

12.4 Composants annexes : l'inductance RM14-3C90

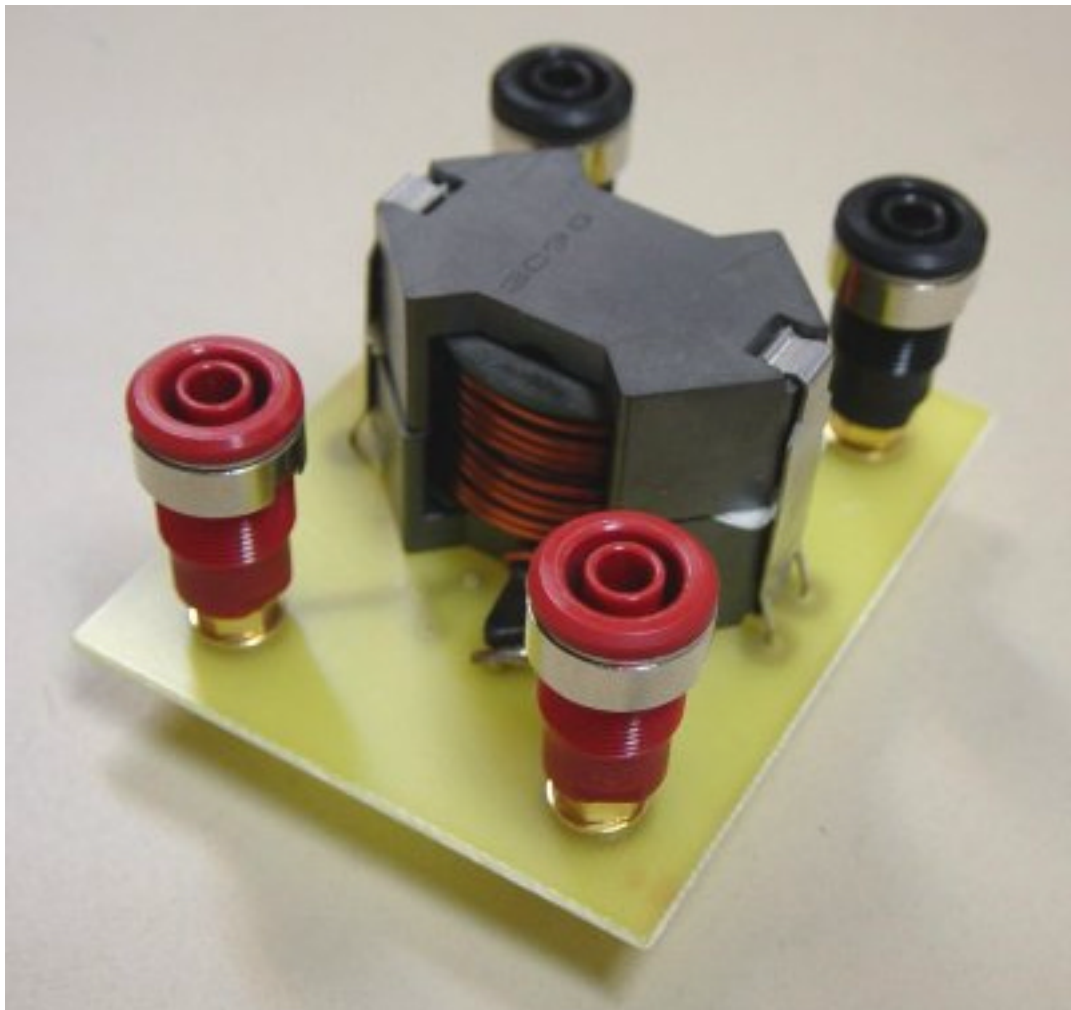


Figure 12.5. Inductance RM14-3C90 1 mH – 4 A (images-maquettes\self-1mH-22.jpg).

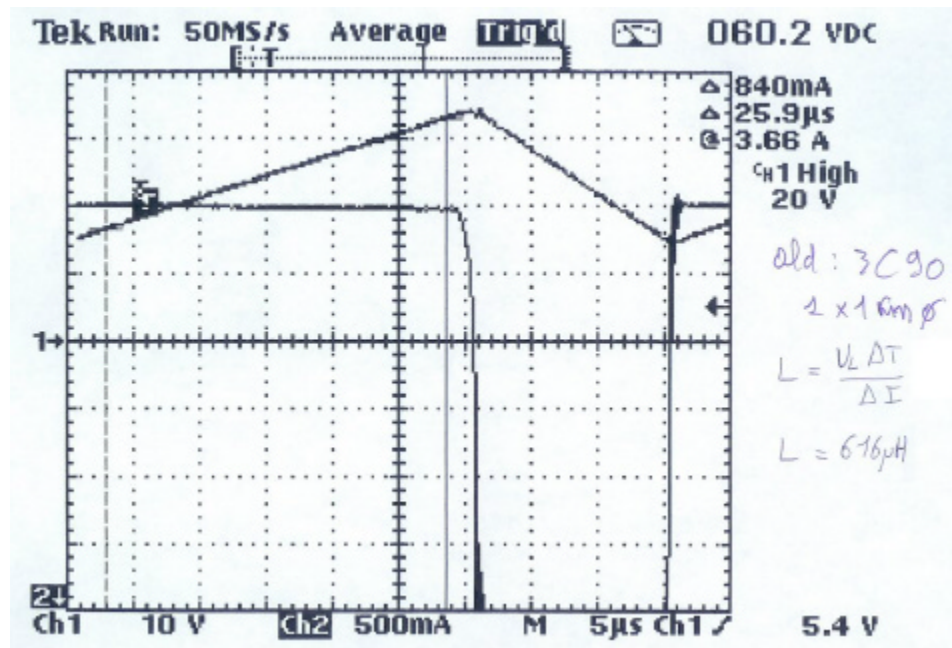


Figure 12.6. Hacheur BOOST – $V_e = 20V$ & $V_s = 60,2V$ (images-maquettes\self-3C90-RM14.jpg).

Essais : hacheur de type BOOST

Tension d'entrée : $V_e \approx 21 \text{ V}$ Courant d'entrée : $I_e \approx 3,25 \text{ A}$

Rapport cyclique : $\alpha \approx 60 \%$ Courant de sortie : $I_s \approx 1 \text{ A}$

Tension inductance : $V_{L_{\max}} = +20 \text{ V}$ pendant $\Delta T = 25,9 \mu\text{s}$

Variation du courant : $\Delta I_L = 0,84 \text{ A}$

Inductance : $v = L \frac{di}{dt}$ soit $L = \frac{V_L \times \Delta T}{\Delta I_L} = 616,66667 \mu\text{H}$.

Circuit RM14 – Matériaux 3C90 – Entrefer $e = 0,8 \text{ mm}$ (4 isolants)

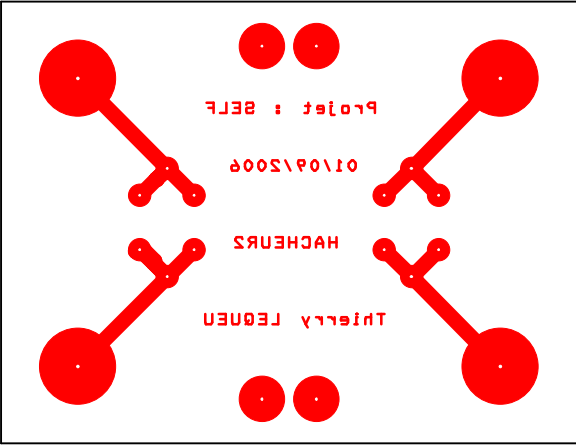
$N \approx 48$ spires – Fils 1 x AWG19 ($\phi 0,8 \text{ mm}$)

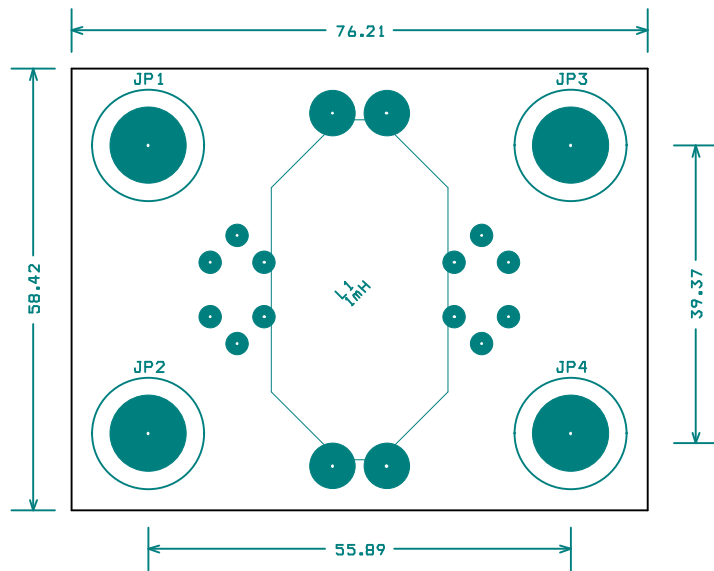
$\mu_e = 1990$ – $A_e = 198 \text{ mm}^2$ – $L_e = 70 \text{ mm}$ – $\mu_0 = 4 \cdot \pi \cdot 10^{-7}$ – $A_L = 7100 \text{ nH} \pm 25\%$

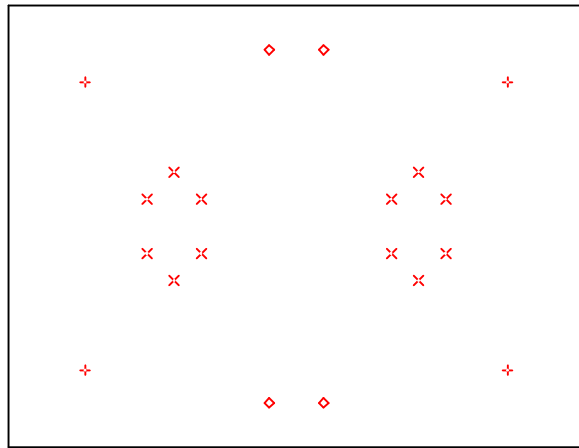
$$L = N^2 \cdot \frac{\mu_0 \cdot \mu_e \cdot A_e}{L_e} \cdot \frac{1}{1 + \frac{2 \cdot e \cdot \mu_e}{L_e}} = 351,9 \mu\text{H}$$



Figure 12.7. Résistances de puissance 3R3 W24 (images-maquettes\RL-1650-22.jpg).







DRILL CHART				
SYM	DIAM	TOL	QTY	NOTE
x	1.194 mm		12	
◇	3.200 mm		4	
+	4.191 mm		4	
TOTAL			20	