

## 2.4 Alimentation 12V vers +5V et 2 x +15V

Projet : IUT5

Info : [DIV518]

Révision : 1 du 9 juillet 2007



Figure 2.6. Vue de carte électronique (images-maquettes\aff-50m-alim-12 & -22.jpg).

### 2.4.1 Liste des documents

- Désignation des composants
- Prix du montage.
- Schéma électronique.
- Circuit imprimé coté cuivre.
- Circuit imprimé coté composants.
- Implantation des composants.
- Documentations des composants.

## 2.4.2 Désignation des composants

Tableau 2.3. Liste de composants (projets-iut5.xls / AFF-50M-ALIM).

N°	Quantité	Référence	Désignation	Empreinte
1	3	C1,C5,C12	220uF 25V	RADIAL10
2	1	C2	100nF	CK06
3	2	C3,C4	1000uF 10V	RADIAL13
4	4	C6,C7,C13,C14	1000uF 25V	RADIAL13
5	4	C8,C10,C15,C17	100nF 63V	CK06
6	2	C9,C16	10uF 50V	RADIAL04
7	2	C11,C18	330nF 63V	CK07
8	1	D1	MBR2045CT	TO220
9	3	D2,D5,D7	2mA	LED3
10	1	D3	11DQ06	DO41
11	2	D4,D6	1N5820	DO41-6P
12	2	JP1,JP2	+15V	WEID2
13	1	JP3	+5V	WEID2
14	1	JP4	12V	WEID2
15	1	L1	330uH 0.5A	RADIAL08
16	2	L2,L3	120uH 2.5A	KM30
17	1	R1	1500	RC04L
18	2	R2,R7	6.8k	RC04L
19	4	R3,R4,R8,R9	27k	RC04
20	2	R5,R10	2k	RC02
21	2	R6,R11	1.2k	RC04
22	1	U1	LM2575T-5.0	TO220-5b
23	2	U2,U3	LM2577T-ADJ	TO220-5B
24	4	VIS1,VIS2,VIS3,VIS4	VISSERIE	M3L

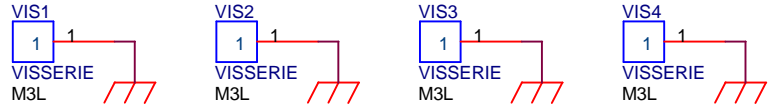
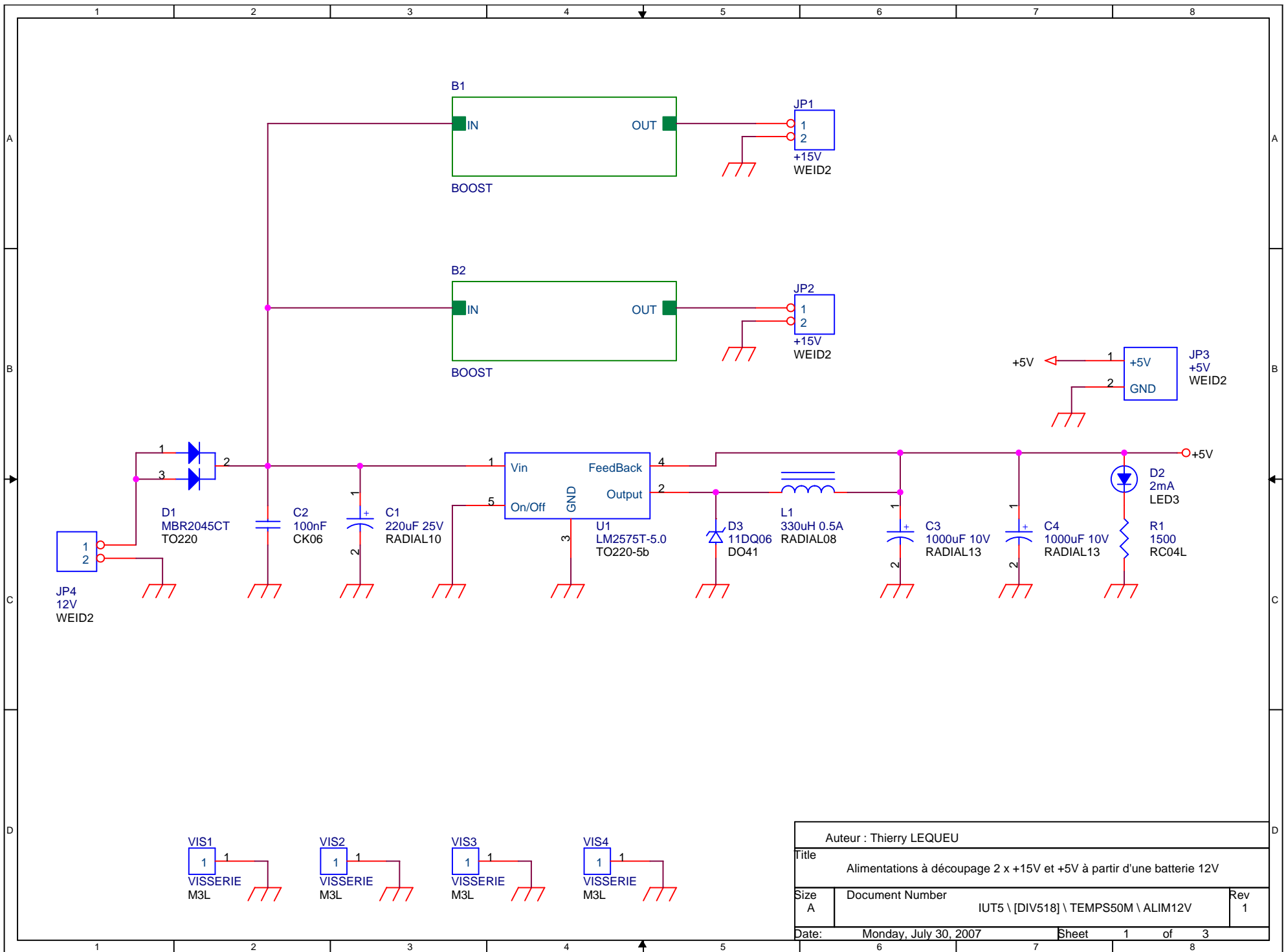
## 2.4.3 Calculs des composants

Pour un LM2577-ADJ, la tension de sortie est donnée par  $V_{\text{out}} = 1,23 \cdot \left( 1 + \frac{R_2}{R_1} \right)$ , soit

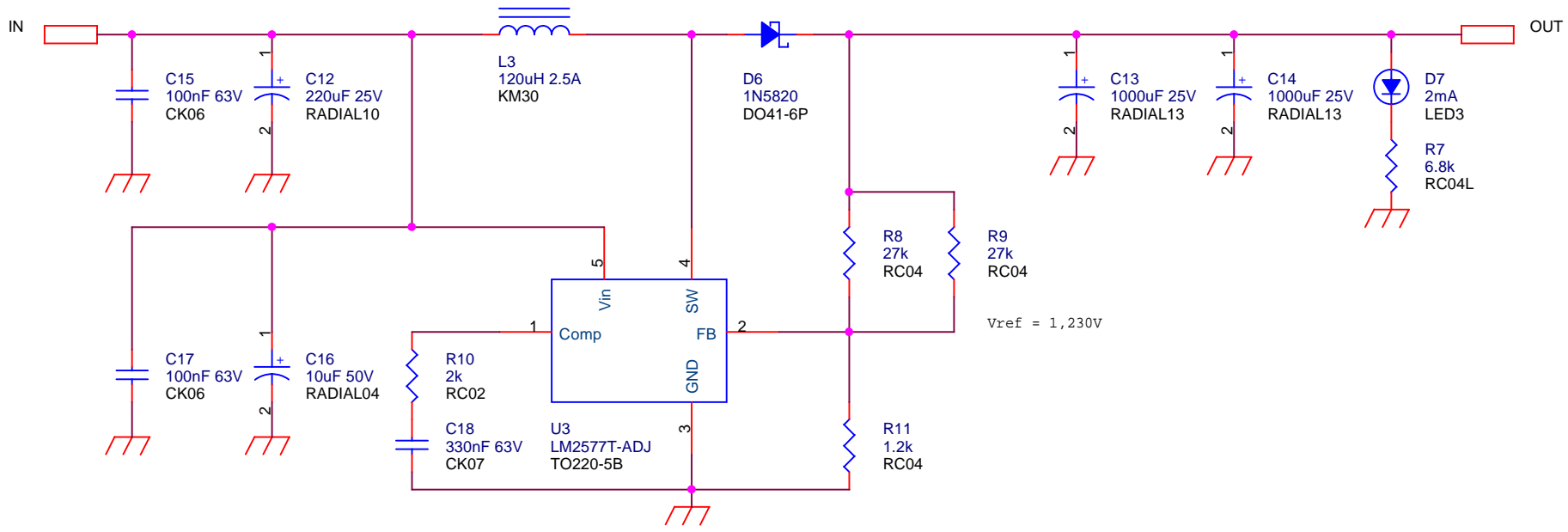
$$R_2 = R_1 \cdot \left( \frac{V_{\text{out}}}{1,23} - 1 \right) \text{ avec } R_1 \text{ comprise entre } 1 \text{ k}\Omega \text{ et } 5 \text{ k}\Omega.$$

En prenant  $R_1 = 1,2 \text{ k}\Omega$ , on obtient  $R_2 = 13,43 \text{ k}\Omega$ .

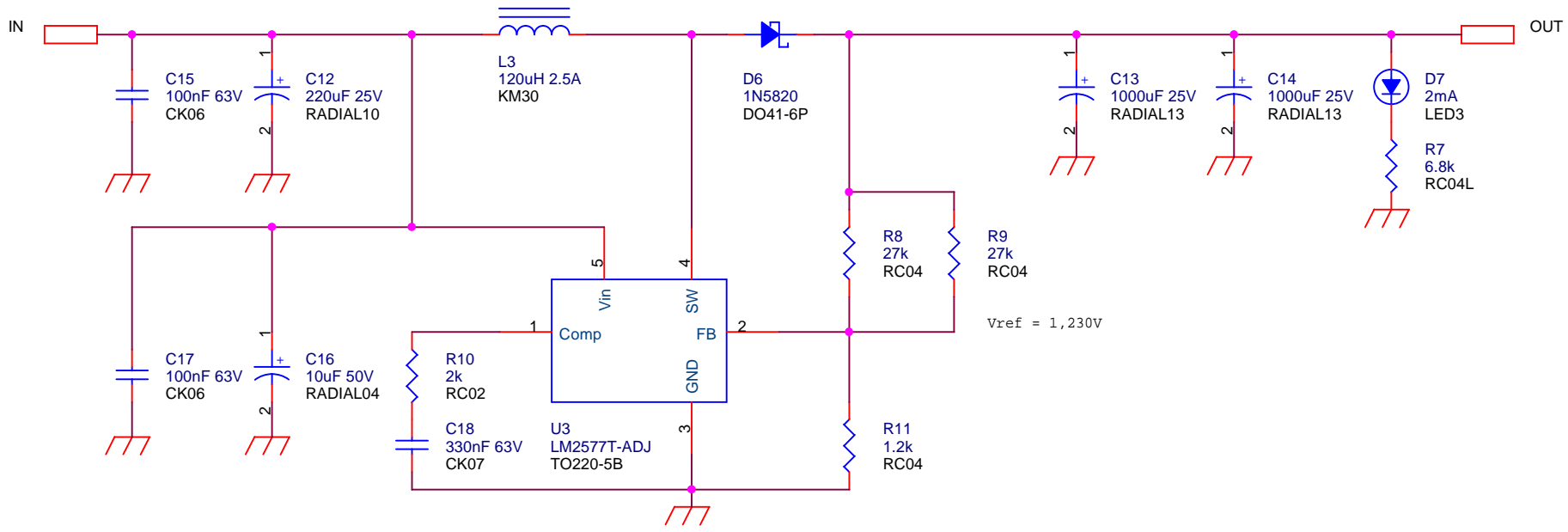
Deux résistances de  $27 \text{ k}\Omega$  en parallèles donnent  $R_2 = 13,5 \text{ k}\Omega$  et une tension de sortie  $V_{\text{out}} = 15,0675 \text{ V}$ .



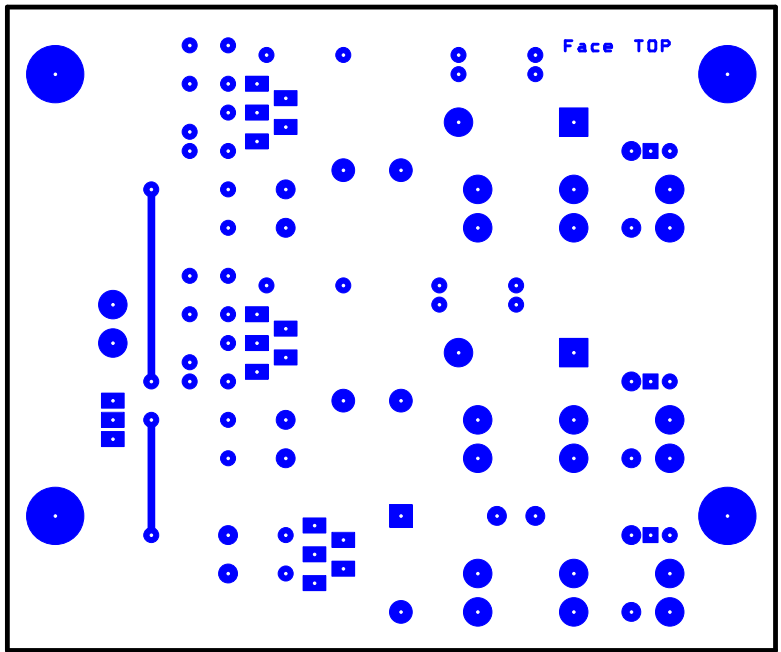
Auteur : Thierry LEQUEU		
Title Alimentations à découpage 2 x +15V et +5V à partir d'une batterie 12V		
Size A	Document Number IUT5 \ [DIV518] \ TEMPS50M \ ALIM12V	Rev 1
Date: Monday, July 30, 2007	Sheet 1	of 3

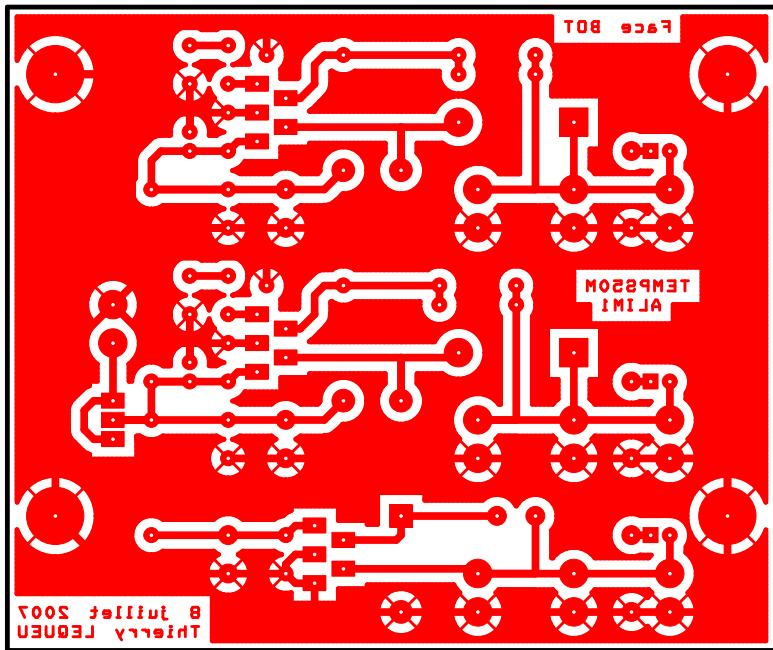


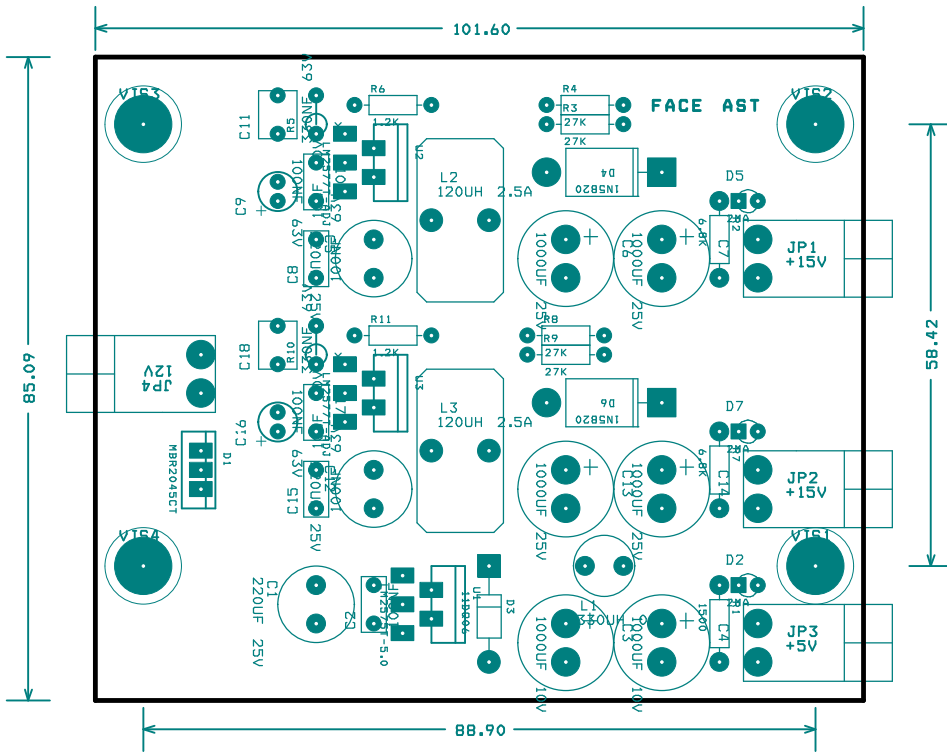
Auteur : Thierry LEQUEU		
Title Alimentations à découpage 2 x +15V et +5V à partir d'une batterie 12V		
Size A	Document Number IUT5 \ [DIV518] \ TEMPS50M \ ALIM12V	Rev 1
Date: Monday, July 30, 2007	Sheet 3	of 3



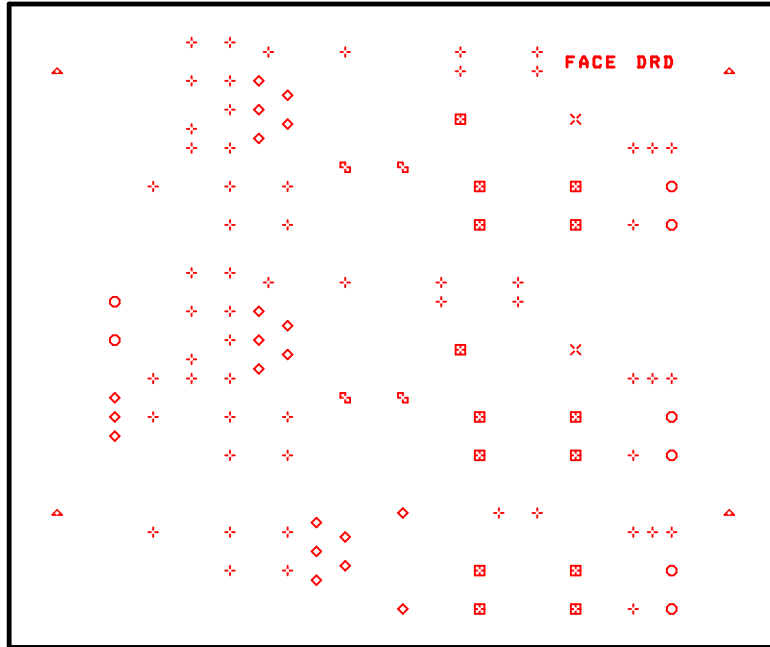
Auteur : Thierry LEQUEU		
Title Alimentations à découpage 2 x +15V et +5V à partir d'une batterie 12V		
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DRILL CHART				
SYM	DIAM	TOL	QTY	NOTE
×	0.762 mm		2	
+	0.787 mm		58	
◇	0.991 mm		20	
⊠	1.194 mm		14	
⊕	1.499 mm		4	
○	1.499 mm		8	
△	3.200 mm		4	
TOTAL			110	

## LM1577/LM2577 Series SIMPLE SWITCHER® Step-Up Voltage Regulator

### General Description

The LM1577/LM2577 are monolithic integrated circuits that provide all of the power and control functions for step-up (boost), flyback, and forward converter switching regulators. The device is available in three different output voltage versions: 12V, 15V, and adjustable.

Requiring a minimum number of external components, these regulators are cost effective, and simple to use. Listed in this data sheet are a family of standard inductors and flyback transformers designed to work with these switching regulators.

Included on the chip is a 3.0A NPN switch and its associated protection circuitry, consisting of current and thermal limiting, and undervoltage lockout. Other features include a 52 kHz fixed-frequency oscillator that requires no external components, a soft start mode to reduce in-rush current during start-up, and current mode control for improved rejection of input voltage and output load transients.

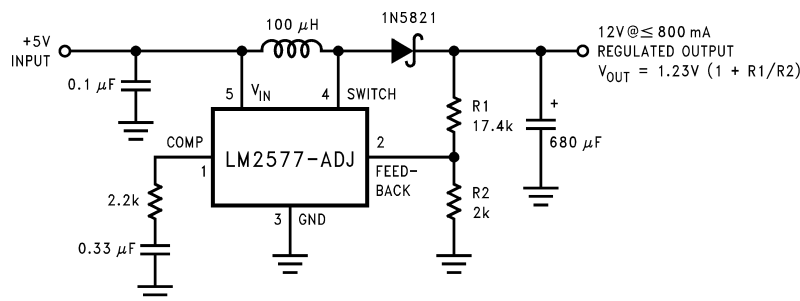
### Features

- Requires few external components
- NPN output switches 3.0A, can stand off 65V
- Wide input voltage range: 3.5V to 40V
- Current-mode operation for improved transient response, line regulation, and current limit
- 52 kHz internal oscillator
- Soft-start function reduces in-rush current during start-up
- Output switch protected by current limit, under-voltage lockout, and thermal shutdown

### Typical Applications

- Simple boost regulator
- Flyback and forward regulators
- Multiple-output regulator

### Typical Application



DS011468-1

Note: Pin numbers shown are for TO-220 (T) package.

### Ordering Information

Temperature Range	Package Type	Output Voltage			NSC Package Drawing	Package
		12V	15V	ADJ		
-40°C ≤ T <sub>A</sub> ≤ +125°C	24-Pin Surface Mount	LM2577M-12	LM2577M-15	LM2577M-ADJ	M24B	SO
	16-Pin Molded DIP	LM2577N-12	LM2577N-15	LM2577N-ADJ	N16A	N
	5-Lead Surface Mount	LM2577S-12	LM2577S-15	LM2577S-ADJ	TS5B	TO-263
	5-Straight Leads	LM2577T-12	LM2577T-15	LM2577T-ADJ	T05A	TO-220
	5-Bent Staggered Leads	LM2577T-12 Flow LB03	LM2577T-15 Flow LB03	LM2577T-ADJ Flow LB03	T05D	TO-220
-55°C ≤ T <sub>A</sub> ≤ +150°C	4-Pin TO-3	LM1577K-12/883	LM1577K-15/883	LM1577K-ADJ/883	K04A	TO-3

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