematic drawings..... 24

 E3K 6A044..... 24

 XNK CA452..... 26

 CB300A233..... 28

 E3K NA041..... 30

 E3K 7A044..... 32

 E3K FA044..... 34

 E15K7A055..... 37

 TG3K8A867..... 41

 XNK 2A457..... 46

 E10K5A070..... 49

 E10K3A076..... 52

 E20K0A912..... 54

 E30K0A065..... 56

 TG5K1A880..... 58

 E3K 3A(B)044..... 62

 TG5K4A(B)881..... 64

 TG2U0A899..... 66

 TG5K3A881..... 73

 TG5K2A881..... 76

 XNK BA452..... 78

 TG2U1A899..... 80

 TG2U2A899..... 86

 TG5K0A899 TG3KFA862 TG3KGA862..... 92

 P5780A279..... 96

 P5781A279 MAMP0A221..... 100

 AMPI0A332..... 103

 TG2UNA890..... 105

 2PCB0521 TG3KEA862 TG3KHA863..... 107

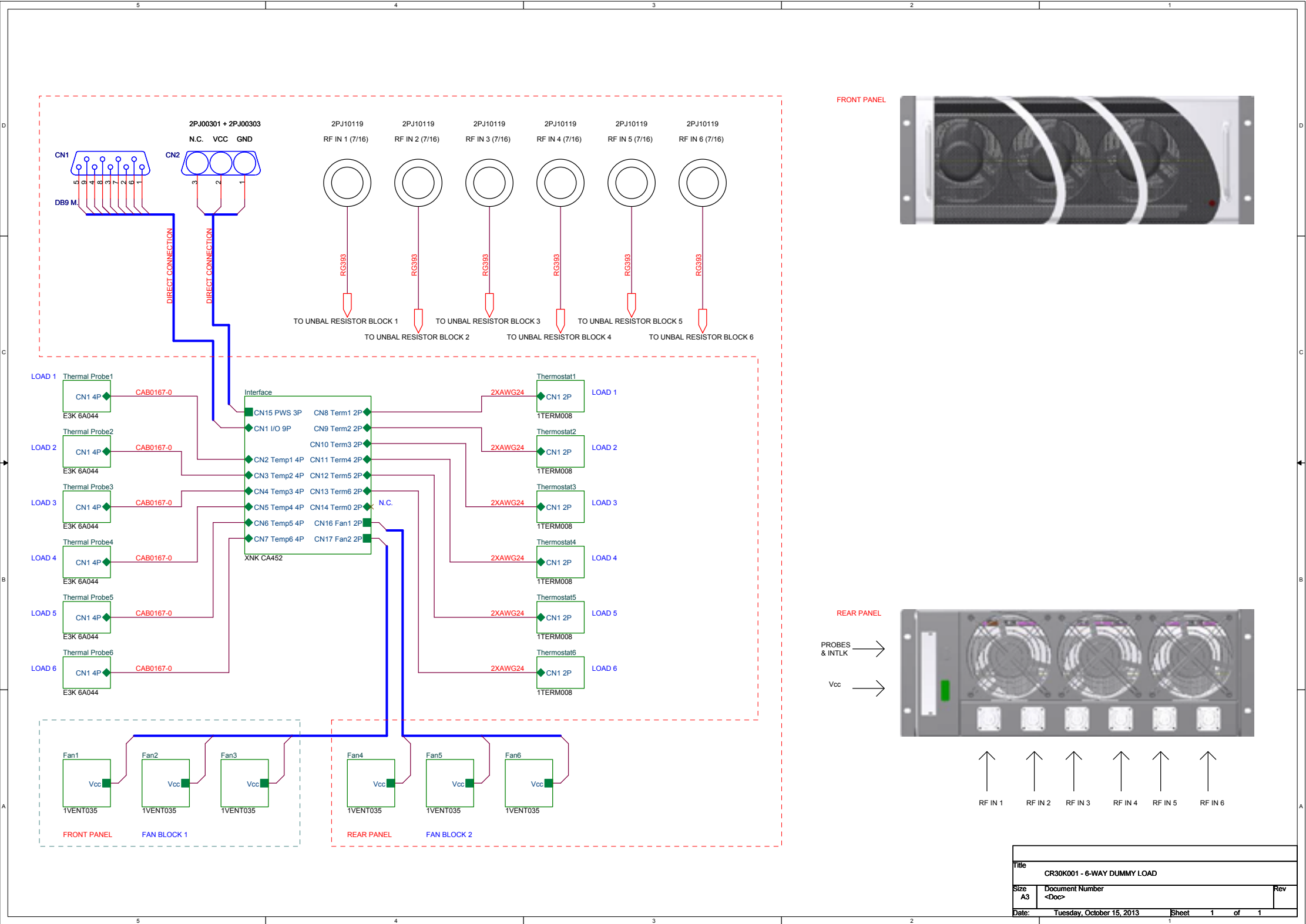
Table of boards in the single device..... 110

Revision

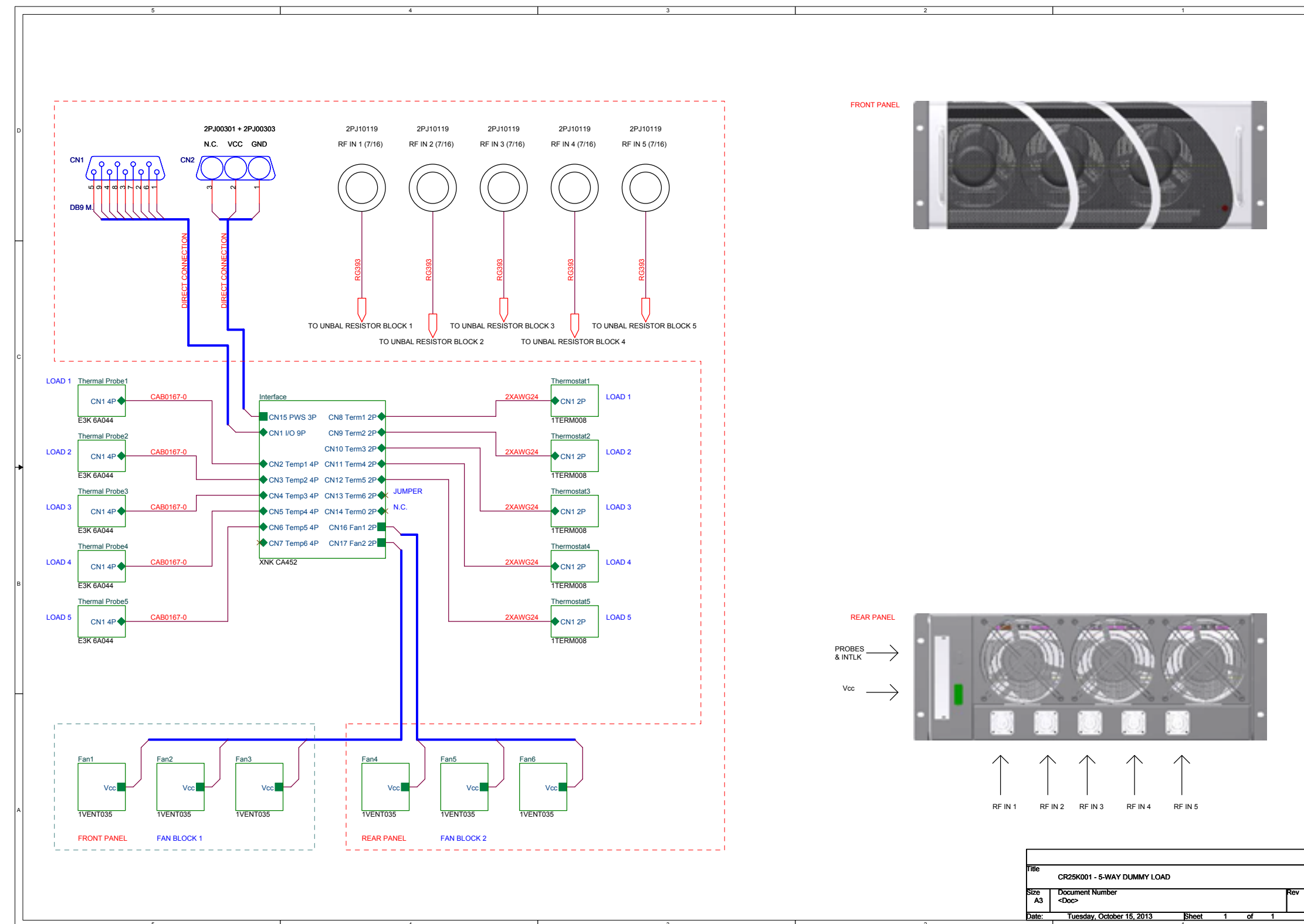
N°	Date	Description
00	15/01/2014	First release

Block diagrams

6-WAY DUMMY LOAD



5-WAY DUMMY LOAD



5 4 3 2 1

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

201

202

203

204

205

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

238

239

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288

289

290

291

292

293

294

295

296

297

298

299

300

301

302

303

304

305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

322

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

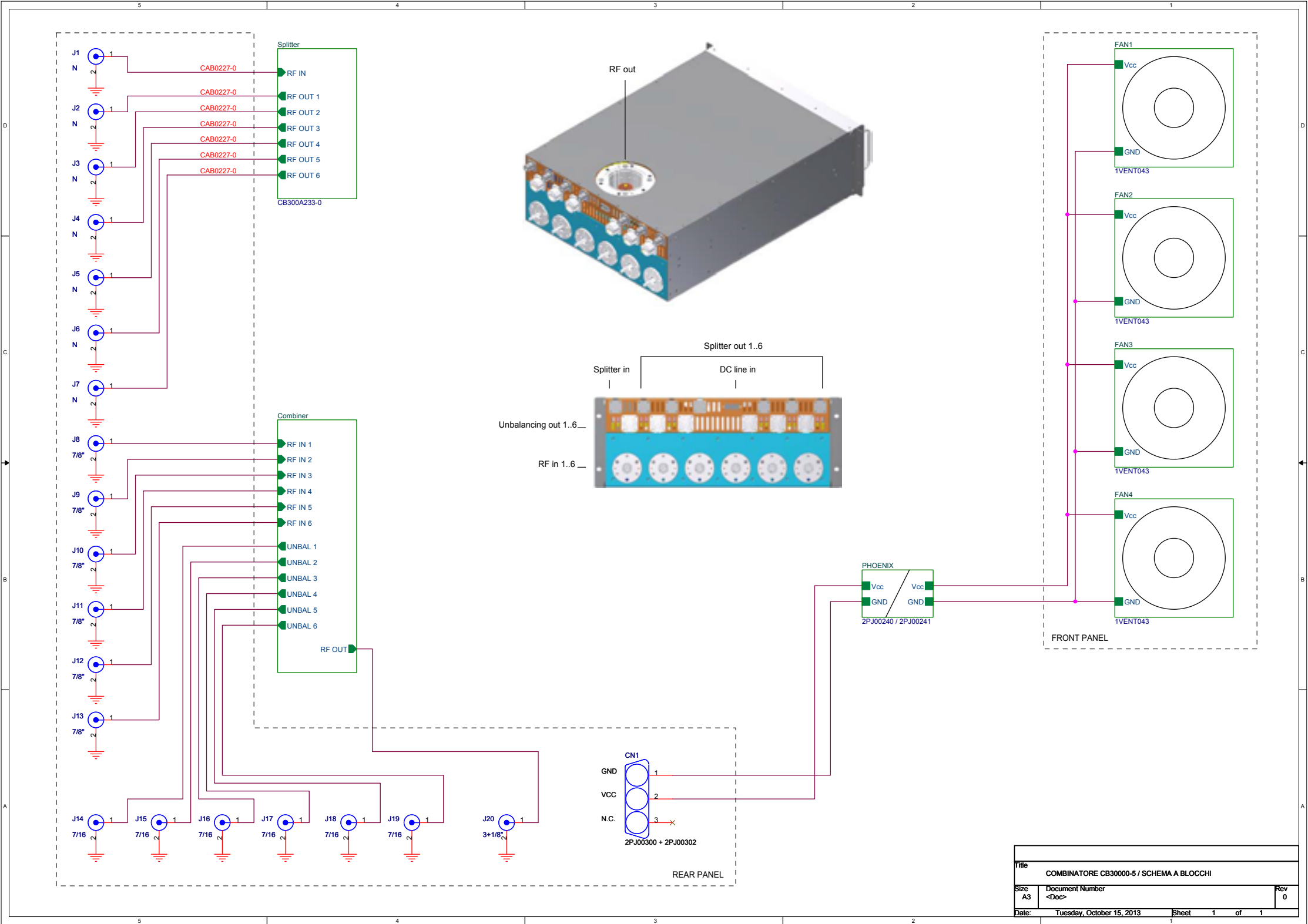
518

519

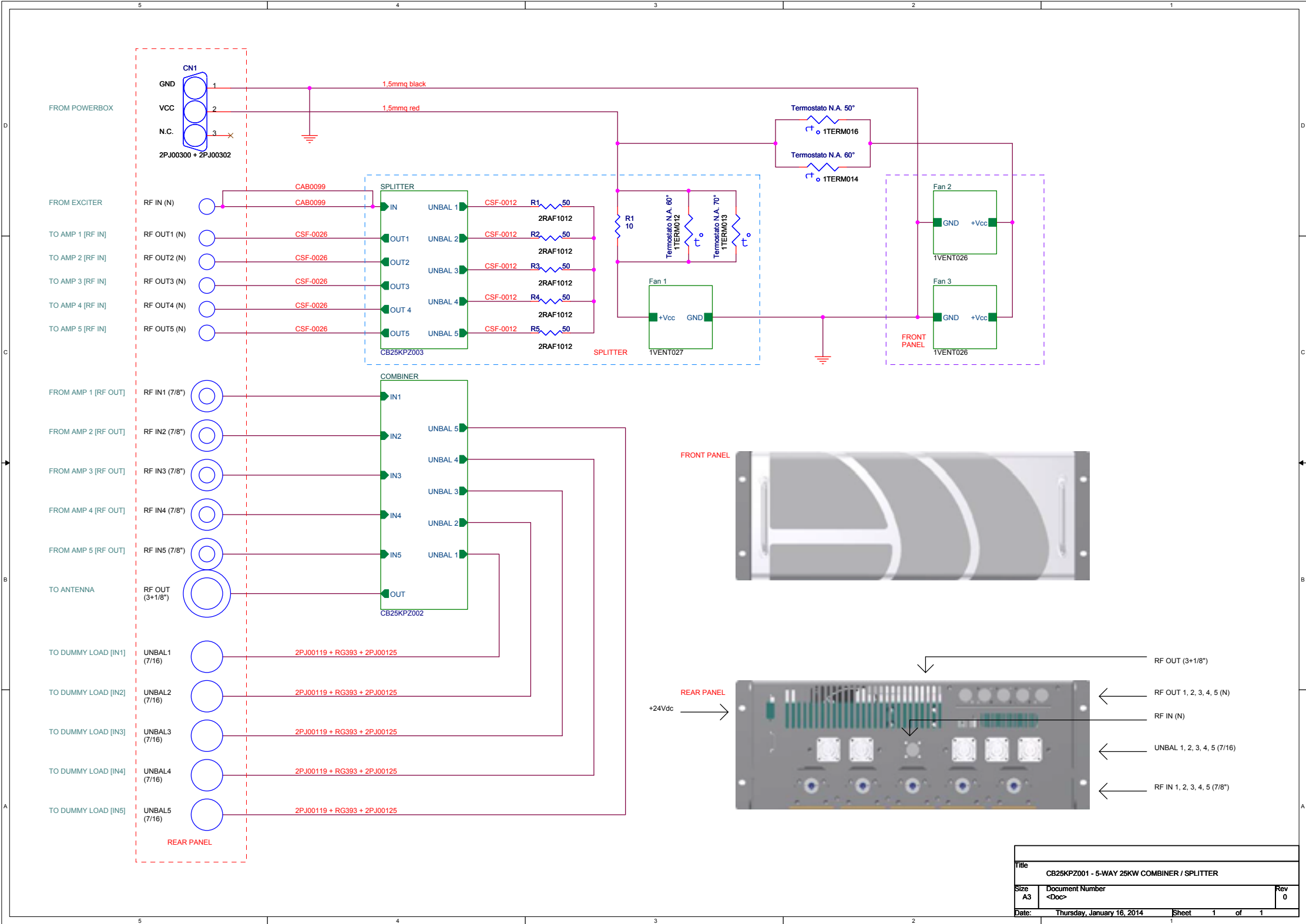
520

<

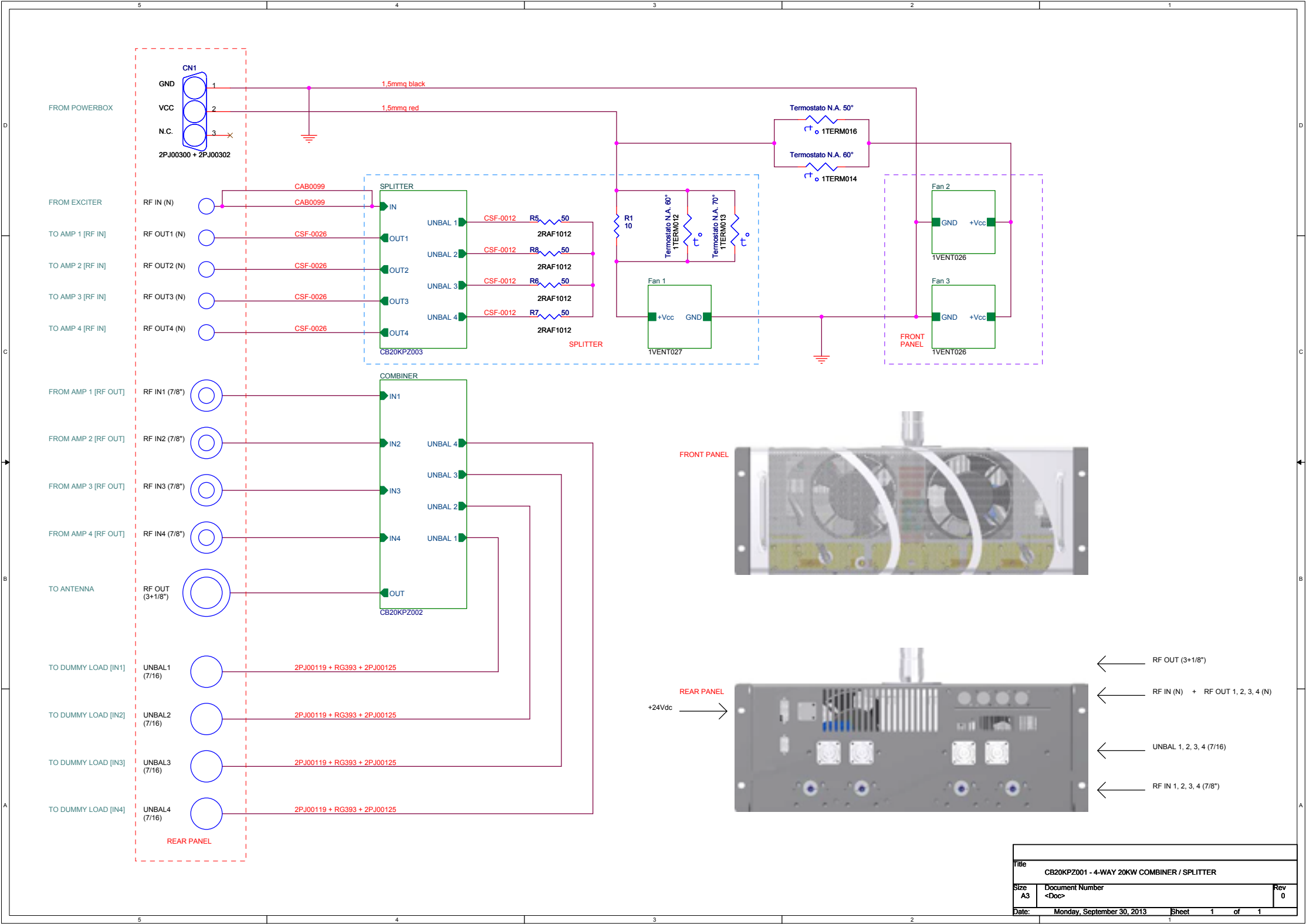
6-WAY COMBINER



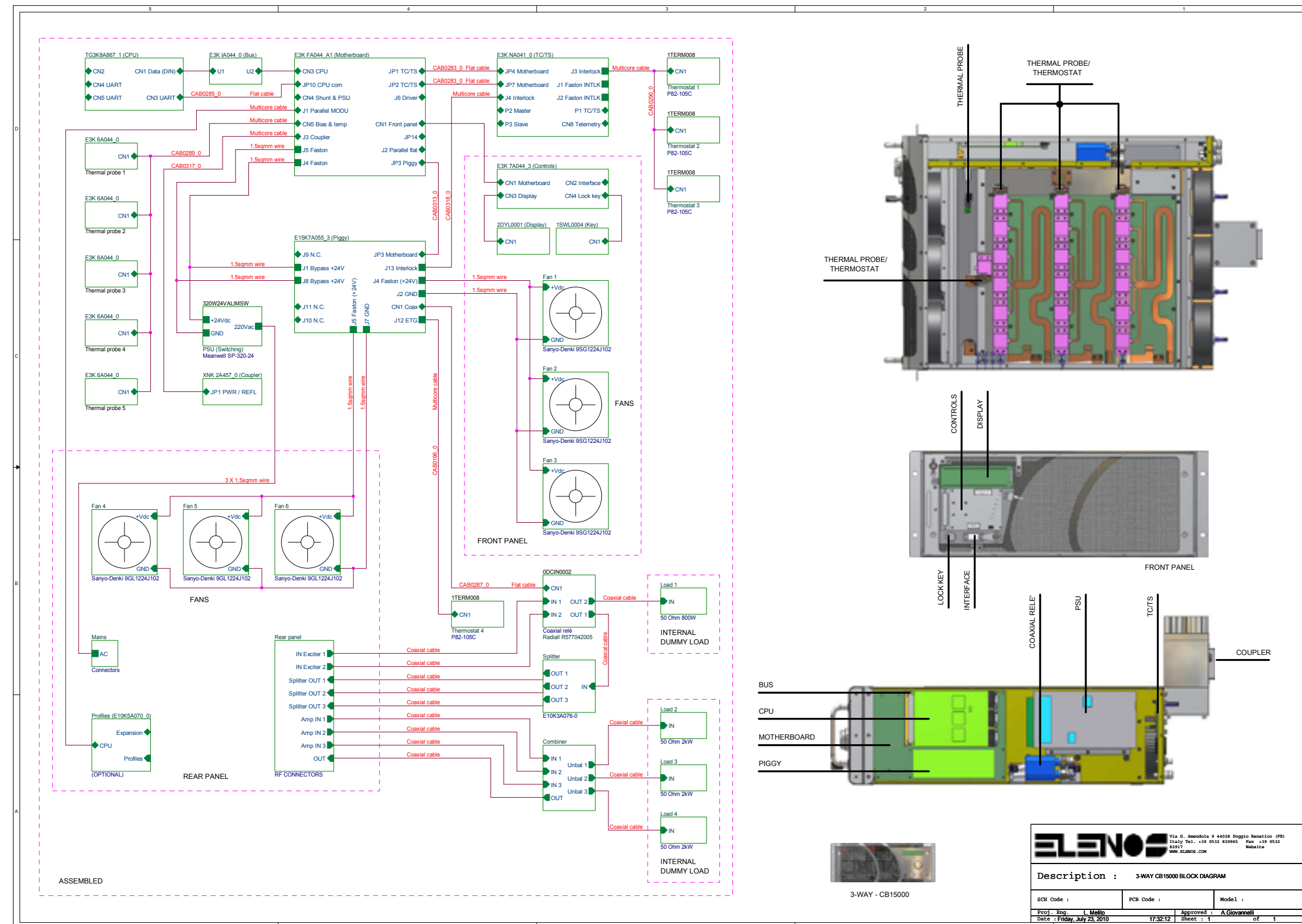
5-WAY COMBINER



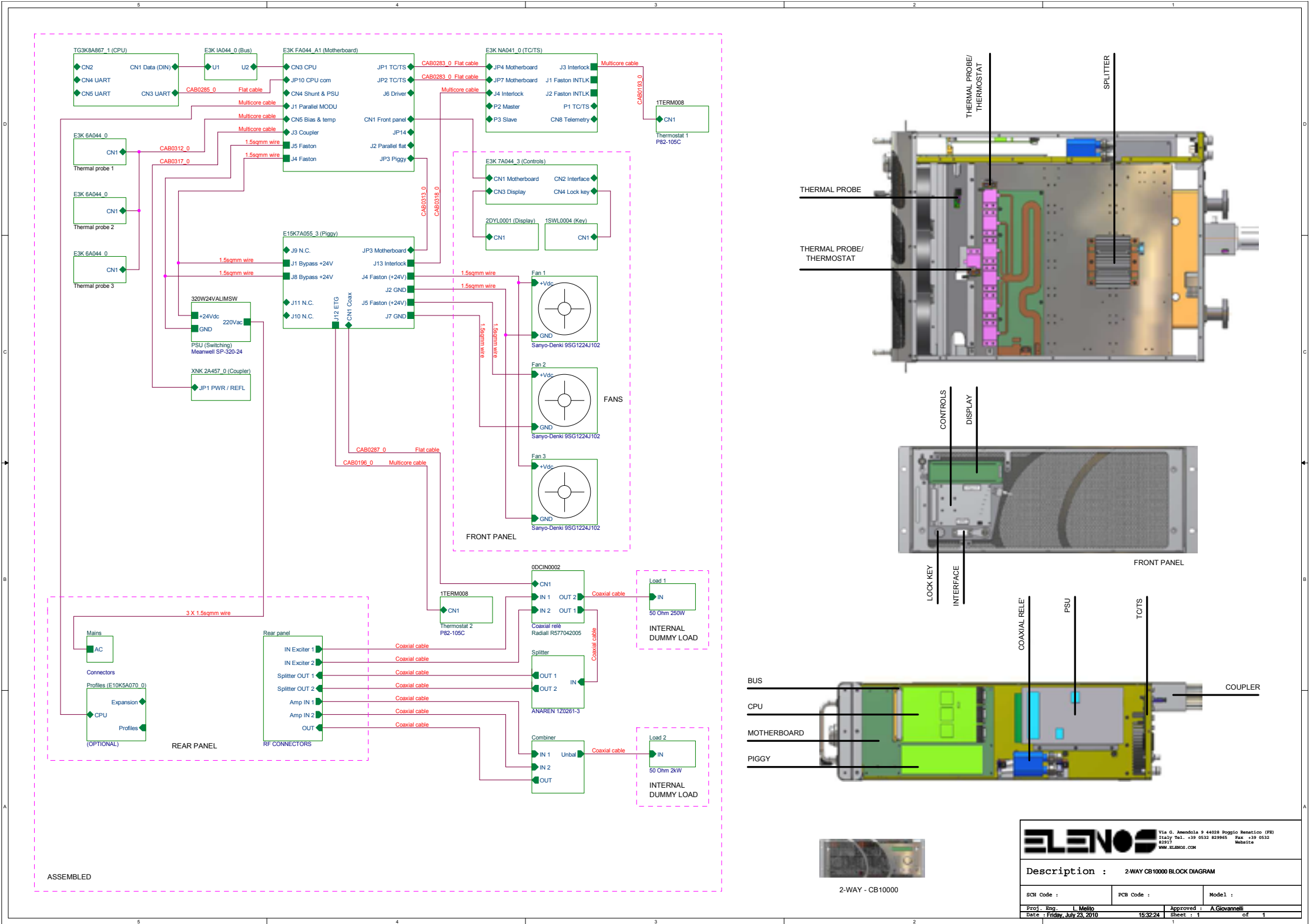
4-WAY COMBINER



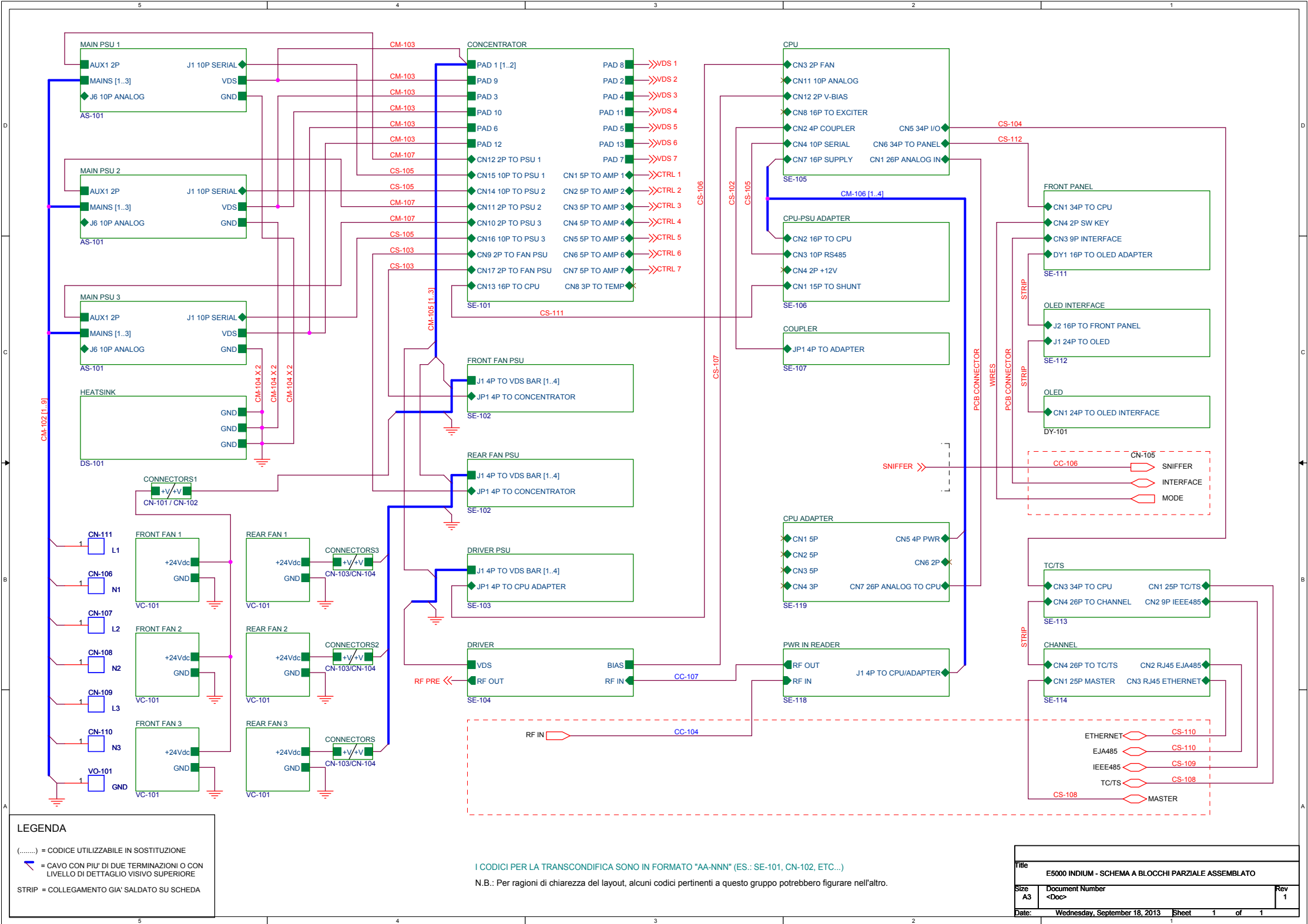
CONTROL UNIT AND 3-WAY COMBINER

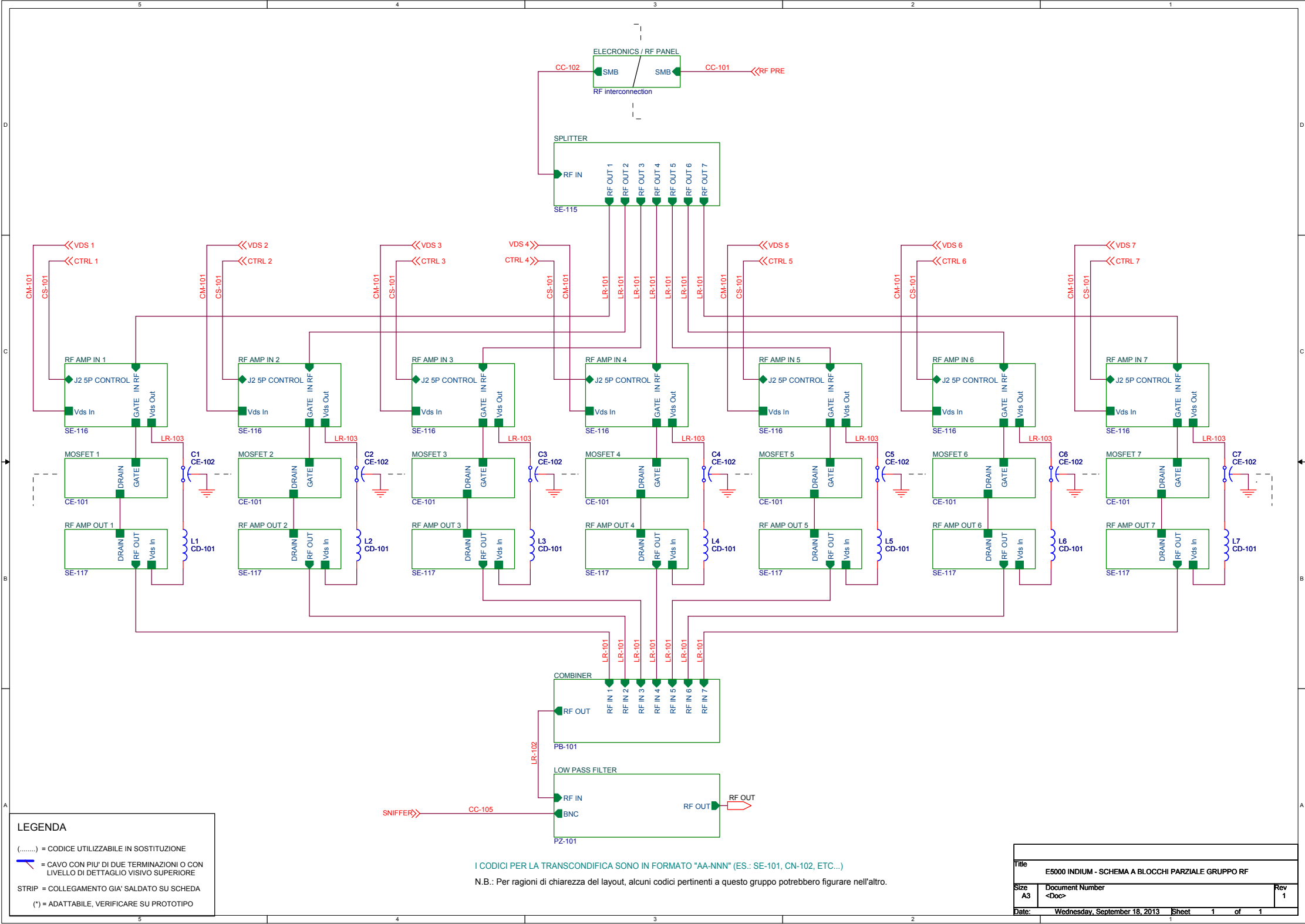


CONTROL UNIT AND 2-WAY COMBINER



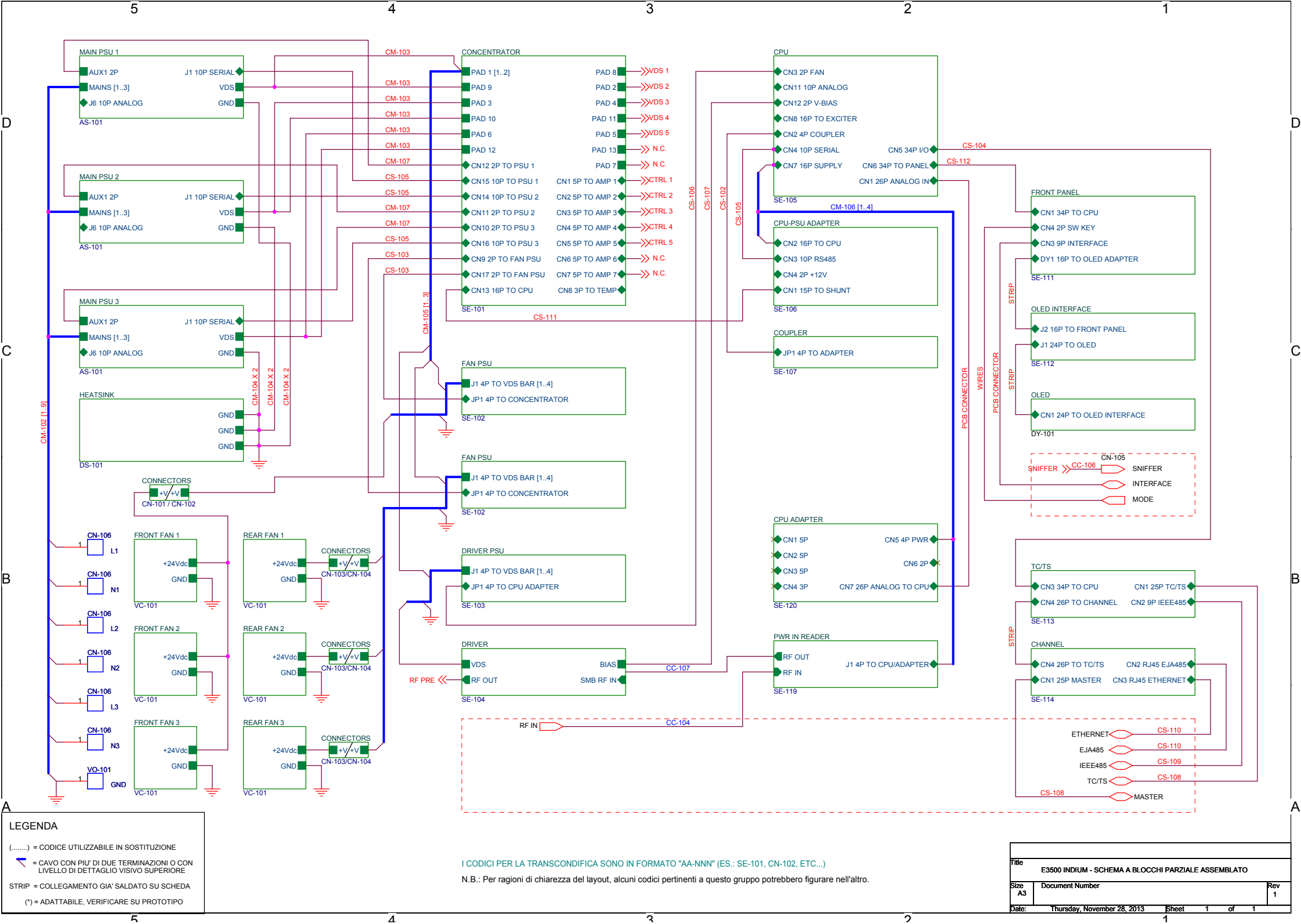
E5000 AMPLIFIER

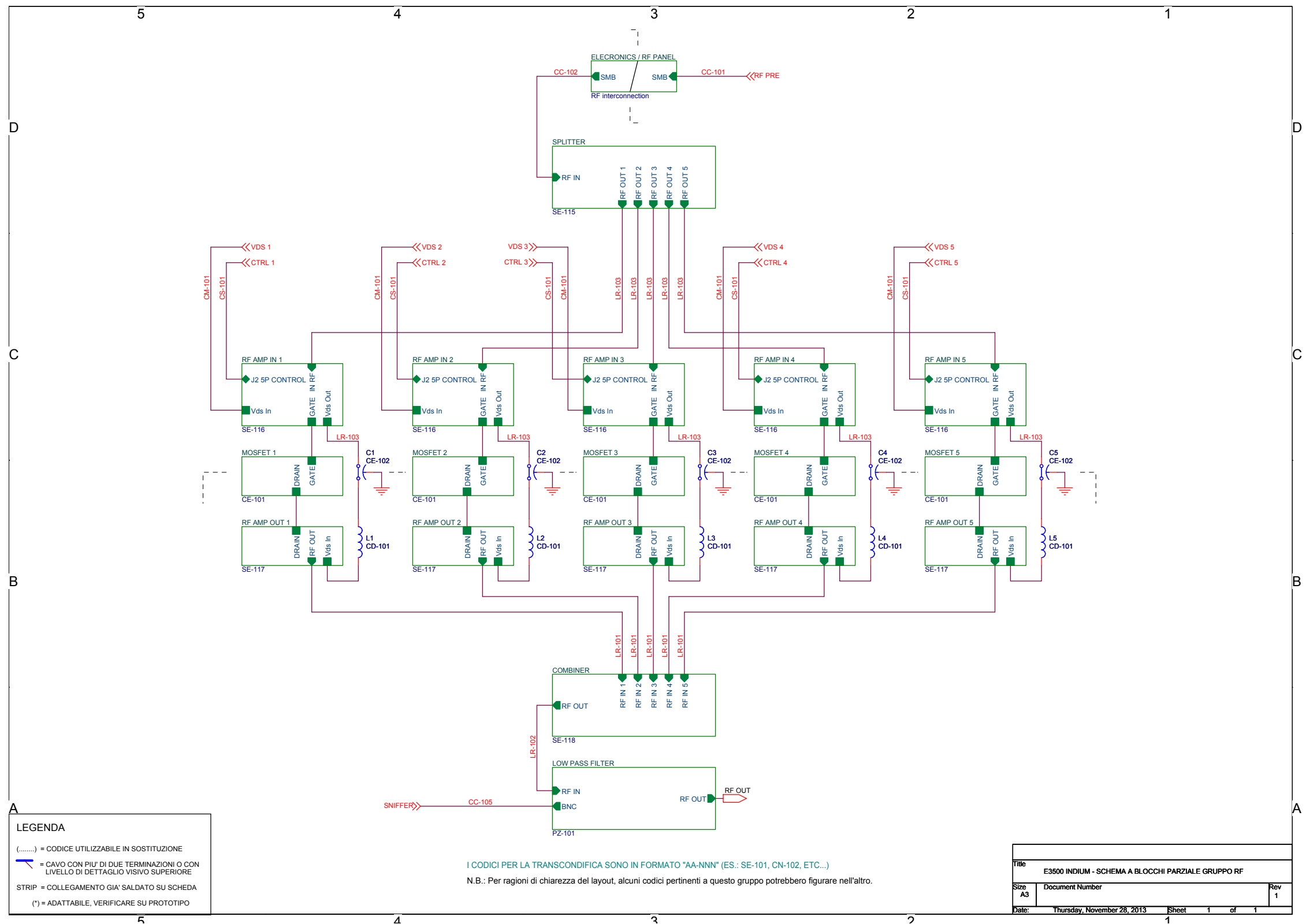




5		4		3		2		1	
CABLAGGI		SCHEDE ELETTRONICHE / CIRCUITI STAMPATI				COMPONENTI / ASSEMBLATI			
CC-101	CAB0586-0	SE-101	TG5K1A880R-2	(CONCENTRATORE)		AS-101	EPSU3KWPZ001-4		
CC-102	CAB0479-0	SE-102	E3K 3A044R-1	(ALIMENTATORE VENTOLE)		CD-101	2LTG2U01-1		
CC-104	CAB0227-0 (*)	SE-103	E3K 3B044R-2	(ALIMENTATORE DRIVER)		CE-101	2QRF0035		
CC-104	CAB0666-0 (**)	SE-104	TG5K4B881-1	(DRIVER)		CE-102	2CFCF302		
CC-105	CAB0626-0	SE-105	TG2U0A899-A	(CPU)		CN-101	2PJ00293		
CC-106	CAB0627-0	SE-106	TG5K3A881-2	(ADATTATORE CPU-PSU)		CN-102	2PJ00246		
CC-107	CAB0539-0 (*)	SE-107	XNK 2A457-0	(ACCOPIATORE DIREZIONALE)		CN-103	2PJ00328		
CC-107	CAB0585-0 (**)	SE-111	TG5K2A881R-2	(SCHEDA COMANDI)		CN-104	2PJ00329		
CM-101	CAB0552-0	SE-112	XNK BA452-0	(INTERFACCIA OLED)		CN-105	2PJ10096		
CM-102	KITCAVIETG5000	SE-113	TG2U1A899-6	(SCHEDA TC/TS)		CN-106	2PJ00334		
CM-103	CAB0550-0	SE-114	TG2U2A899-3	(SCHEDA CHANNEL)		DS-101	9MOD2982-2		
CM-104	CAB0551-0	SE-115	TG5K0A889-0	(SCHEDA SPLITTER)		DY-101	2DYL0012		
CM-105	CAB0587-0	SE-116	P5780A279-4	(INGRESSO MODULO RF)		LR-101	9MO4144-1		
CM-106	CAB0684-0	SE-117	P5781A279-1	(USCITA MODULO RF)		LR-102	9MOD2991A-0		
CM-107	CAB0171-0	SE-118	AMPI0A332-1	(LETTURA PWR IN) (*)		LR-103	9MOD2994A-2		
CS-101	CAB0537-0	SE-118	AMPI0A332-2	(LETTURA PWR IN) (**)		PZ-101	E5KPZ004-1		
CS-102	CAB0554-1	SE-119	TG2UNA890-1	(CPU ADAPTER)		VC-101	1VENT026		
CS-103	CAB0548-0	PB-101	2PCB0521-2	(STAMPATO COMBINATORE)		VO-101	6VOA5X20		
CS-104	CAB0443-1	NOTA: (*) e (**) indicano gli abbinamenti possibili tra cavi e schede							
CS-105	CAB0549-0								
CS-106	CAB0663-0								
CS-107	CAB0669-0	NOTA: (*) e (**) indicano gli abbinamenti possibili tra cavi e schede							
CS-108	CAB0029-0								
CS-109	CAB0030-0								
CS-110	CAB0209-0 (OPZ)								
CS-111	CAB0172-0								
CS-112	CAB0444-1	NOTA: (*) e (**) indicano gli abbinamenti possibili tra cavi e schede							
		Title ELENCO TRANSCODIFICHE E5000 INDIUM REVISIONE 1							
		Size A4					Document Number <Doc>		Rev 1
		Date: Tuesday, October 08, 2013					Sheet	1	of 1

E3500 AMPLIFIER





D

C

B

A

CABLAGGI

CC-101 CAB0586-0

CC-102 CAB0479-0

CC-104 CAB0666-0

CC-105 CAB0626-0

CC-106 CAB0627-0

CC-107 CAB0585-0

CM-101 CAB0552-0

CM-102 KITCAVIETG5000

CM-103 CAB0550-0

CM-104 CAB0551-0

CM-105 CAB0587-0

CM-106 CAB0684-0

CM-107 CAB0171-0

CS-101 CAB0537-0

CS-102 CAB0554-1

CS-103 CAB0548-0

CS-104 CAB0443-1

CS-105 CAB0549-0

CS-106 CAB0663-0

CS-107 CAB0669-0

CS-108 CAB0029-0

CS-109 CAB0030-0

CS-110 CAB0209-0 (OPZ)

CS-111 CAB0172-0

CS-112 CAB0444-1

SCHUDE ELETTRONICHE

SE-101 TG5K1A880R-2 (CONCENTRATORE)

SE-102 E3K 3A044R-1 (ALIMENTATORE VENTOLE)

SE-103 E3K 3B044R-2 (ALIMENTATORE DRIVER)

SE-104 TG5K4B881-1 (DRIVER)

SE-105 TG2U0A899-A (CPU)

SE-106 TG5K3A881-2 (ADATTATORE CPU-PSU)

SE-107 XNK 2A457-0 (ACCOPIATORE DIREZIONALE)

SE-111 TG5K2A881R-2 (SCHEDA COMANDI)

SE-112 XNK BA452-0 (INTERFACCIA OLED)

SE-113 TG2U1A899-6 (SCHEDA TC/TS)

SE-114 TG2U2A899-3 (SCHEDA CHANNEL)

SE-115 TG3KFA862-3 (SCHEDA SPLITTER)

SE-116 P5780A279-4 (INGRESSO MODULO RF)

SE-117 MAMP0A221-0 (USCITA MODULO RF)

SE-118 TG3KEA862-0 (SCHEDA COMBINATORE)

SE-119 AMPI0A332-2 (LETTURA PWR IN)

SE-120 TG2UNA890-1 (CPU ADAPTER)

COMPONENTI / ASSEMBLATI

AS-101 EPSU2K5PZ001-2

CD-101 2LTG2U01-1

CE-101 2QRF0035

CE-102 2CFCF302

CN-101 2PJ00293

CN-102 2PJ00246

CN-103 2PJ00328

CN-104 2PJ00329

CN-105 2PJ10096

CN-106 2PJ00334

DS-101 9MOD2982-2

DY-101 2DYL0012

LR-101 9MO4144-0

LR-102 9MOD2991A-0

LR-103 9MOD4241-0

PZ-101 E5KPZ004-1

VC-101 1VENT026

VO-101 6VOA5X20

Title

ELENCO TRANSCODIFICHE E3500 INDIUM REVISIONE 0

Size

A4

Document Number

Rev

0

Date:

Thursday, November 28, 2013

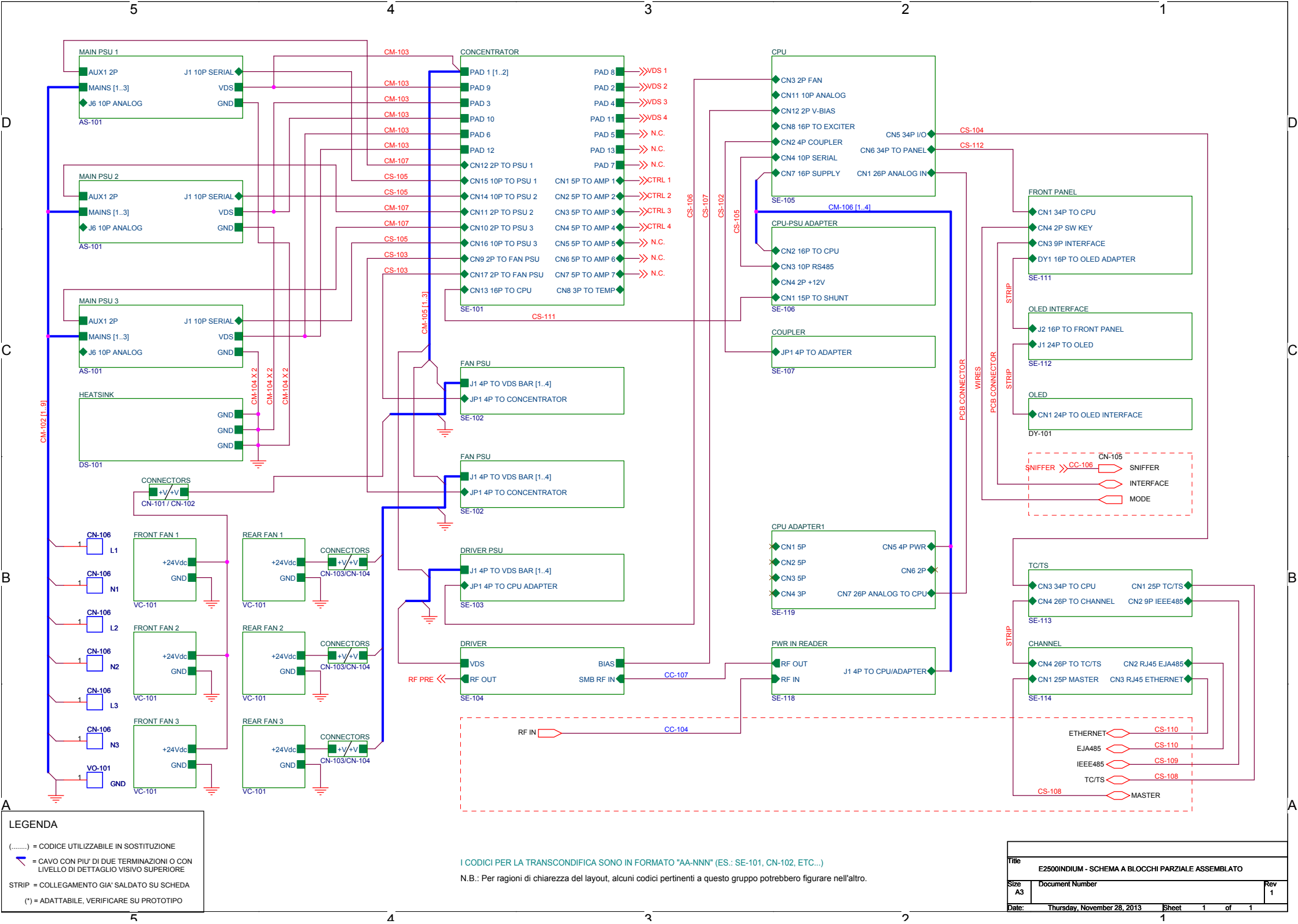
Sheet

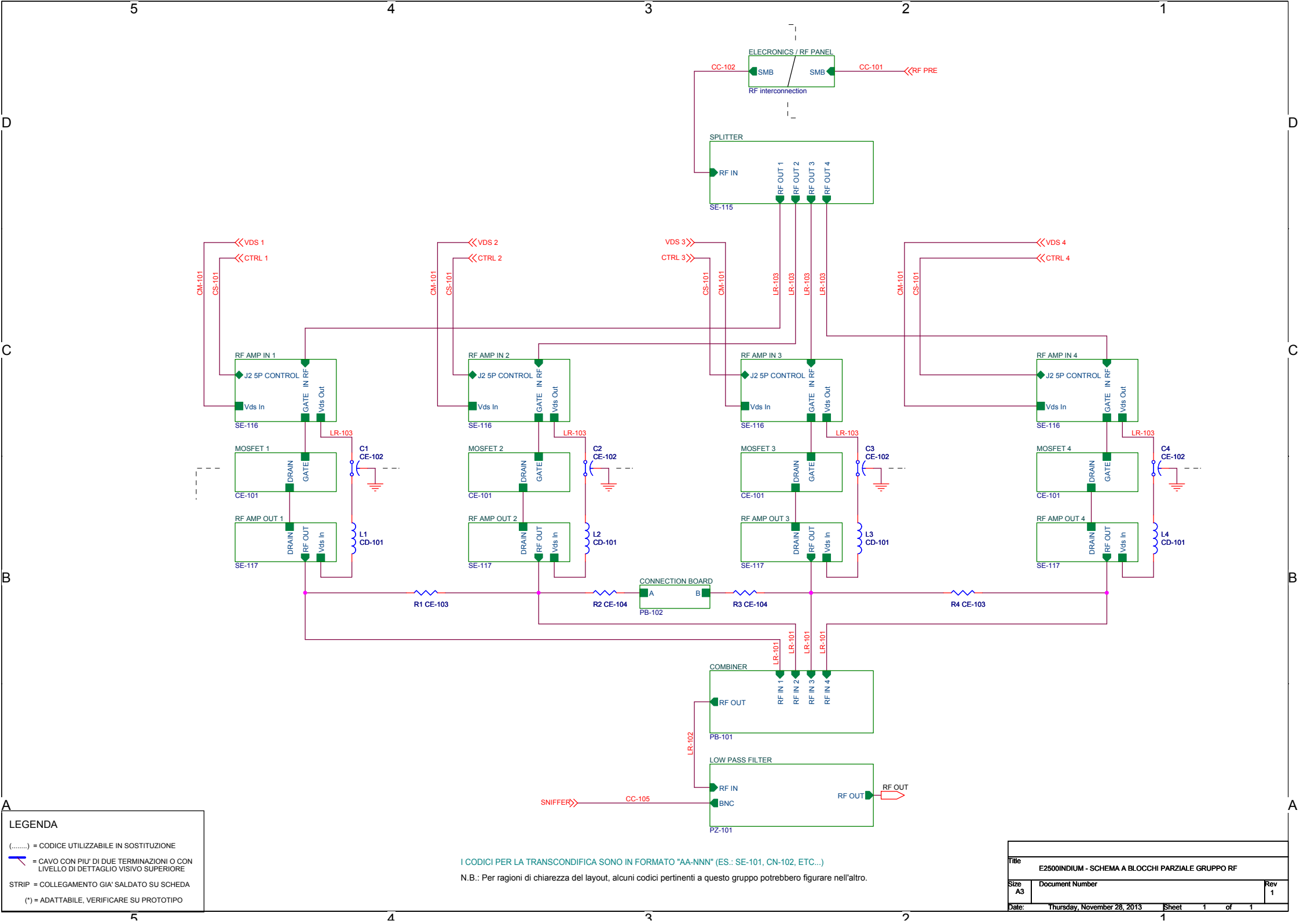
1

of

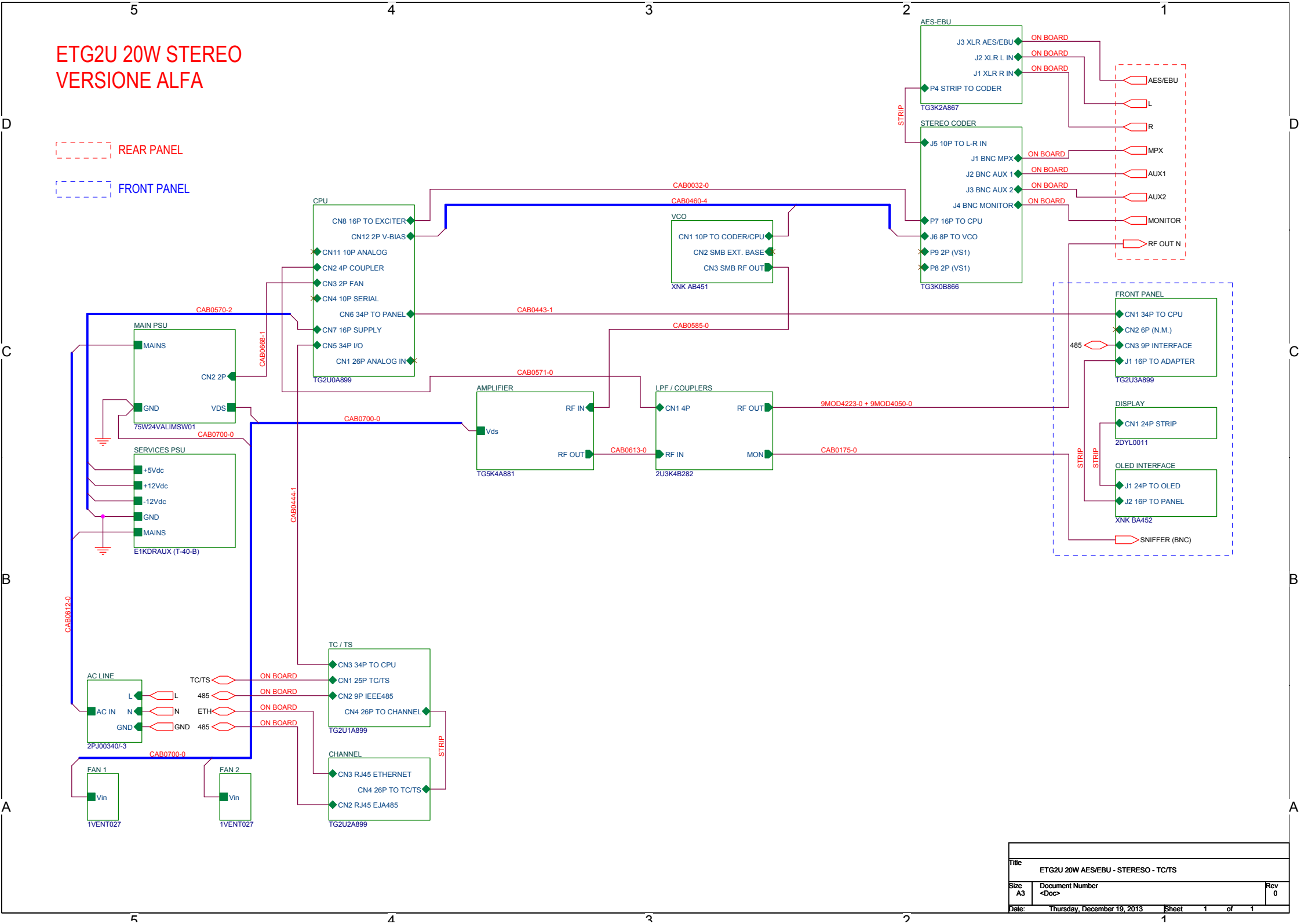
1

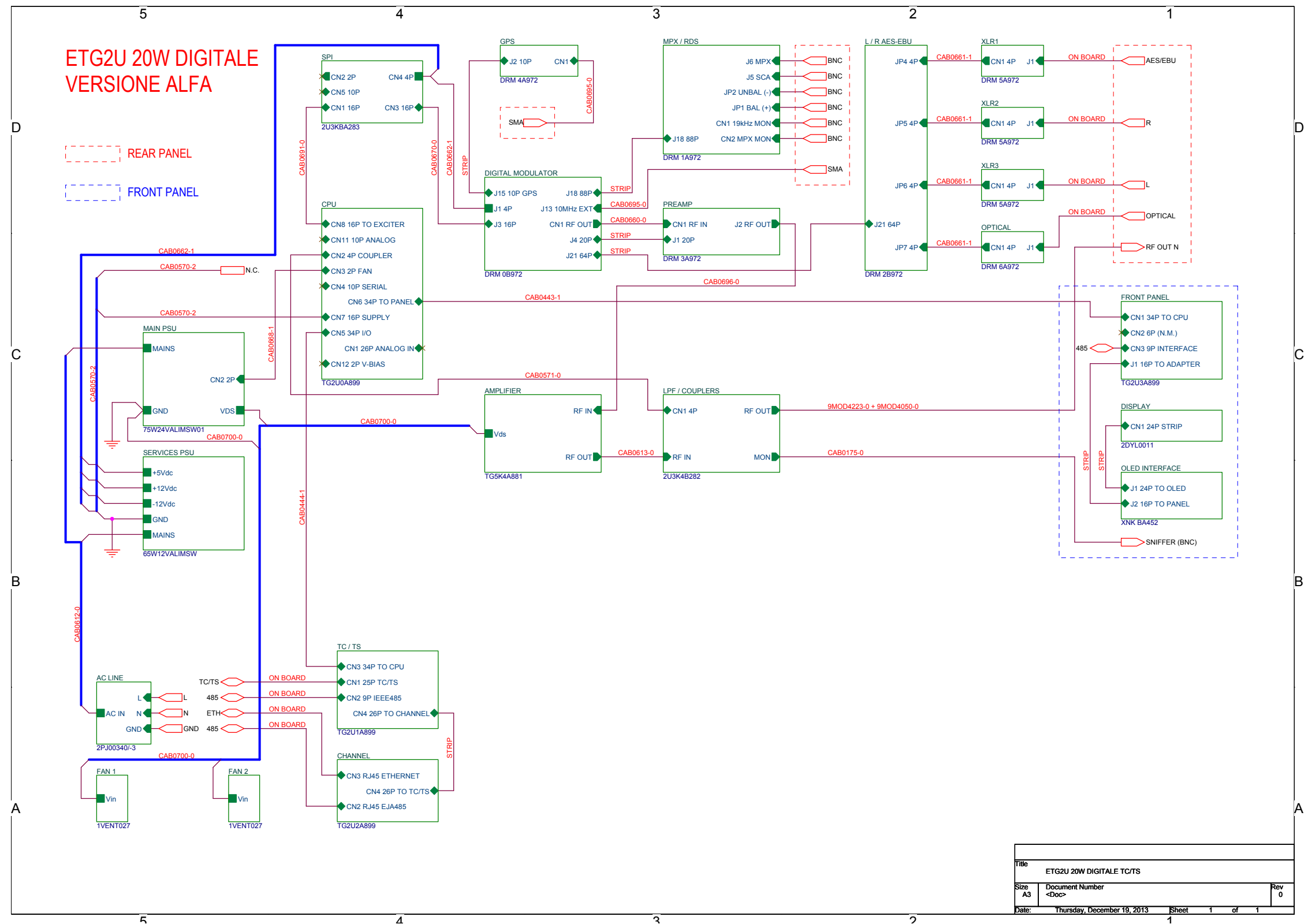
E2500 AMPLIFIER



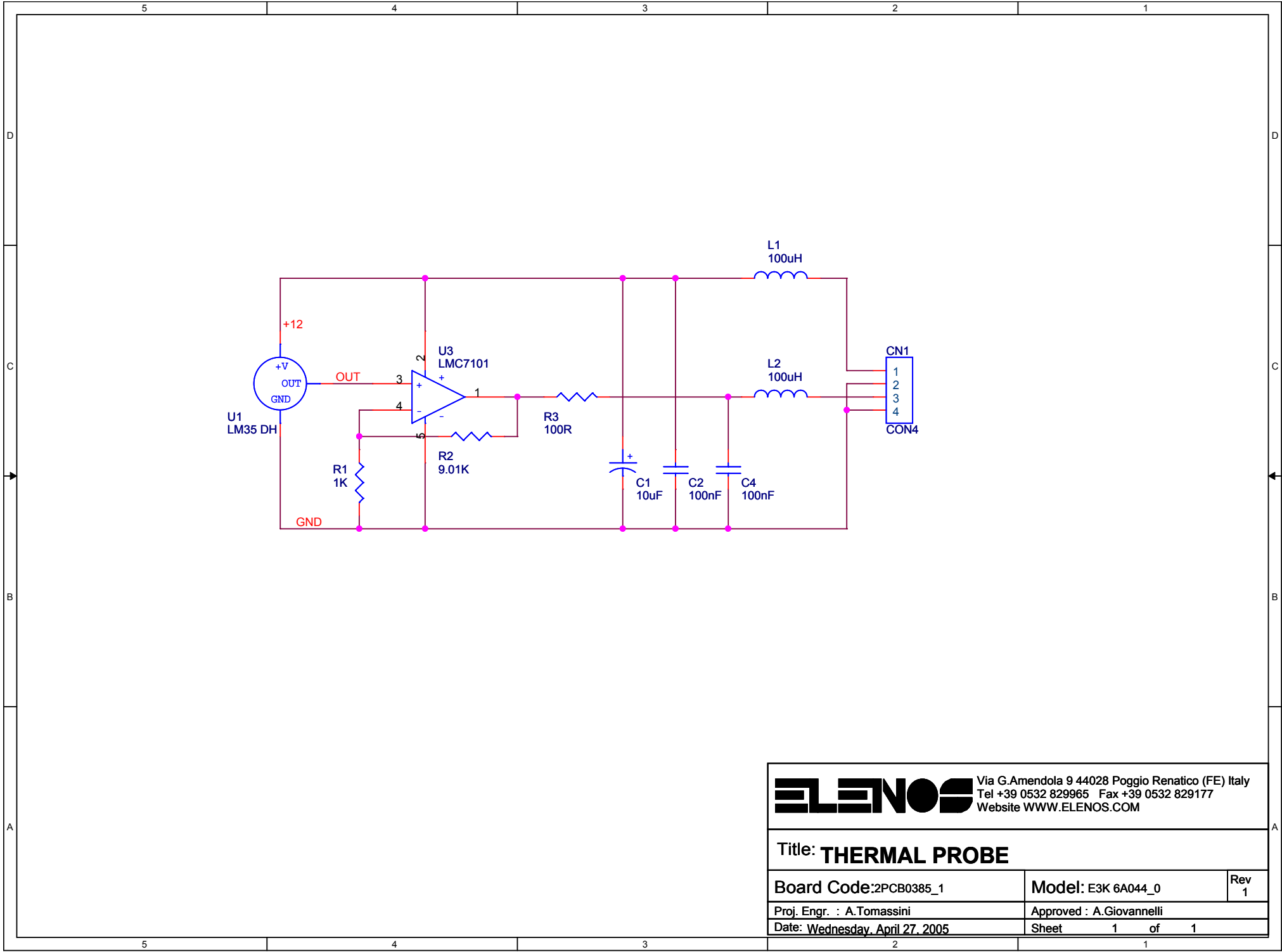


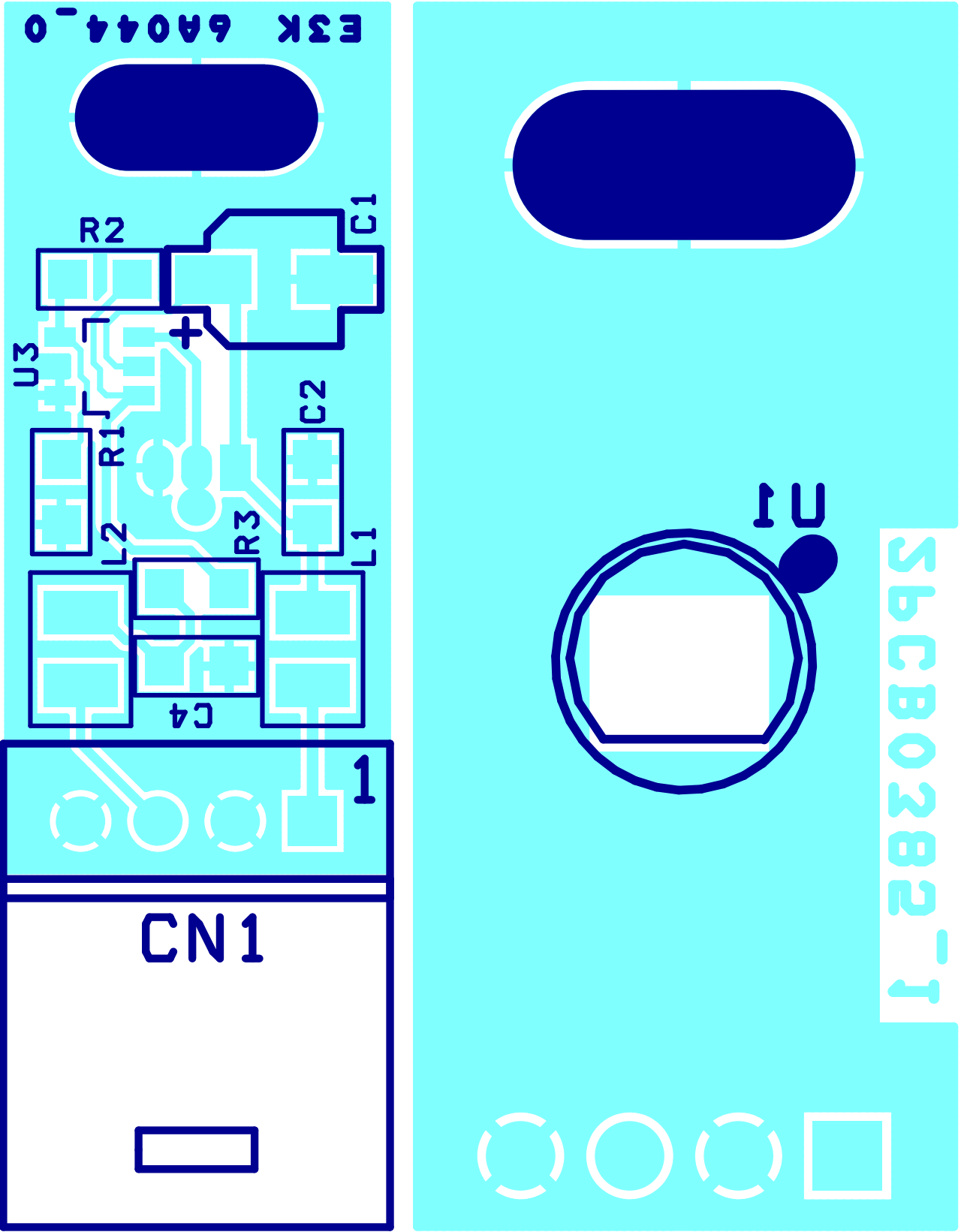
ETG20 EXCITER (Please to details about the schematics of this board see directly the service manual of the exciter)

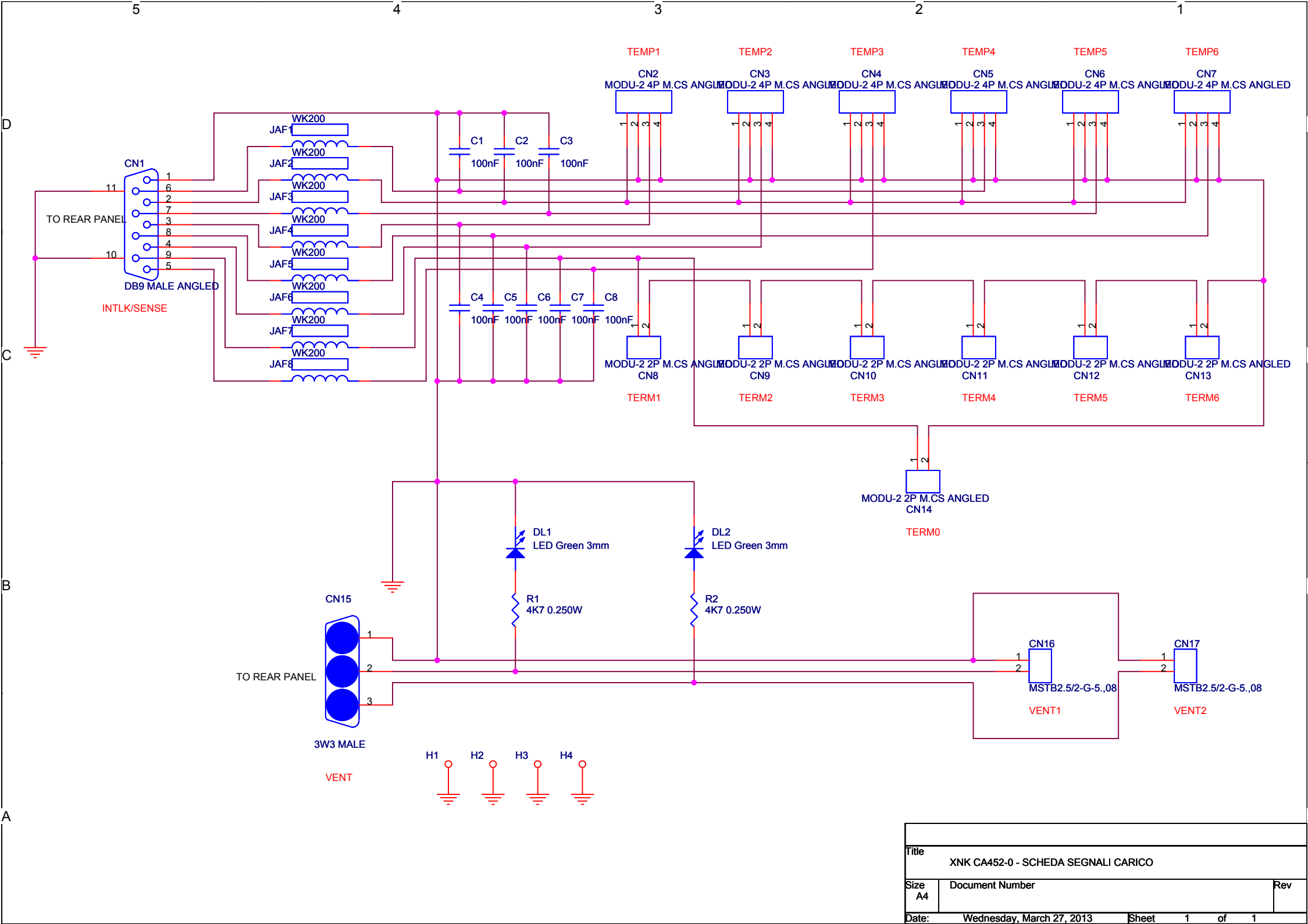


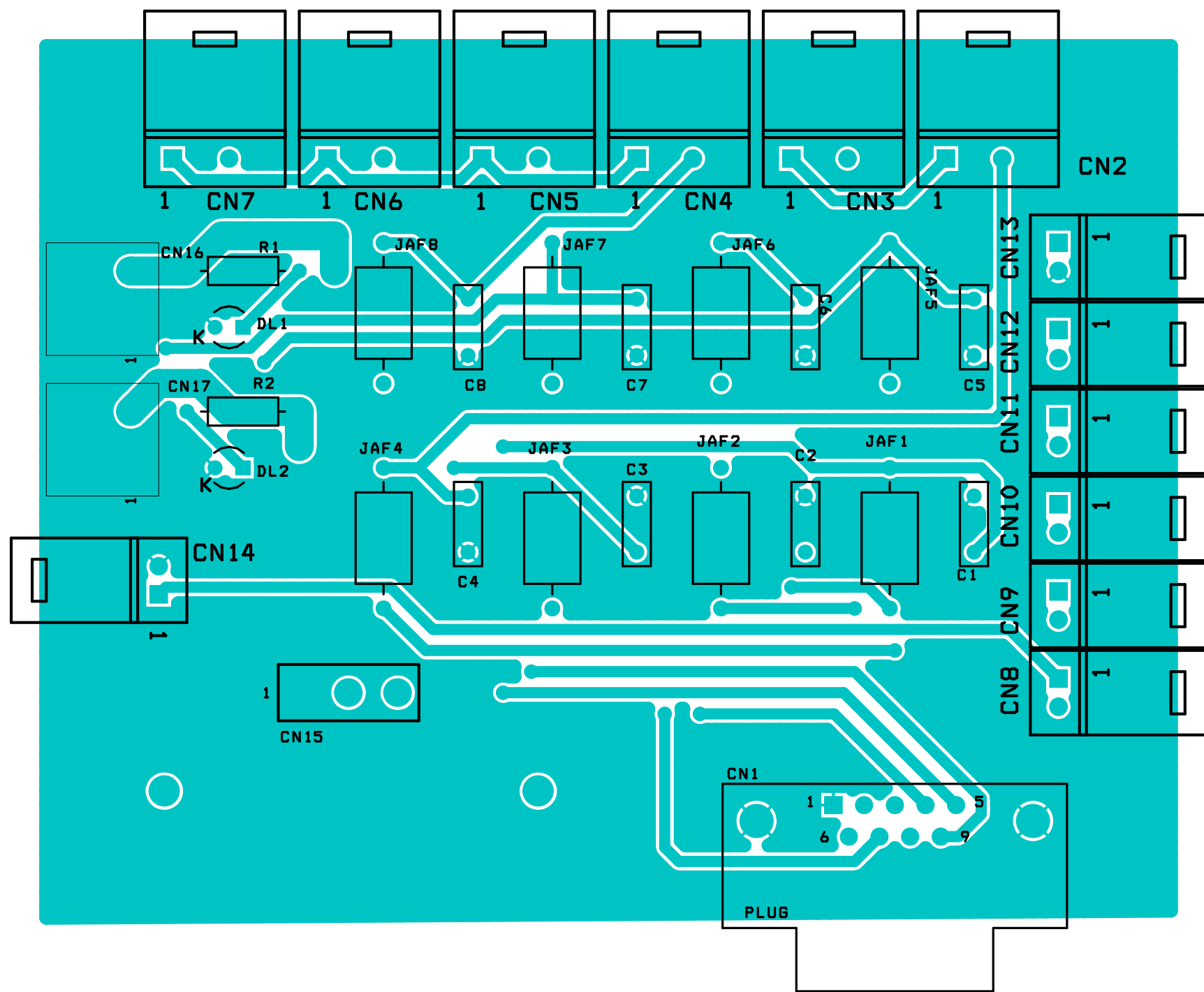


E3K 6A044

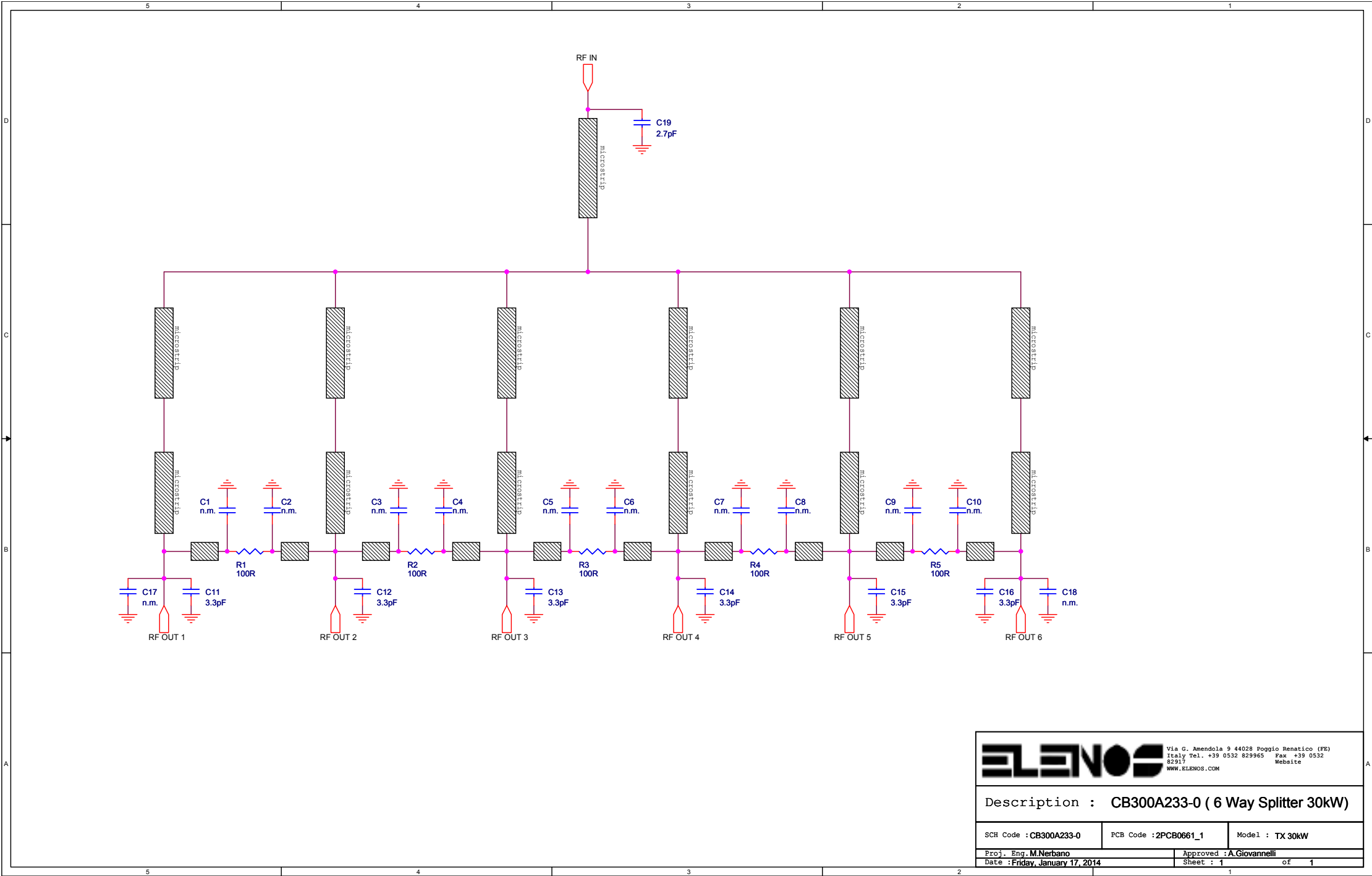


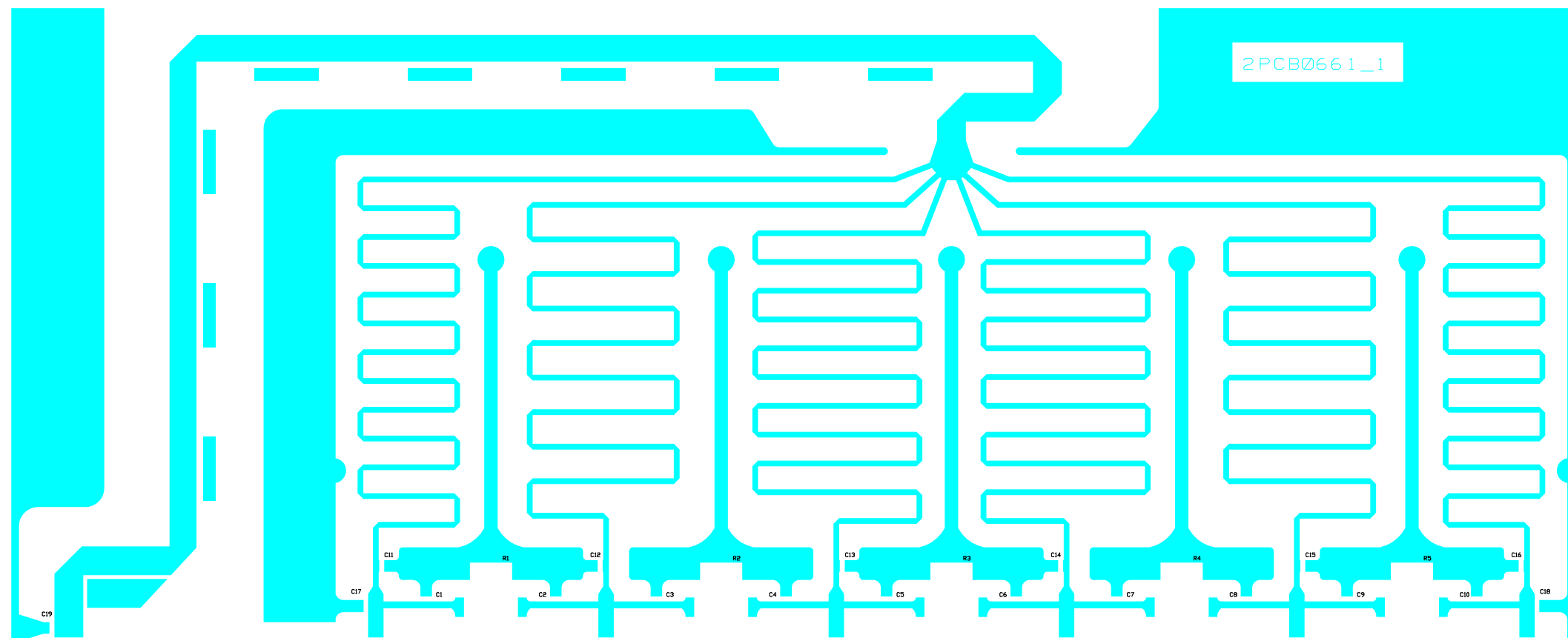


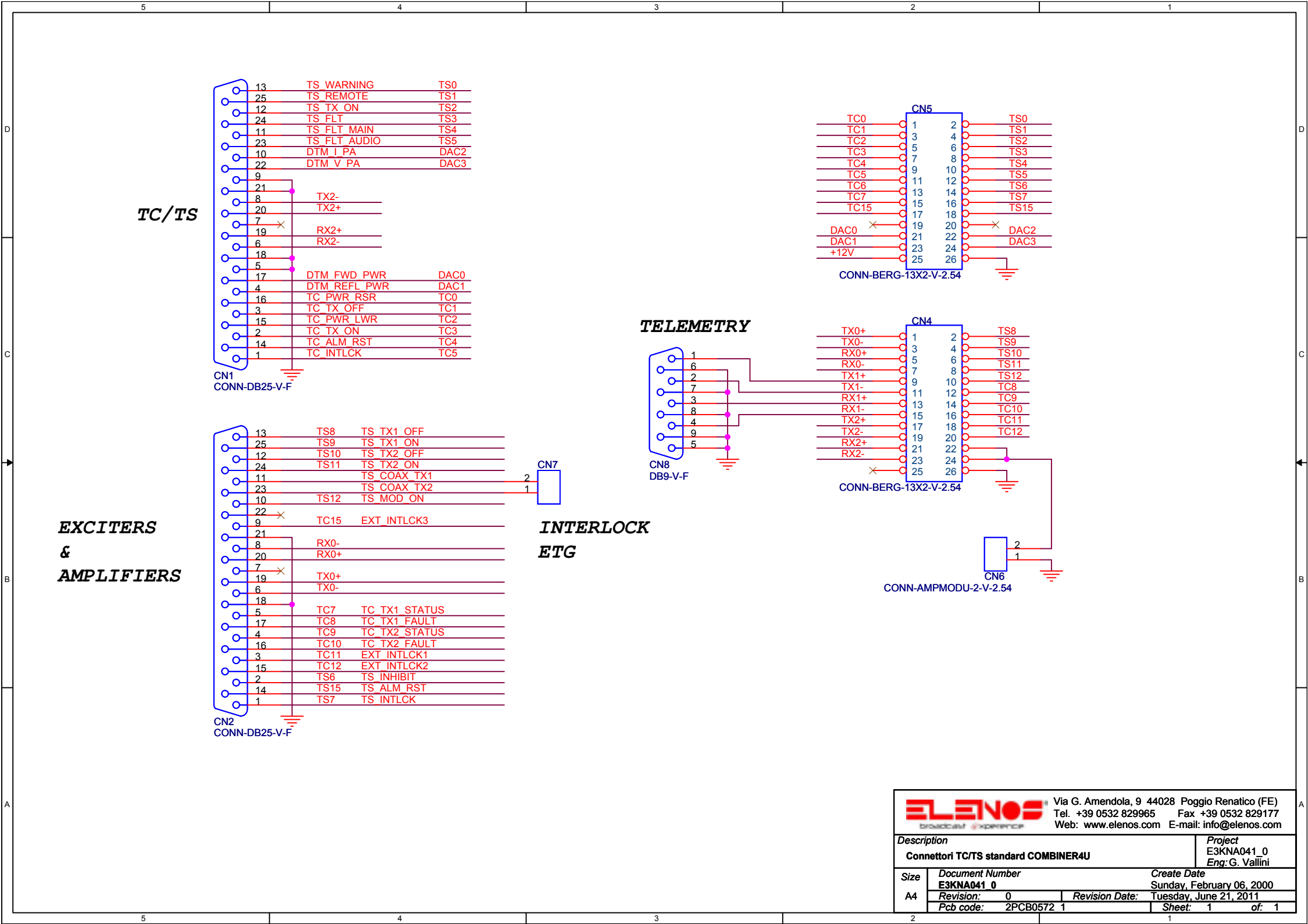




CB300A233



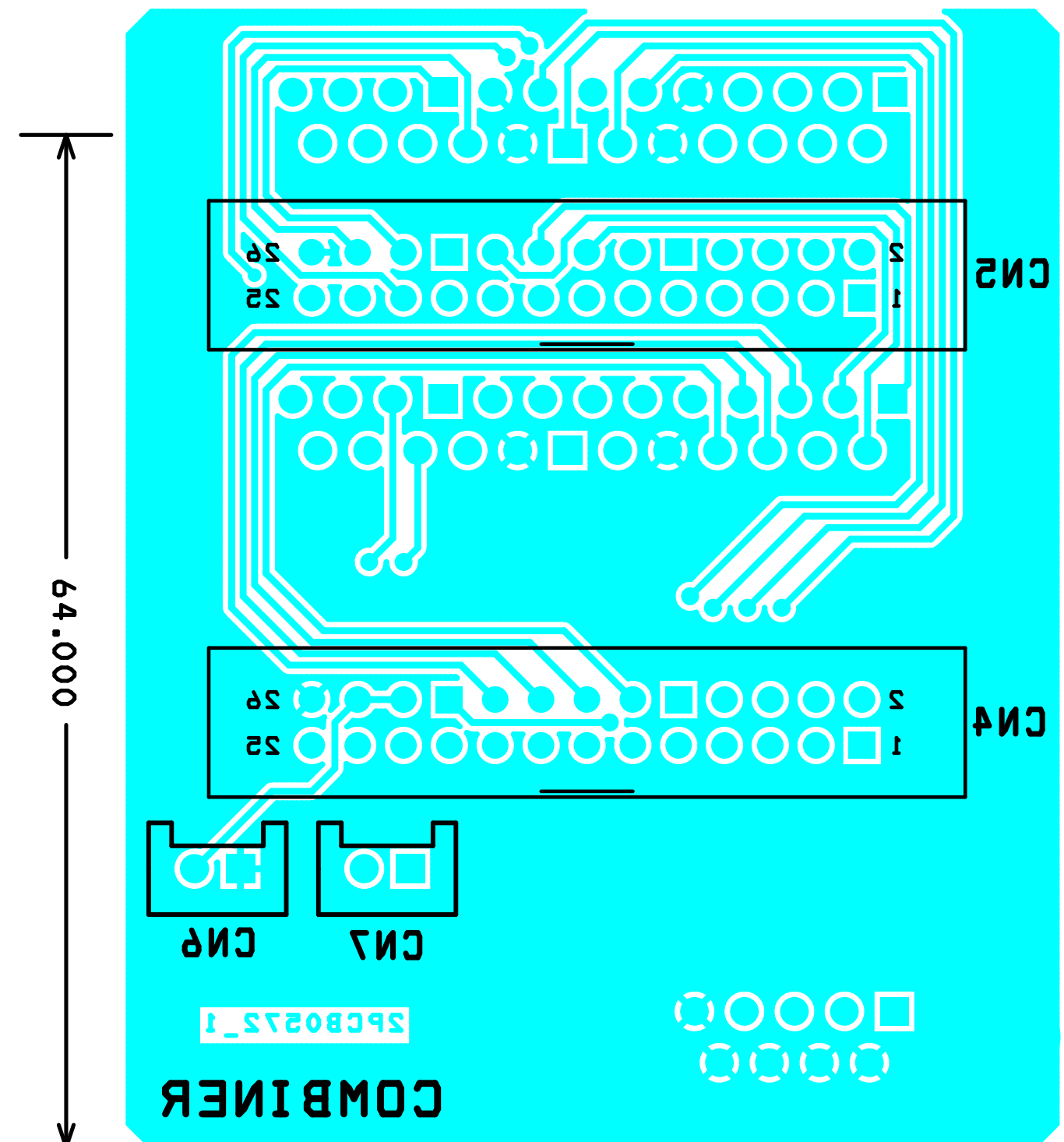
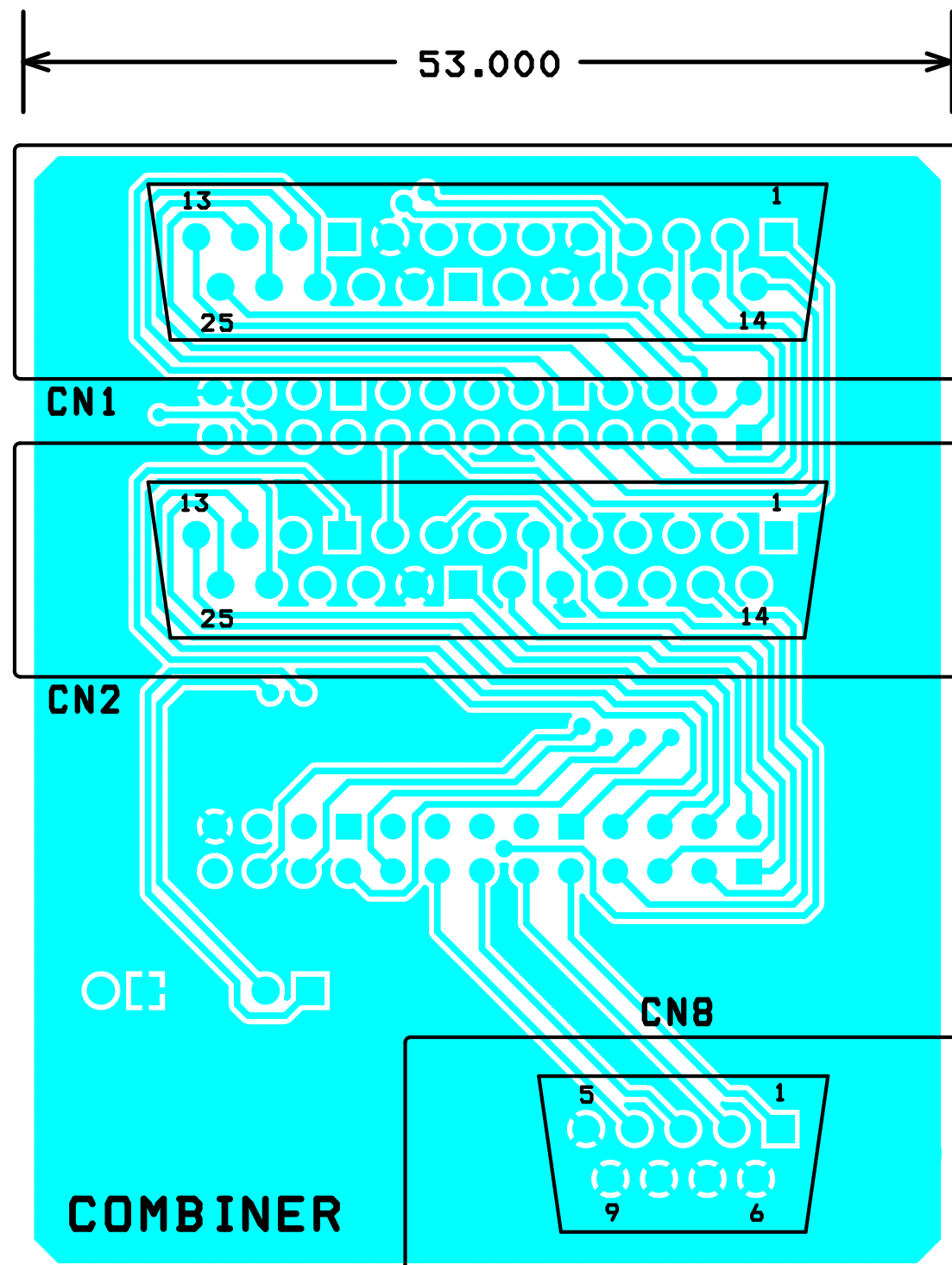


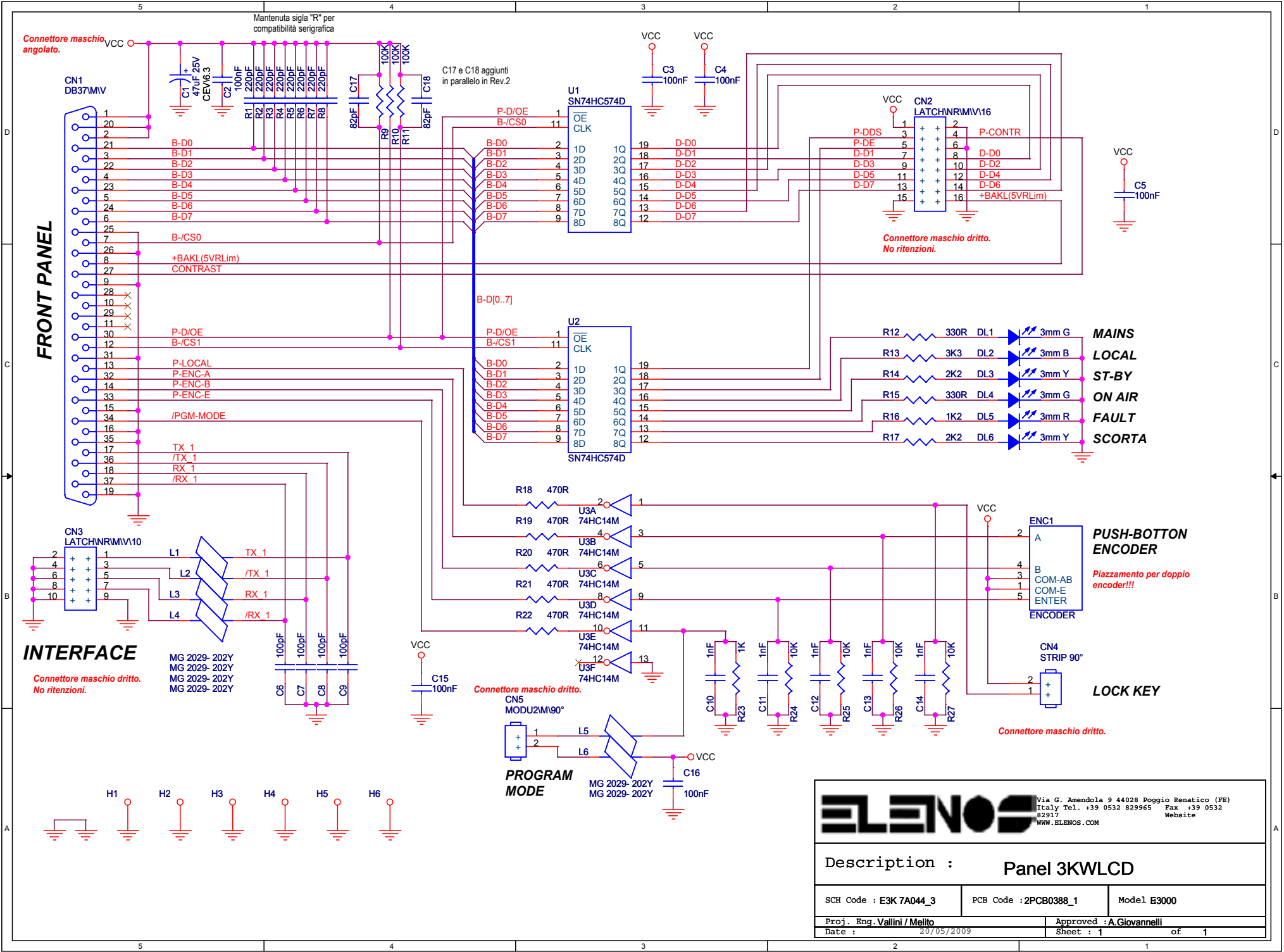


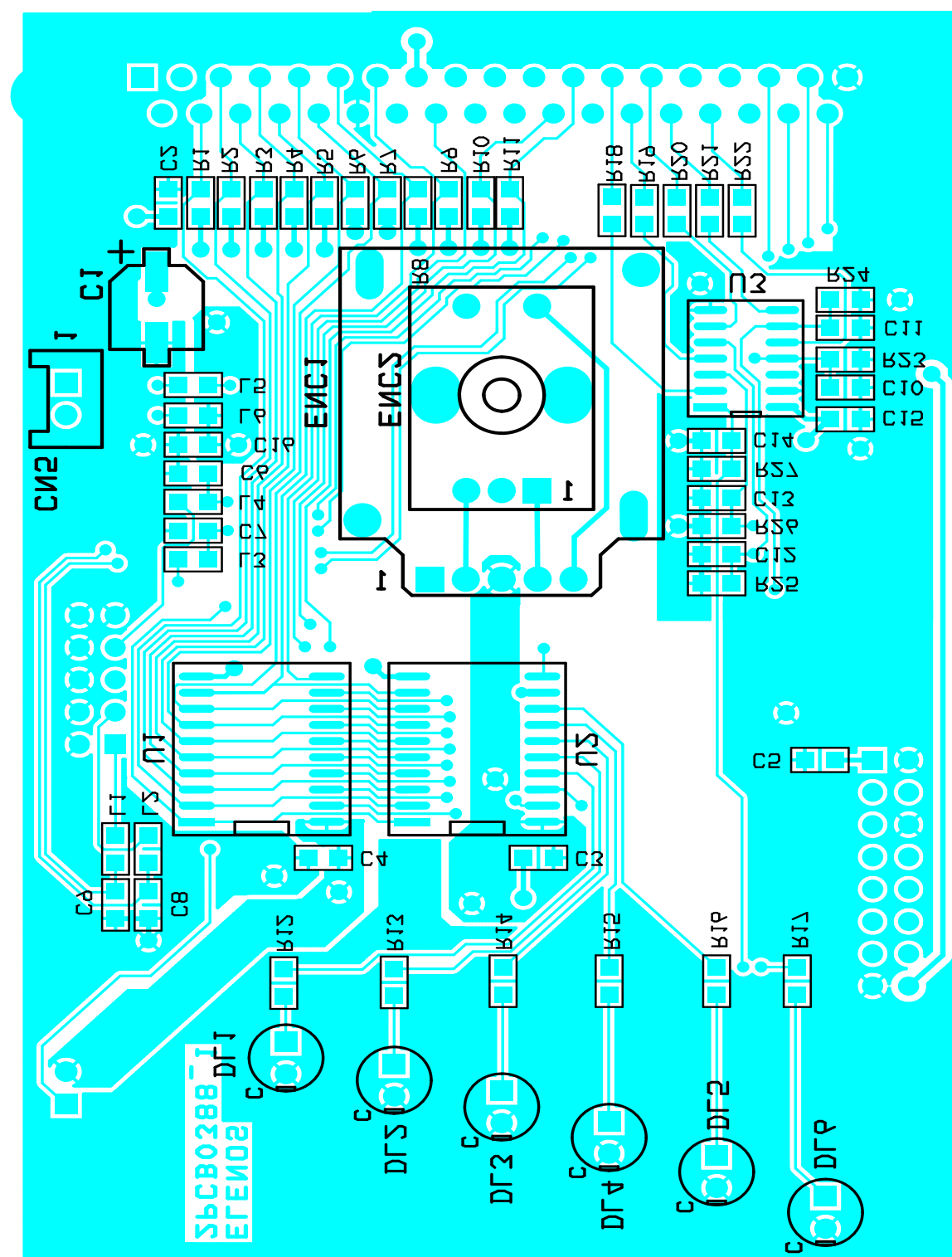
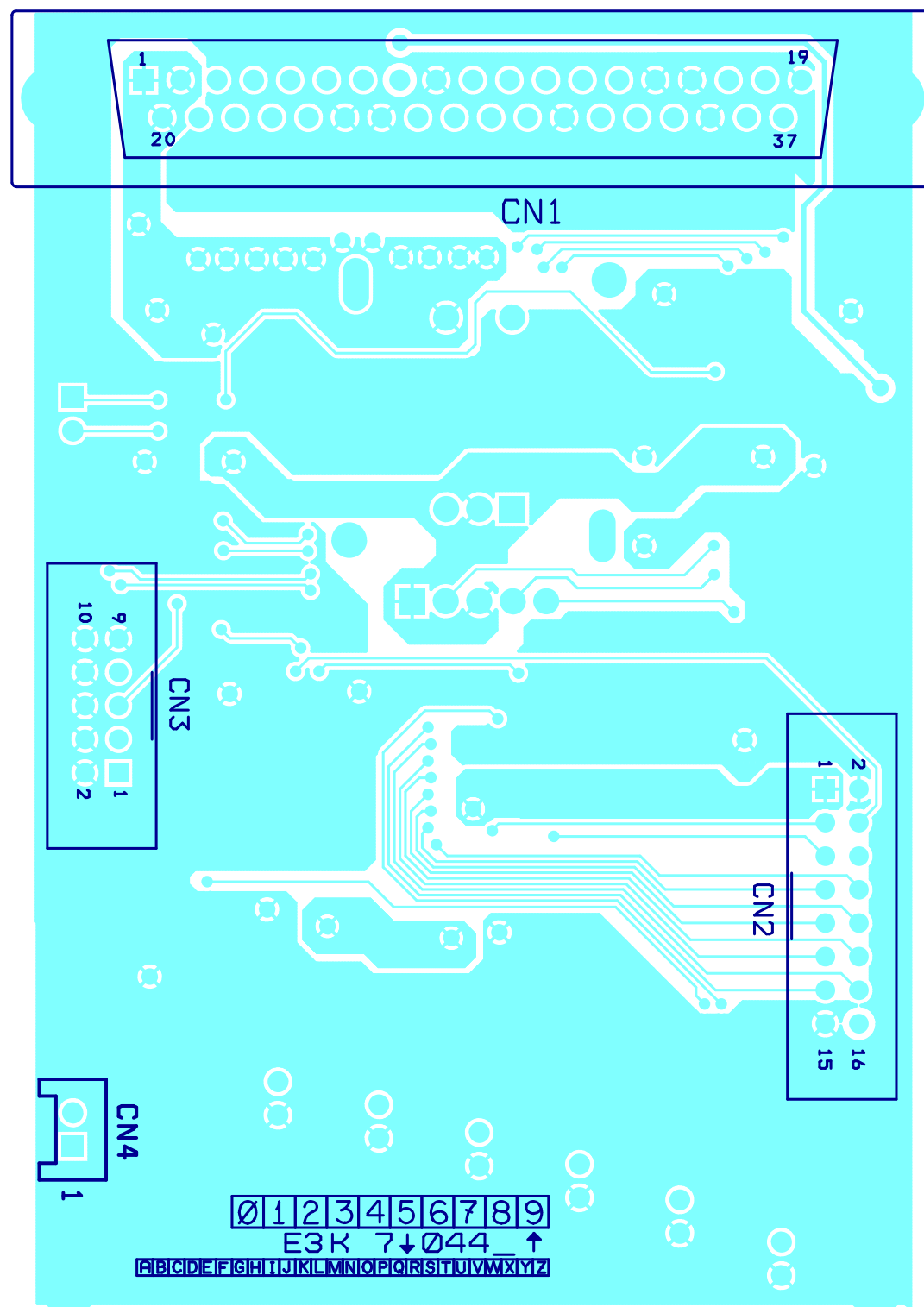


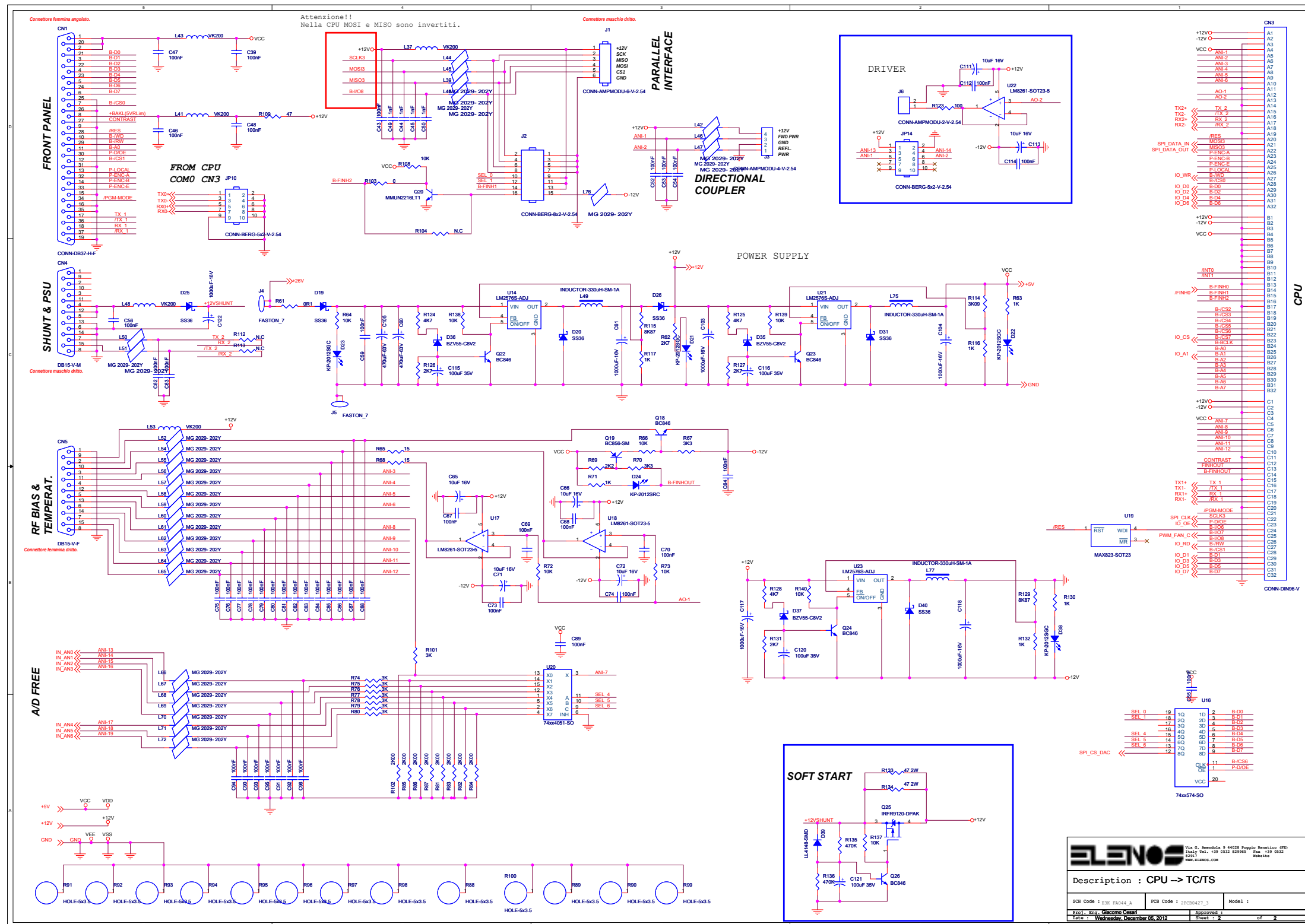
Via G. Amendola, 9 44028 Poggio Renatico (FE)
Tel. +39 0532 829965 Fax +39 0532 829177
Web: www.eLENOS.com E-mail: info@elenos.com

Description		Project	
Connettori TC/TS standard COMBINER4U		E3KNA041_0	
Size		Create Date	
A4		Sunday, February 06, 2000	
Revision: 0		Revision Date: Tuesday, June 21, 2011	
Pcb code: 2PCB0572 1		Sheet: 1 of: 1	



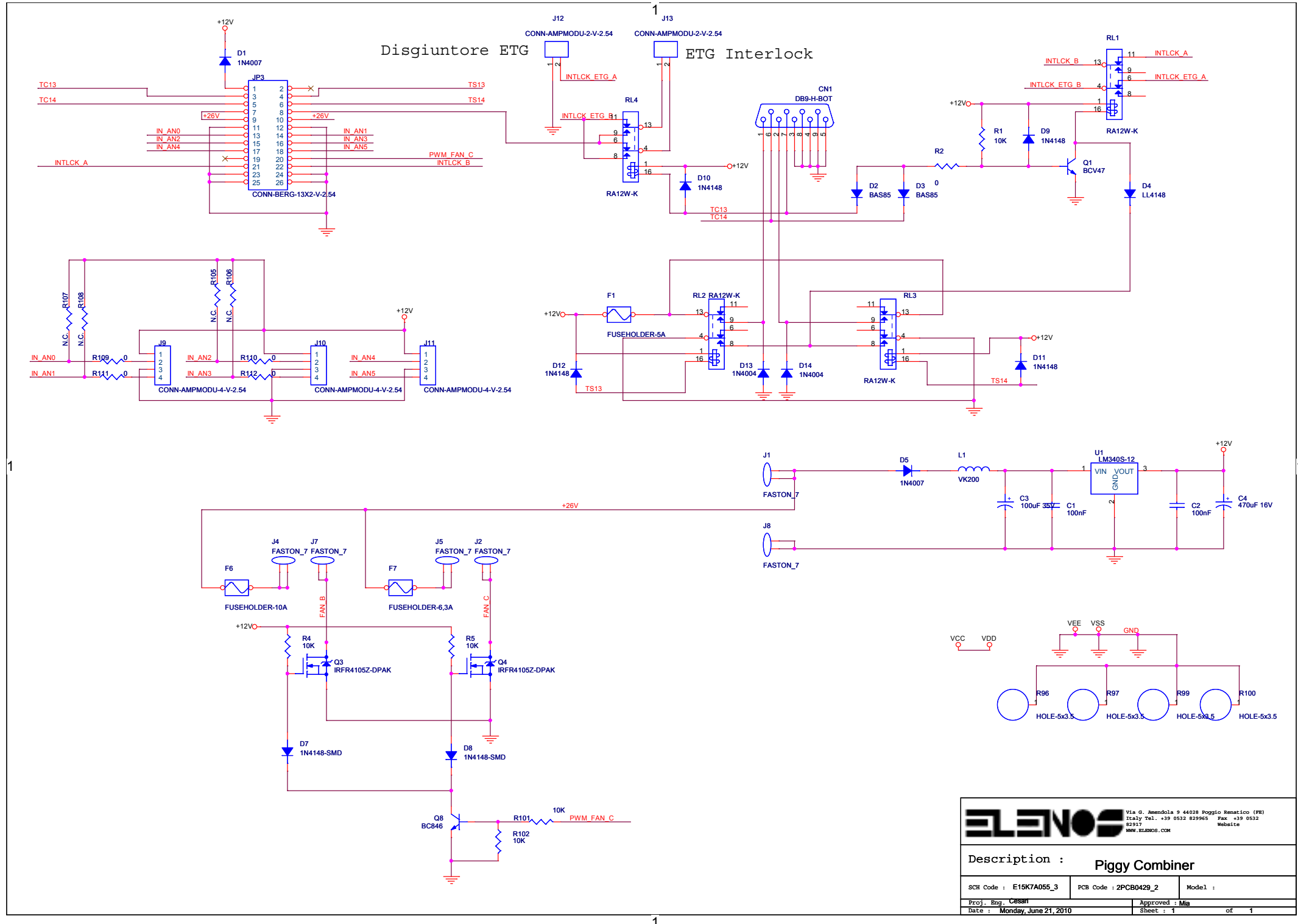


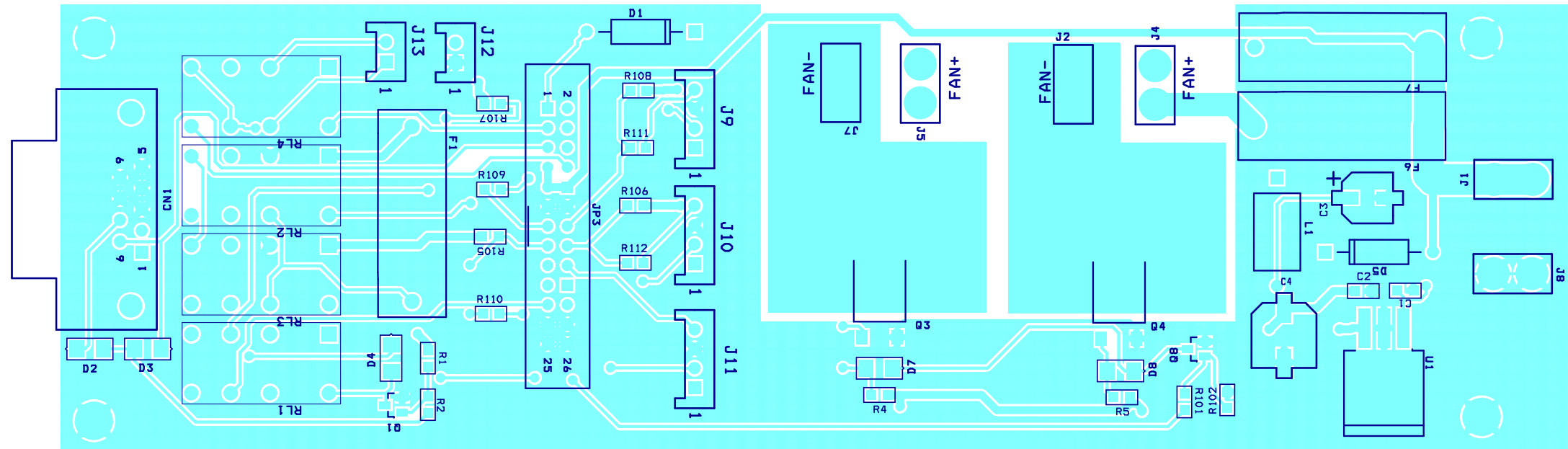


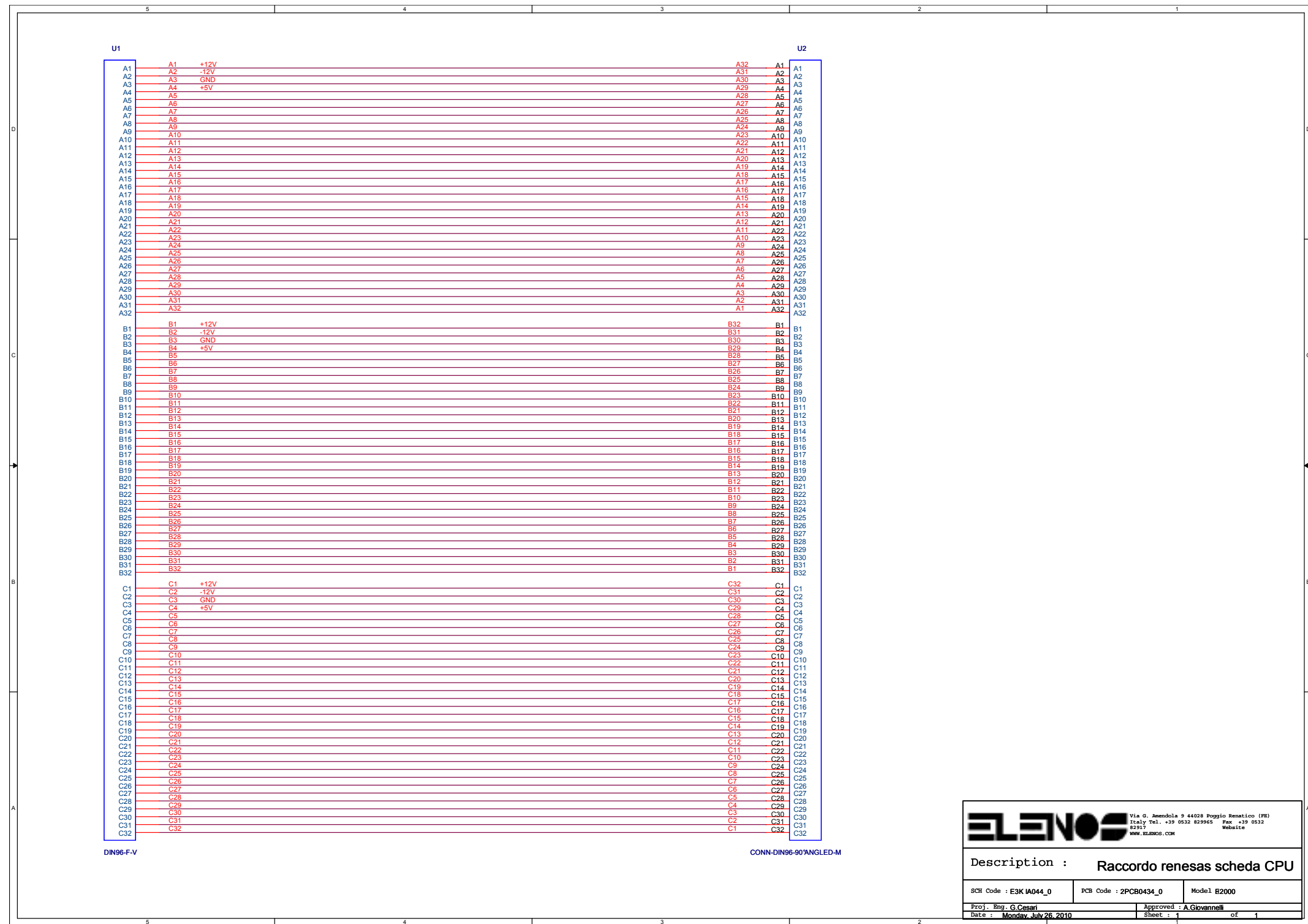


Description : CPU --> TC/TS	
SCB Code : 2336 PA044_2	PCB Code : 2336A042_3
Model : 1	
Rev : 1.1	Rev : 1.1
Rev : 1.1	Rev : 1.1

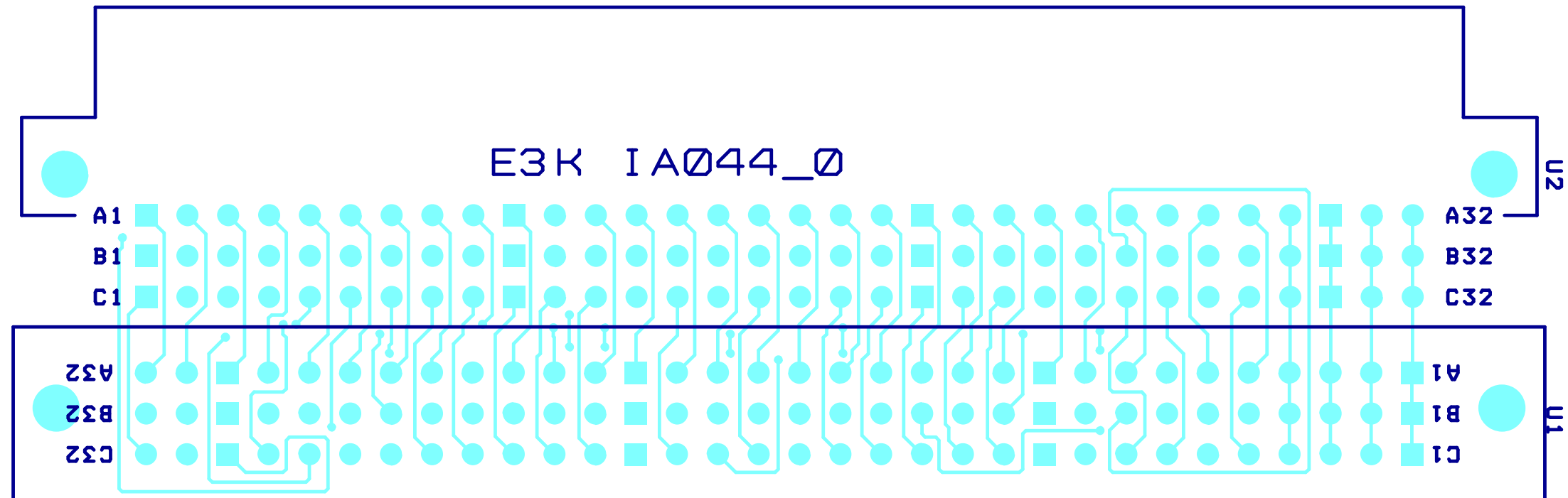
E15K7A055



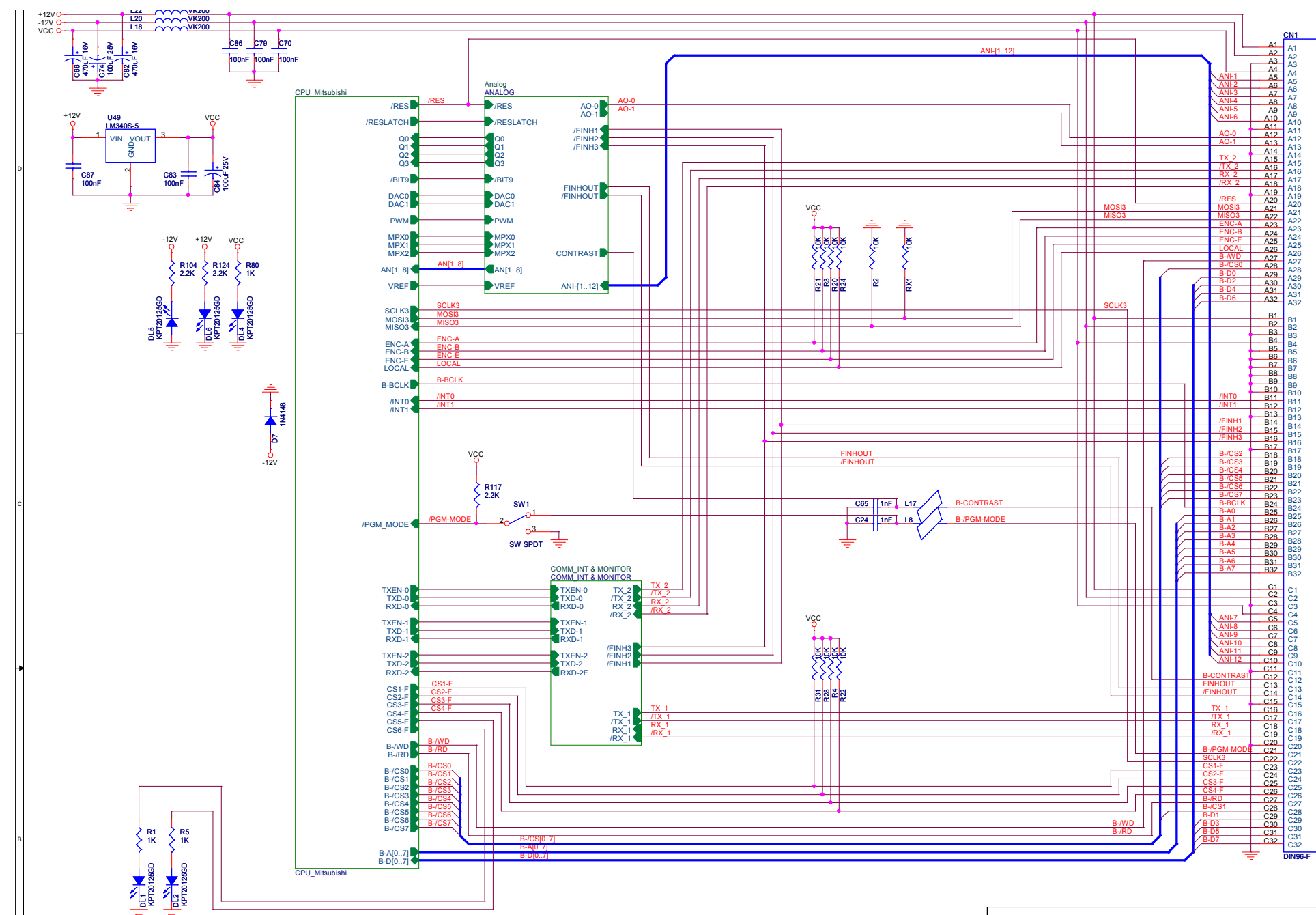




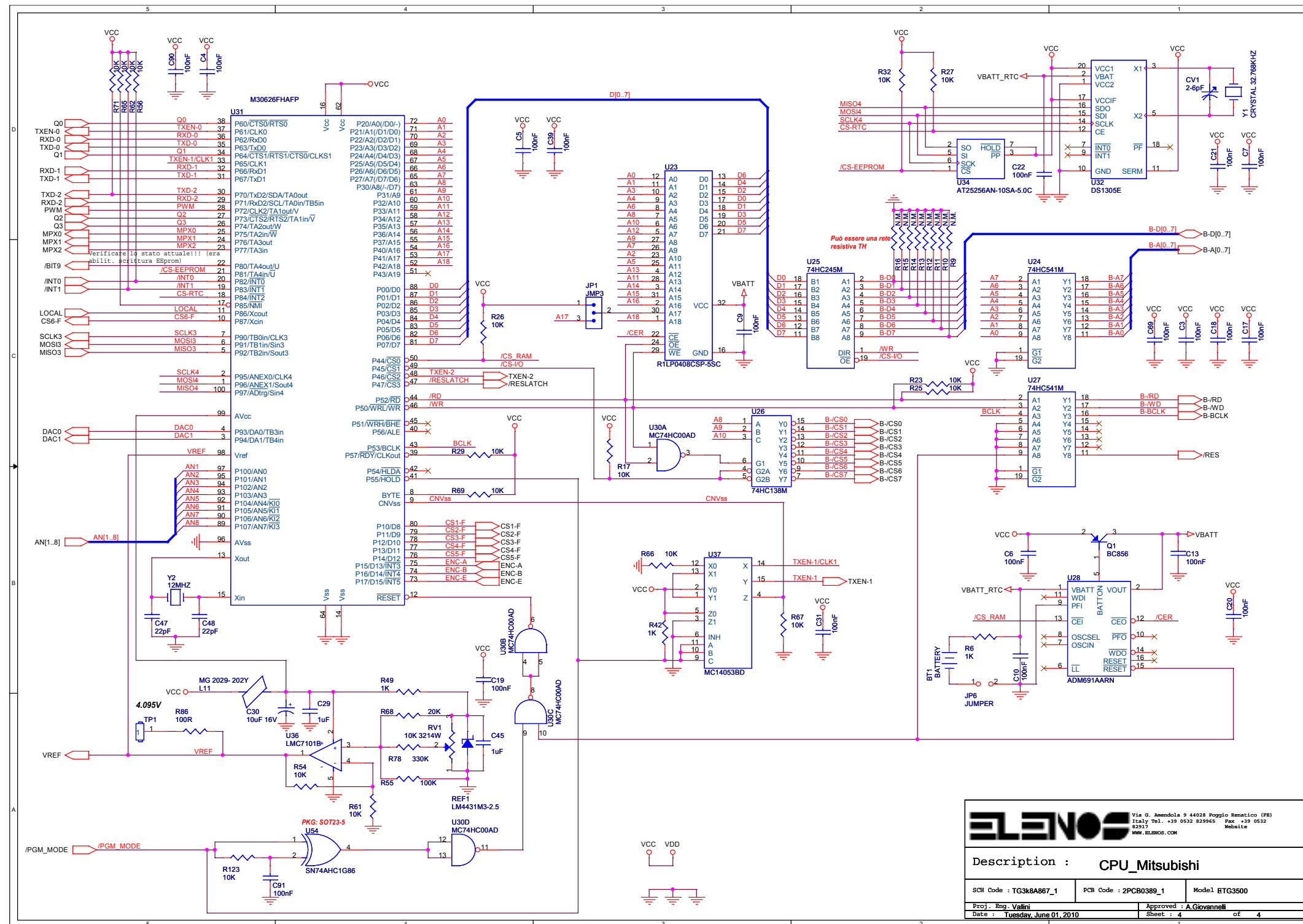
ELENOS		Via G. Amendola 9 44028 Poggio Renatico (PR) Italy Tel. +39 0532 829965 Fax +39 0532 82917 www.eleos.com Website
Description : Raccordo renesas scheda CPU		
SCH Code : E3K IA044_0	PCB Code : 2PCB0434_0	Model E2000
Proj. Rng. G. Cesari		Approved : A. Giovannelli
Date : Monday, July 26, 2010	Sheet : 1	of 1

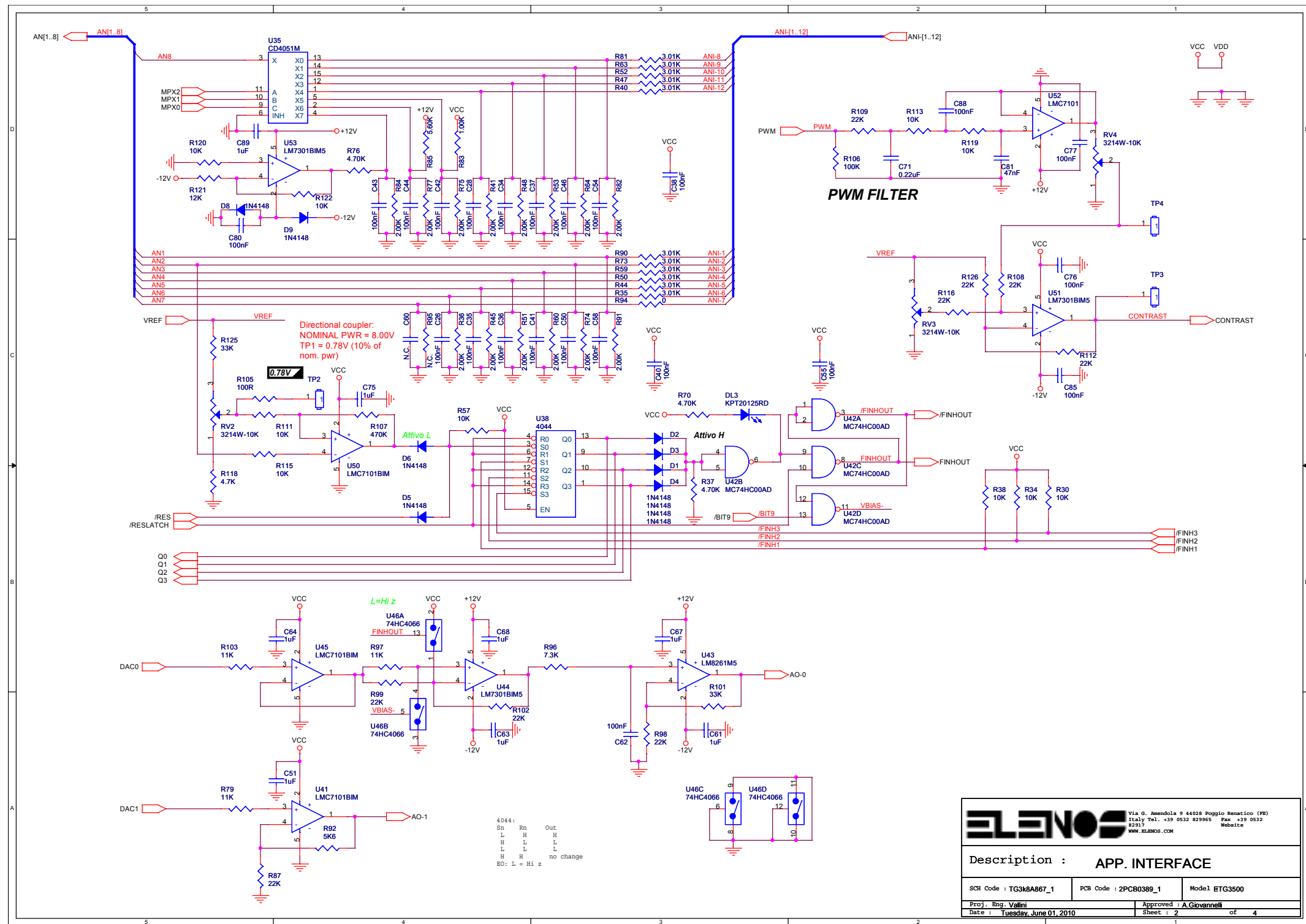


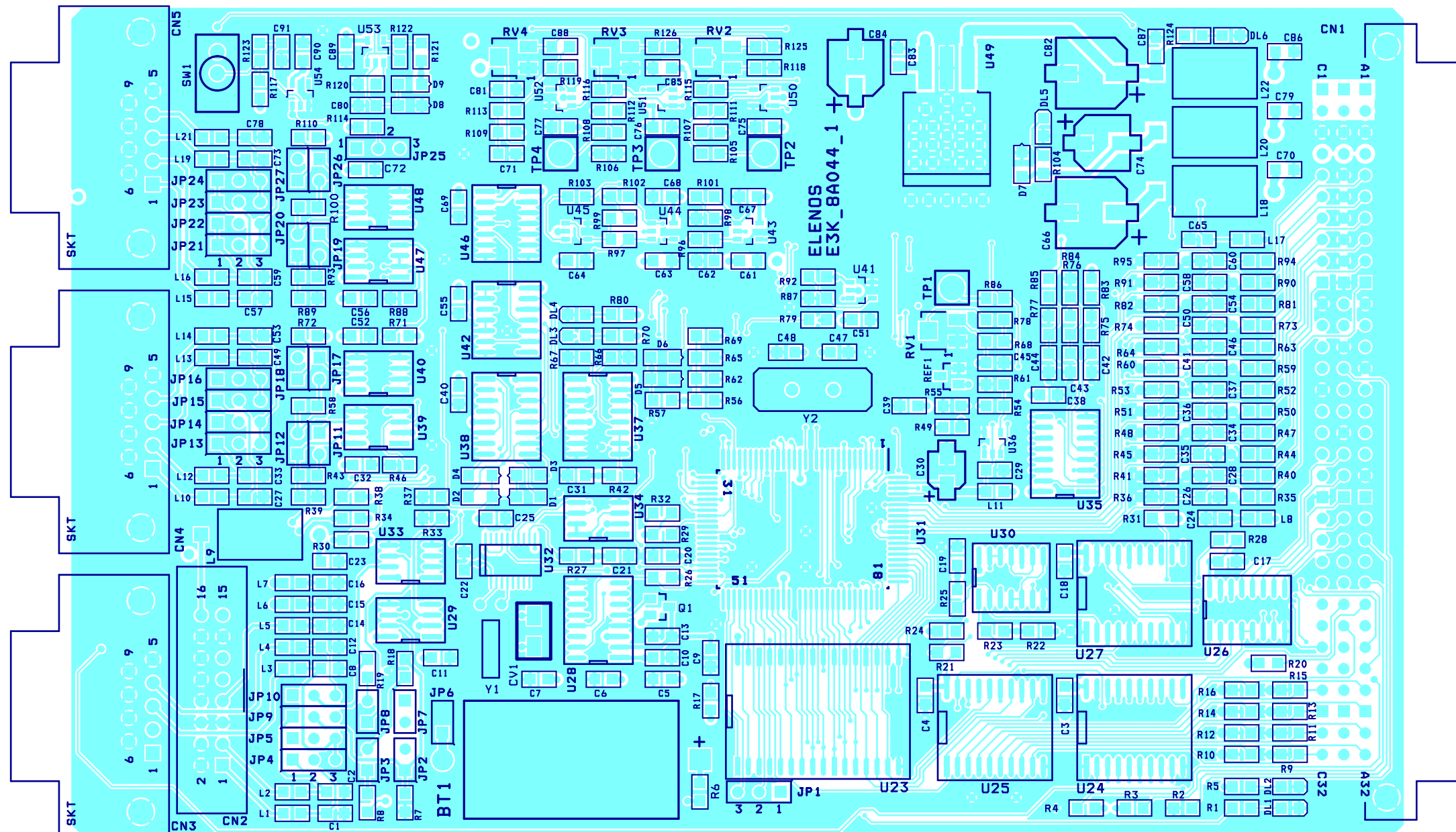
TG3K8A867



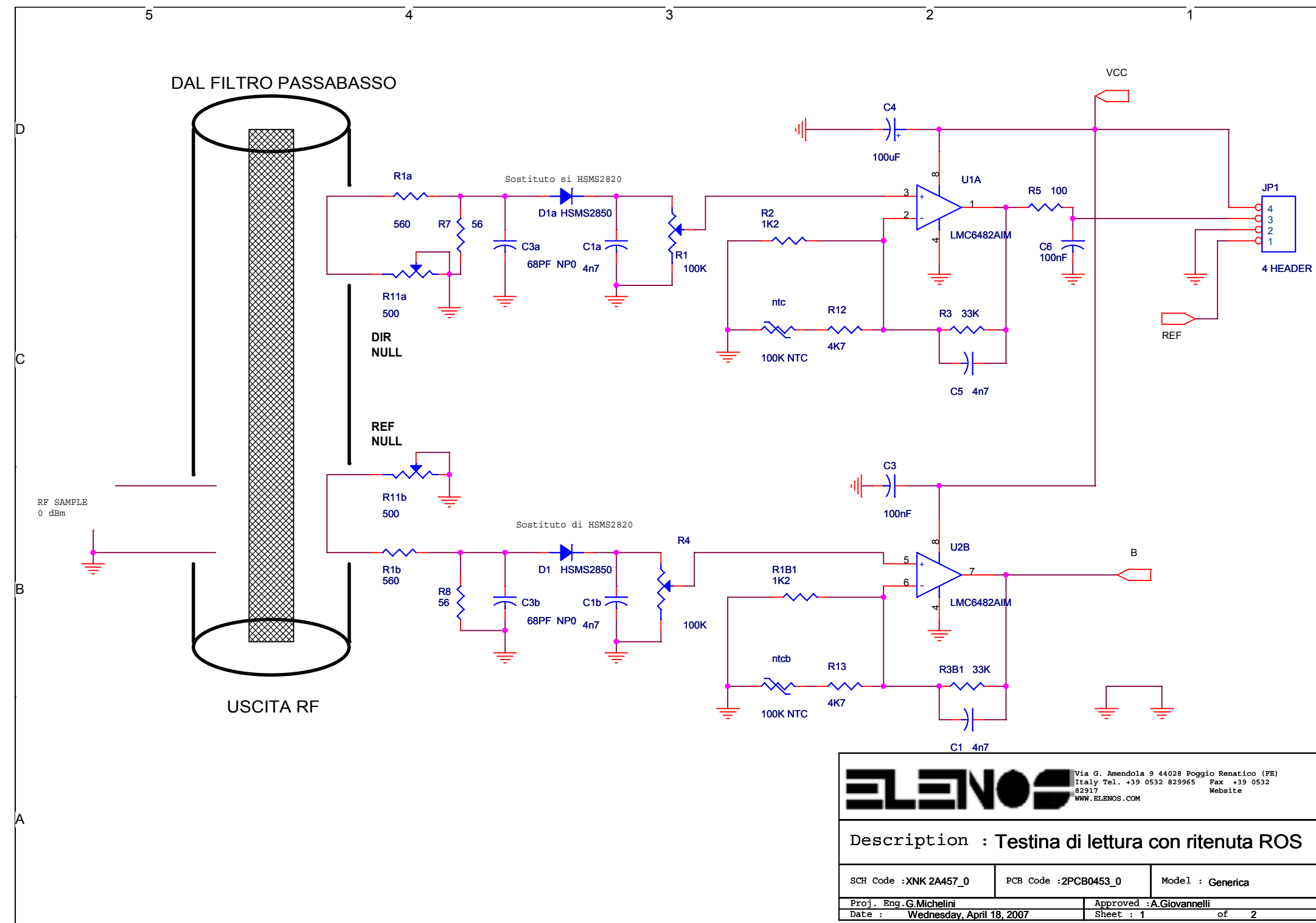
		Via G. Amendola 9 44028 Poggio Renatico (FE) Italy Tel. +39 0532 829945 Fax +39 0532 829177 www.ELENDOS.COM	
Description : MAIN			
SCN Code : TG3K4A867_1		PCB Code : 2PCB0389_1	
		Model : FTG3500	
Proj. : Eng. Vallini		Approved : A. Giovannelli	
Date : Tuesday June 01 2010		Sheet : _____ of 4	

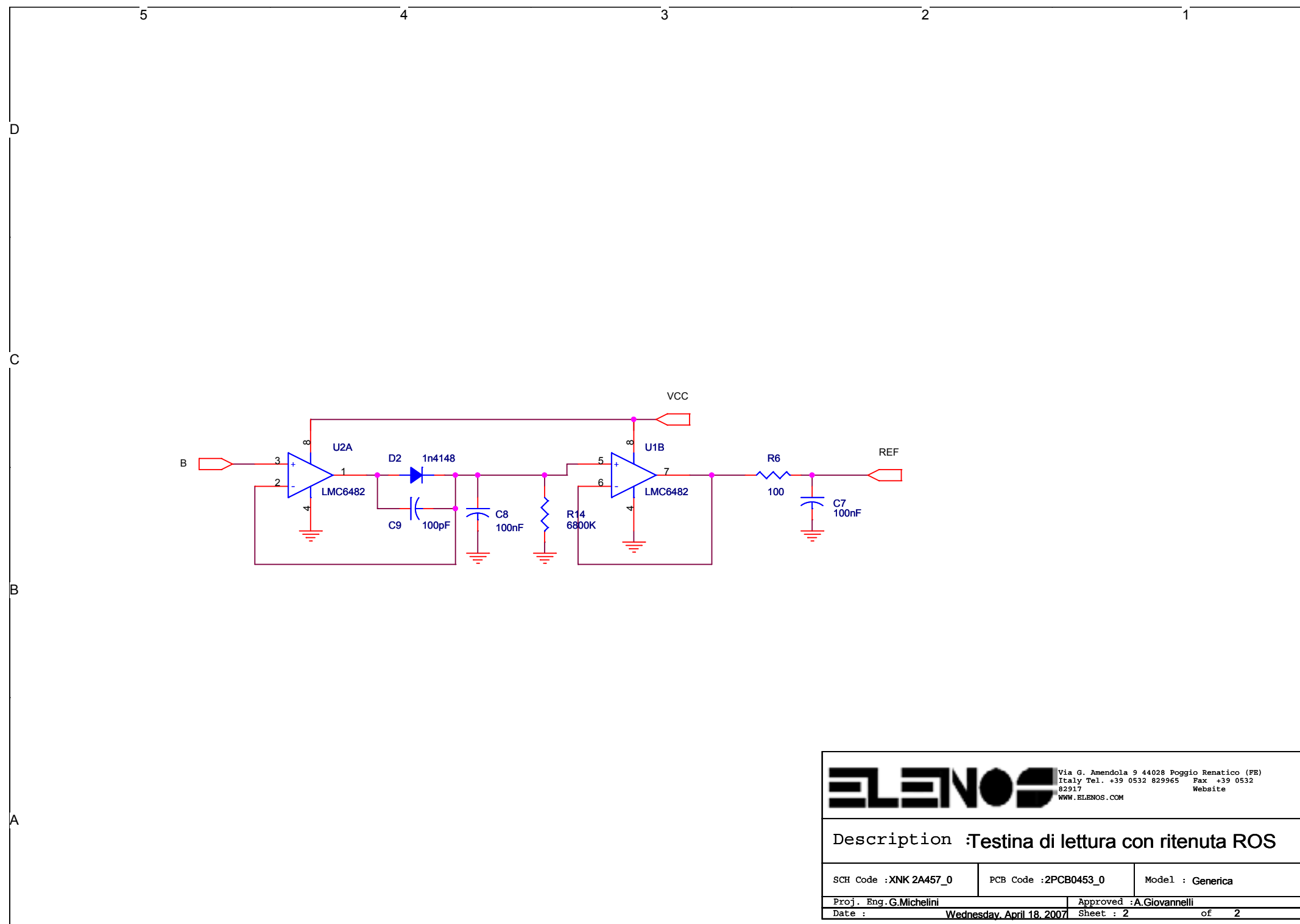


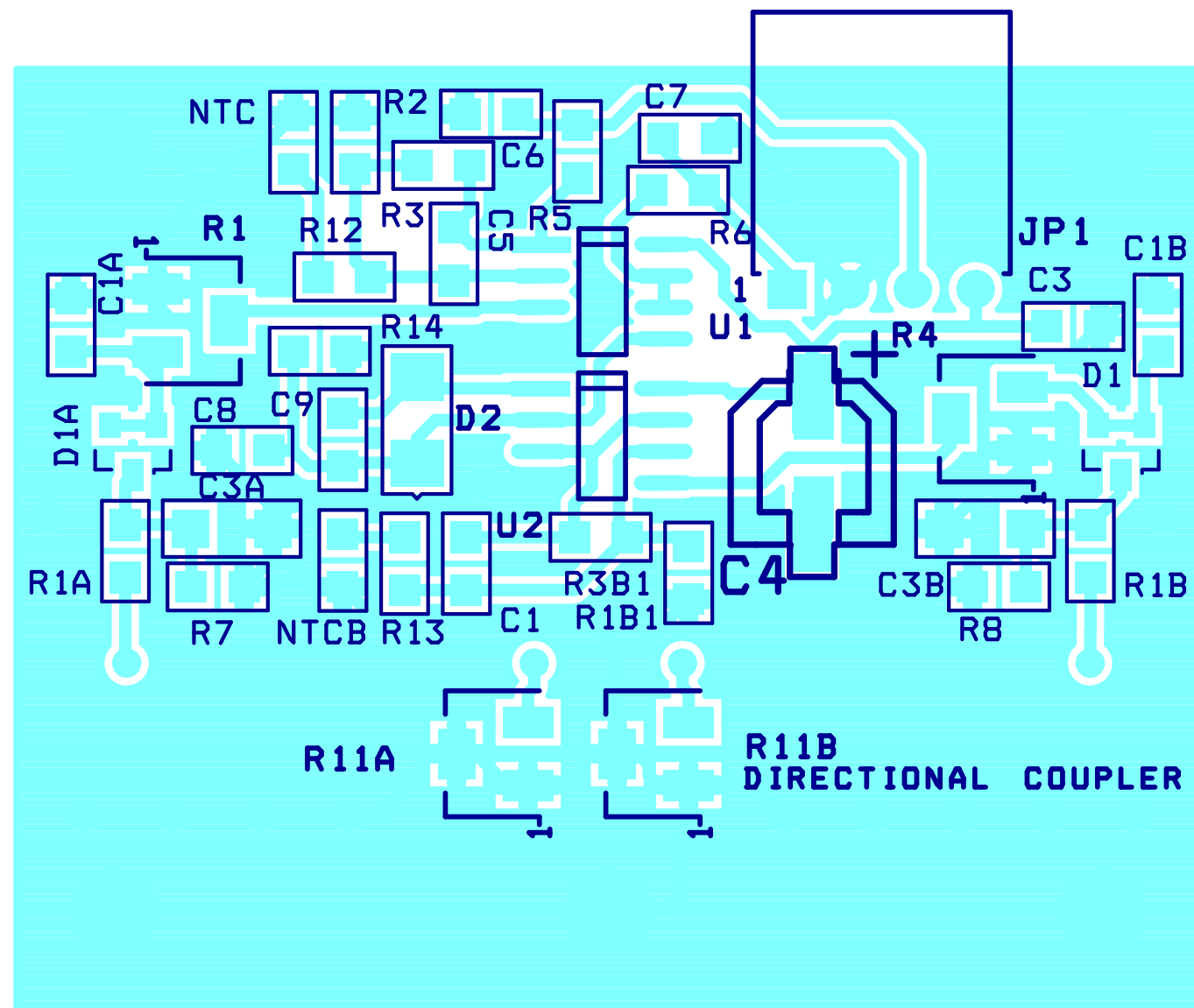


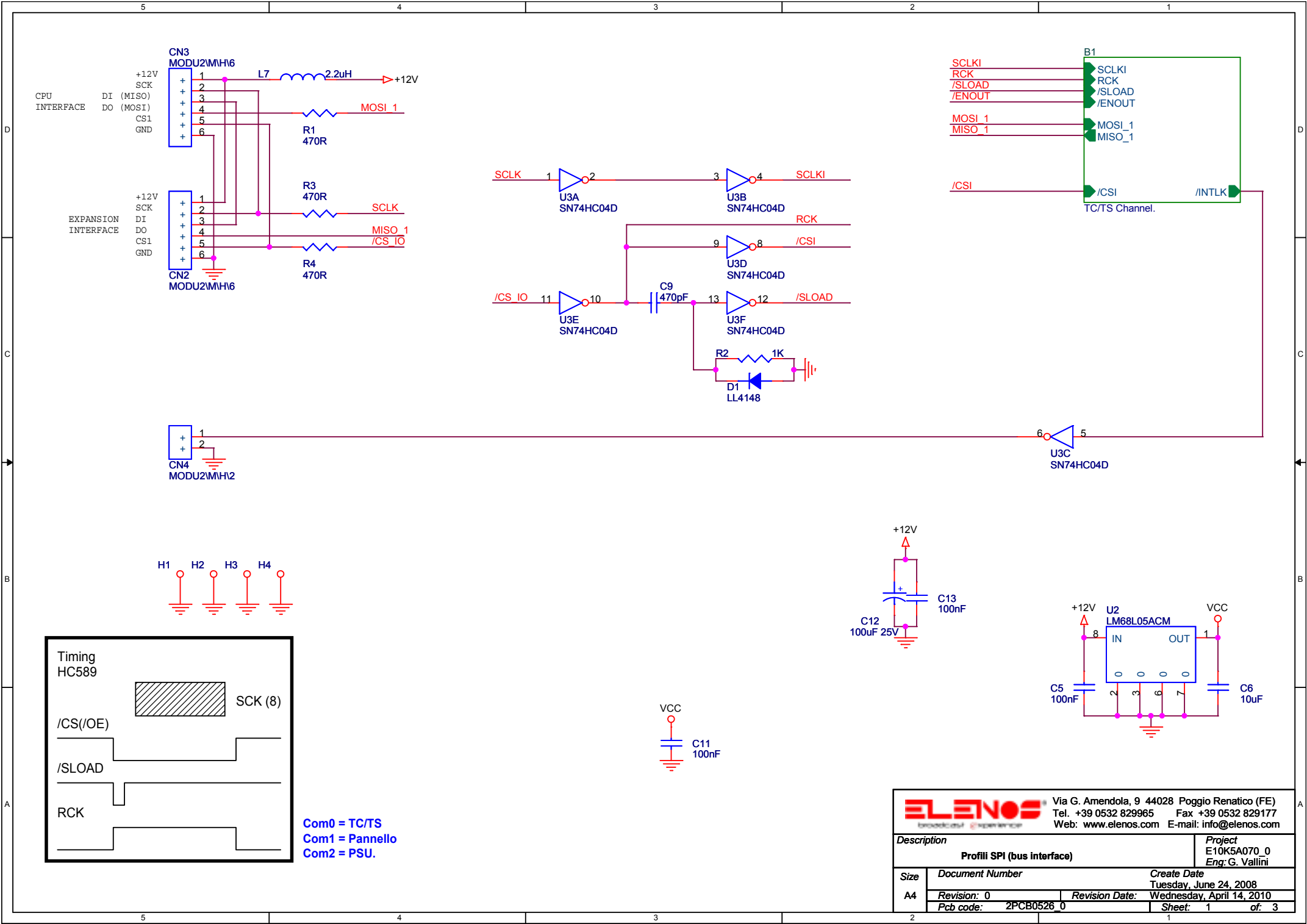


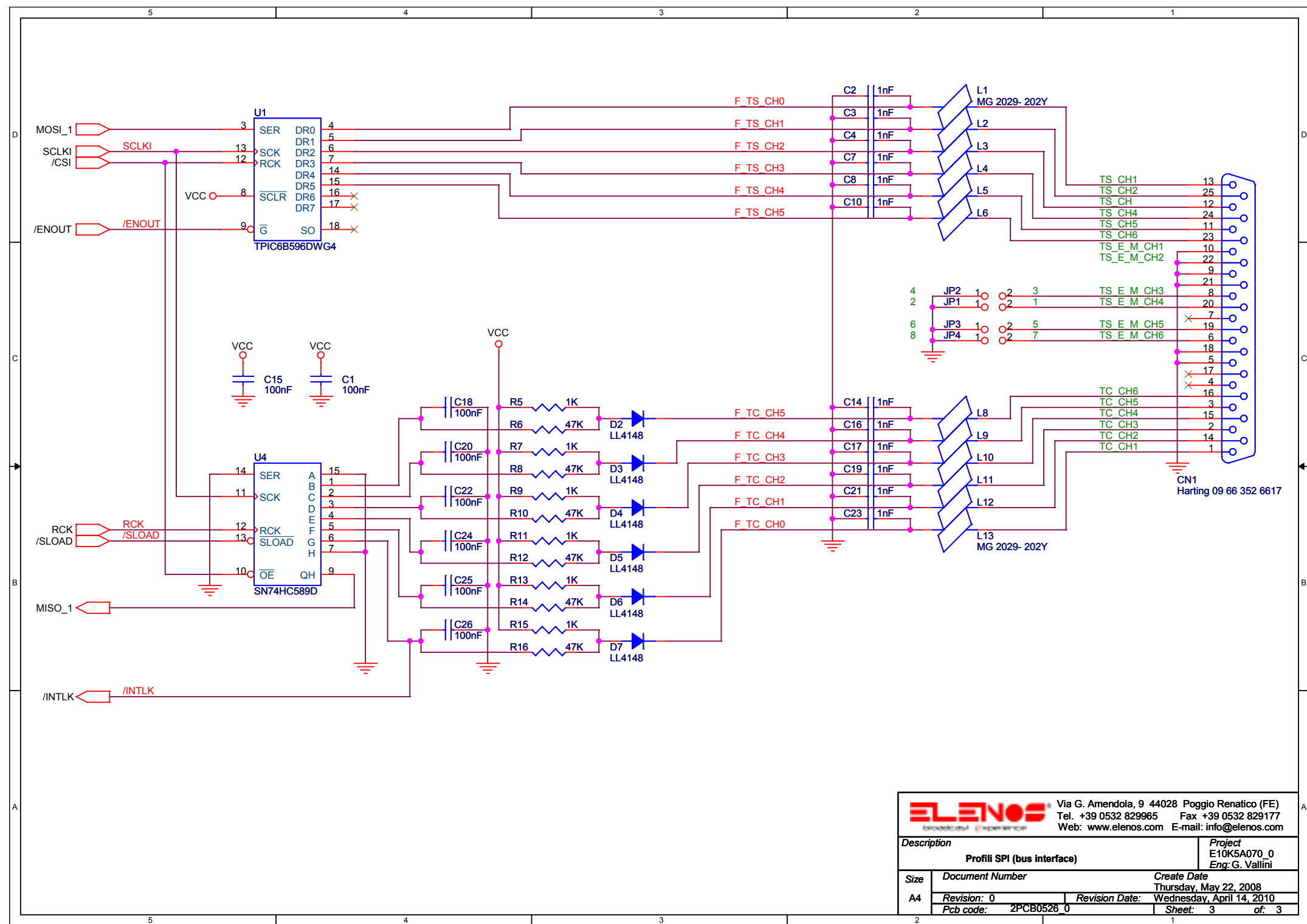
XNK 2A457

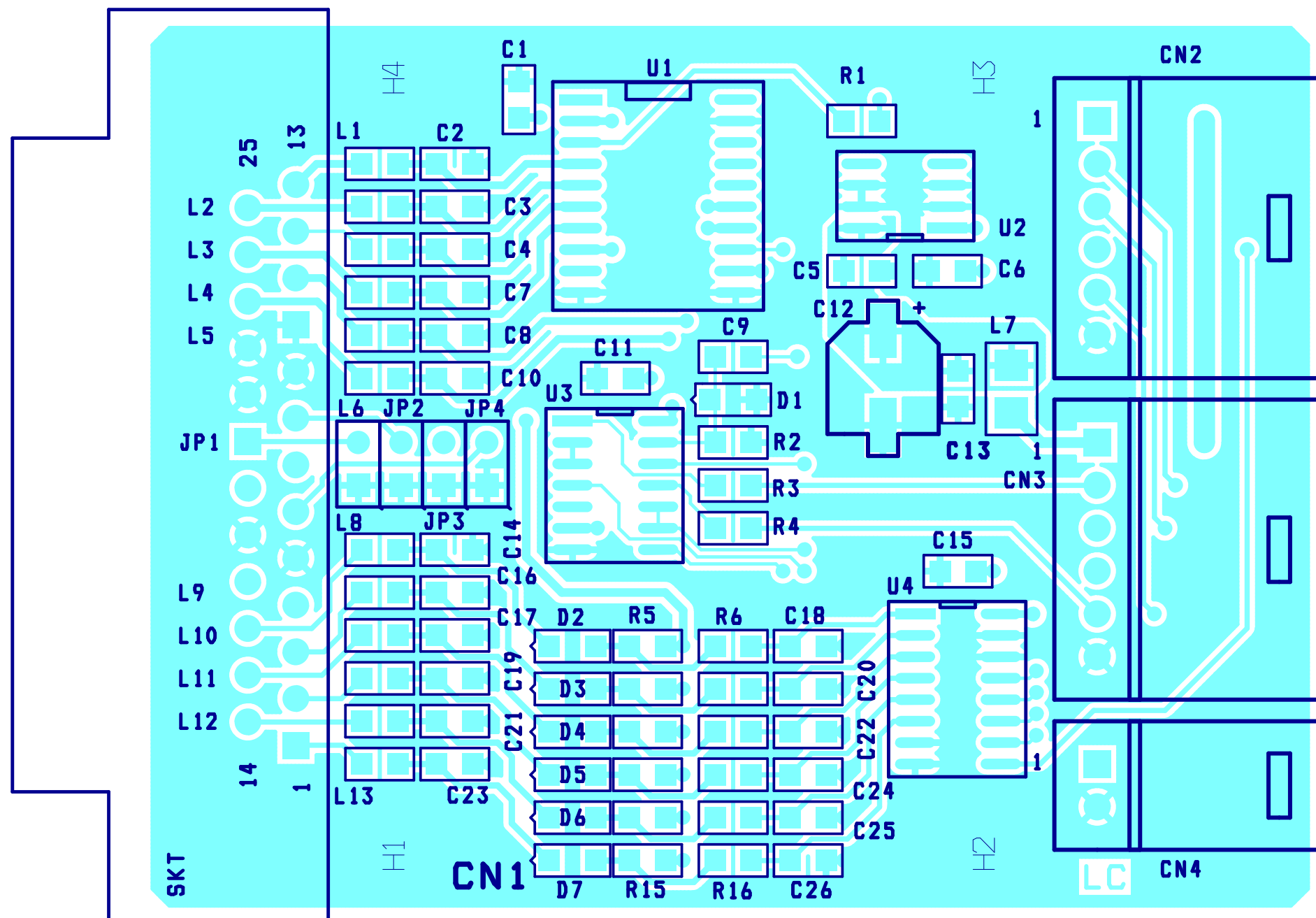




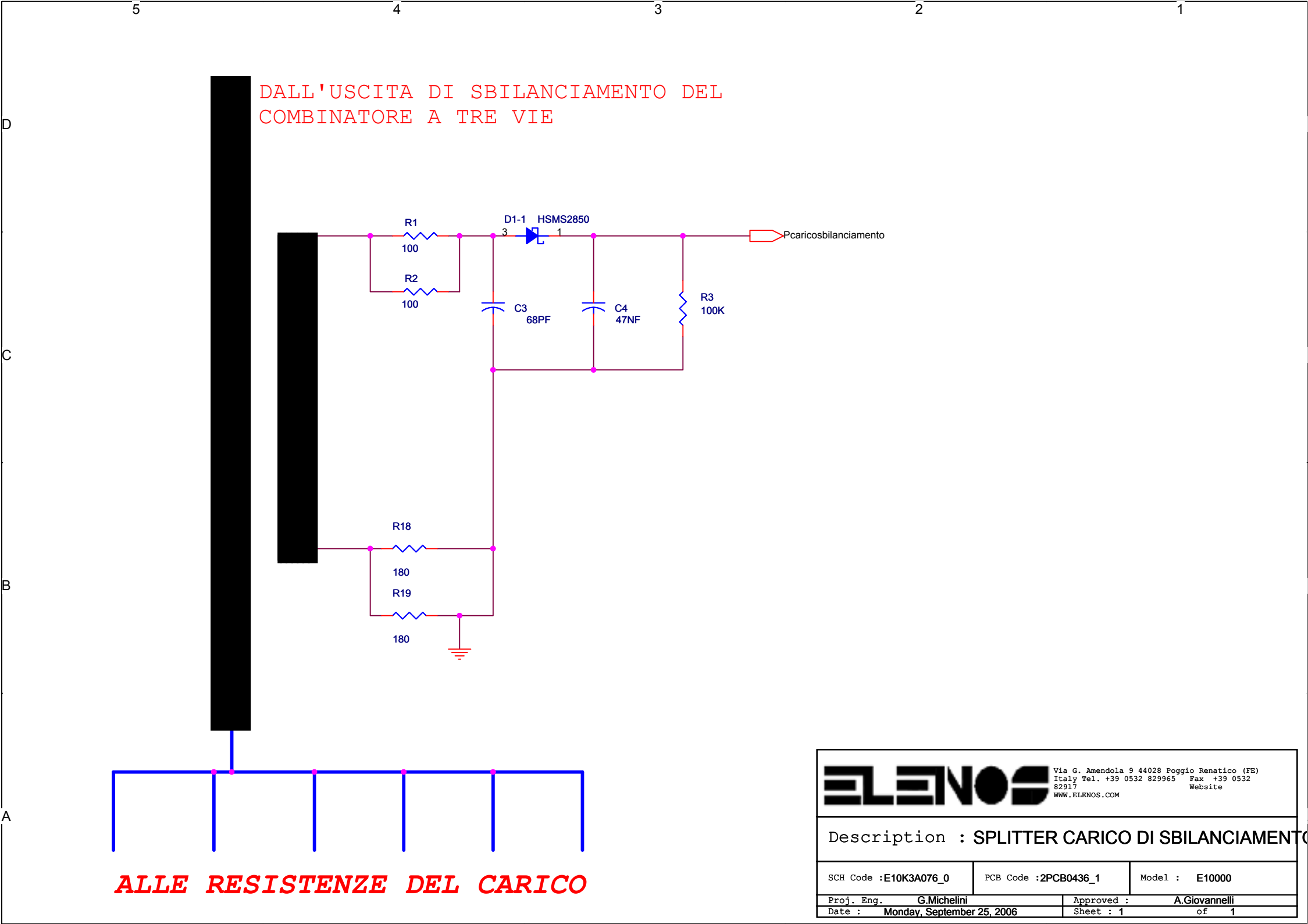


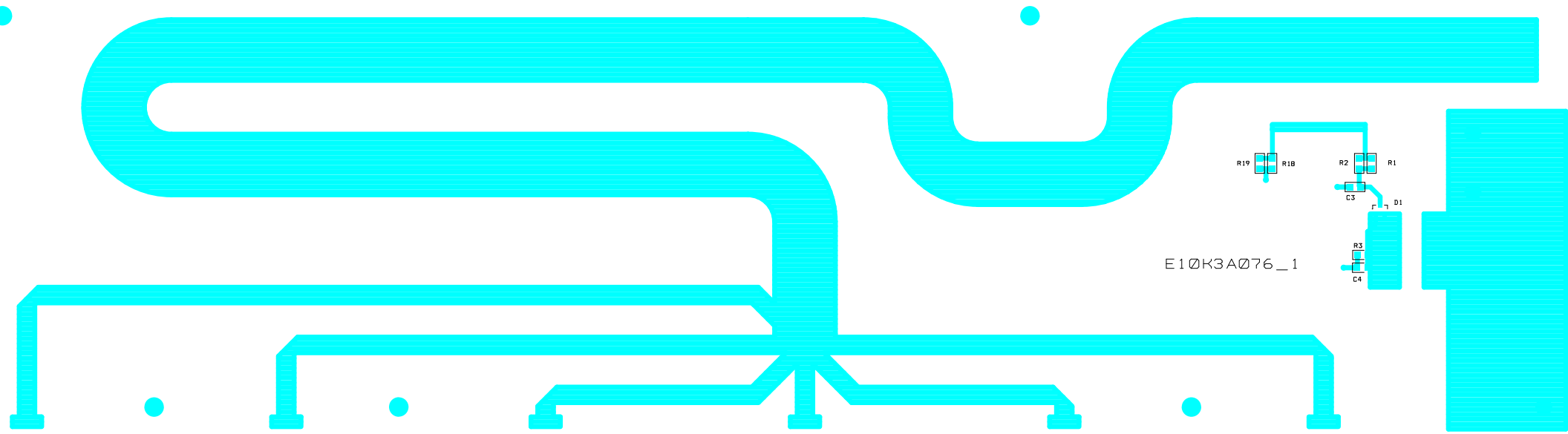


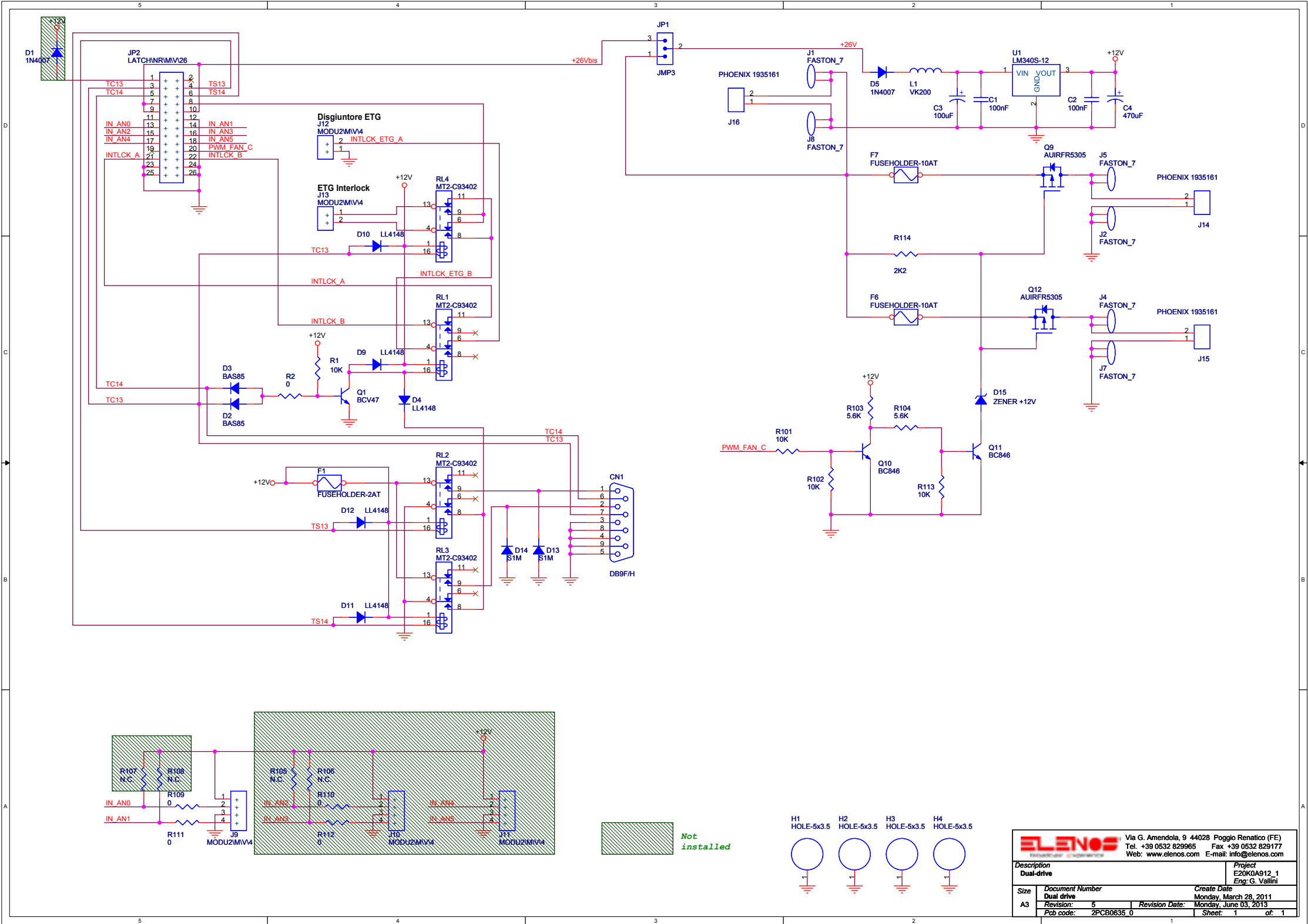


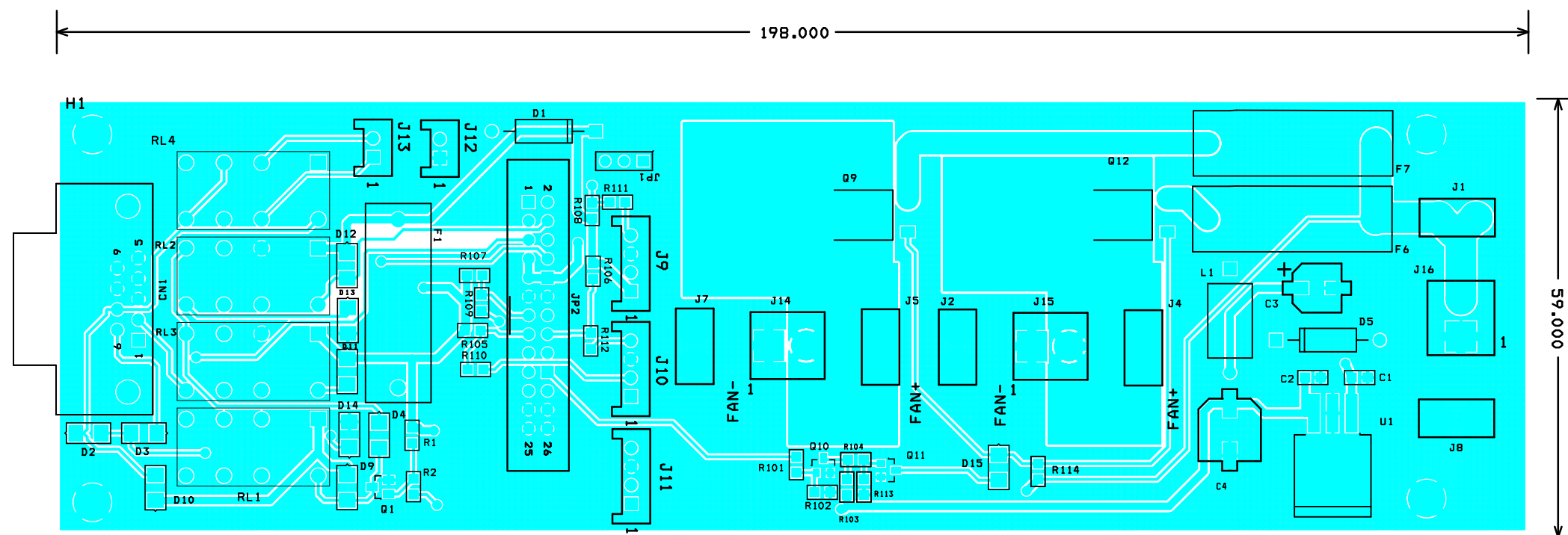


E10K3A076

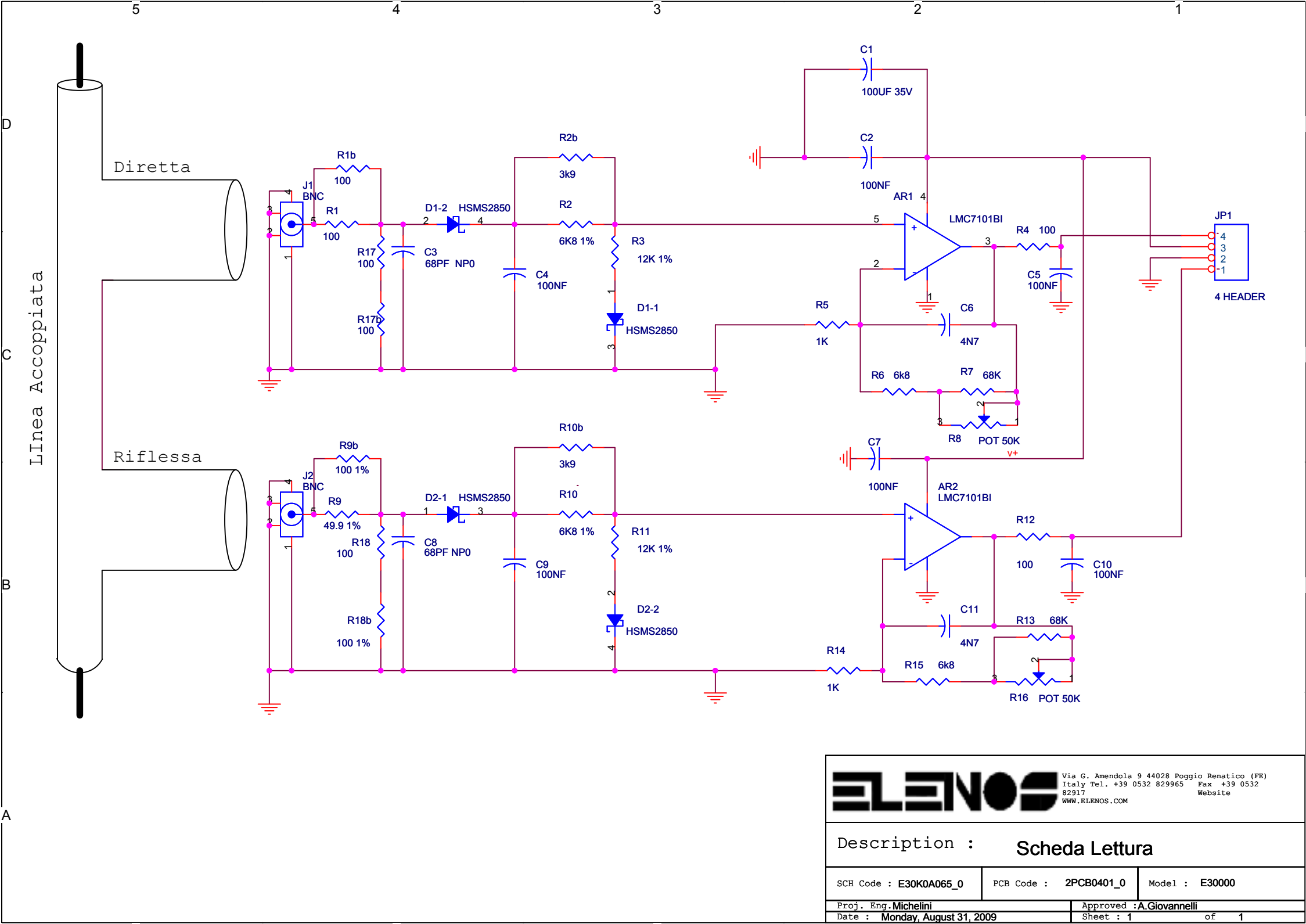


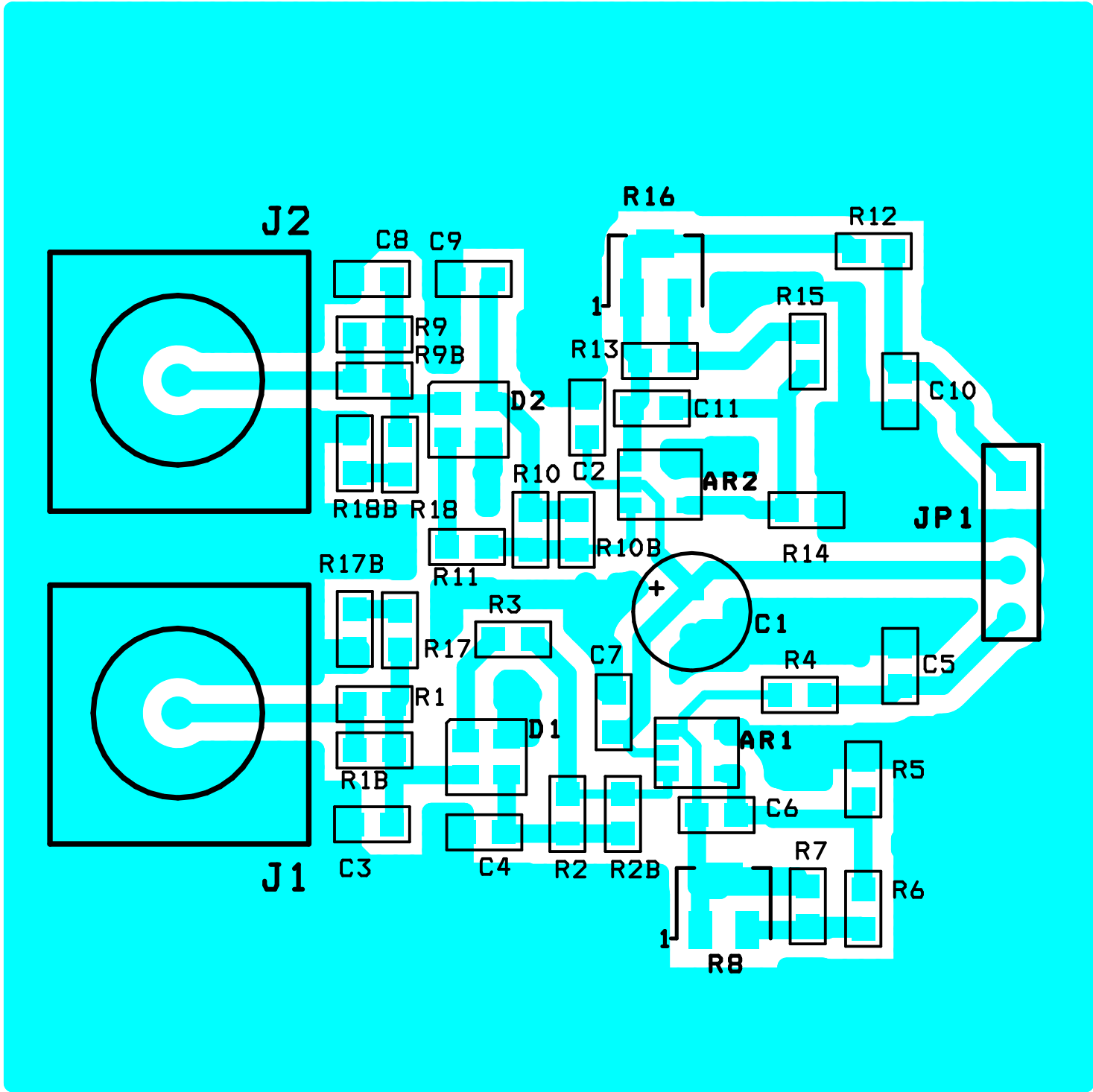




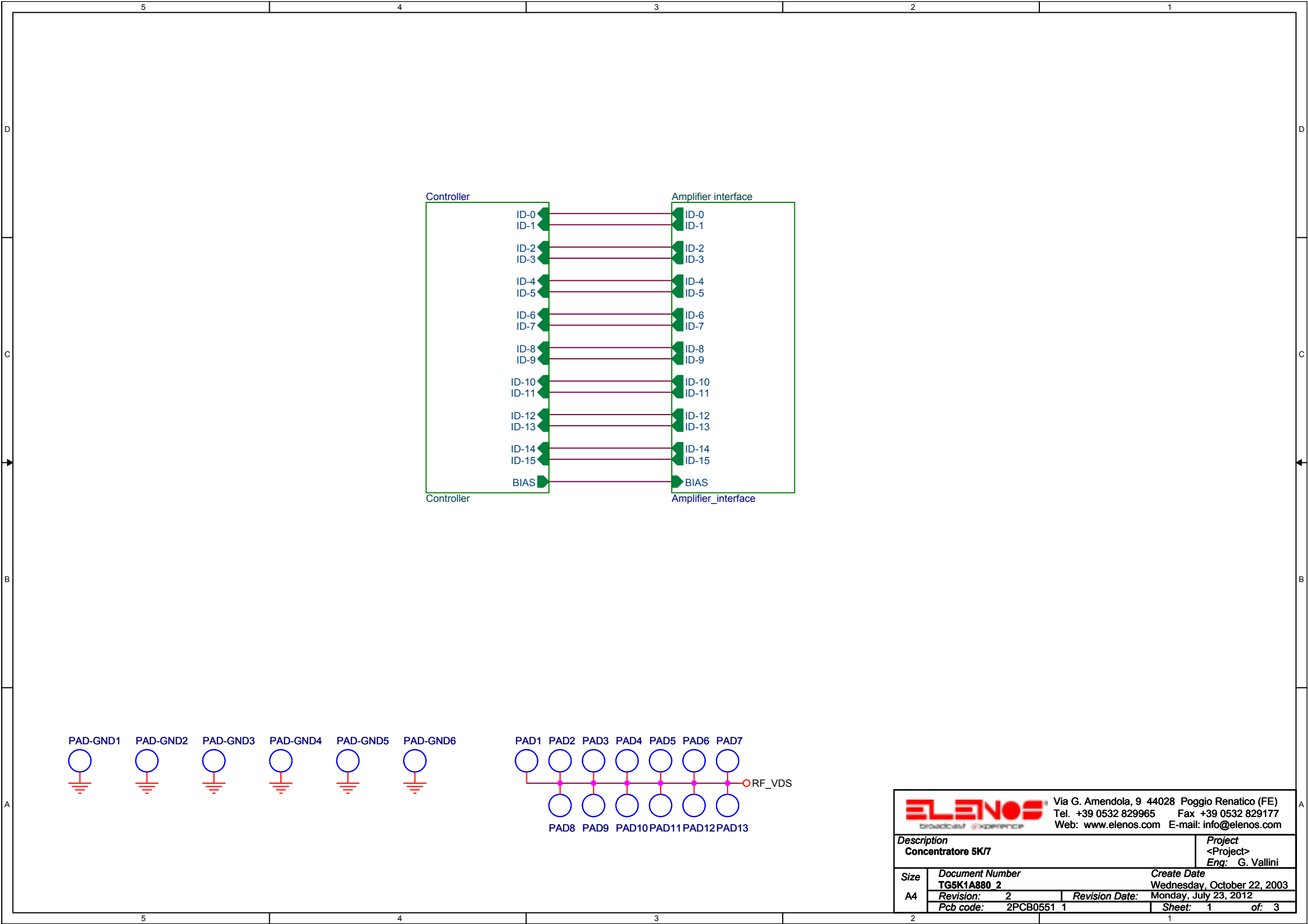


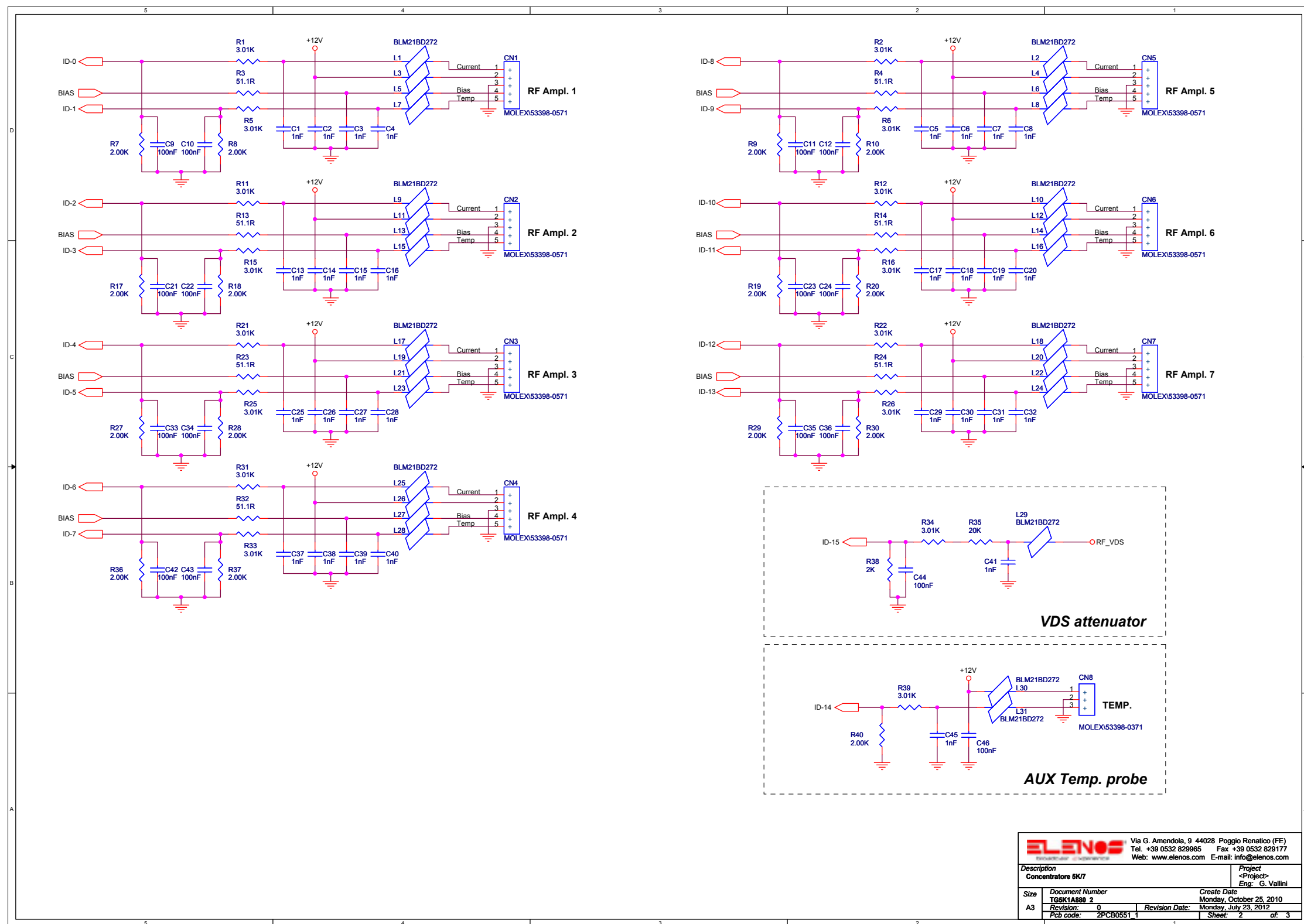
E30K0A065

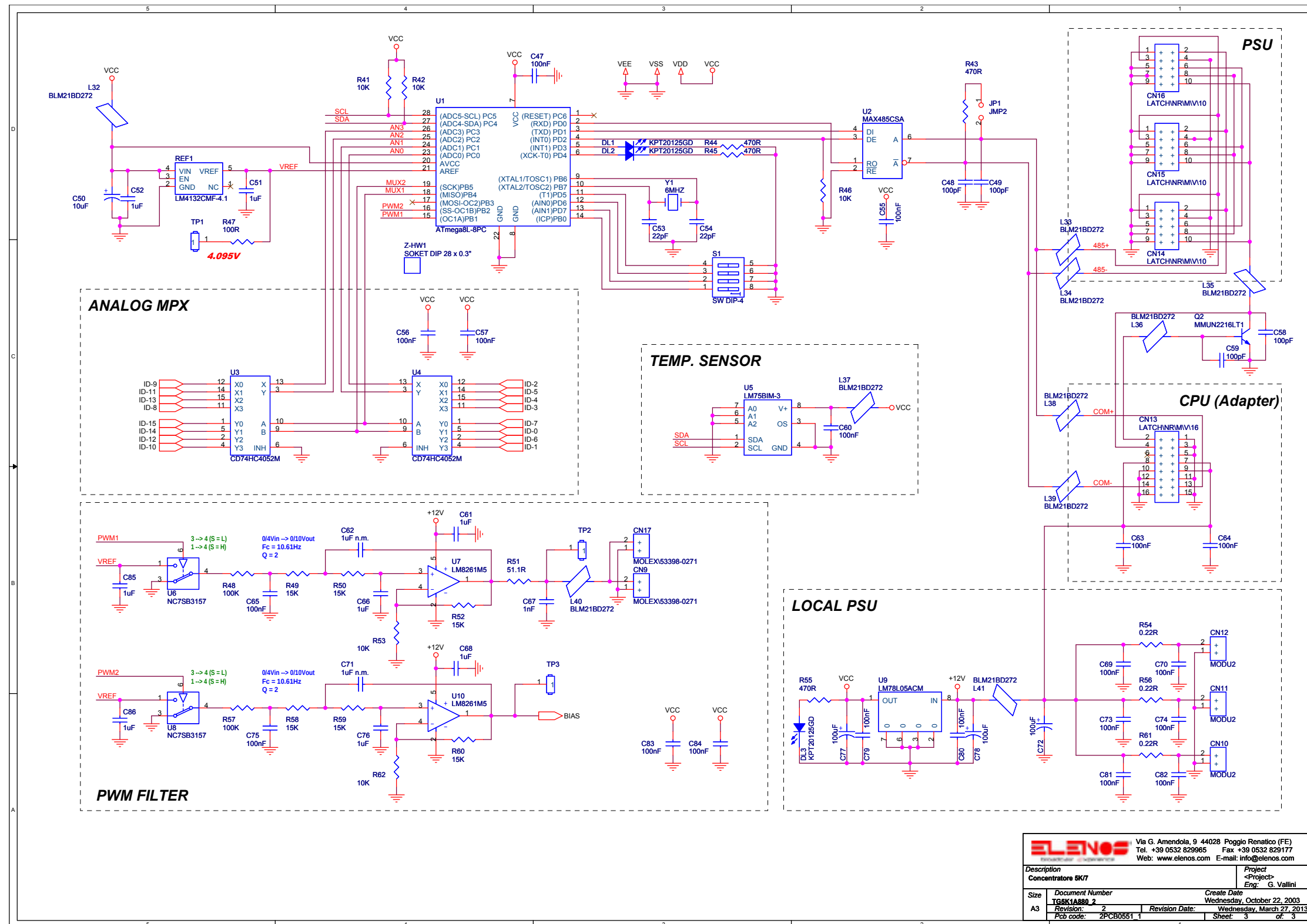




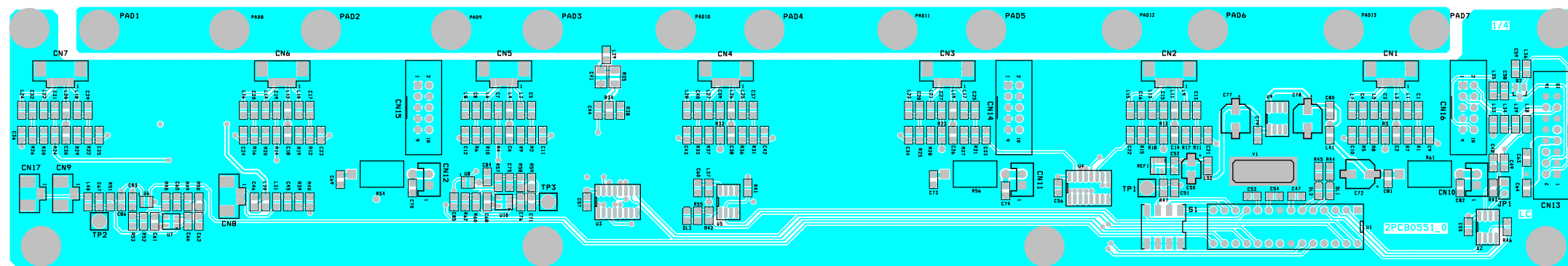
TG5K1A880

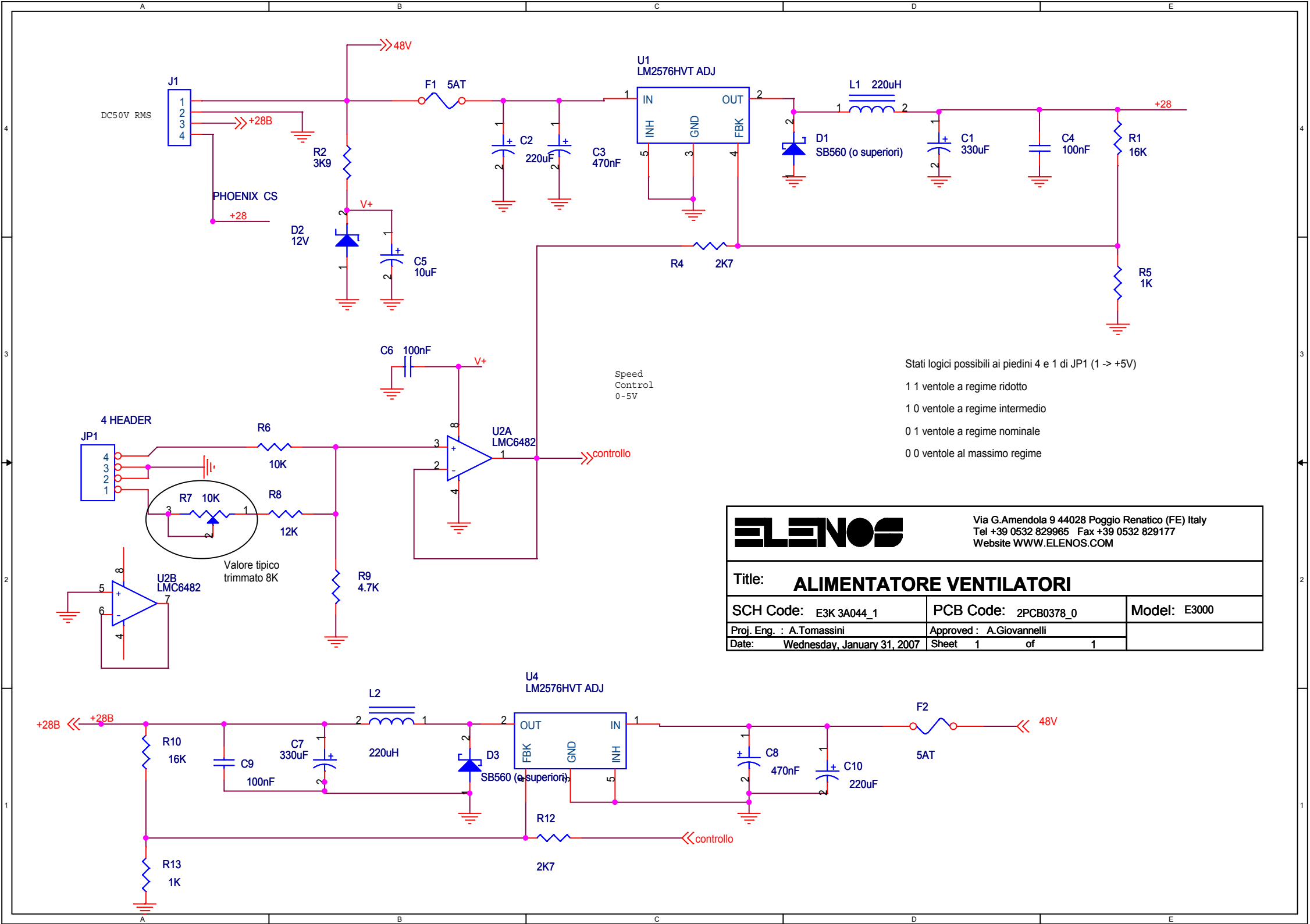


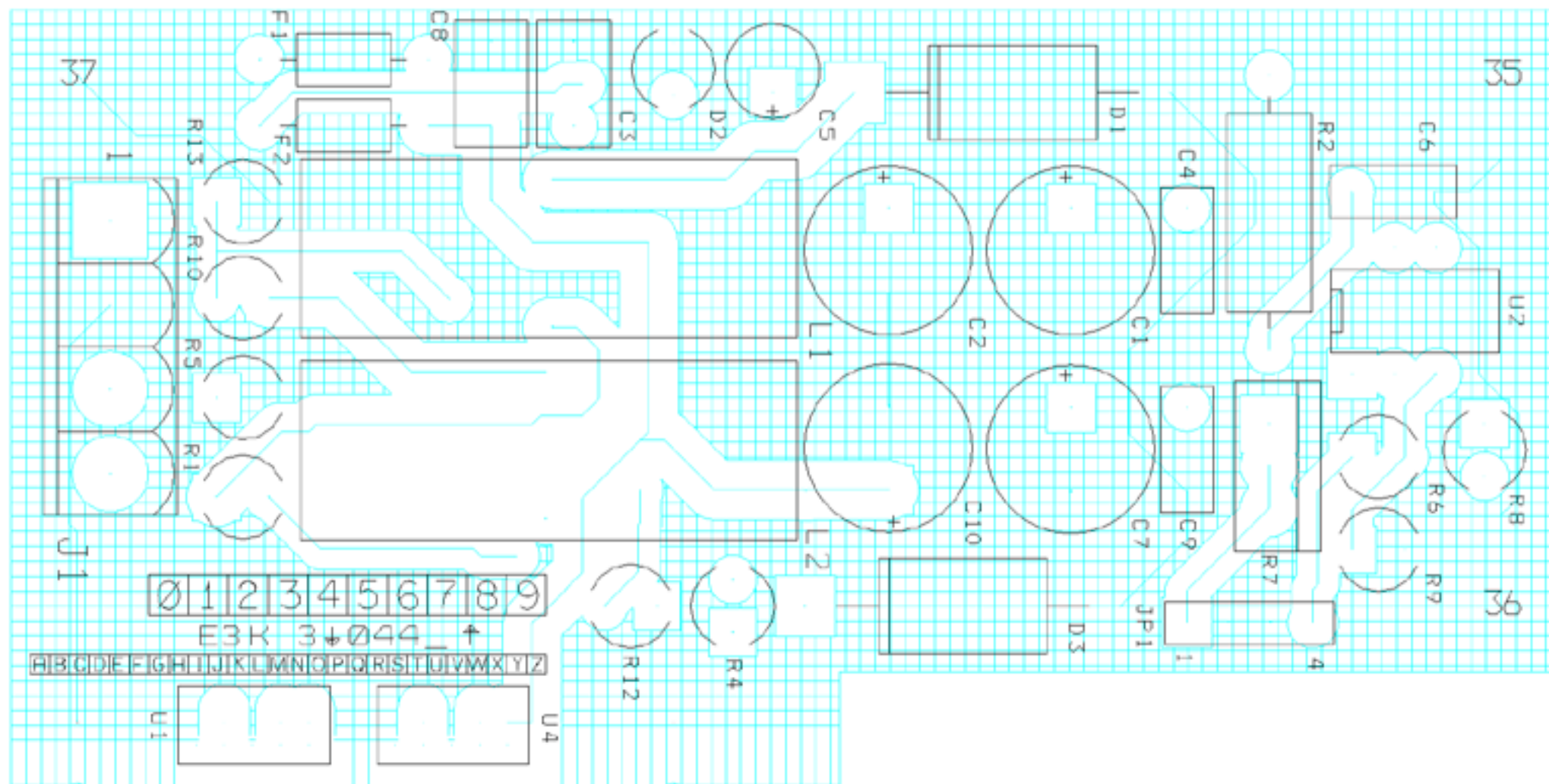




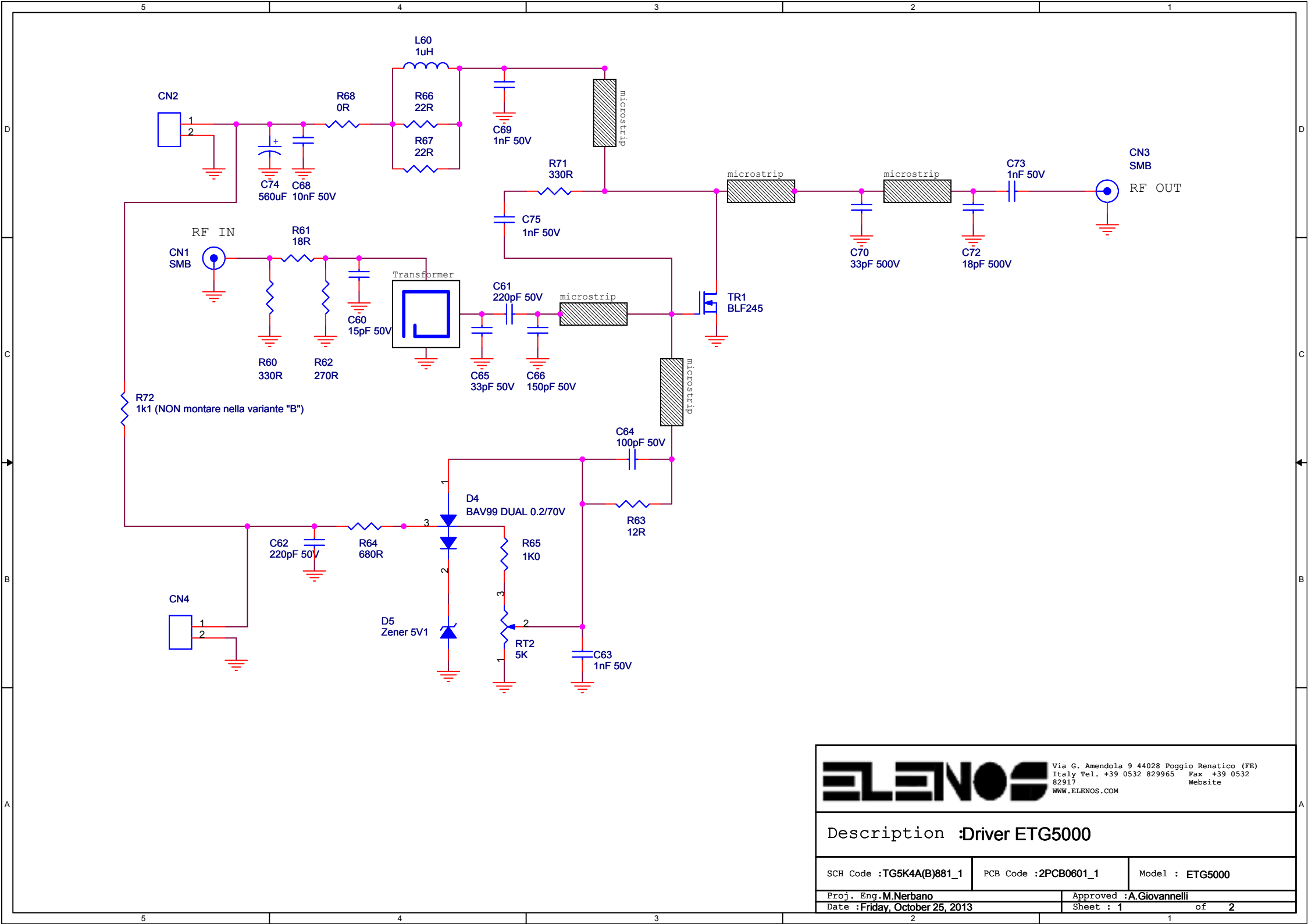
ELENOS		Via G. Amendola, 9 44028 Poggio Renatico (FE)	
		Tel. +39 0532 829965 Fax +39 0532 829177	
		Web: www.eLENOS.com E-mail: info@elenos.com	
Description		Project	
Concentrators 5K7		<Project>	
Size		Eng. G. Vallini	
Document Number		Create Date	
TG8K1A880_2		Wednesday, October 22, 2003	
Revision: 2		Revision Date: Wednesday, March 27, 2013	
Pcb code: 2PCB0551_1		Sheet: 3 of 3	







TG5K4A(B)881



ELENOS

Via G. Amendola 9 44028 Poggio Renatico (FE)
Italy Tel. +39 0532 829965 Fax +39 0532 82917
Website
WWW.ELENOS.COM

Description :Driver ETG5000

SCH Code :TG5K4A(B)881_1

PCB Code :2PCB0601_1

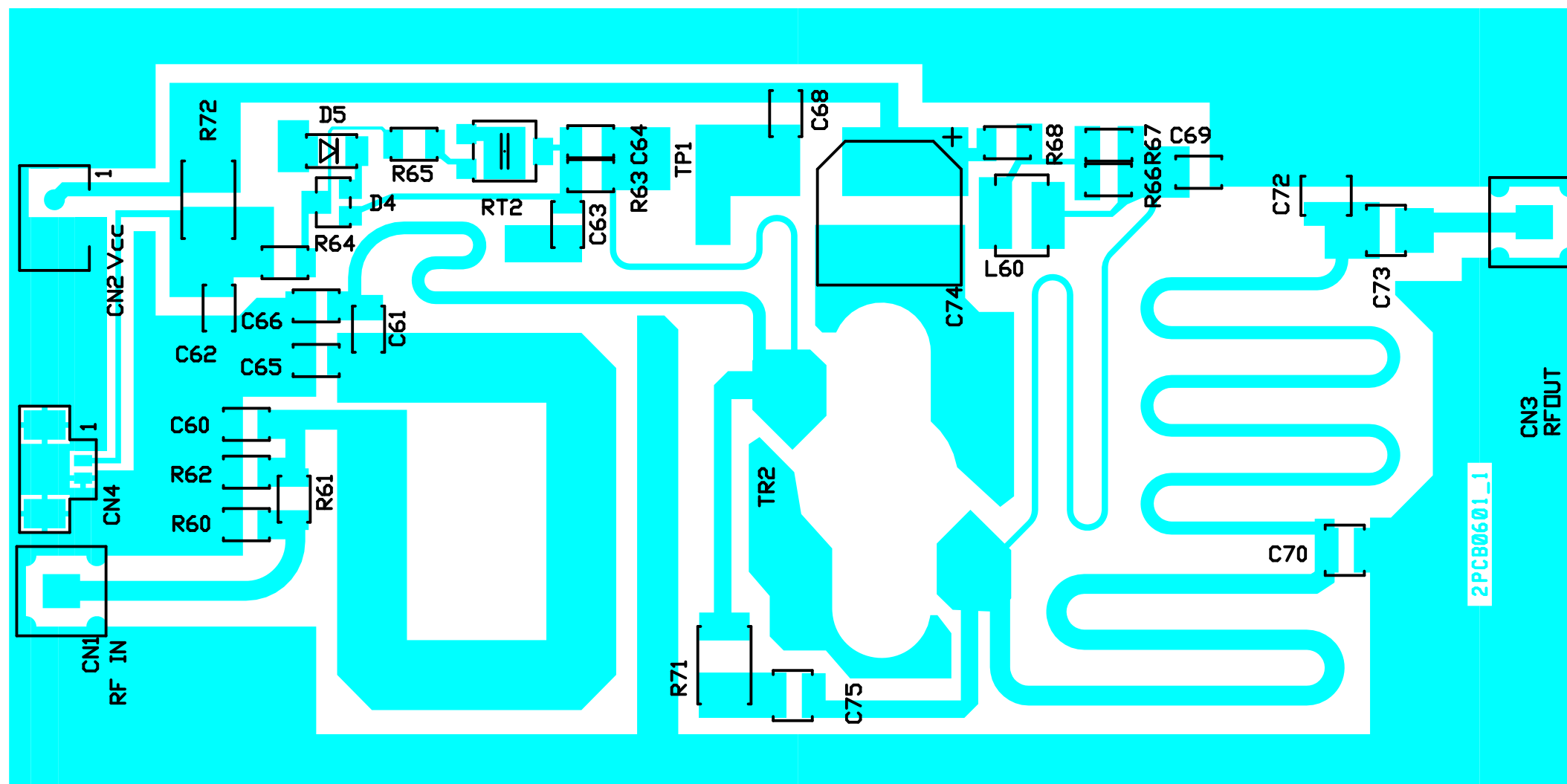
Model : ETG5000

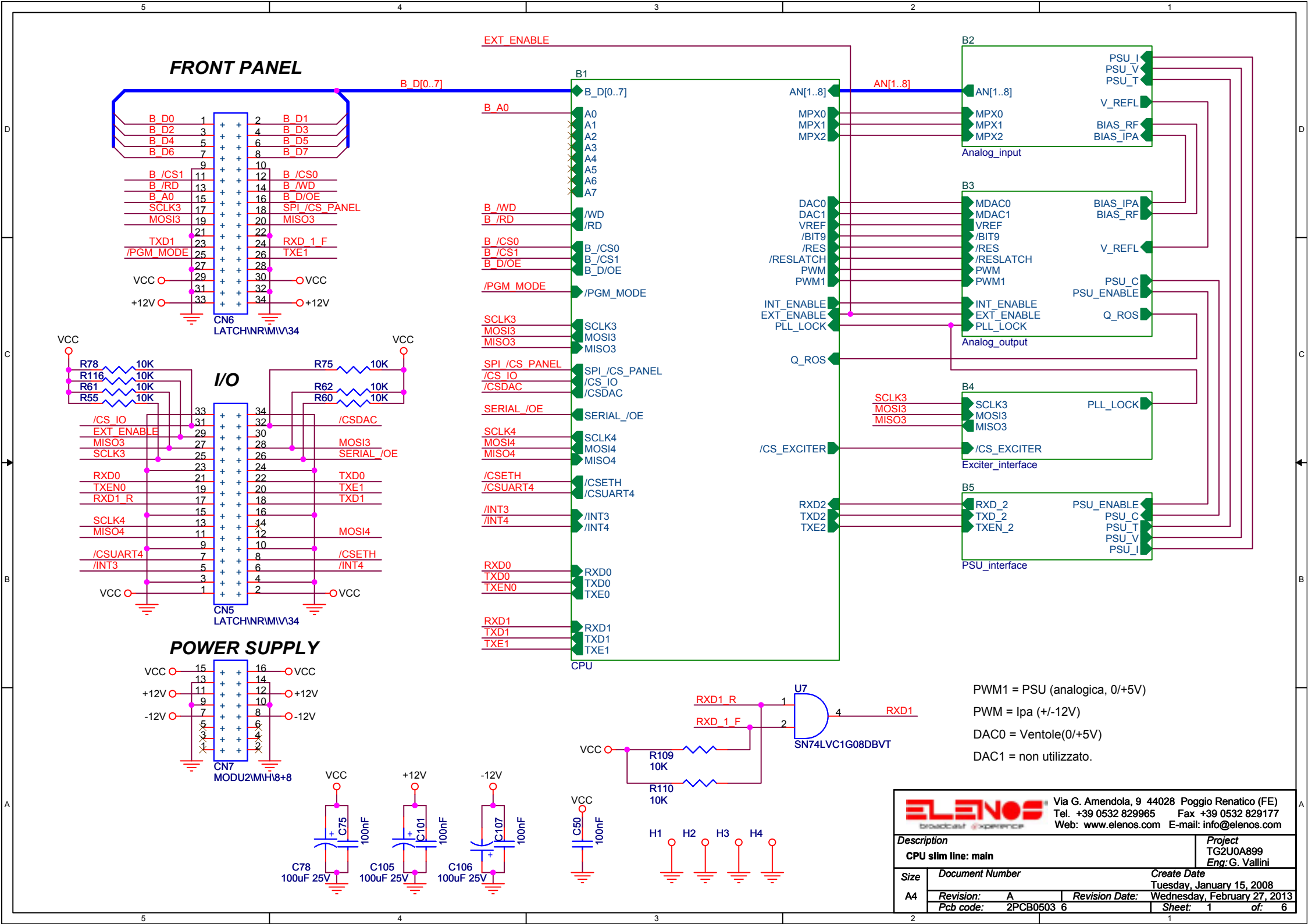
Proj. Eng. M.Nerbano

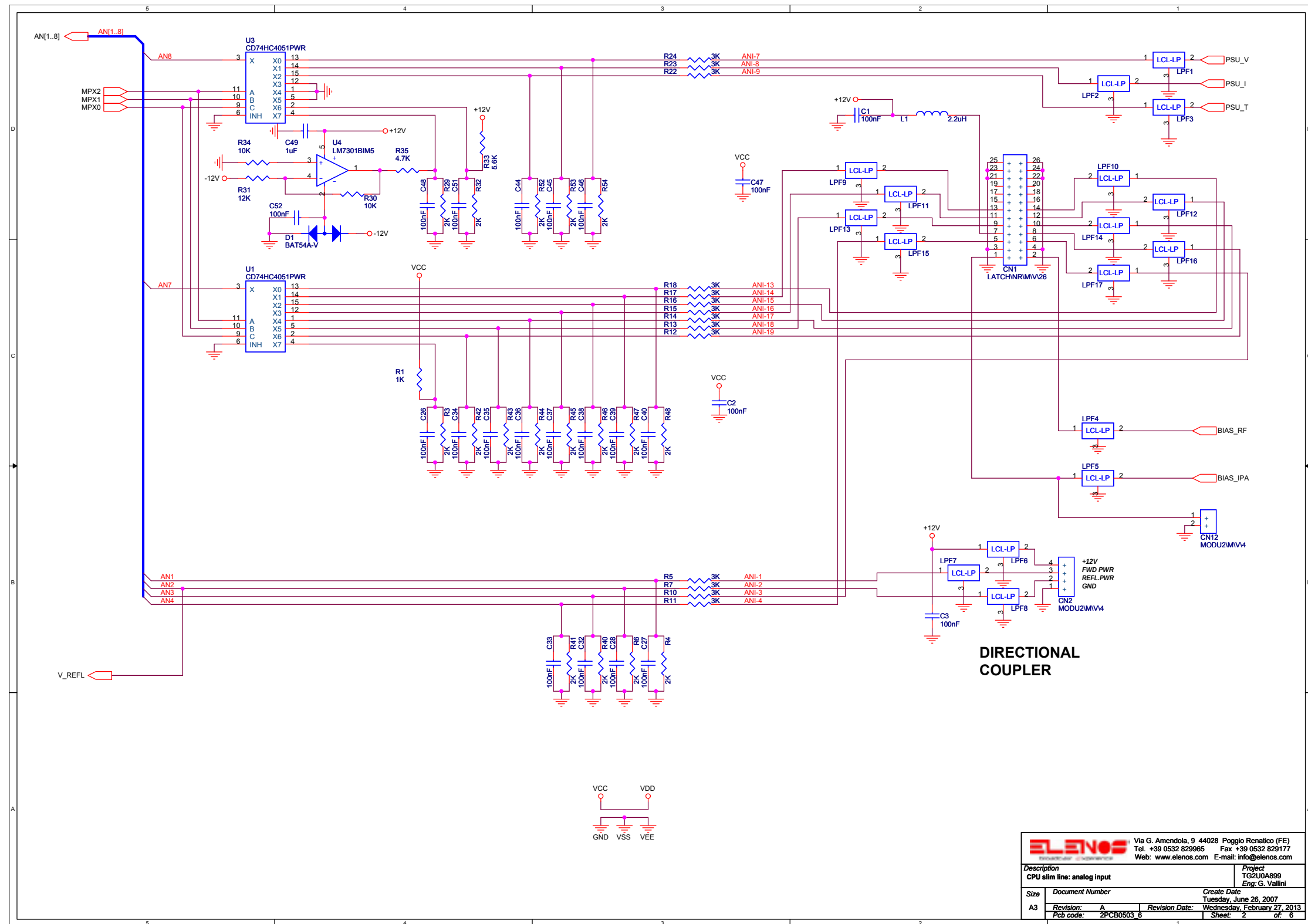
Approved :A.Giovannelli

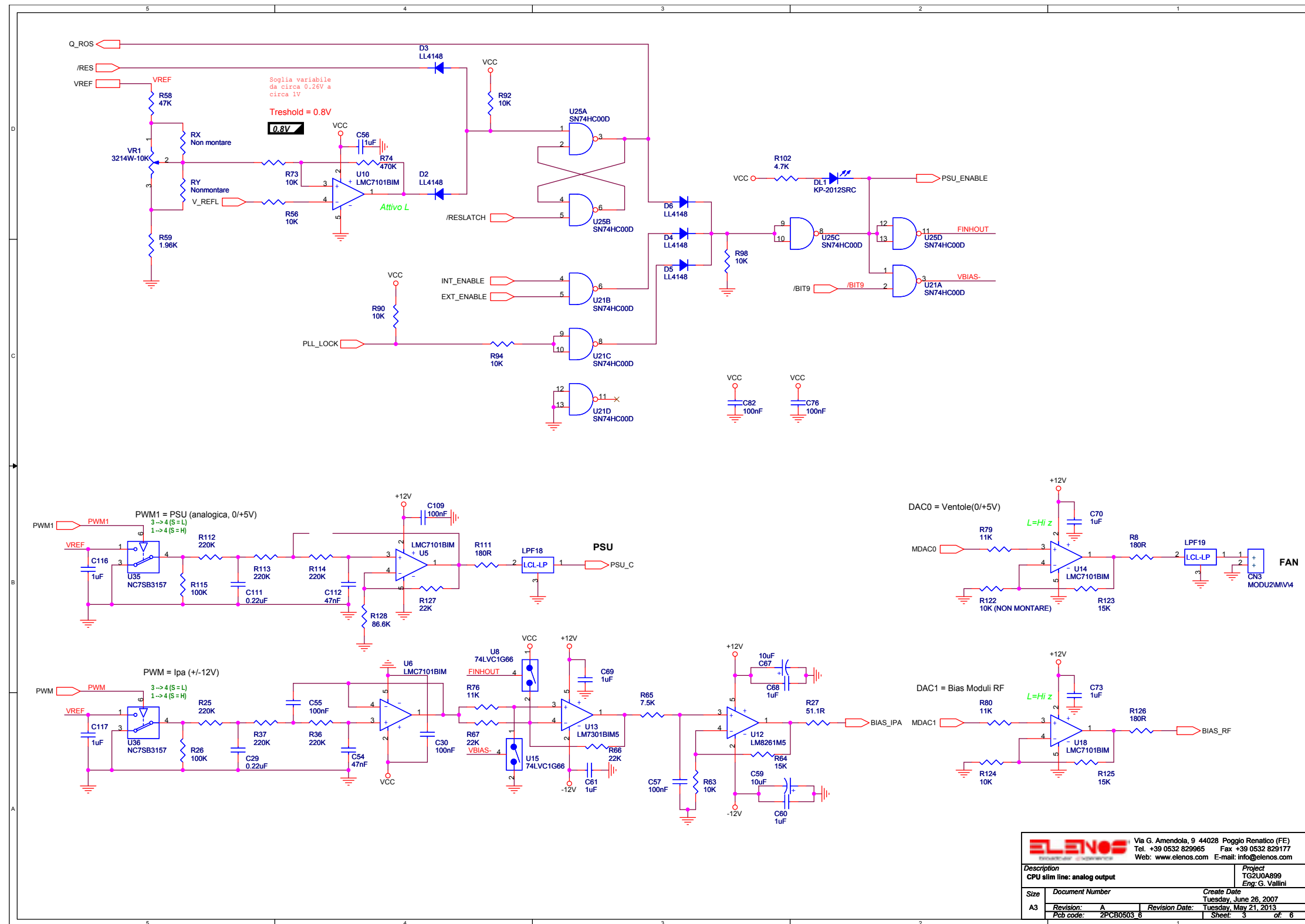
Date :Friday, October 25, 2013

Sheet : 1 of 2

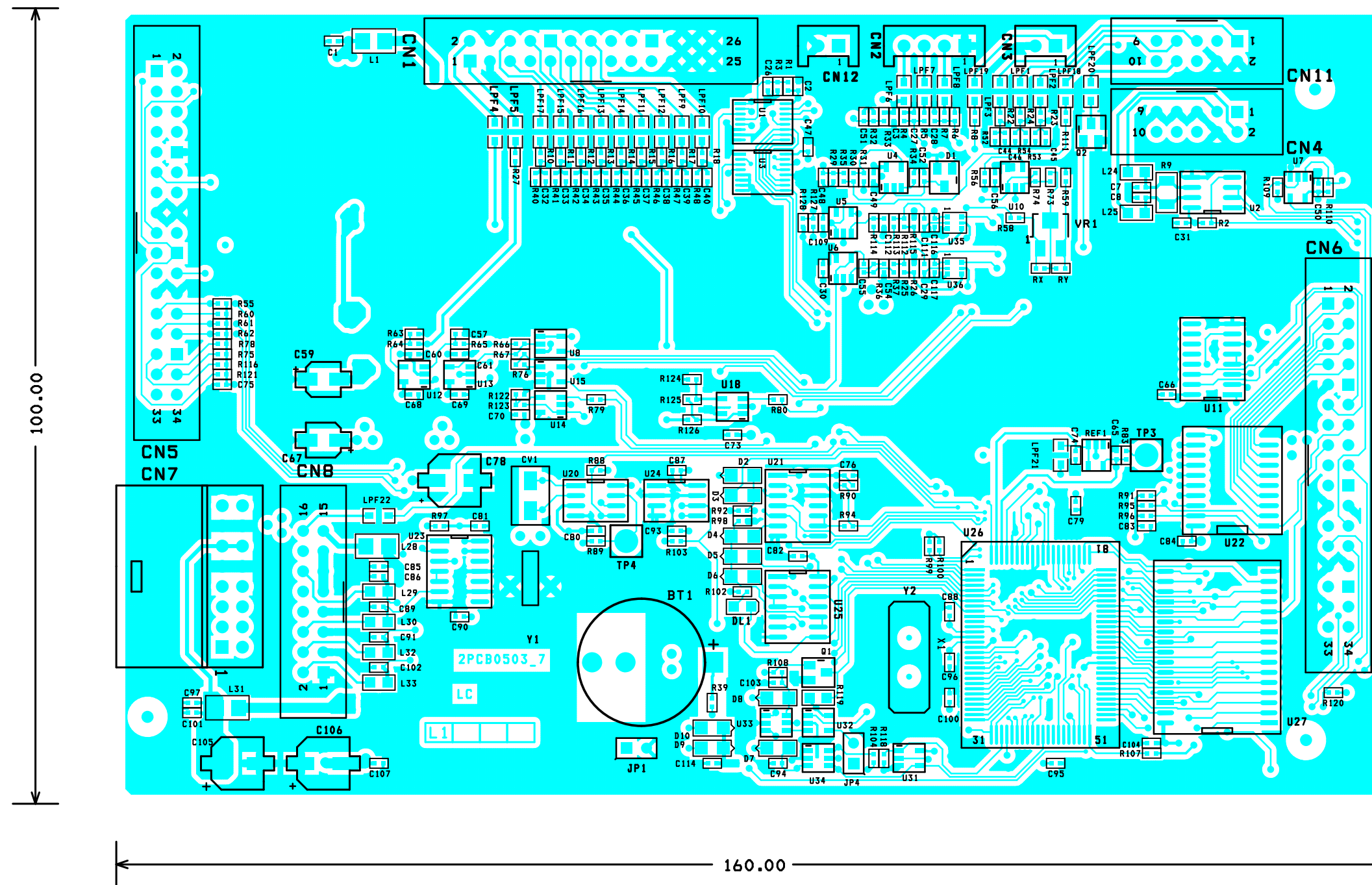


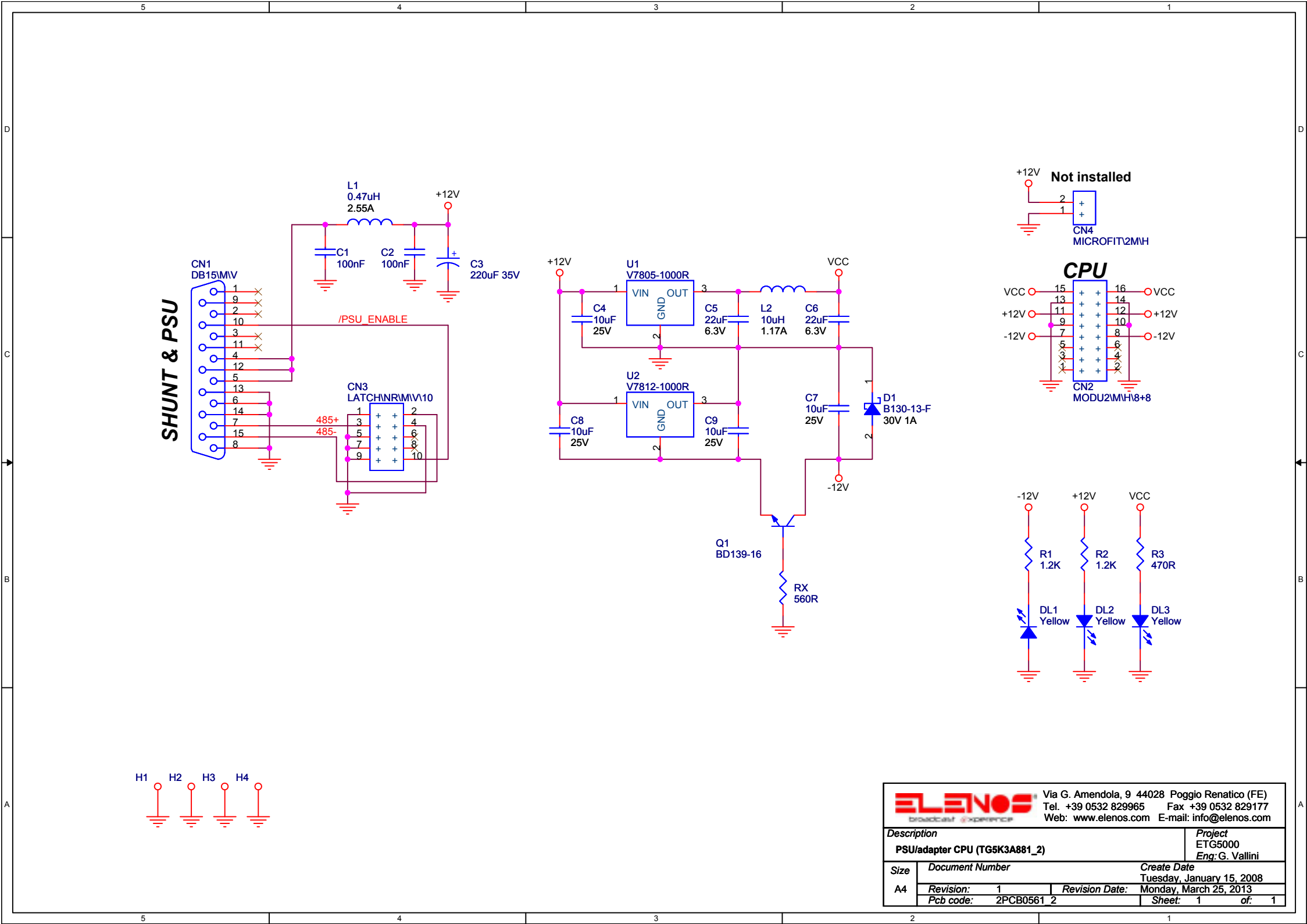


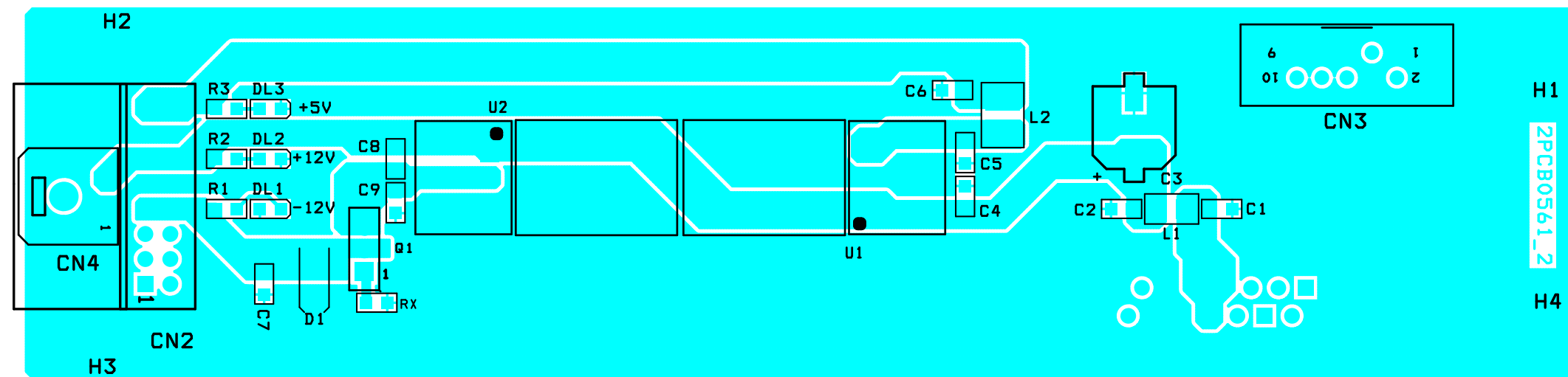


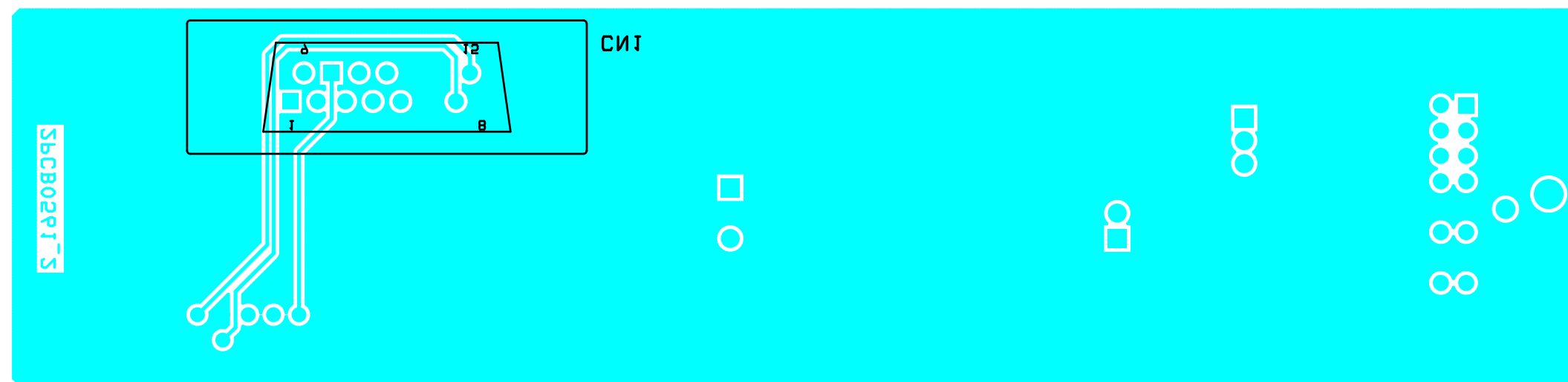


ELENOS		Via G. Amendola, 9 44028 Poggio Renatico (FE)	
		Tel. +39 0532 829965 Fax +39 0532 829177	
		Web: www.eLENOS.com E-mail: info@elenos.com	
Description		Project	
CPU slim line: analog output		TG2U0A899	
		Eng: G. Vallini	
Size	Document Number	Create Date	
A3	Revision: A	Tuesday, June 26, 2007	
	Pcb code: 2PCB0503 6	Revision Date: Tuesday, May 21, 2013	
		Sheet: 3 of: 6	

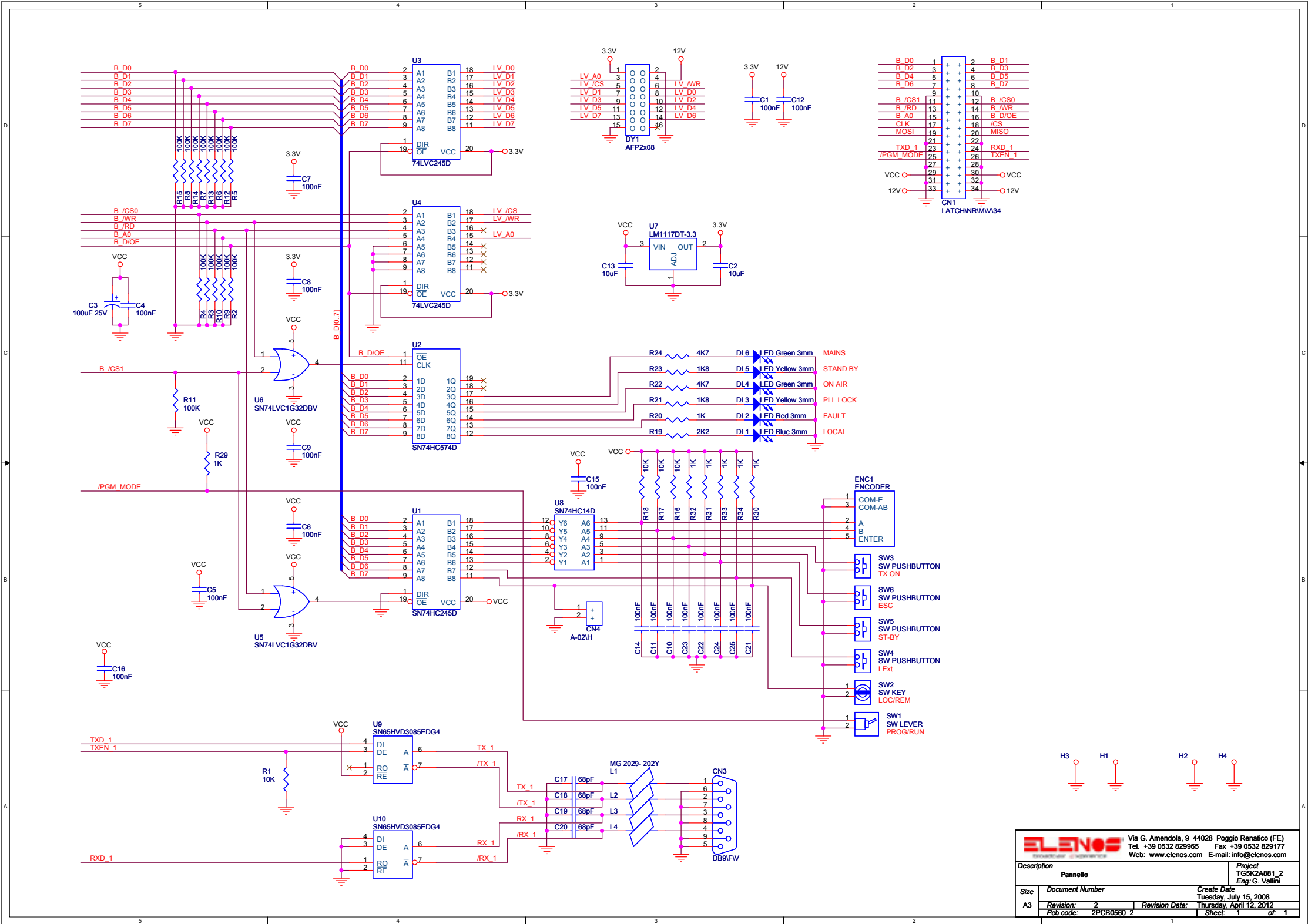






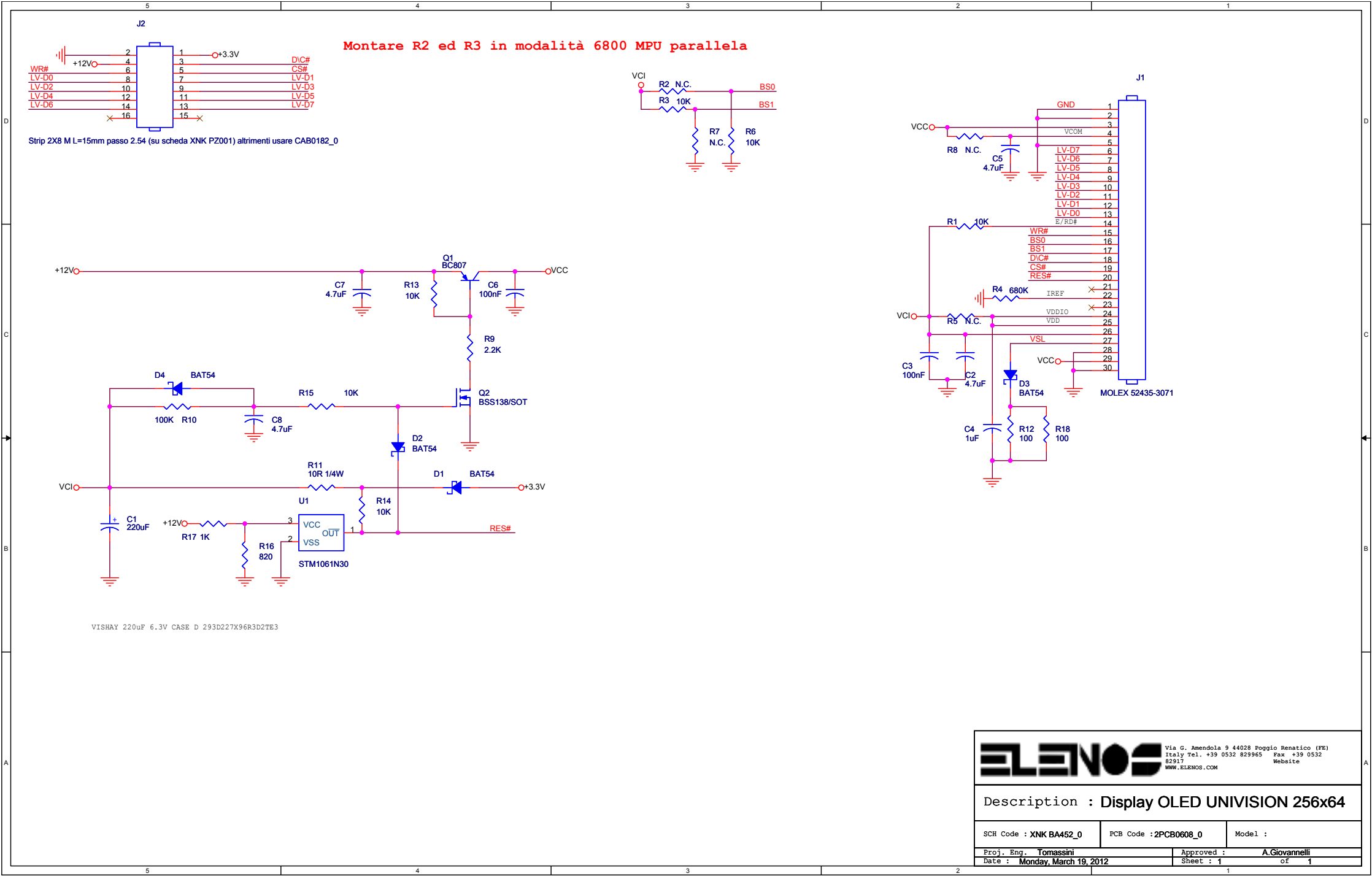


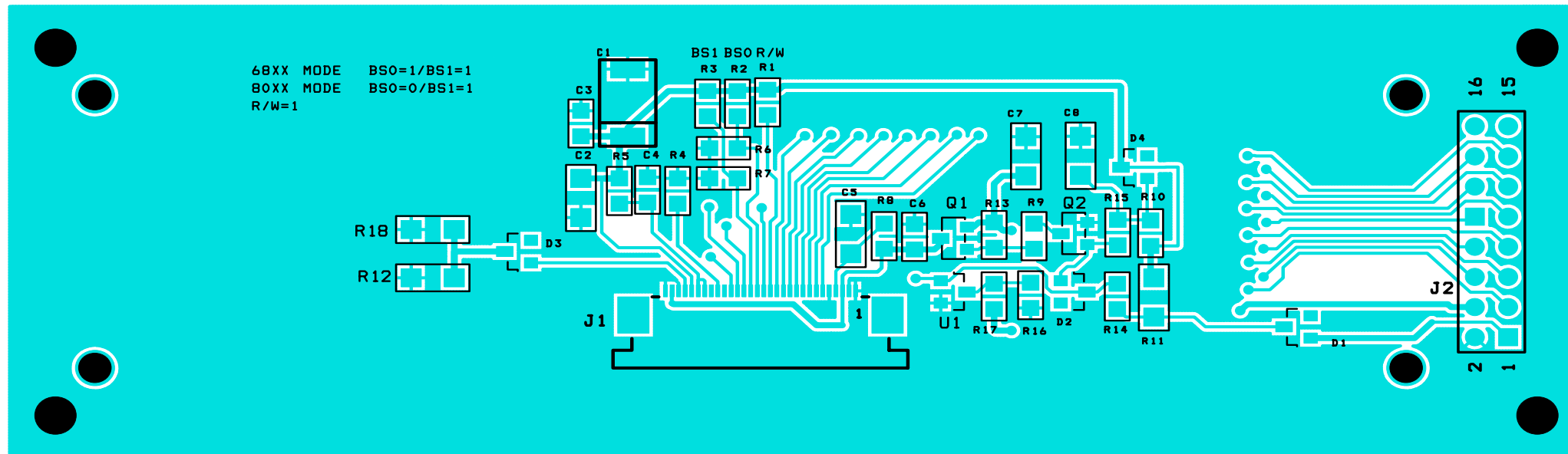
TG5K2A881



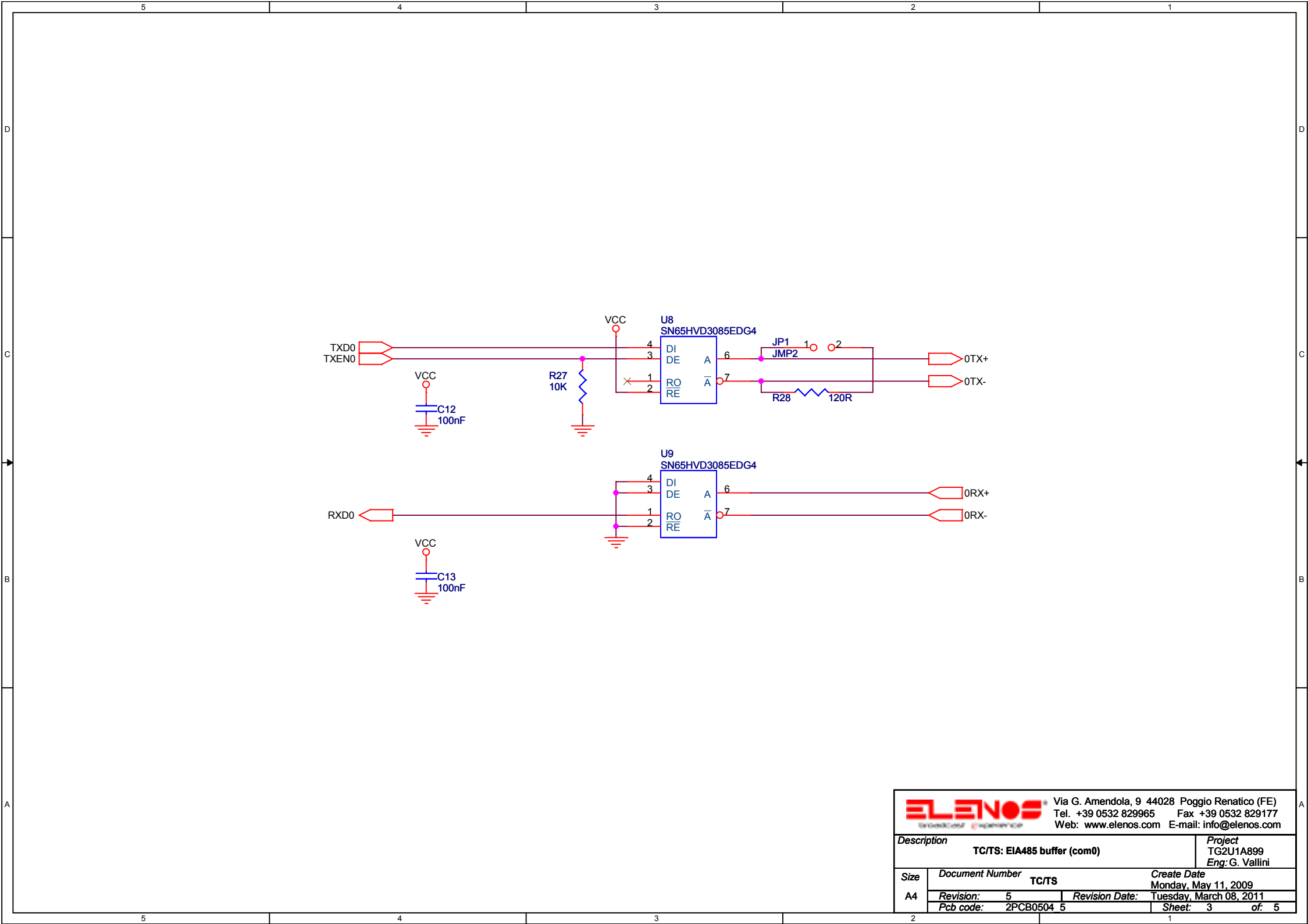
ELENOS		Via G. Amendola, 9 44028 Poggio Renatico (FE)	
		Tel. +39 0532 829965 Fax +39 0532 829177	
		Web: www.eLENOS.com E-mail: info@elenos.com	
Description		Pannello	
Size		Document Number	
A3		Revision: 2	
		Revision Date: Thursday, April 12, 2012	
		Pcb code: 2PCB0580_2	
		Sheet: 1 of 1	

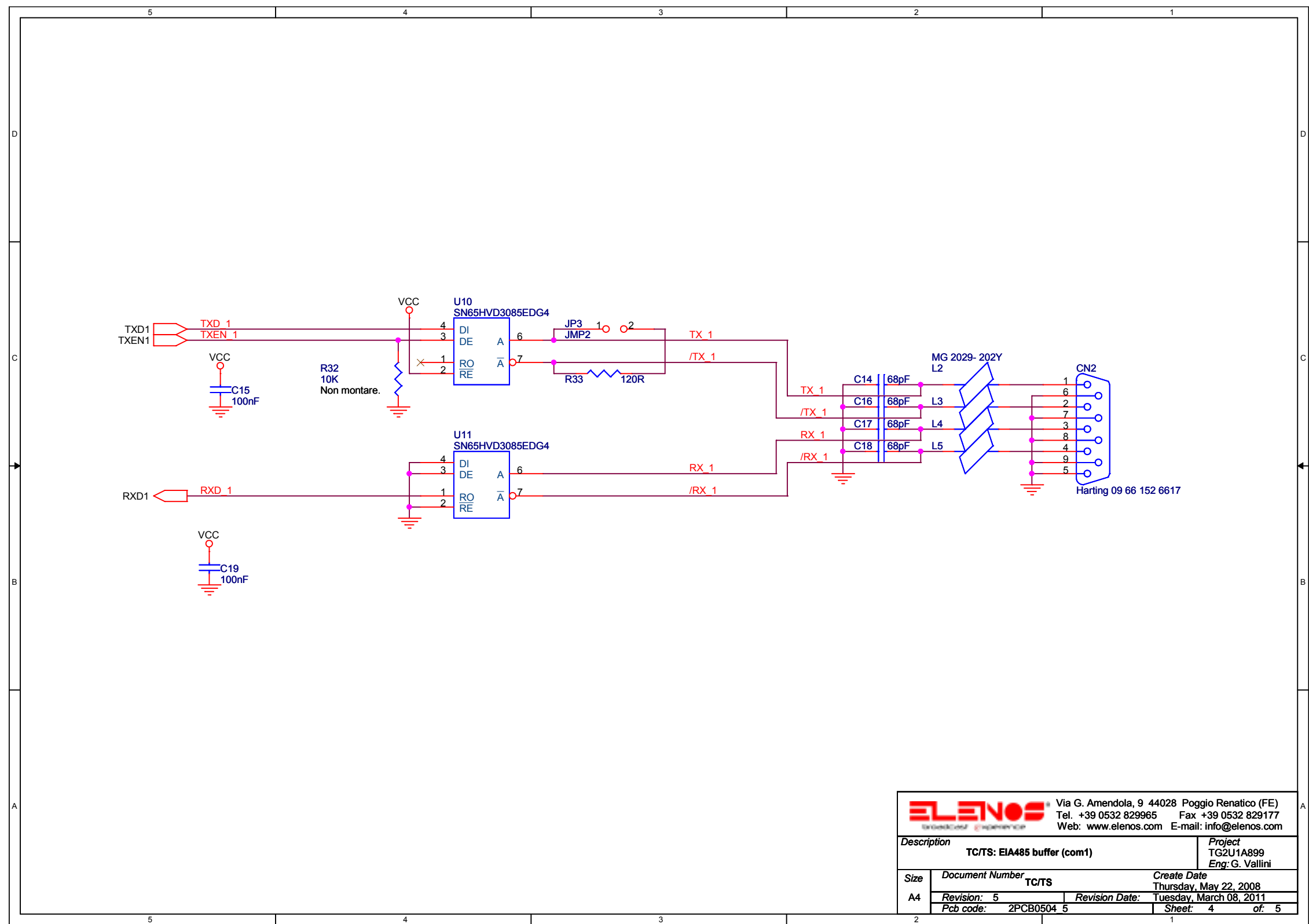
XNK BA452



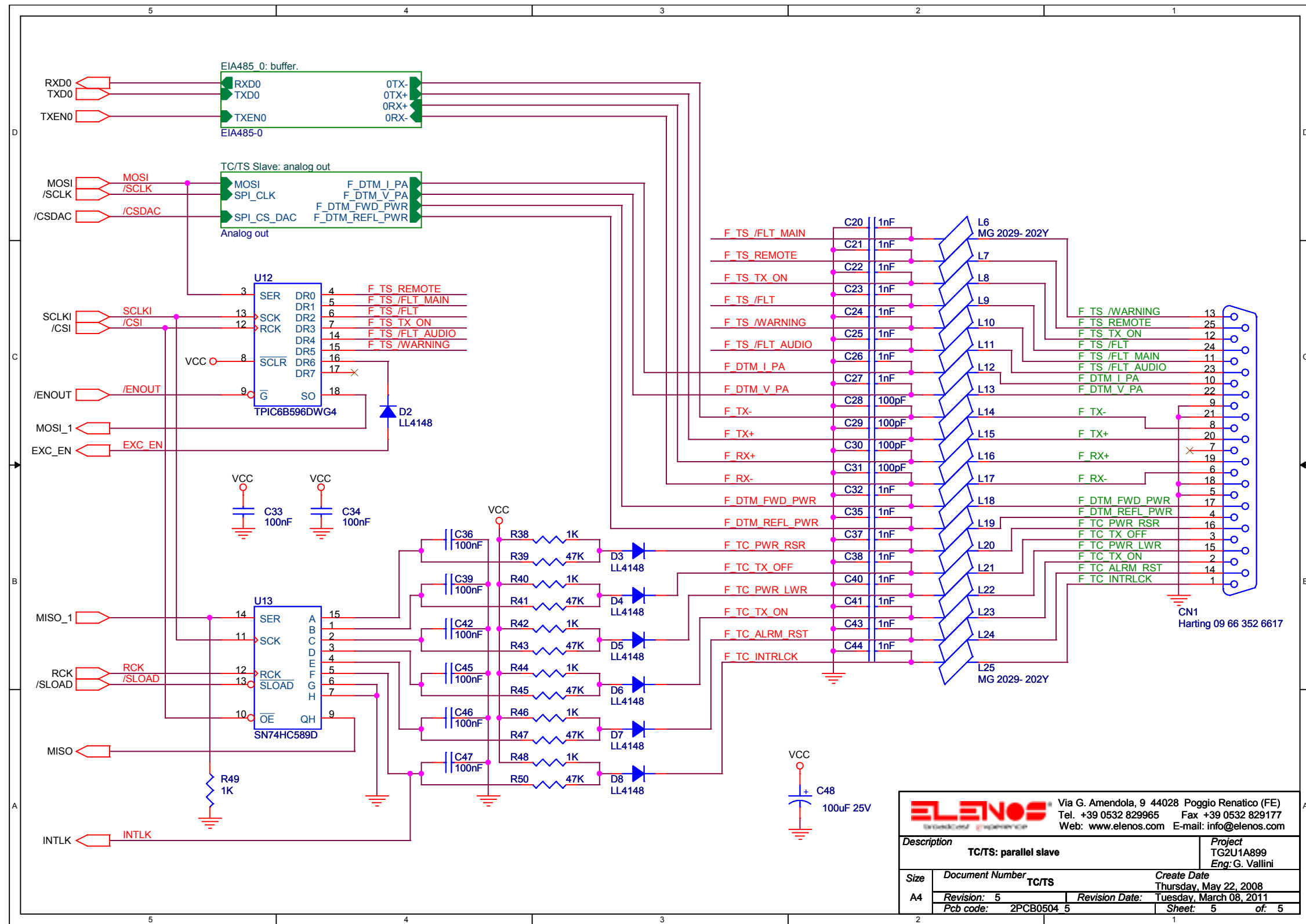


[illegible]

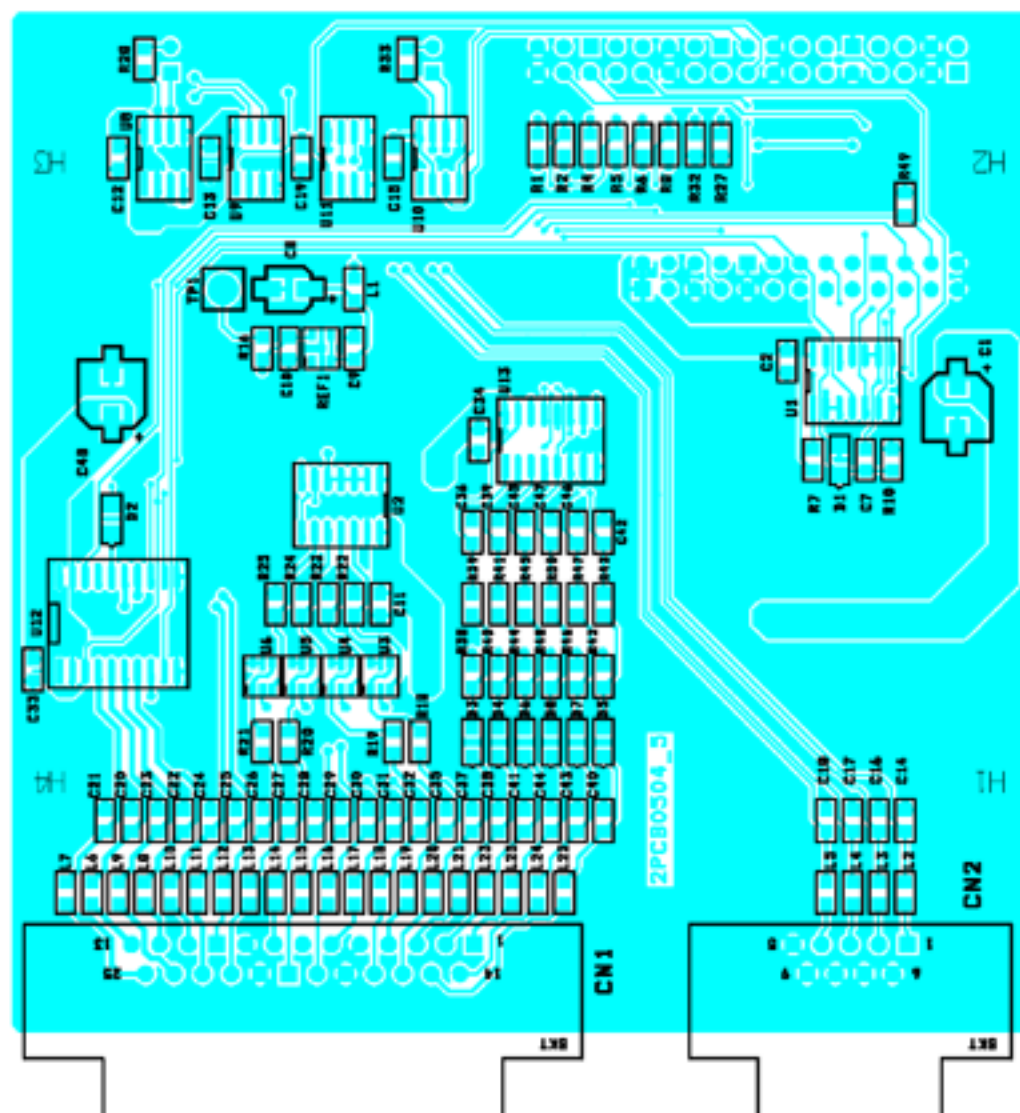




ELENOS		Via G. Amendola, 9 44028 Poggio Renatico (FE)	
Tel. +39 0532 829965		Fax +39 0532 829177	
Web: www.eLENOS.com		E-mail: info@elenos.com	
Description		Project	
TC/TS: EIA485 buffer (com1)		TG2U1A899	
Size		Eng: G. Vallini	
A4	Document Number	Create Date	
	TC/TS	Thursday, May 22, 2008	
	Revision: 5	Revision Date: Tuesday, March 08, 2011	
Pcb code: 2PCB0504 5		Sheet: 4 of: 5	



ELENOS		Via G. Amendola, 9 44028 Poggio Renatico (FE)	
Tel. +39 0532 829965		Fax +39 0532 829177	
Web: www.eLENOS.com		E-mail: info@elenos.com	
Description		Project	
TC/TS: parallel slave		TG2U1A899	
		Eng: G. Vallini	
Size	Document Number		Create Date
	TC/TS		Thursday, May 22, 2008
	Revision: 5	Revision Date:	Tuesday, March 08, 2011
A4	Pcb code: 2PCB0504 5	Sheet: 5	of: 5



Timing HC589

SCK (8)

/CS(/OE)

/SLOAD

RCK

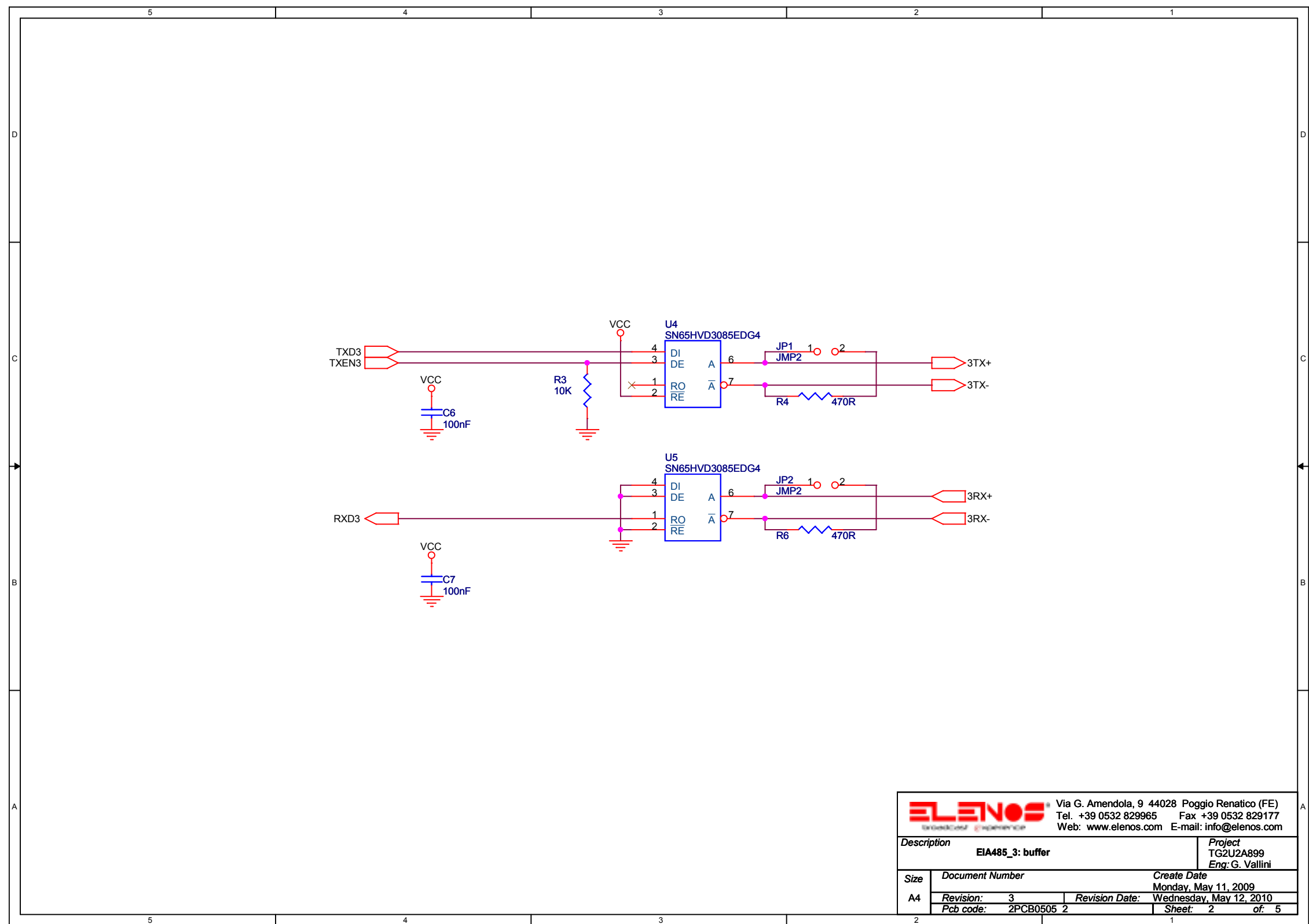
Com0 = TC/TS
Com1 = Pannello
Com2 = PSU.

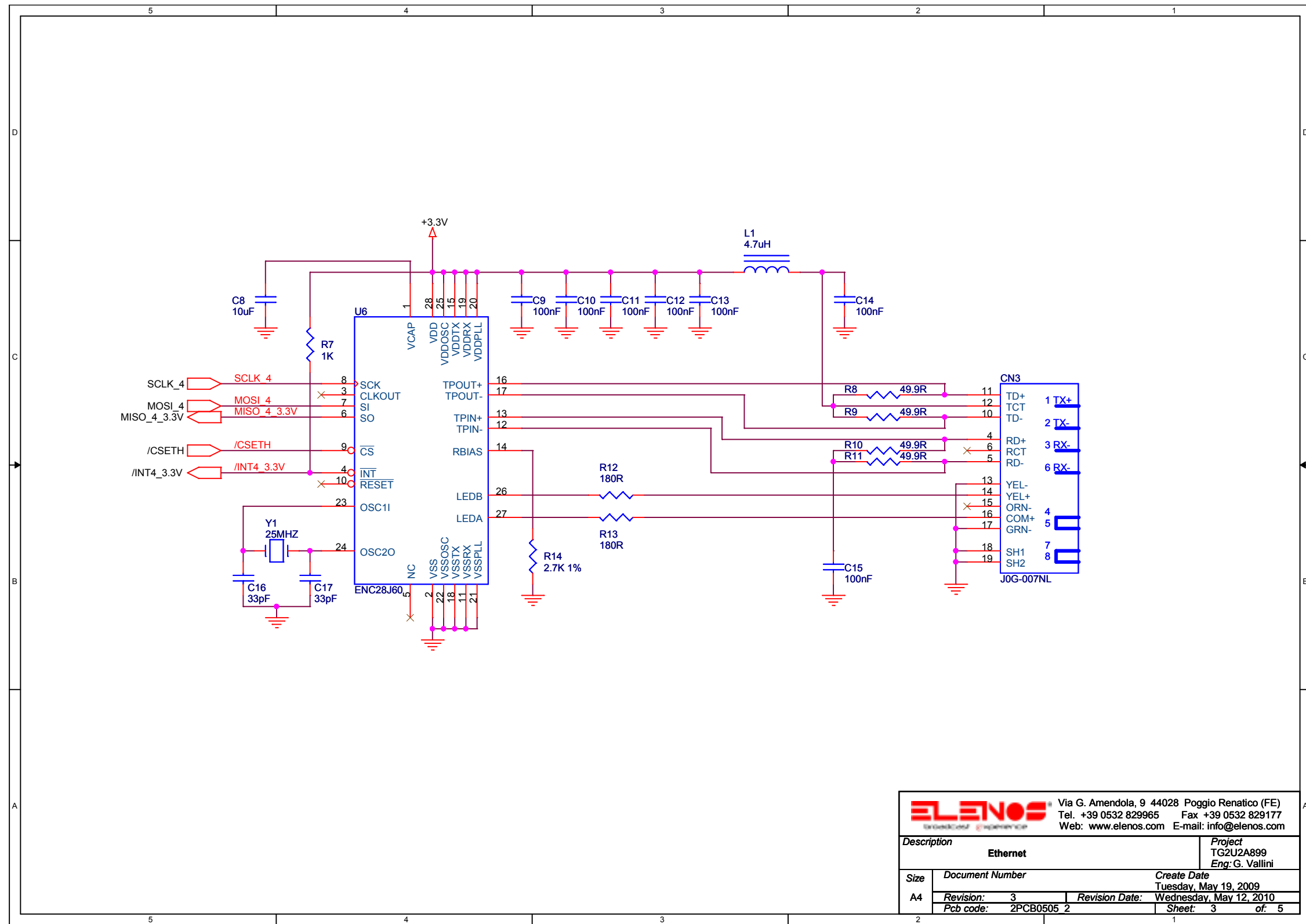
Component List:

- C1: 100uF 25V
- C2: 100nF
- C3: 68pF
- C4: 10uF
- C5: 10uF
- C51: 100nF
- R1: 120R
- U1A, U1B, U1C, U1D: CD74HC125M
- U2A, U2B, U2C: SN74HC04D
- U2D, U2E, U2F: SN74HC04D
- U3: LM1117DT-3.3

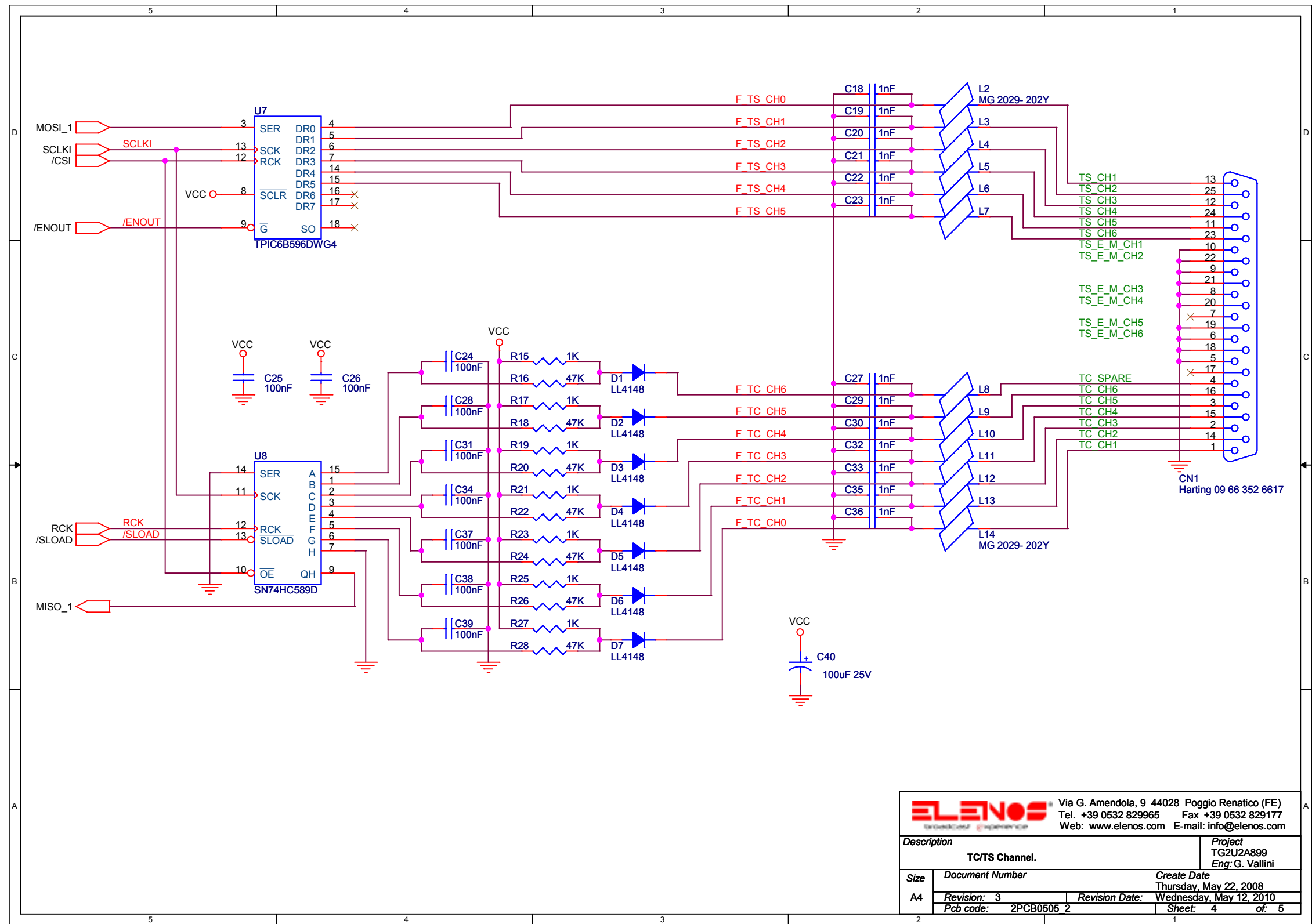
Pin Connections:

- Microcontroller (CN4 LATCHNRMH26) pins 1-26 are connected to various signals.
- U1A: MISO_4 (pin 3) to MISO_4_3.3V (pin 2), /CSUART4 (pin 1) to /CSETH (pin 4), /INT3 (pin 8) to /INT3_3.3V (pin 9), /INT4 (pin 11) to /INT4_3.3V (pin 12).
- U1B: /CSUART4 (pin 1) to /CSETH (pin 4), /INT3 (pin 8) to /INT3_3.3V (pin 9), /INT4 (pin 11) to /INT4_3.3V (pin 12).
- U1C: /CSUART4 (pin 1) to /CSETH (pin 4), /INT3 (pin 8) to /INT3_3.3V (pin 9), /INT4 (pin 11) to /INT4_3.3V (pin 12).
- U1D: /CSUART4 (pin 1) to /CSETH (pin 4), /INT3 (pin 8) to /INT3_3.3V (pin 9), /INT4 (pin 11) to /INT4_3.3V (pin 12).
- U2A, U2B, U2C: SCLK_4 (pin 1) to SCLK_4 (pin 6) via R1 (120R) and C3 (68pF).
- U2D, U2E, U2F: SCLK_4 (pin 1) to SCLK_4 (pin 6) via R1 (120R) and C3 (68pF).
- U3: VCC (pin 3) to +3.3V, GND (pin 1) to GND, OUT (pin 2) to +3.3V, ADJ (pin 4) to +3.3V.

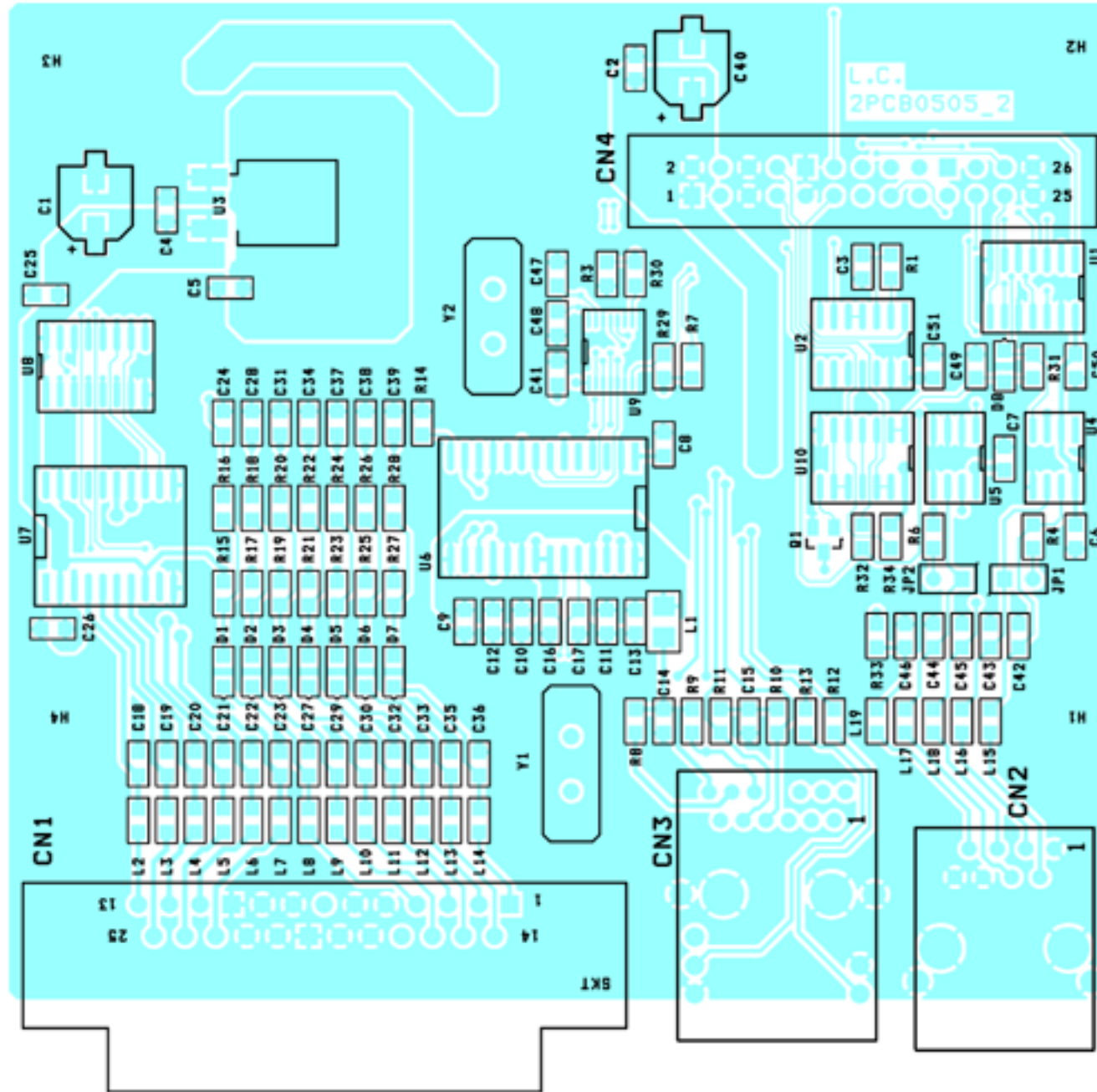


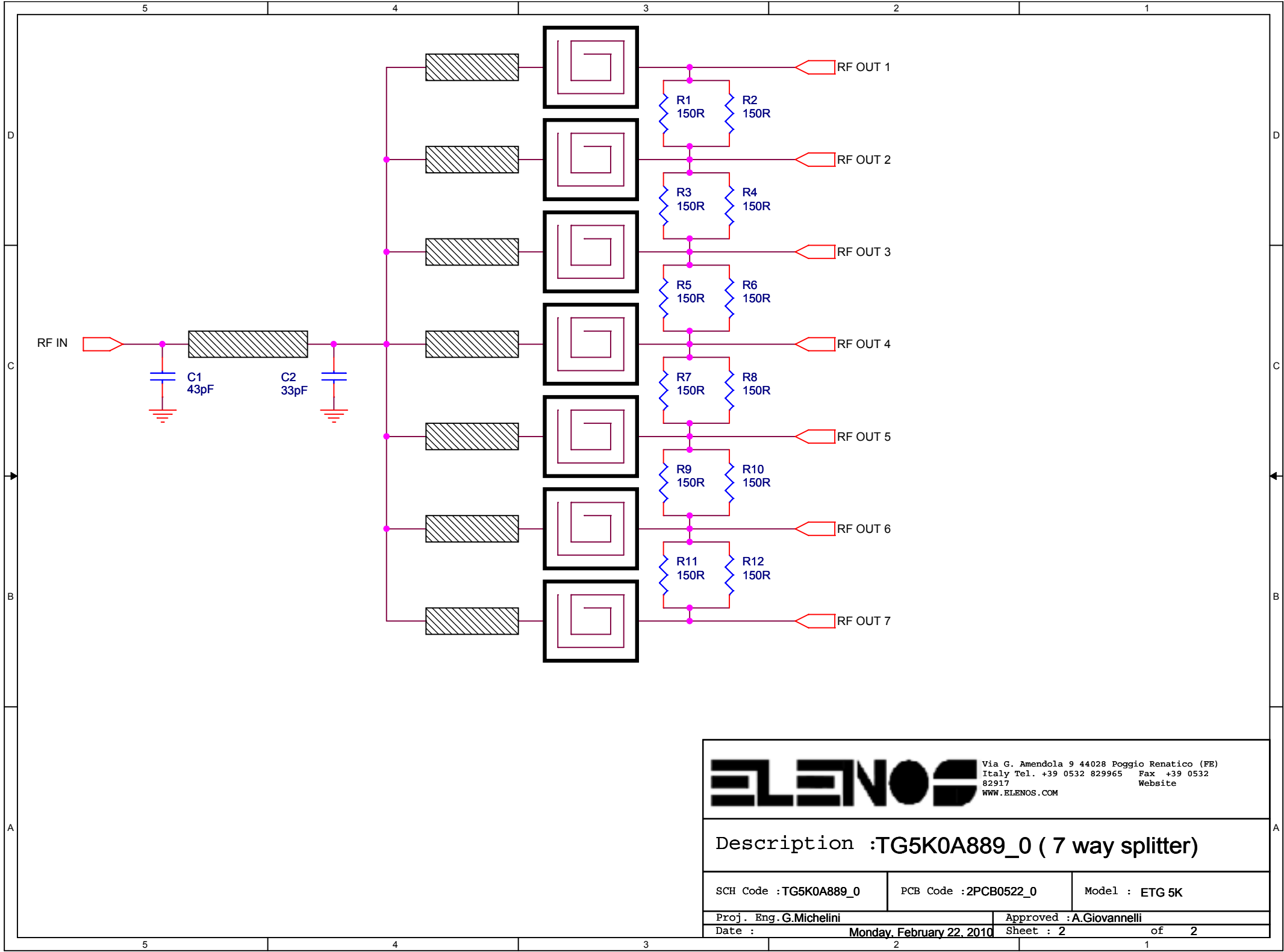


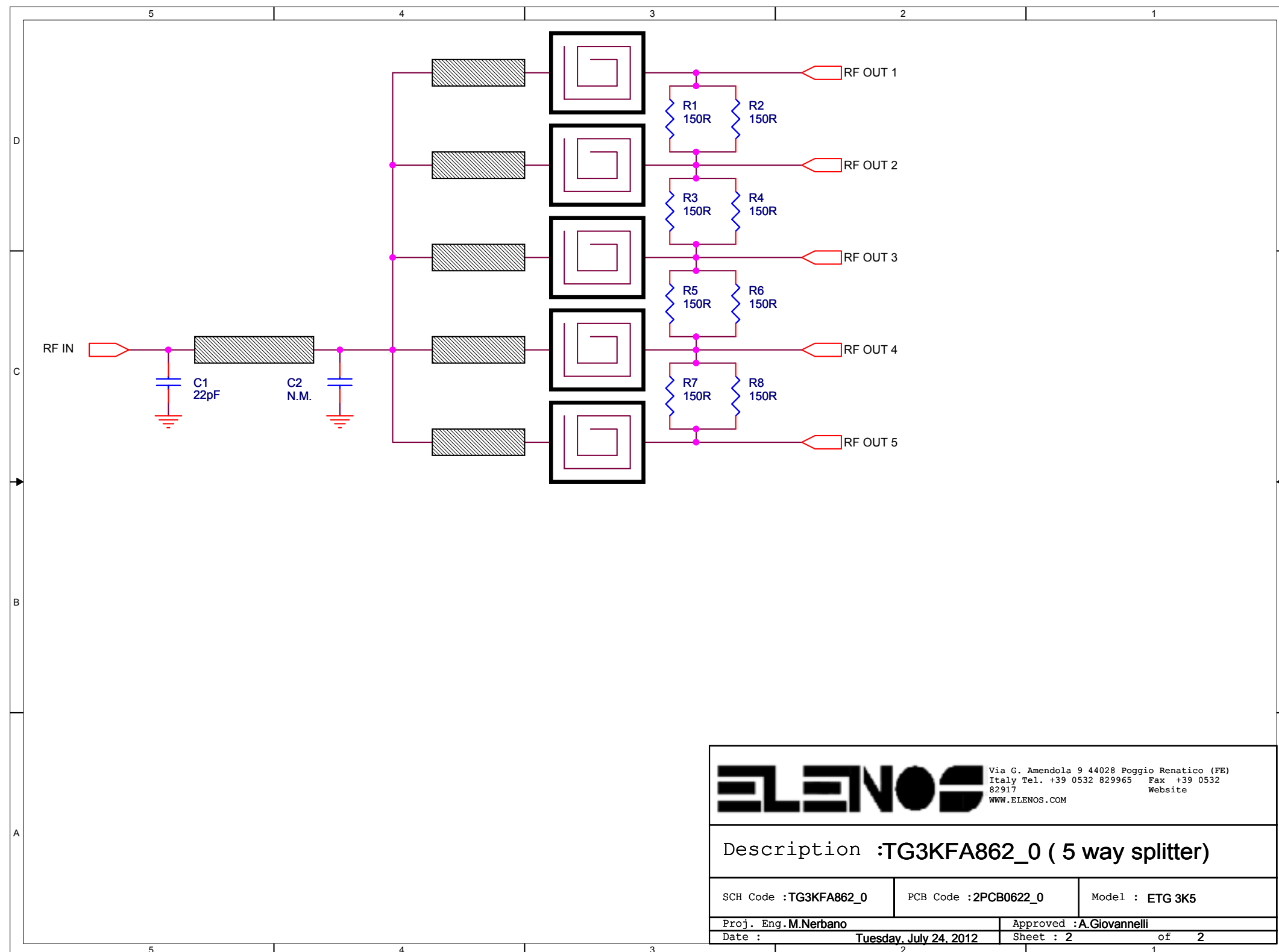
ELENOS Via G. Amendola, 9 44028 Poggio Renatico (FE) Tel. +39 0532 829965 Fax +39 0532 829177 Web: www.eLENOS.com E-mail: info@elenos.com	
Description Ethernet	
Project TG2U2A899 Eng: G. Vallini	
Size A4	
Document Number 2PCB0505 2	
Create Date Tuesday, May 19, 2009	
Revision: 3 Revision Date: Wednesday, May 12, 2010	
Sheet: 3 of: 5	

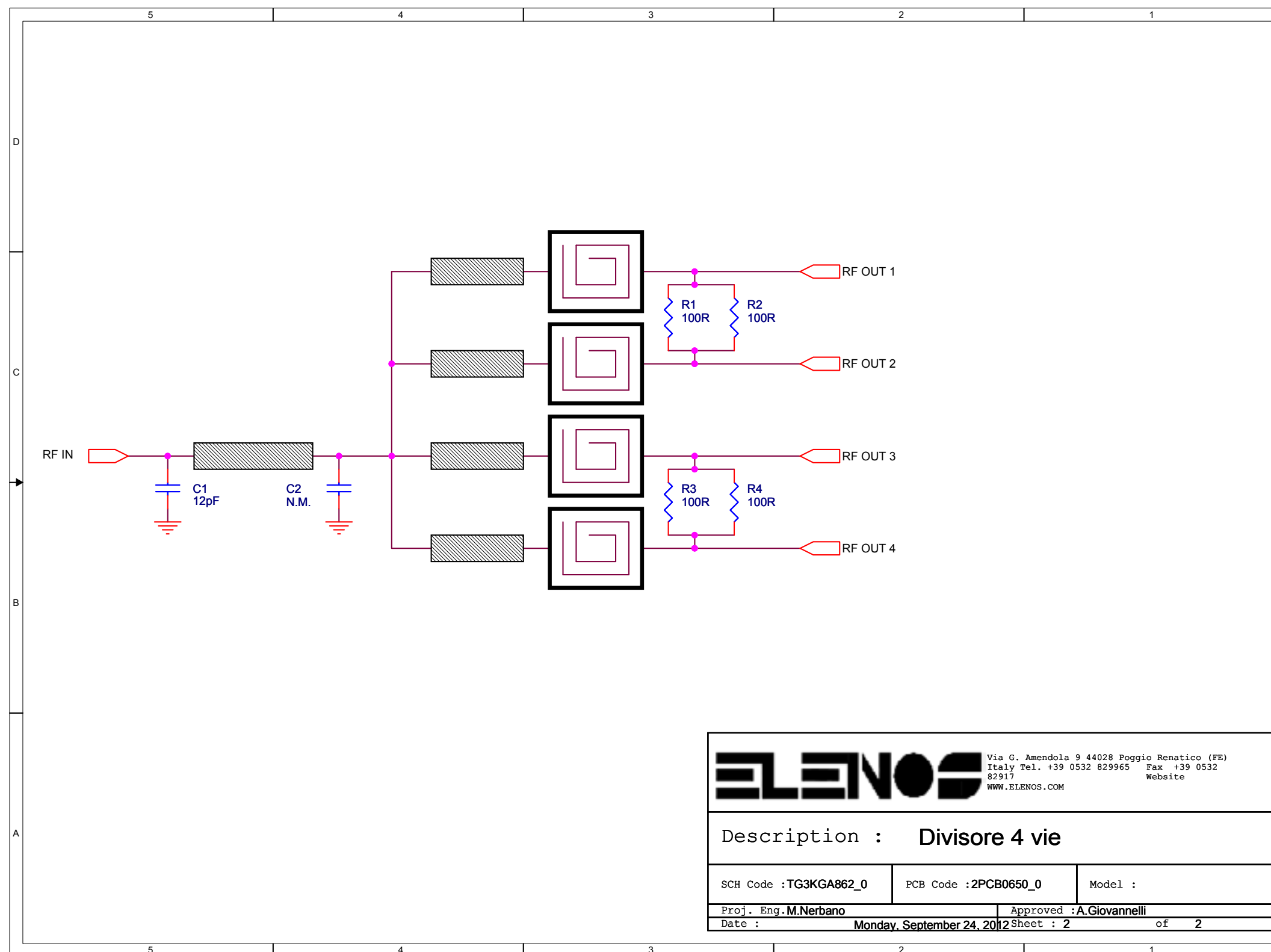


ELENOS Via G. Amendola, 9 44028 Poggio Renatico (FE) Tel. +39 0532 829965 Fax +39 0532 829177 Web: www.eLENOS.com E-mail: info@elenos.com	
Description TC/TS Channel.	
Project TG2U2A899 Eng: G. Vallini	
Size A4	
Document Number 2PCB0505 2	
Create Date Thursday, May 22, 2008	
Revision: 3 Revision Date: Wednesday, May 12, 2010	
Sheet: 4 of: 5	

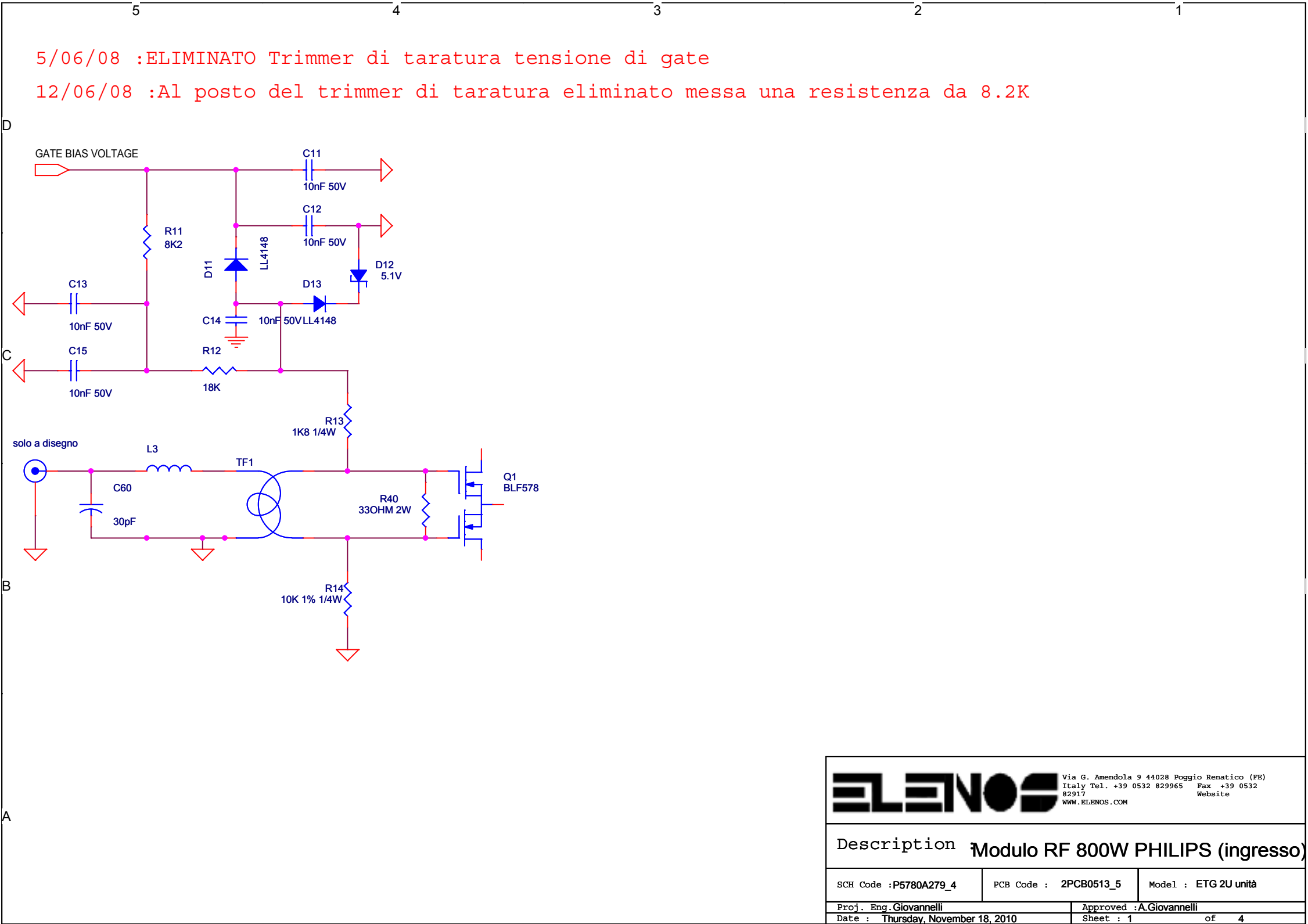


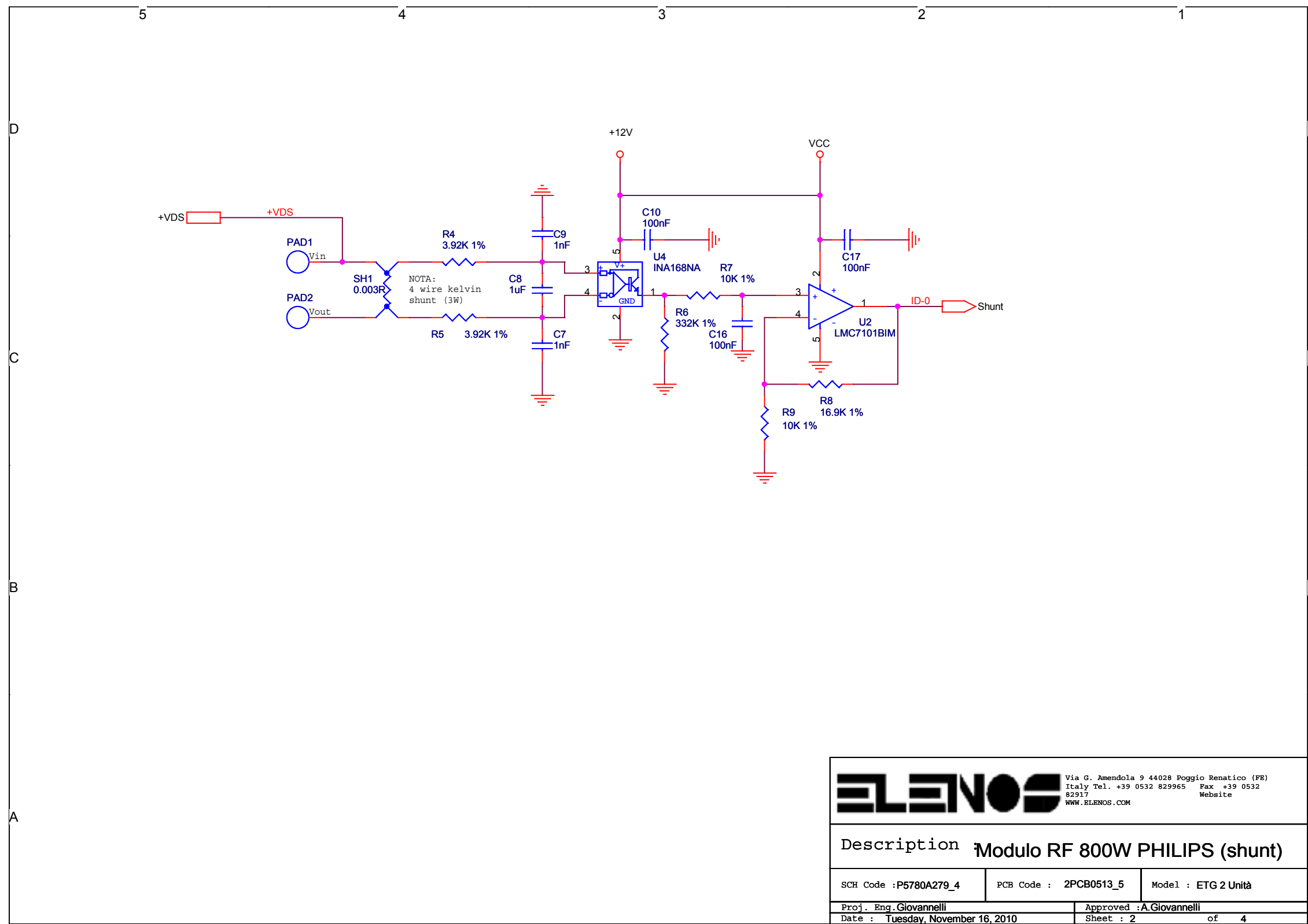


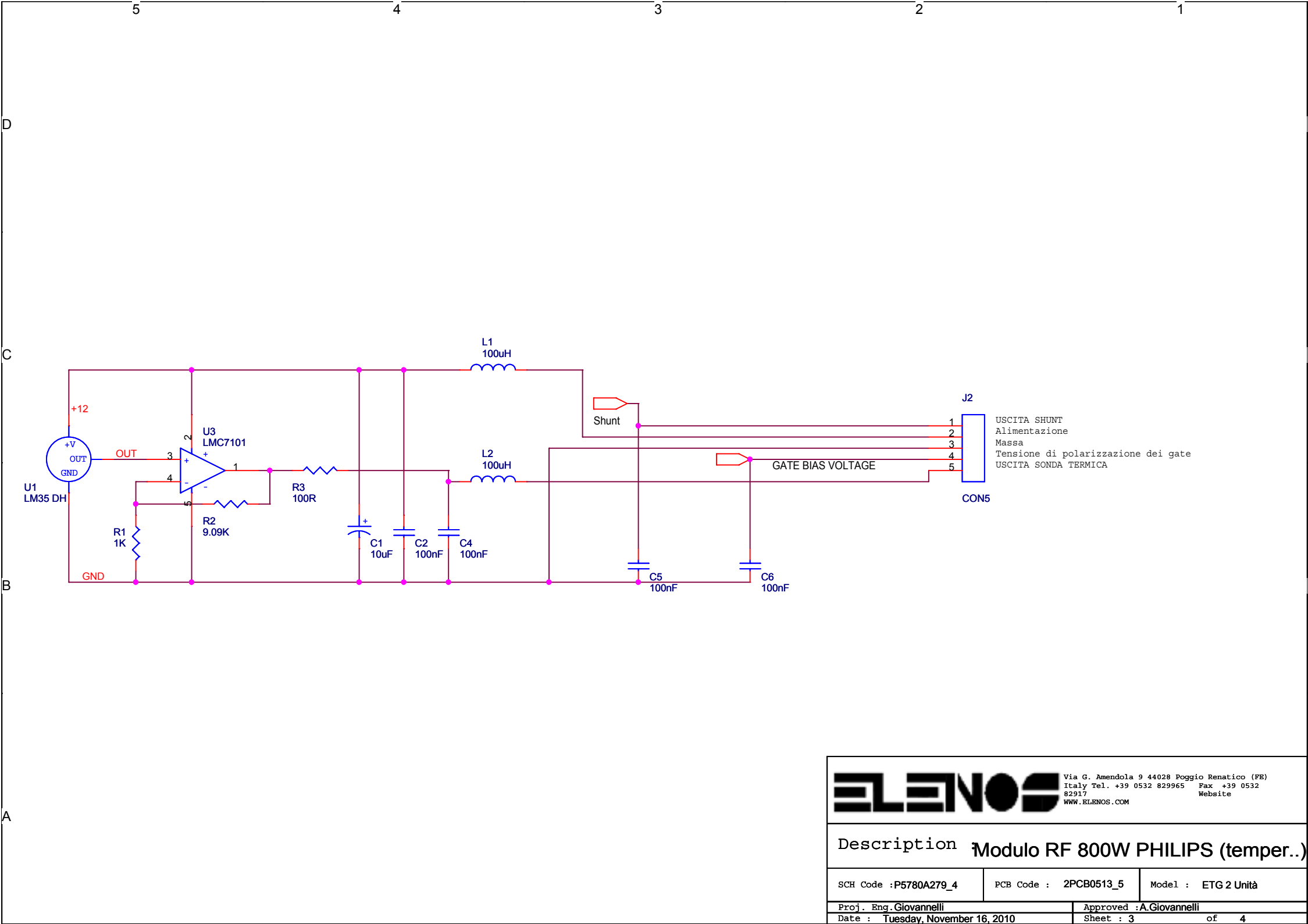


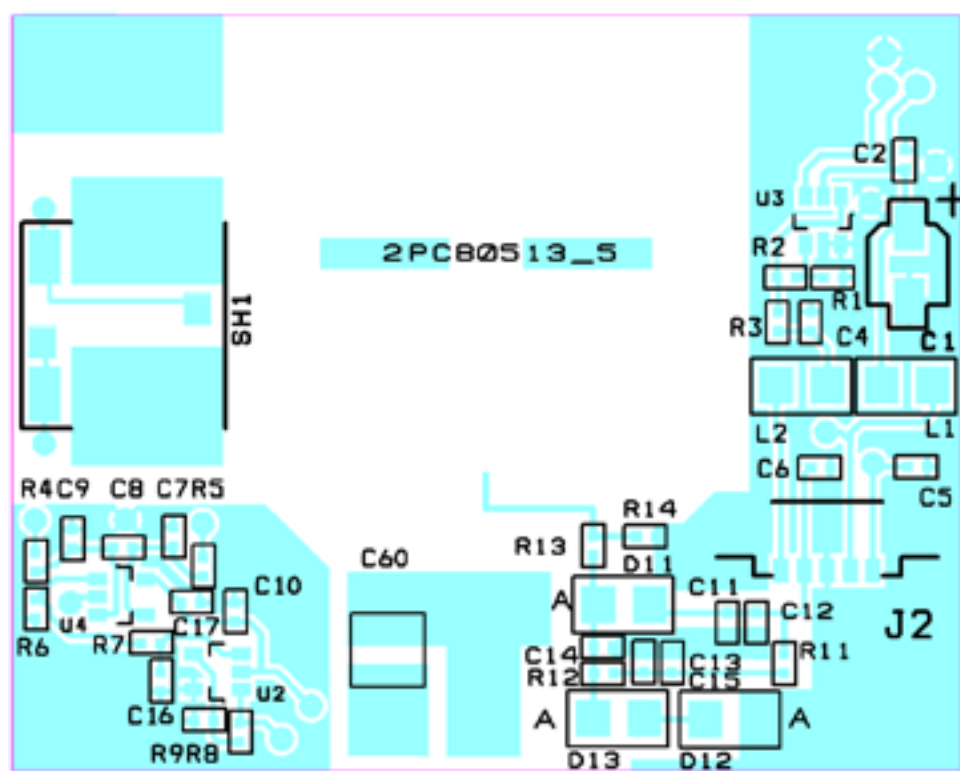


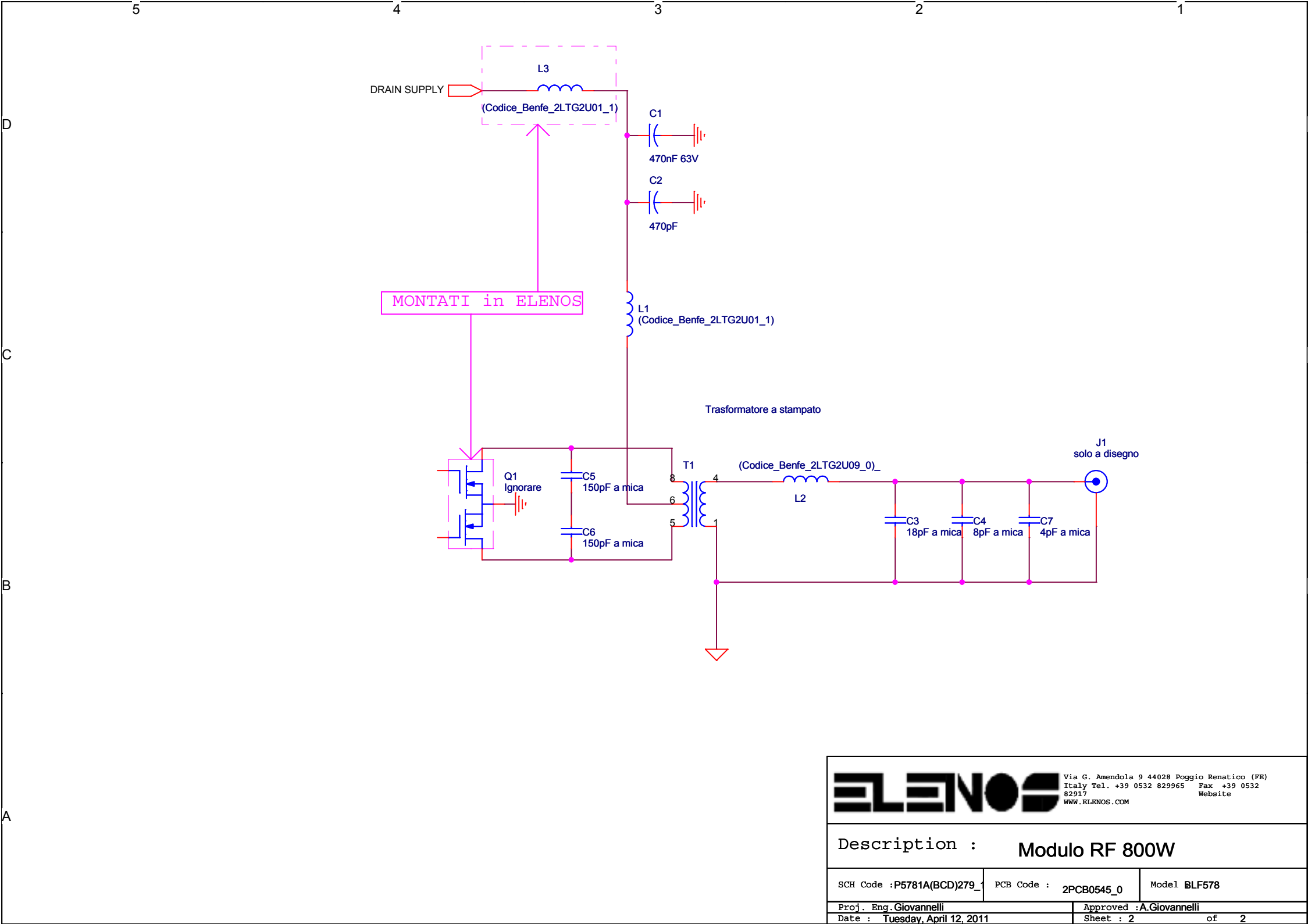


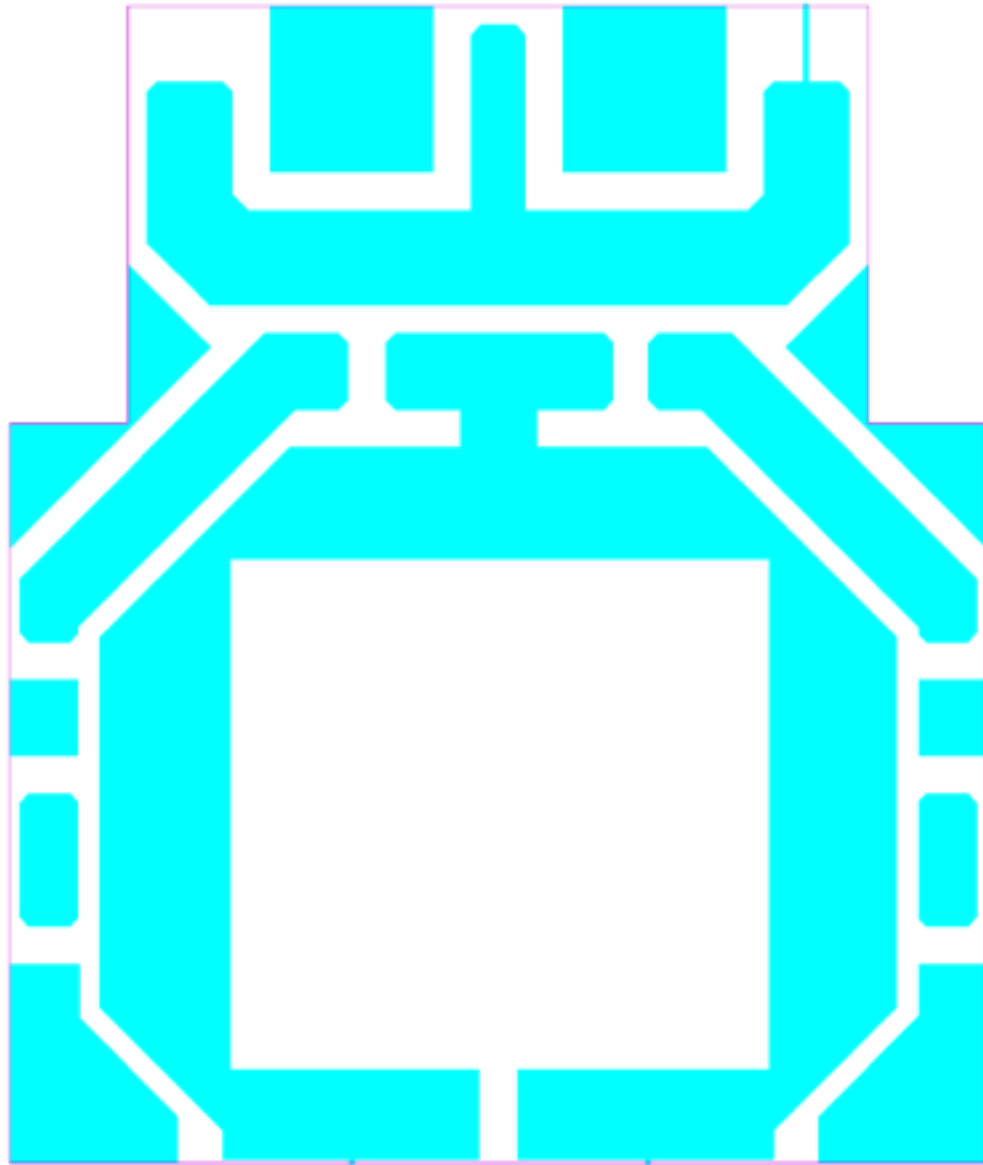




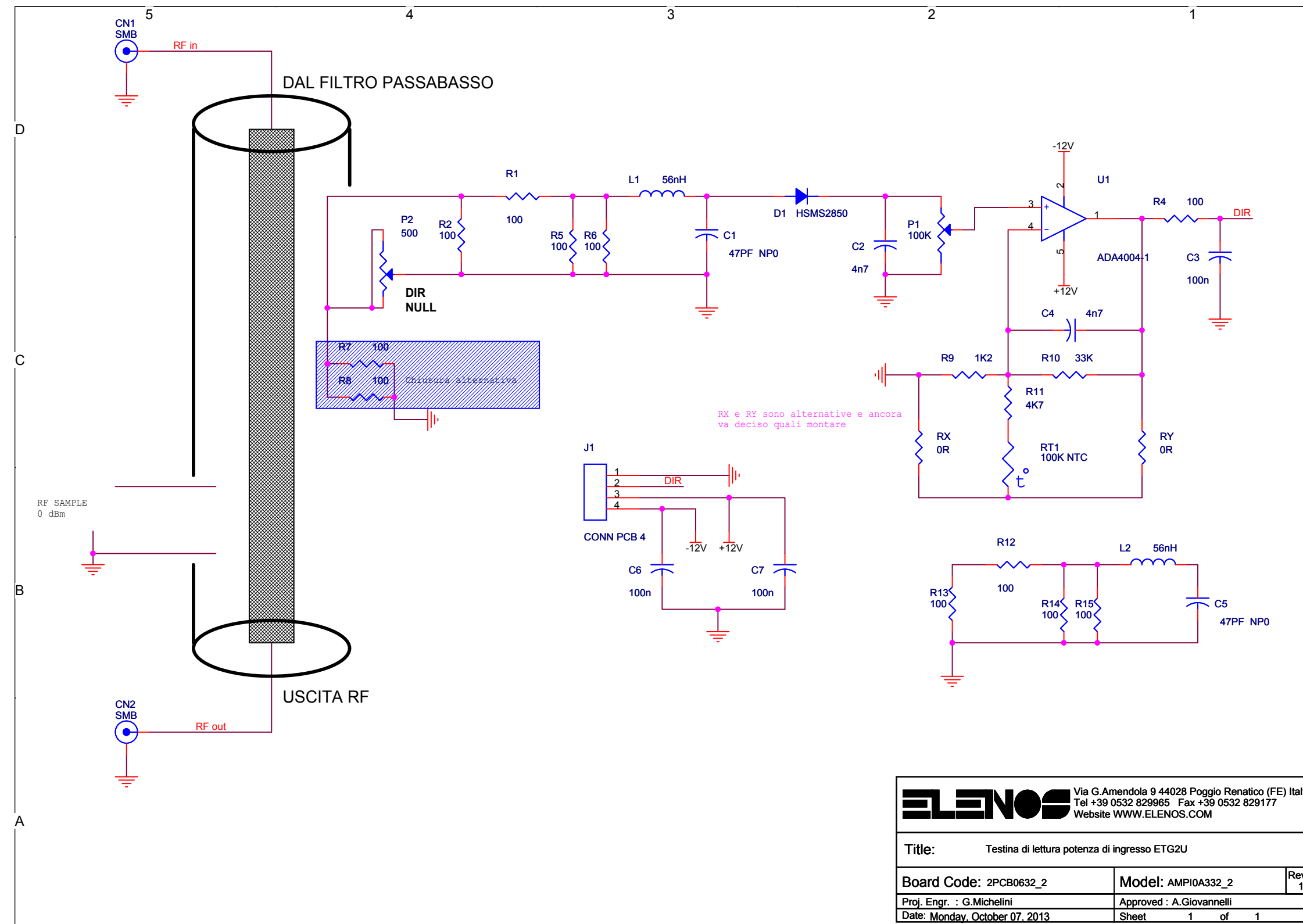




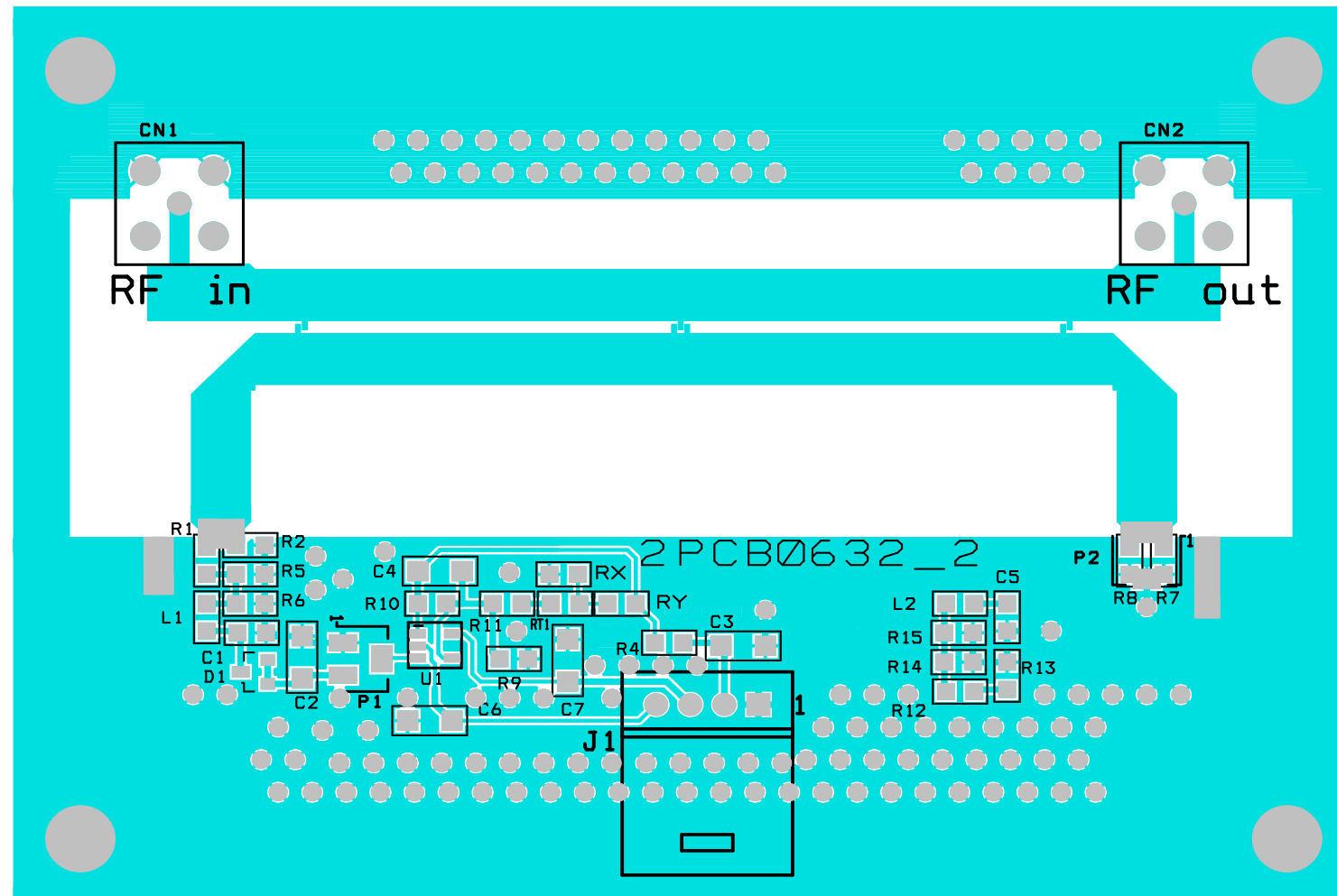


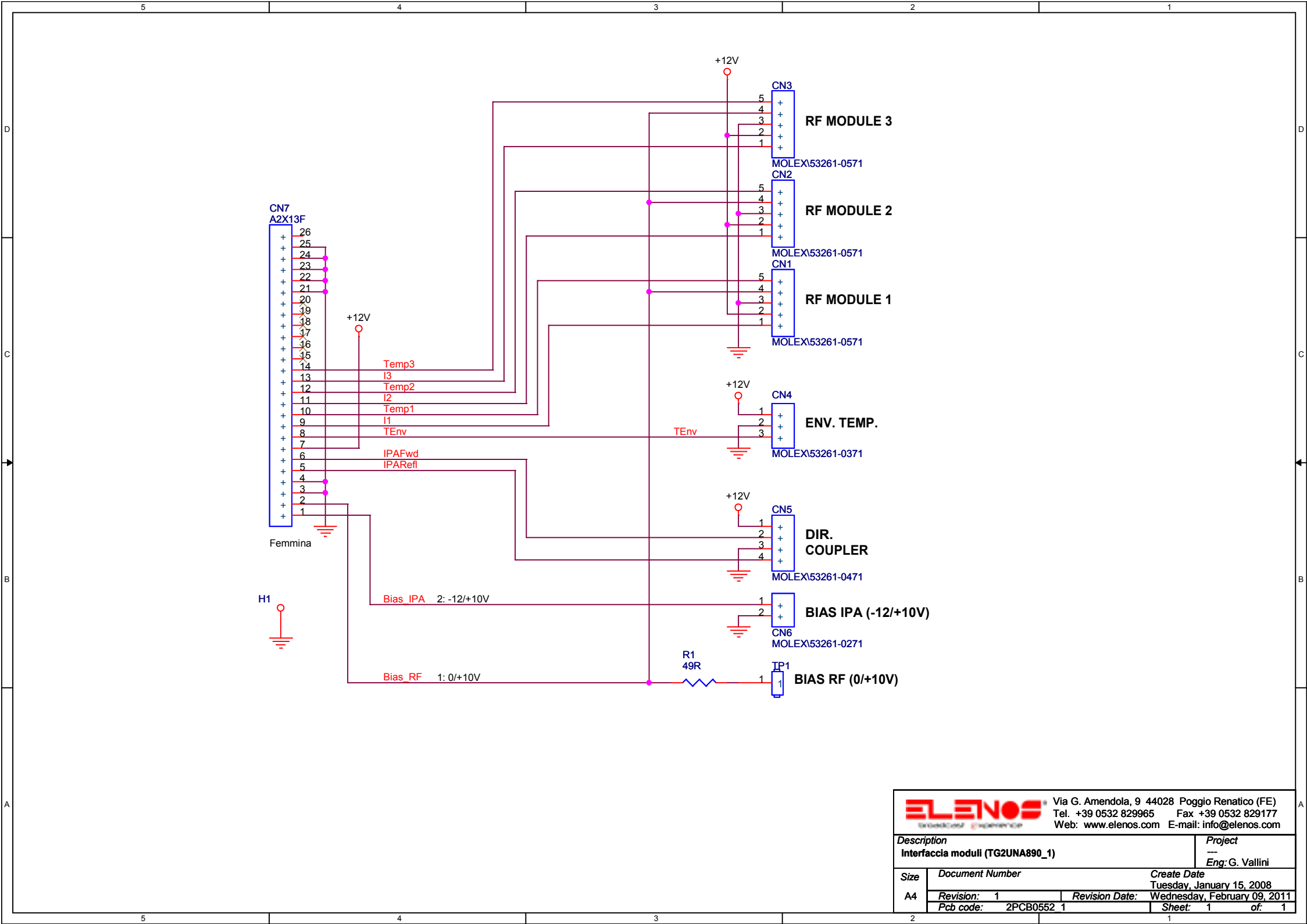


AMPI0A332

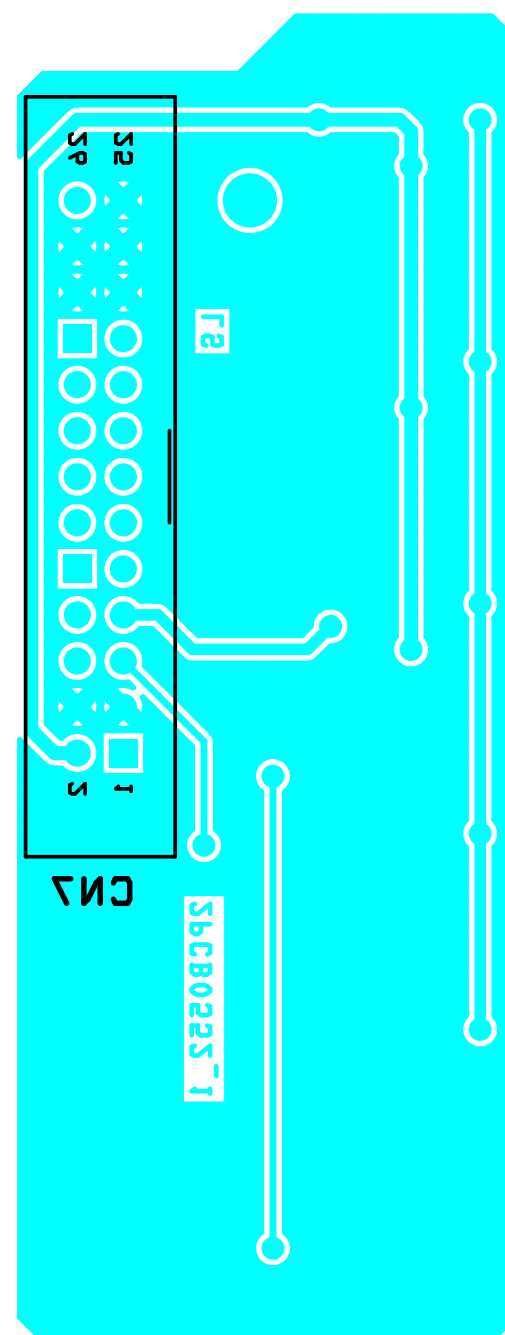
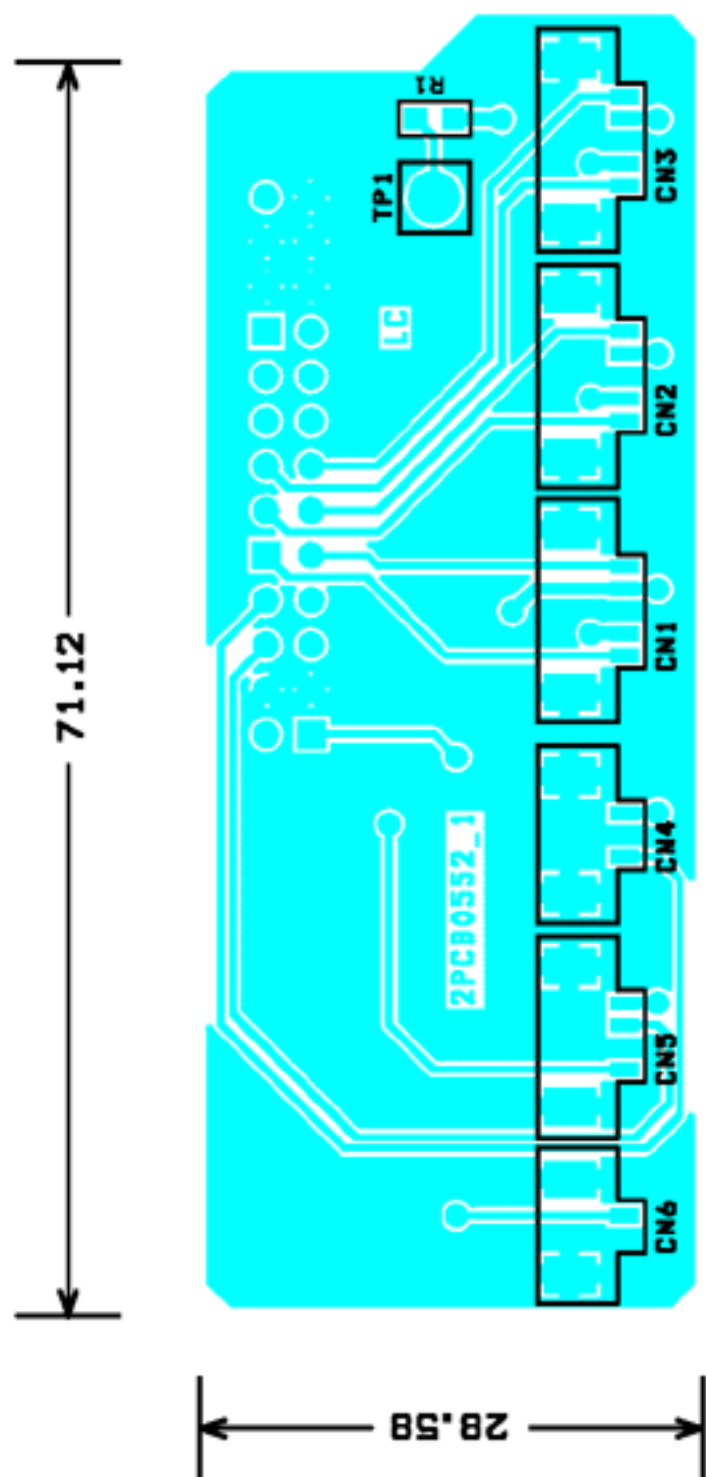


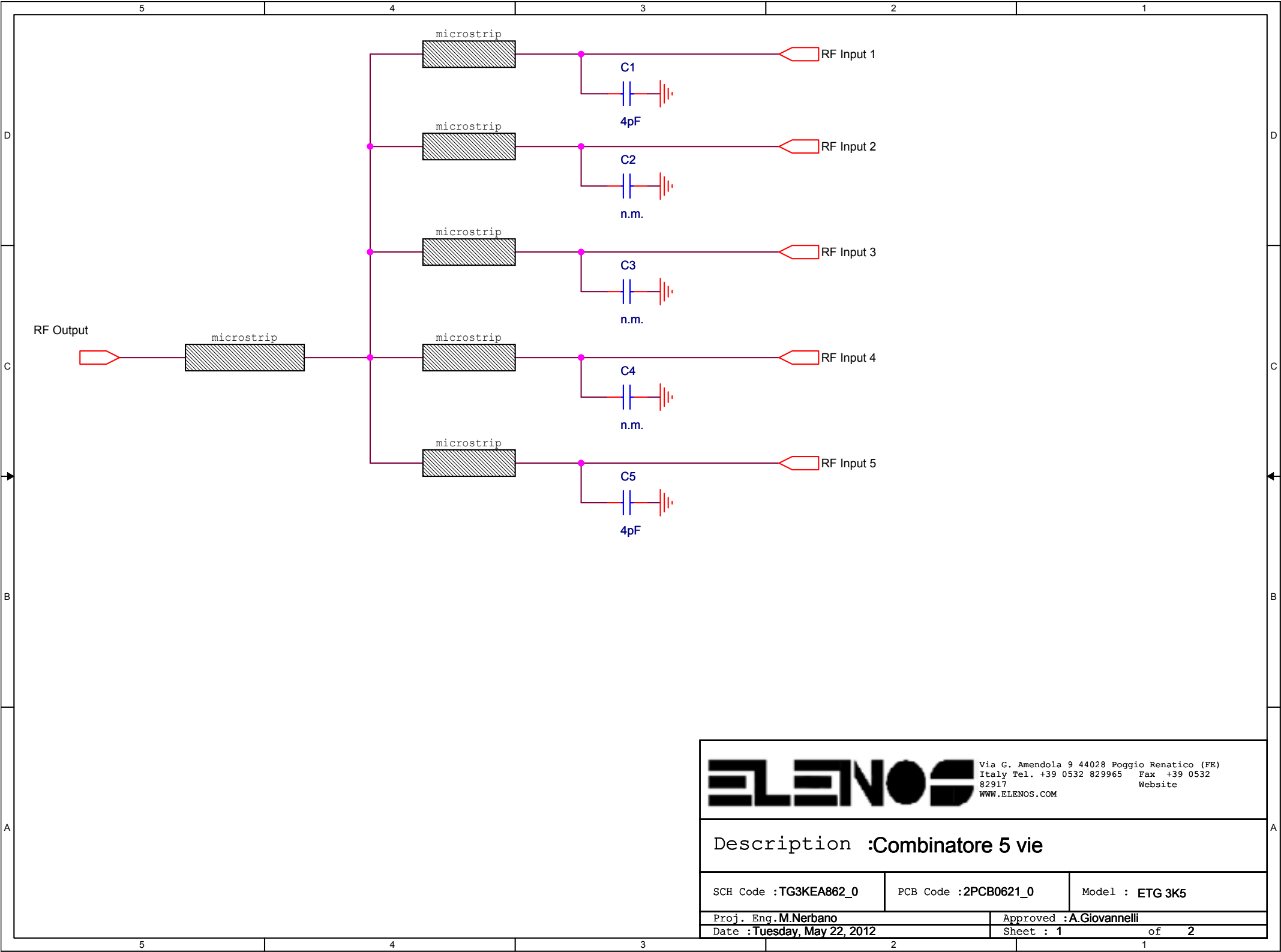
ELENOS Via G.Amendola 9 44028 Poggio Renatico (FE) Italy Tel +39 0532 829965 Fax +39 0532 829177 Website WWW.ELENOS.COM		
Title: Testina di lettura potenza di ingresso ETG2U		
Board Code: 2PCB0632_2	Model: AMPI0A332_2	Rev 1
Proj. Engr.: G.Michelini	Approved: A.Giovannelli	
Date: Monday, October 07, 2013	Sheet 1	of 1

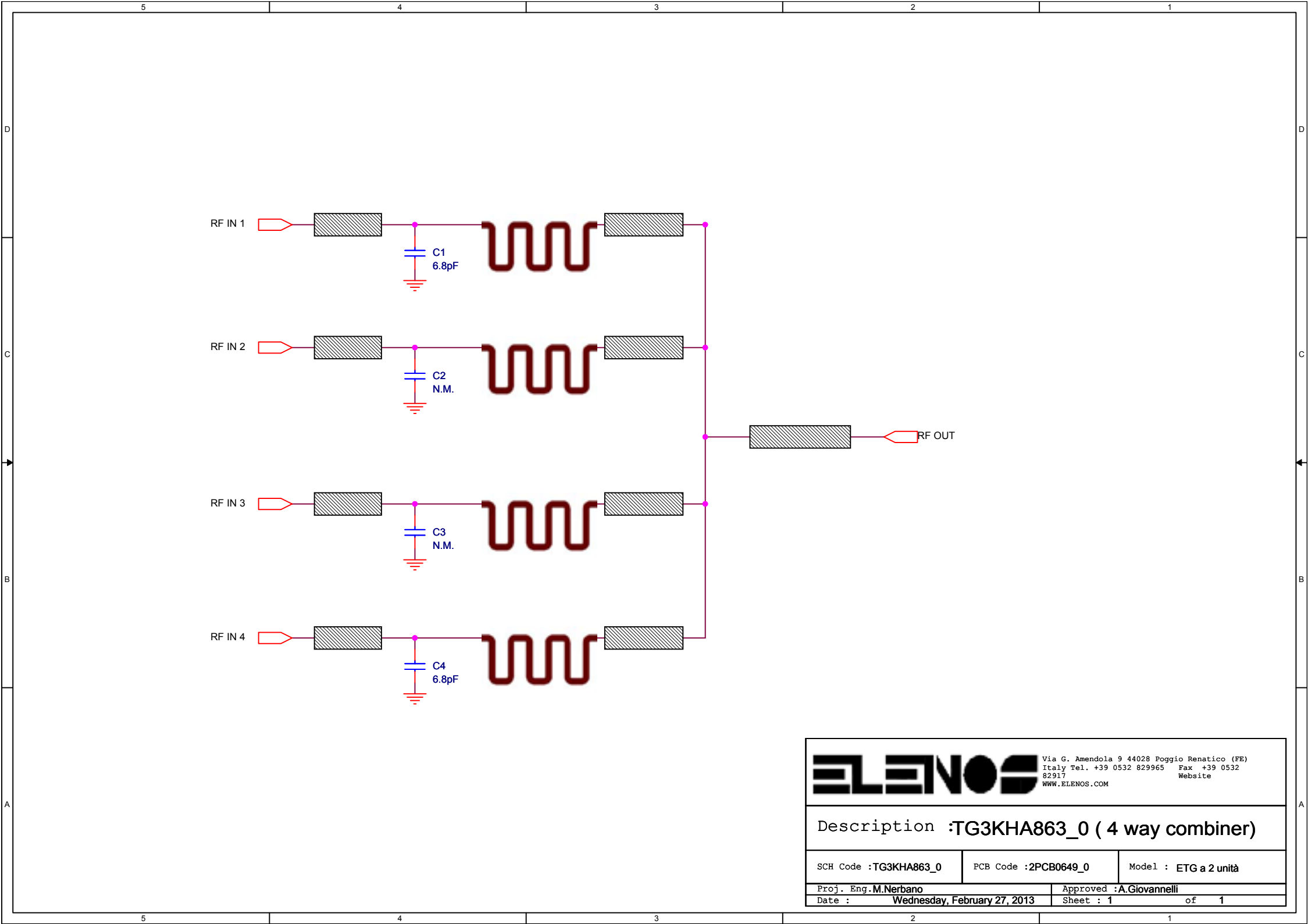




ELENOS Unobbligatorio		Via G. Amendola, 9 44028 Poggio Renatico (FE) Tel. +39 0532 829965 Fax +39 0532 829177 Web: www.eLENOS.com E-mail: info@elenos.com	
Description Interfaccia moduli (TG2UNA890_1)		Project Eng: G. Vallini	
Size A4	Document Number		Create Date
	Revision: 1	Revision Date:	Tuesday, January 15, 2008
	Pcb code: 2PCB0552 1	Sheet: 1	of: 1







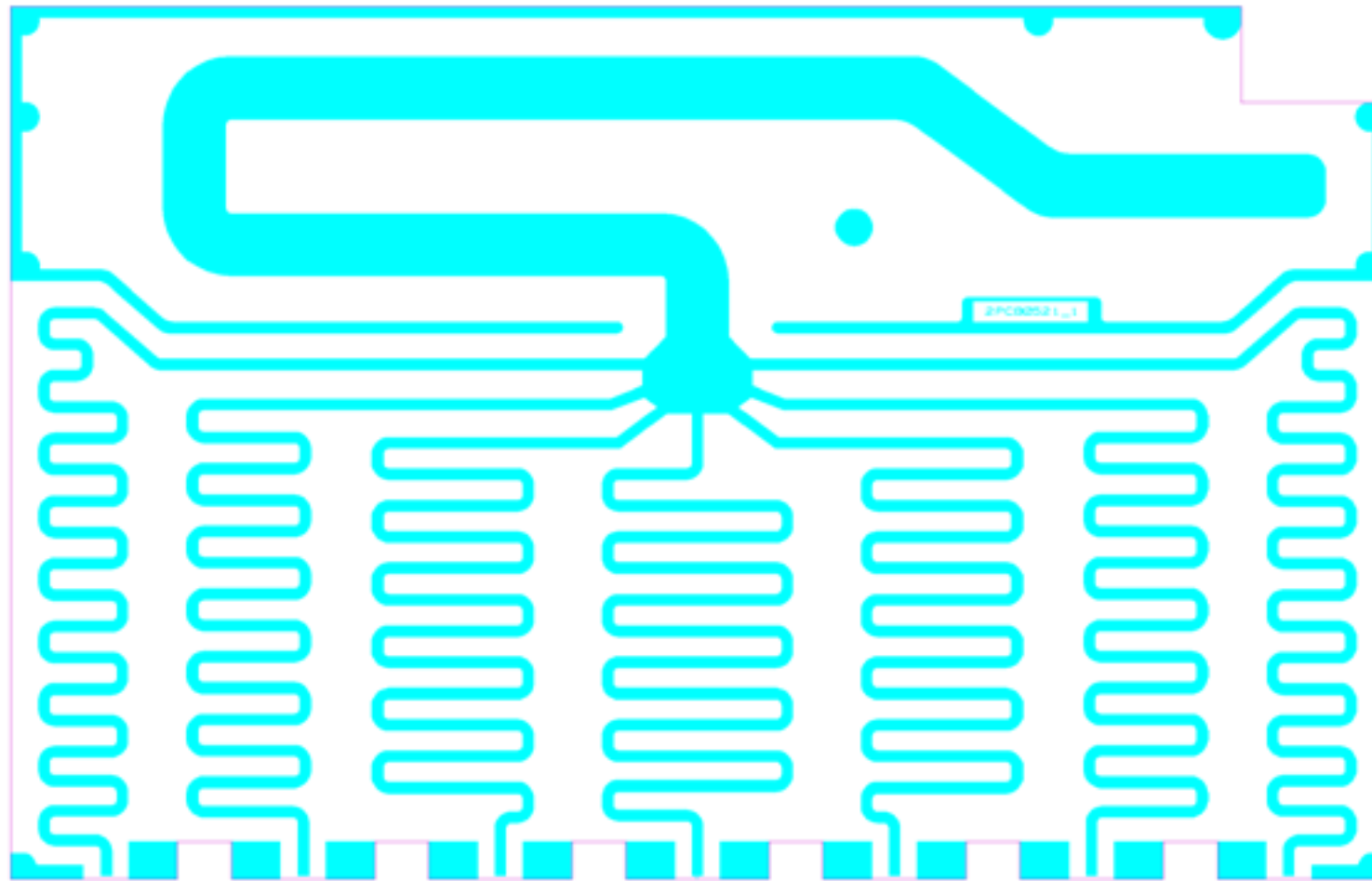


Table of boards in the single device

	D.L. 6-WAY	D.L. 5-WAY	D.L. 4-WAY	CB 6-WAY	CB 5-WAY	CB 4-WAY	CB 3-WAY&PB	CB 2-WAY&PB	PB	E5000	E3500	E2500
E3K 6A044	X	X	X				X	X				
XNK CA452	X	X	X									
CB300A233				X								
2PCB0397					X	X						
E3K NA041							X	X	X			
E3K 7A044							X	X	X			
E3K FA044							X	X	X			
E15K7A055							X	X				
E3K IA044							X	X	X			
TG3K8A867							X	X	X			
XNK 2A457							X	X		X	X	X
E10K5A070							X	X				
E10K3A076							X					
E20K0A912									X			
E30K0A065									X			
TG5K1A880										X	X	X
E3K 3A(B)044										X	X	X
TG5K4B881										X	X	X
TG2U0A899										X	X	X
TG5K3A881										X	X	X
TG5K2A881										X	X	X
XNK BA452										X	X	X
TG2U1A899										X	X	X
TG2U2A899										X	X	X
TG5K0A899										X		
TG3KFA862											X	
TG3KGA862												X
P5780A279										X	X	X
P5781A279										X		
MAMP0A221											X	X
AMPI0A332										X	X	X
TG2UNA890										X	X	X
2PCB0521										X		
TG3KEA862											X	
TG3KHA863												X
2PCB0651												X

