

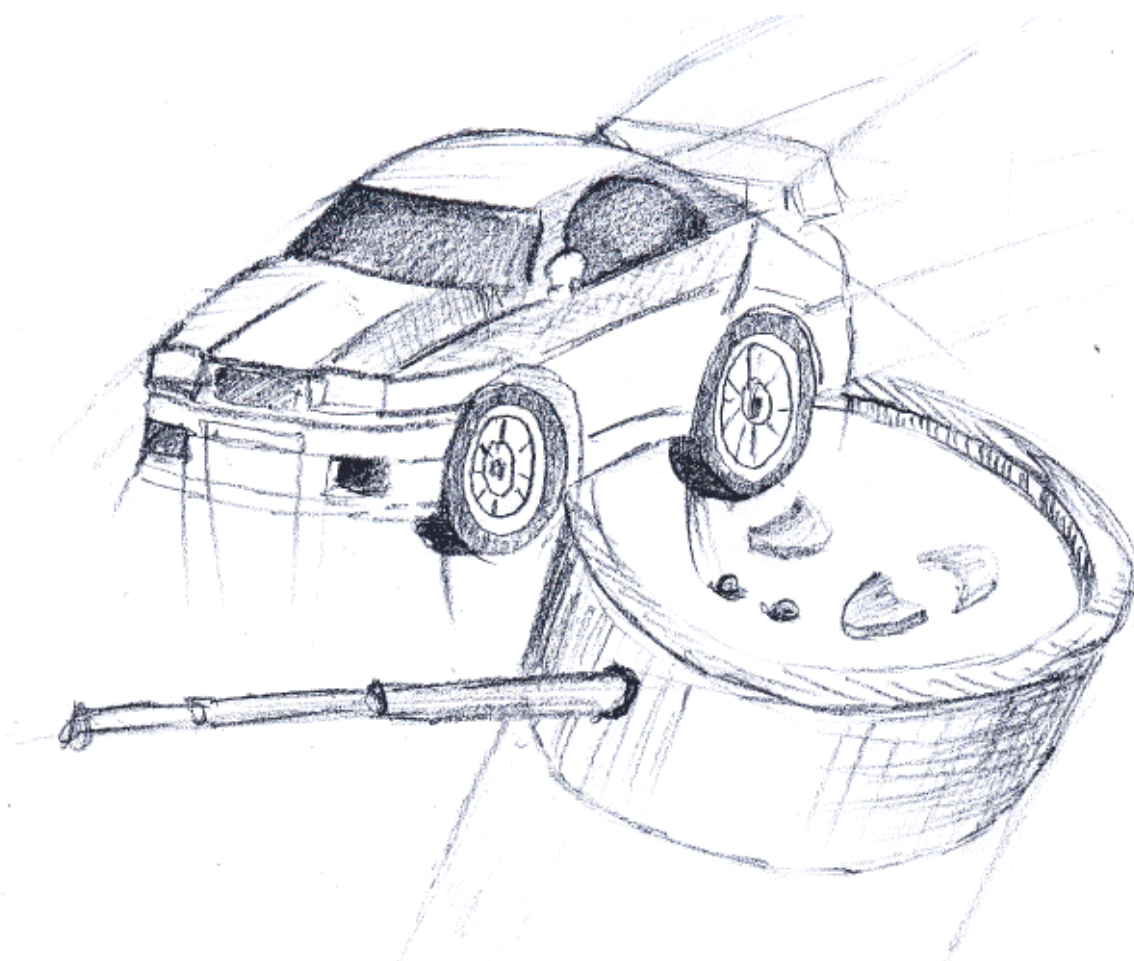
Les TechnoMalins

Le dossier technique

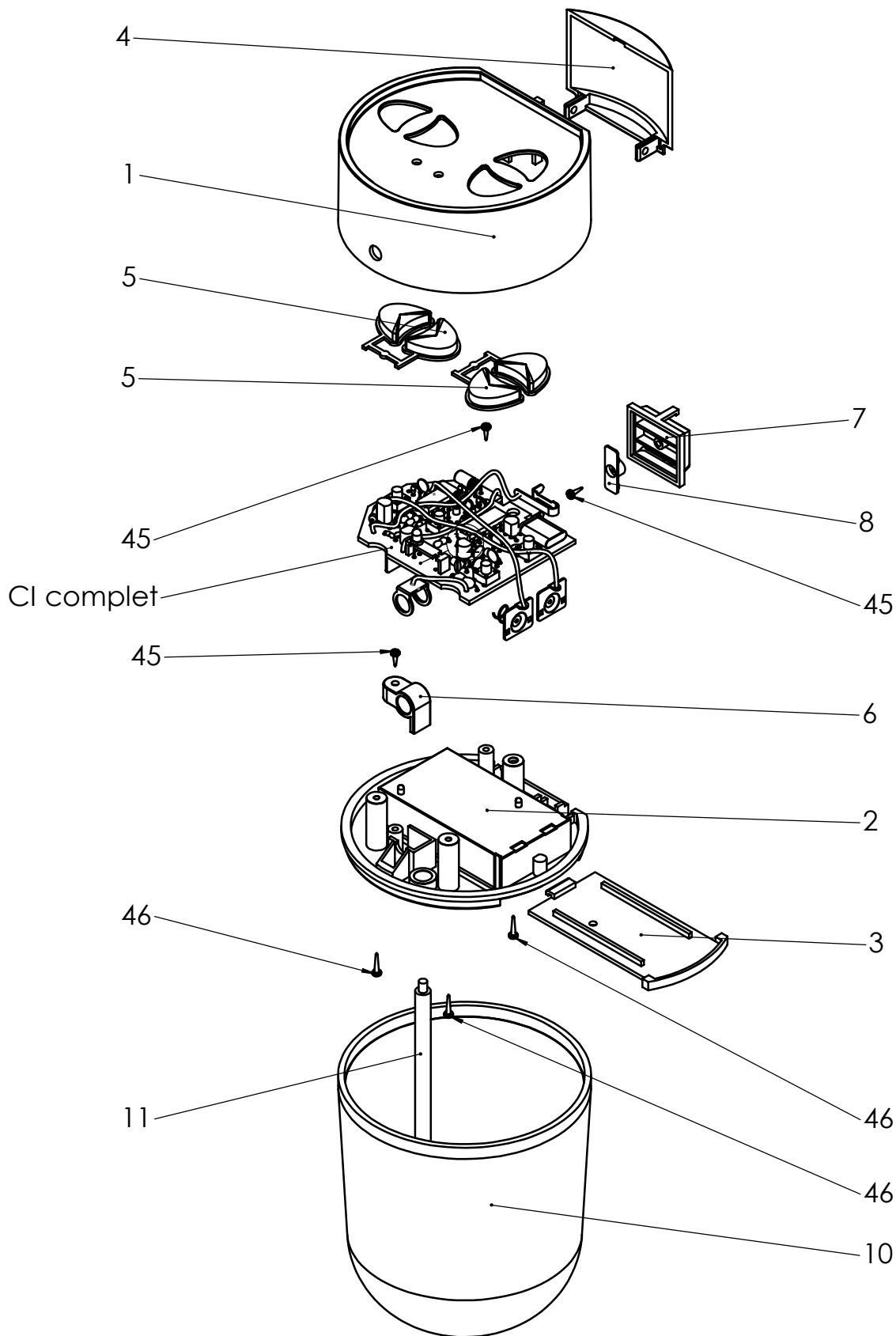
DOSSIER



RadioCar

Ressources Techniques

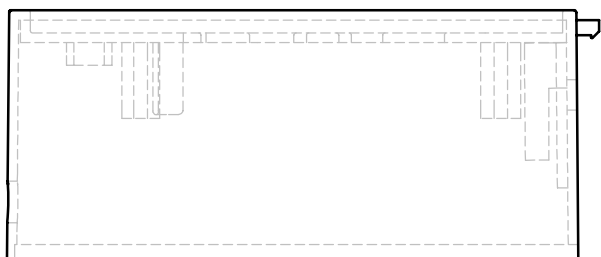
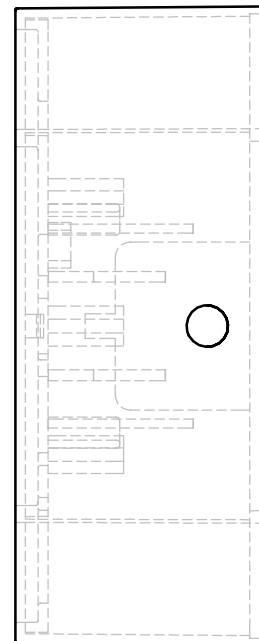
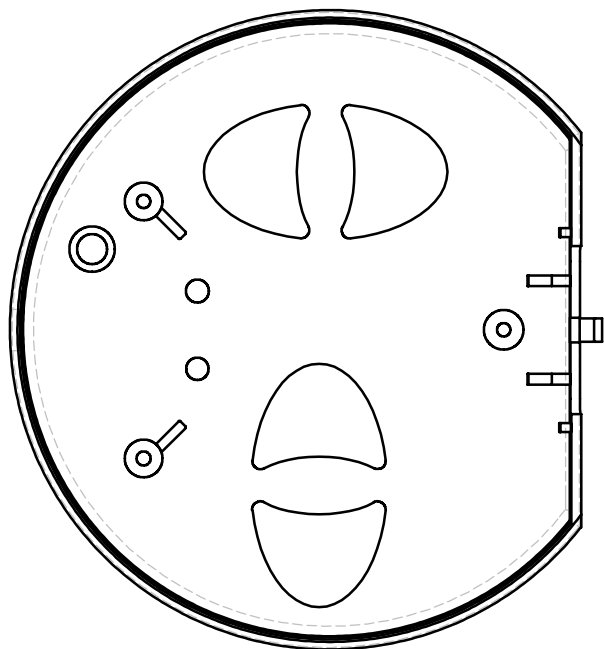


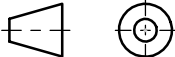
Par Xynops

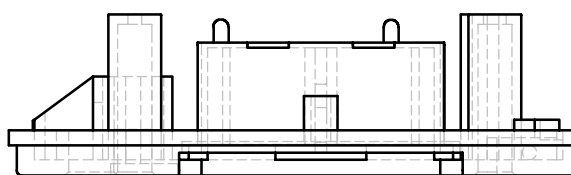
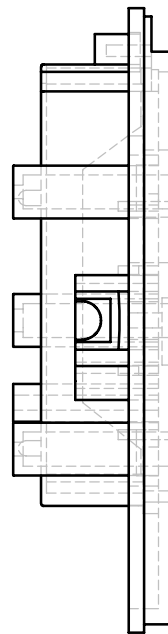
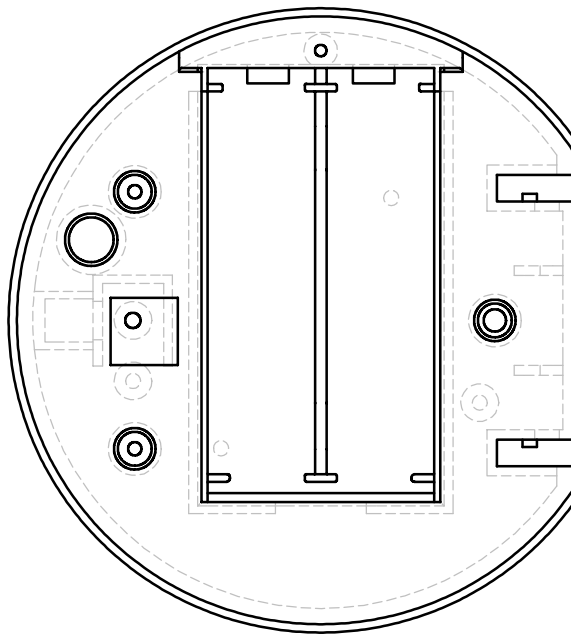


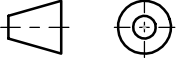
ECHELLE	Radiocar	DESSINÉ PAR : FP		
 		LE :		
FORMAT : A4	COLLEGE Eclaté			00

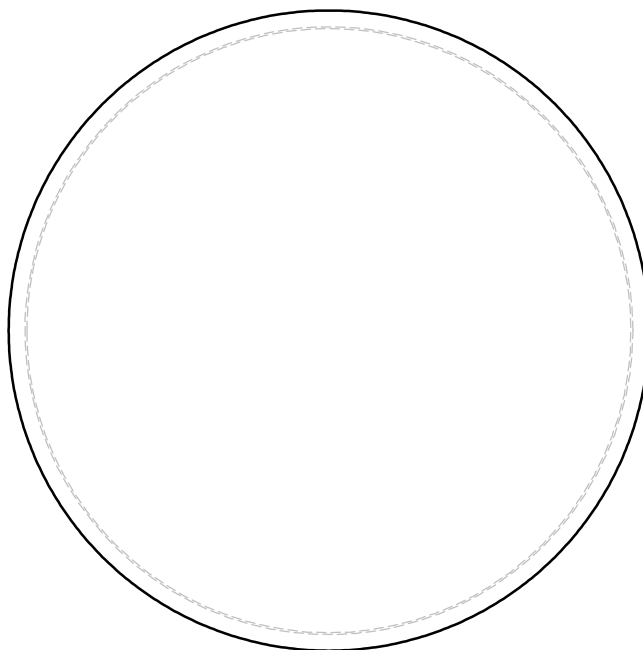
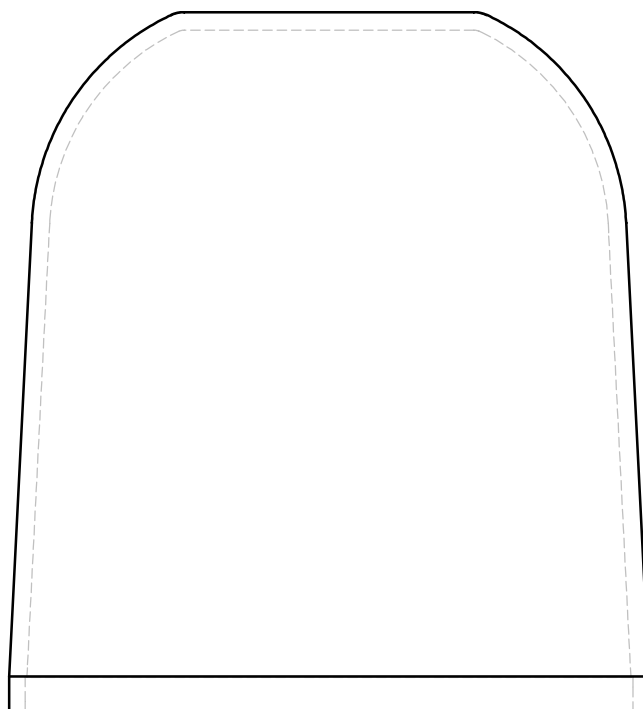
47	1	ci2			
46	3	vis boitier			
45	3	vis ci			
11	1	antenne rentree			
10	1	couvercle transparent			
8	1	presse lame contact			
7	1	platine de recharge			
6	1	étrier d'antenne			
5	2	bouton de commande			
4	1	capot de platine			
3	1	trappe de pile			
2	1	fond			
1	1	capot			
No.ARTICLE	QUANTITÉ	No.PIÈCE	DESCRIPTION		
ECHELLE	Radiocar		DESSINÉ PAR : FP		
			LE :		
	COLLEGE				
FORMAT : A4	Nomenclature de l'ensemble				
					00

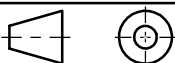


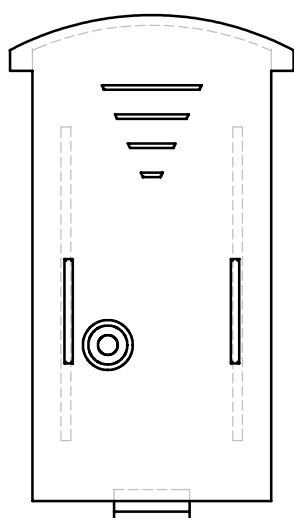
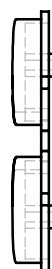
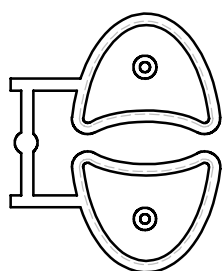
ECHELLE	<div data-bbox="542 1863 885 1942" data-label="Text"> <h1>Radiocar</h1> </div>	DESSINÉ PAR : FP	
		LE :	
FORMAT : A4	<div data-bbox="678 1982 920 2038" data-label="Text"> <h2>COLLEGE</h2> </div> <div data-bbox="805 2056 981 2119" data-label="Text"> <h2>Capot</h2> </div>		00





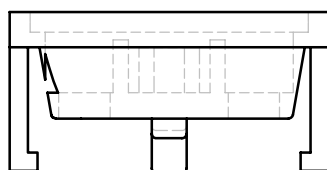
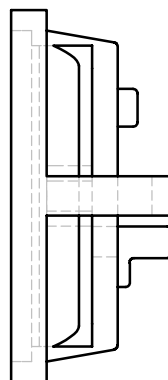
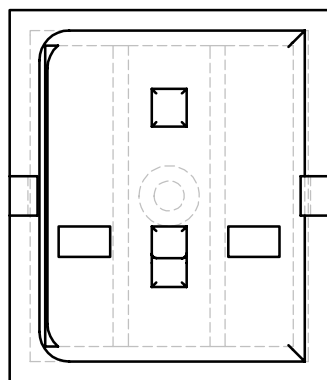
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		LE :	
FORMAT : A4	<div data-bbox="678 1982 922 2042" data-label="Text"> <h2>COLLEGE</h2> </div> <div data-bbox="821 2056 962 2116" data-label="Text"> <h2>Fond</h2> </div>		00



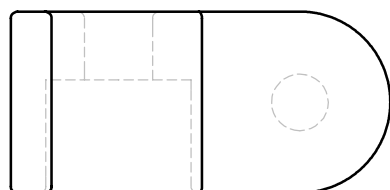
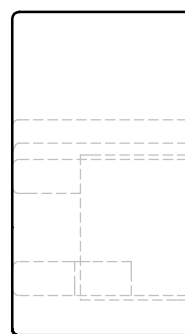
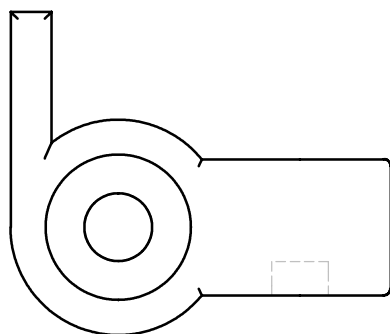
ECHELLE	Radiocar	DESSINÉ PAR : FP		
		LE :		
	COLLEGE			
	Couvercle transparent			
FORMAT : A4				00



<p>ECHELLE 1 : 1</p>	<p>Radiocar</p>	<p>DESSINÉ PAR : FP</p>		
<p> </p>		<p>LE :</p>		
<p>FORMAT : A4</p>	<p>COLLEGE</p>			
	<p>Trappe et bouton de commande</p>			00



ECHELLE
1 : 1

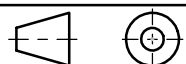


ECHELLE
3 : 1

Radiocar

DESSINÉ PAR :
FP

LE :

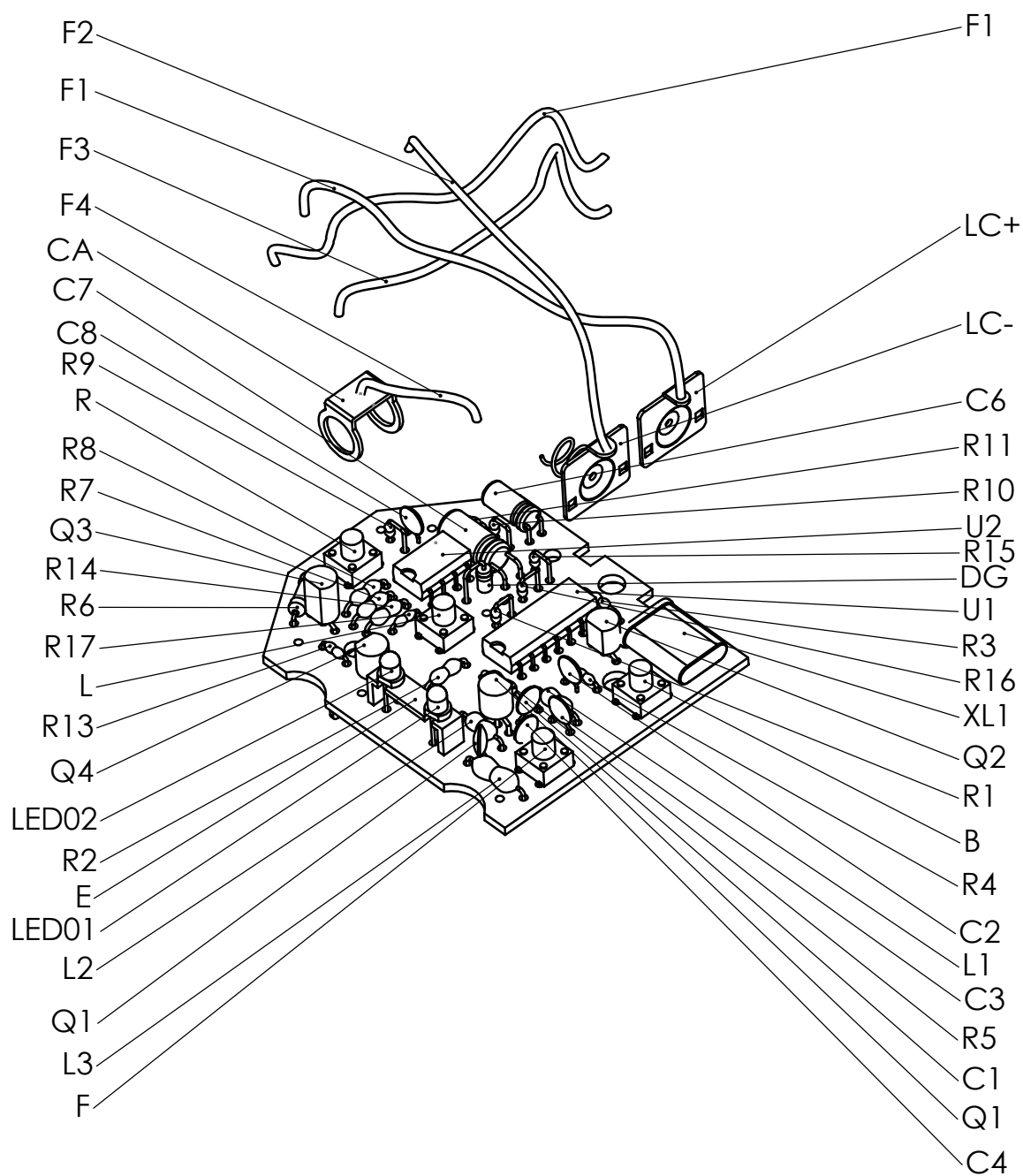


COLLEGE

FORMAT : A4



























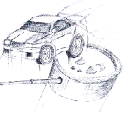

















Platine de recharge et étrier d'antenne



























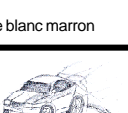

















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J1-R18 se trouve sous C7

ECHELLE	Radiocar	DESSINÉ PAR : FP	
 		LE :	
FORMAT : A4	COLLEGE Eclaté du CI complet		00

LED2 rouge 	R  bouton poussoir	Q4  2N3906 ou A1015	C7  chimique 100uF	R5 1/4 w ou 1/8w  marron noir orange	R12	R15 1/8 w vert bleu orange à la japonaise 
LED1 rouge 	L  bouton poussoir	C1  104	C8  501	R6 1/2 w rouge rouge argent 	R13 1/8 w orange blanc noir 	R16 1/8 w rouge violet vert à la japonaise 
L1  marron vert or	F  bouton poussoir	C2  27 Mhz : 47 35 Mhz : 27 45 Mhz : 10 57 Mhz : ne rien souder	XL1  27, 35, 45, 57 Mhz	R7 1/4 w ou 1/8w  marron noir marron	R14 1/4 w ou 1/8w  marron noir marron	R17 1/8 w orange blanc marron 
L2  vert bleu or	B  bouton poussoir	C3  22	R1 1/8 w marron gris jaune ou rouge rouge jaune à la japonaise 	R8 1/4 w ou 1/8w  bleu gris orange	U2  LM393P	
L3  27 Mhz : Jaune violet or 35 Mhz : Orange orange or 45 Mhz : Marron vert or 57 Mhz : Marron noir or	Q1  ST945	C4  101	R2 1/4 w ou 1/8w  marron noir rouge	R9 1/8 w rouge rouge orange à la japonaise 	U1  TX-2 ----- -	
J1-R18  fil métallique ou patte de composant	Q2  ST945	C5  68	R3  1/8 w bleu gris orange	R10 1/8 w bleu gris orange à la japonaise 	<div style="border: 2px solid red; padding: 10px;"> <p>Nom :</p> <p>Prénom :</p> <p>Classe :</p> <p>fréquence :</p> </div>	
DG  1N4001 à la japonaise 	Q3  A966 y-576 ou B772	C6  chimique 1uF	R4 1/8 w 27 Mhz et 35 Mhz Marron noir marron 45 Mhz et 57 Mhz : fil métallique (strap) 	R11 1/8 w marron gris orange ou rouge noir orange 		

LED2 rouge 	R  bouton poussoir	Q4  2N3906 ou A1015	C7  chimique 100uF	R5 1/4 w ou 1/8w  marron noir orange	R12	R15 1/8 w vert bleu orange à la japonaise 
LED1 rouge 	L  bouton poussoir	C1  104	C8  501	R6 1/2 w rouge rouge argent 	R13 1/8 w orange blanc noir 	R16 1/8 w rouge violet vert à la japonaise 
L1  marron vert or	F  bouton poussoir	C2  27 Mhz : 47 35 Mhz : 27 45 Mhz : 10 57 Mhz : ne rien souder	XL1  27, 35, 45, 57 Mhz	R7 1/4 w ou 1/8w  marron noir marron	R14 1/4 w ou 1/8w  marron noir marron	R17 1/8 w orange blanc marron 
L2  vert bleu or	B  bouton poussoir	C3  22	R1 1/8 w marron gris jaune ou rouge rouge jaune à la japonaise 	R8 1/4 w ou 1/8w  bleu gris orange	U2  LM393P	
L3  27 Mhz : Jaune violet or 35 Mhz : Orange orange or 45 Mhz : Marron vert or 57 Mhz : Marron noir or	Q1  ST945	C4  101	R2 1/4 w ou 1/8w  marron noir rouge	R9 1/8 w rouge rouge orange à la japonaise 	U1  TX-2 ----- -	
J1-R18  fil métallique ou patte de composant	Q2  ST945	C5  68	R3  1/8 w bleu gris orange	R10 1/8 w bleu gris orange à la japonaise 	<div style="border: 2px solid red; padding: 10px;"> <p>Nom :</p> <p>Prénom :</p> <p>Classe :</p> <p>fréquence :</p> </div>	
DG  1N4001 à la japonaise 	Q3  A966 y-576 ou B772	C6  chimique 1uF	R4 1/8 w 27 Mhz et 35 Mhz Marron noir marron 45 Mhz et 57 Mhz : fil métallique (strap) 	R11 1/8 w marron gris orange ou rouge noir orange 		

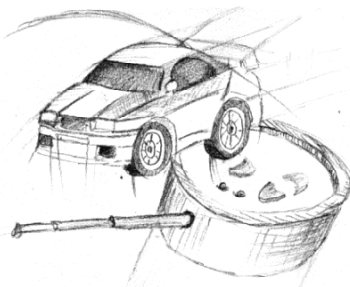
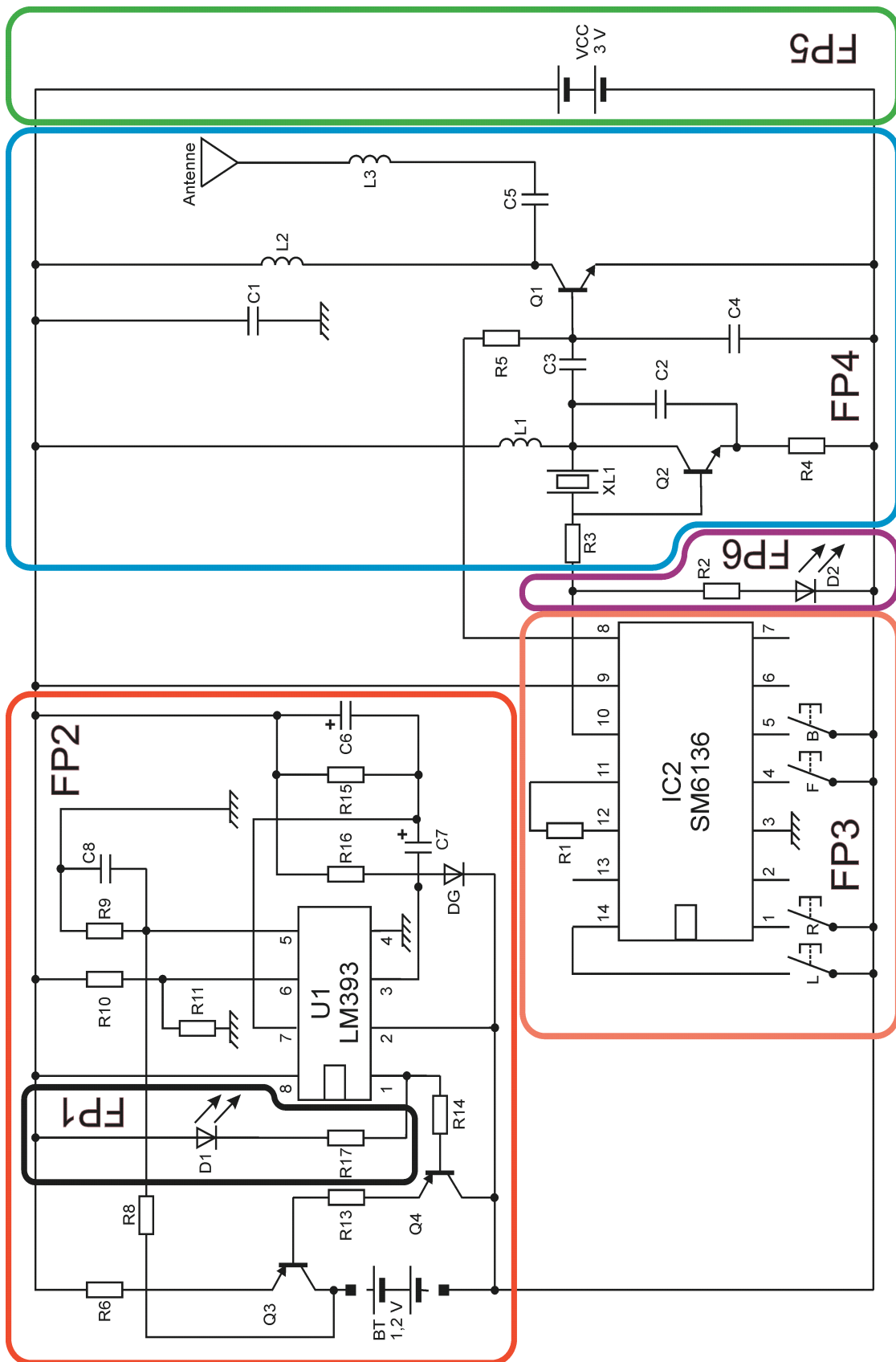
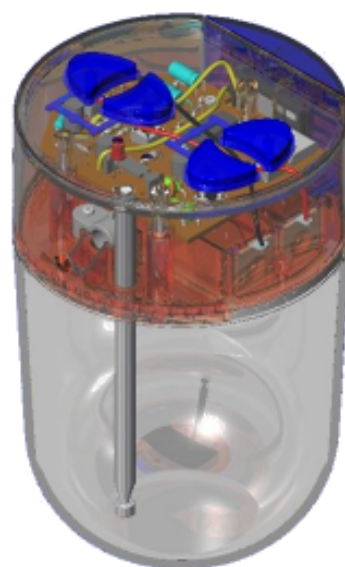
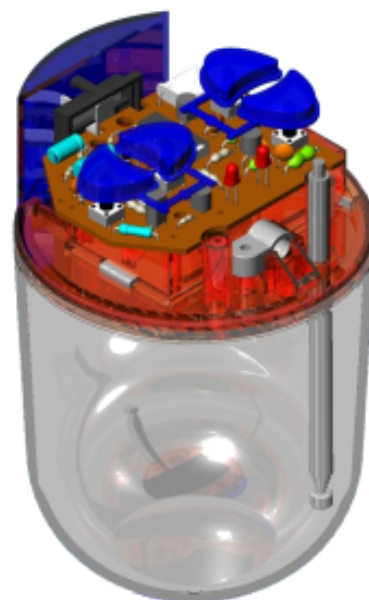
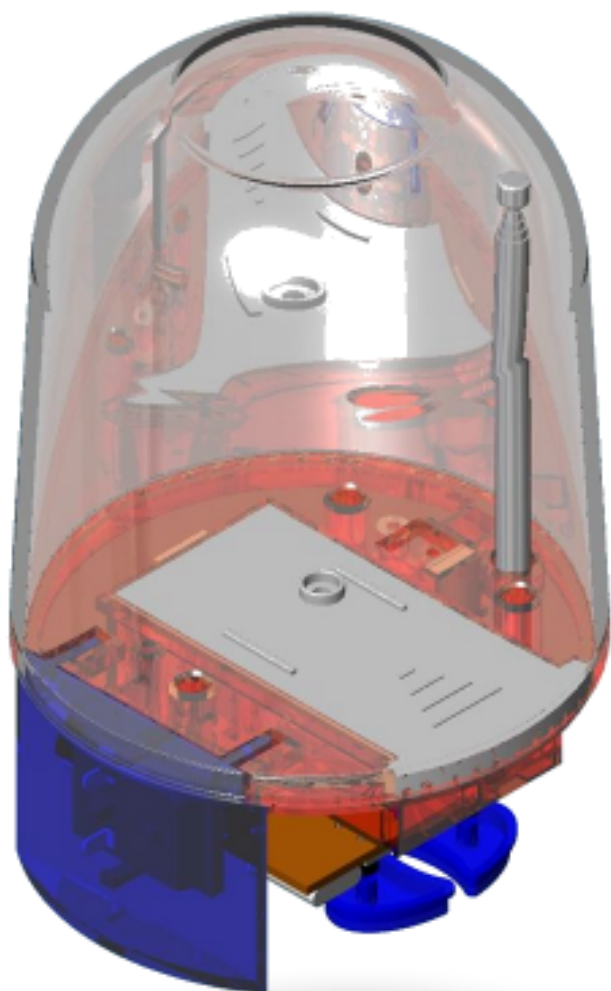
				 XYNOPS	
CA	1	Cosse d'antenne	à sertir-insérer		
LED01	1	LED	rouge		
LED02	1	LED	rouge		
L1	1	self	marron vert or		
L2	1	self	vert bleu or		
L3	1	self	Marron vert (45Mhz) - Jaune violet (27Mhz)		
J1	1	STRAP sur R18	strap		
DG	1	Diode	1N4001		
R	1	Poussoirs de circuit imprimés		Orange orange (35Mhz) - Marron noir (57Mhz)	
L	1	Poussoirs de circuit imprimés		ou autre parmi nombreux équivalents	
F	1	Poussoirs de circuit imprimés			
B	1	Poussoirs de circuit imprimés			
Q1	1	Transistor	C1815 ou type 945		
Q2	1	Transistor	C1815 ou type 945		
Q3	1	Transistor	A966 y-576 ou B772		
Q4	1	Transistor	2N3906 ou A1015		
C1	1	Condensateur ceramique	104		
C2	1	Condensateur ceramique	10(45Mhz) - 47(27Mhz)	27(35Mhz) - n'existe pas(57Mhz)	
C3	1	Condensateur ceramique	22		
C4	1	Condensateur ceramique	101		
C5	1	Condensateur ceramique	68		
C6	1	Condensateur chim. Rad	1uF		
C7	1	Condensateur chim. Rad	100uF		
C8	1	Condensateur ceramique	501		
XL1	1	Quartz	27-35-45-57 Mhz	Varie suivant les fréquences	
U1	1	Circuit intégré	TX-2	circuit intégré à 14 pattes	
U2	1	Circuit intégré	LM393		
R1	1	Résistance 1/8w	marron gris jaune	ou rouge rouge jaune	
R2	1	Résistance 1/4w ou 1/8w	marron noir rouge		
R3	1	Résistance 1/8w	bleu gris orange		
R4	1	Résistance 1/8w	marron noir marron	strap pour 45 et 57 MHz	
R5	1	Résistance 1/4w ou 1/8w	marron noir orange		
R6	1	Résistance bleu 1/2w	rouge rouge argent		
R7	1	Résistance 1/4w ou 1/8w	marron noir marron		
R8	1	Résistance 1/4w ou 1/8w	bleu gris orange		
R9	1	Résistance 1/8w	rouge rouge orange		
R10	1	Résistance 1/8w	bleu gris orange		
R11	1	Résistance 1/8w	marron gris orange	ou rouge noir orange	
R12	0	non posée			
R13	1	Résistance 1/8w	orange blanc noir		
R14	1	Résistance 1/4w ou 1/8w	marron noir marron		
R15	1	Résistance 1/8w	vert bleu orange		
R16	1	Résistance 1/8w	rouge violet vert		
R17	1	Résistance 1/8w	orange blanc marron		
F1	2	fil rouge	50 mm		
F2	1	fil noir	50 mm		
F3	1	fil vert	50 mm		
F4	1	fil blanc	50 mm - Antenne		
Réf	Nb	Désignation	Valeur	Remarques	
ECHELLE		Radiocar		DESSINÉ PAR :	
				FP	
		COLLEGE		LE :	
FORMAT : A4		NOMENCLATURE ELECTRONIQUE (radio commande)			00

Tableau des filtres résonnants RLC suivant les 4 fréquences.
Valeurs variables de L1, L2, L3, C2, C5, R4

	L1	L2	L3	C2	C5	R4
45 MHz	Marron Vert Or	Vert Bleu Or	Marron Vert Or	10	68	STRAP
57 MHz	Marron Vert Or	Vert Bleu Or	Marron Noir Or	Rien	68	STRAP
27 MHz	Marron Vert Or	Vert Bleu Or	Jaune Violet Or	47	68	Marron noir marron
35 MHz	Marron Vert Or	Vert Bleu Or	Orange Orange Or	27	68	Marron noir marron



ECHELLE 	<h1 style="text-align: center;">Radiocar</h1>	DESSINÉ PAR : FP	
FORMAT : A4		LE :	
	<h2 style="text-align: center;">COLLEGE</h2>		
	<h3 style="text-align: center;">Schéma structurel</h3>	(radio commande)	



ECHELLE

RadioCar

DESSINÉ PAR :
FP

LE :

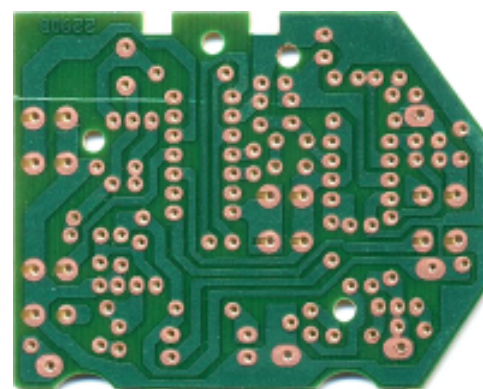
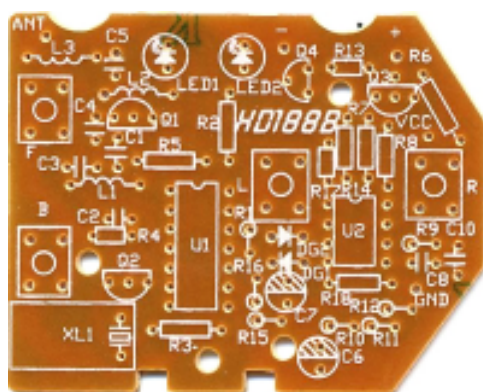
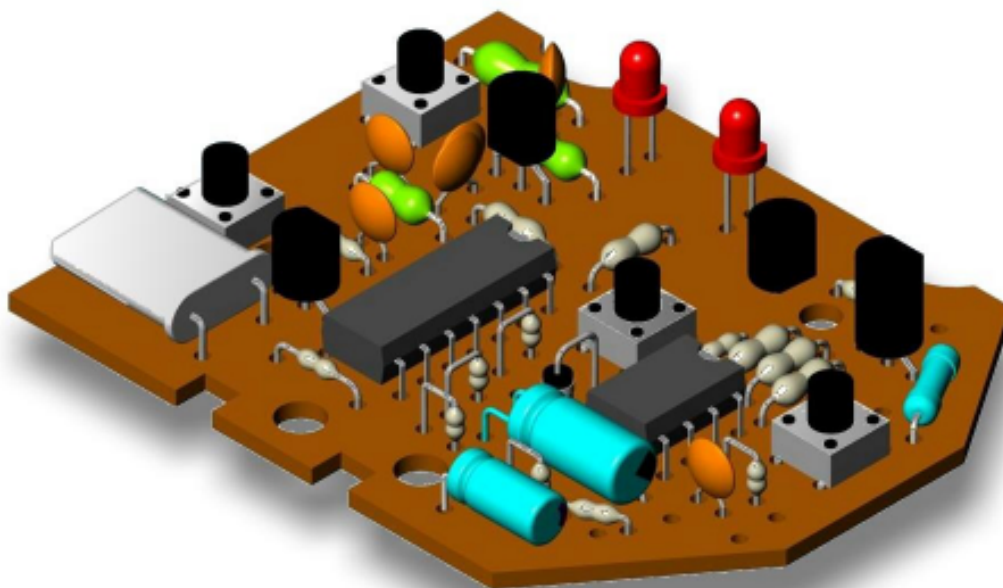


COLLEGE

FORMAT : A4

Ensemble modélisation 3D-1

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ECHELLE

RadioCar

DESSINÉ PAR :
FP

LE :

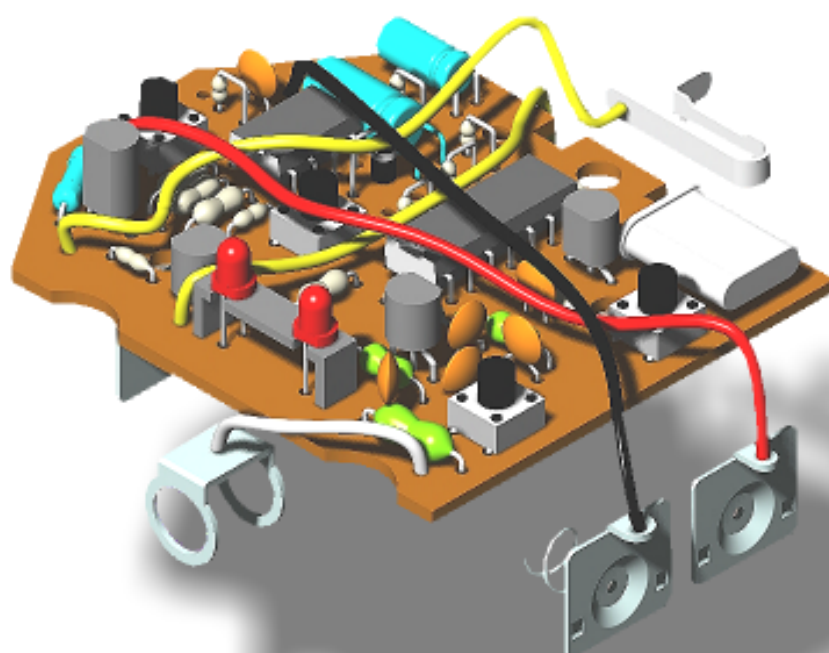




COLLEGE

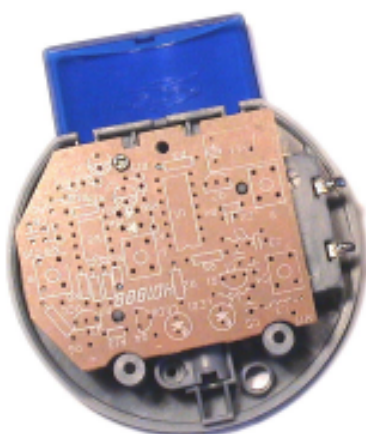
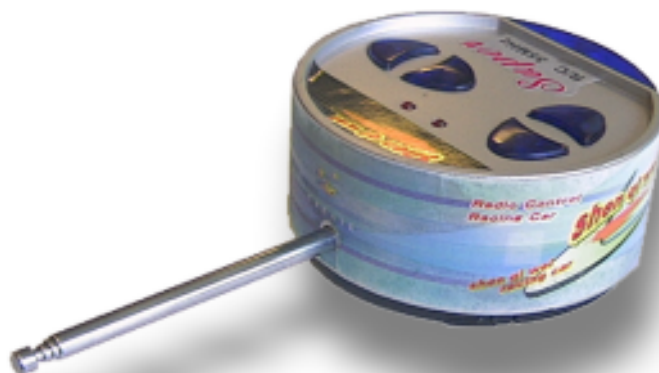
FORMAT : A4

Circuit imprimé (radio commande)

00



ECHELLE	RadioCar	DESSINÉ PAR : FP		
 		LE :		
FORMAT : A4	COLLEGE			
	Circuit imprimé complet			00

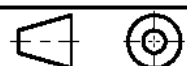


ECHELLE

RadioCar

DESSINÉ PAR :
FP

LE :



COLLEGE

FORMAT : A4

Le kit élève

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REMOTE CONTROLLER WITH FIVE FUNCTIONS

General Description

The TX2/RX2 are a pair of CMOS LSIs designed for remote controlled car applications. TX2

Is the transmitter and RX2 is the receiver. They provide five function key to control forward, Backward, Rightward, Leftward and Turbo motions. Beside, a combination of these five motions can be played.

RX2 Provide two high effective amplifiers and Enhance Signal Input recognition capacity to enhance remote control distance.

Major Core Features:

- Wide and low operating voltage range: 2.2V to 5.0V
- Typical oscillator frequency:
 - RF:128KHz.
 - IR :114KHz(Carrier Frequency:57KHz).
 - IR : 76KHz(Carrier Frequency:38KHz).
- Provide two transmissive interface(RF and IR)for different application.
- RX2 Provide two high effective amplifiers to enhance remote control distance.
- Enhance Signal Input recognition capacity for very weak signal.
- Auto Power-OFF function for TX2
- Low Standby current (TX2) and low operating current.(RX2).
- Oscillator with an external resistor.

Peripheral Features:

- 5-function remote controller controlling forward/ backward/ turbo/ right/ left.
- Few external components needed.

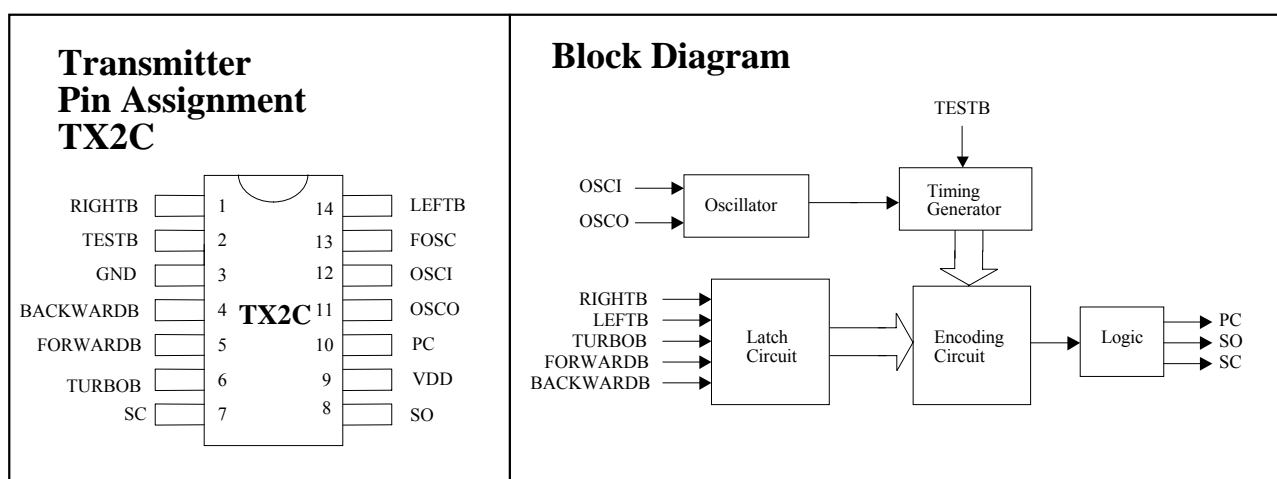
Application Field:

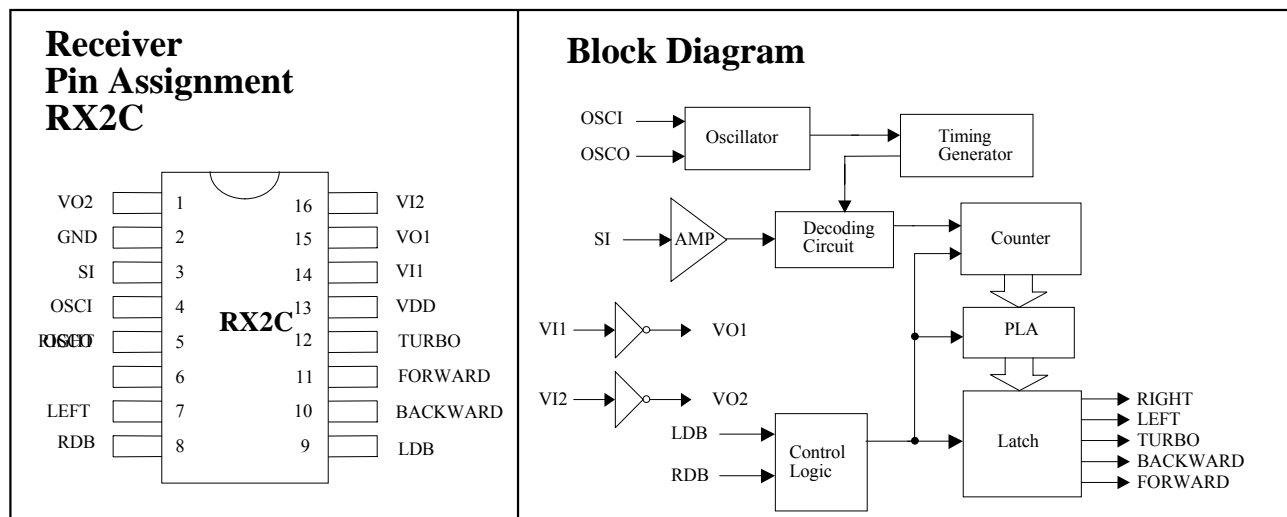
- remote controlled toy.
- remote electric appliance controller.

Special Features Description:

- TX2 auto Power OFF function:
When input key is pulled low, TX2 will wake up, SC and SO will continuously send out code in RF format (Non-Carrier) and IR format(Carrier). However when a complete code is sent out and the key is released, TX2 will automatically into powered off mode.
- TX2 IR transmission interface:
Built-in counter to generate 38KHz or 57KHz carrier frequency for Infrared applications.

Pin Assignment and Block Diagram:





Absolute Maximum Ratings

DC Supply Voltage.....0.3V to 5.0V
 Input/Output Voltage.....GND -0.2V to VDD + 0.2V
 Operating temperature.....-10°C to 60°C
 Storage Temperature.....-25°C to 125°C

Comments*

Never allow a stress to exceed the values listed under "Absolute Maximun Ratings", otherwise the device would suffer from a permanent damage. Nor is a stress at the listed value be allowed to persist over a period, since an extended exposure to the absolute maximum rating condition may also affect the reliability of the device, if not causing a damage thereof.



Electrical Characteristics

TX2

(VDD=4.5V, Fosc = 128KHz, T_A=25°C, unless otherwise specified.)

Parameter	Symbol	Min.	Typ.	Max.
Operating Voltage	VDD	2.2V	4.5V	5.0V
Operating Current	I _{dd}	-	-	1mA
Stand-by Current	I _{stb}	-	-	1μA
DC O/P Driving Current	I _{drive}	3mA	-	-
AC O/P Driving Current	I _{drive}	3mA	-	-
AC O/P Frequency	F _{audio}	500Hz	-	1KHz

RX2

(VDD=4.5V, Fosc = 128KHz, T_A=25°C, unless otherwise specified.)

Parameter	Symbol	Min.	Typ.	Max.
Operating Voltage	VDD	2.2V	4.5V	5.0V
Operating Current	I _{dd}	-	-	0.7mA
O/P Driving Current	I _{drive}	0.6mA	-	-
O/P Sinking Current	I _{sink}	0.6mA	-	-
Effect Decoding Frequency Variation	F _{tolerance}	-20%	-	20%



Pin Description

TX2

Pin No.	Designation	Description
1	RIGHTB	The rightward function will be selected when this pin is connected to GND.
2	TESTB	This pin is used for testing purpose only.
3	GND	Negative power supply
4	BACKWARDB	The backward function will be selected when this pin is connected to GND.
5	FORWARDB	The forward function will be selected when this pin is connected to GND.
6	TURBOB	The turbo function will be selected when this pin is connected to GND.
7	SC	Output pin of the encoding signal with carrier frequency
8	SO	Output pin of the encoding signal without carrier frequency
9	VDD	Positive power supply
10	PC	Power control output pin
11	OSCO	Oscillator output pin
12	OSCI	Oscillator input pin
13	FOSC	This pin is used for testing purpose.
14	LEFTB	The leftward function will be selected when this pin is connected to GND.

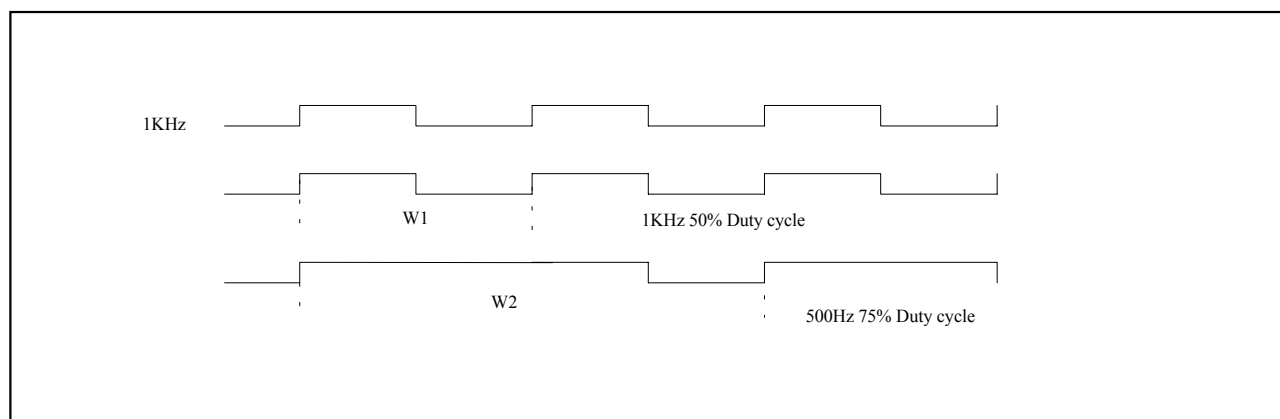
RX2

Pin No.	Designation	Description
1	VO2	Inverter 2 output pin for power amplify
2	GND	Negative power supply
3	SI	Input pin of the encoding signal
4	OSCI	Oscillator input pin
5	OSCO	Oscillator output pin
6	RIGHT	Rightward output pin
7	LEFT	Leftward output pin
8	RDB	Rightward function is disabled when this pin is connected to GND.
9	LDB	Leftward function is disabled when this pin is connected to GND.
10	BACKWARD	Backward output pin
11	FORWARD	Forward output pin
12	TURBO	Turbo output pin



13	VDD	Positive power supply
14	VI1	Inverter 1 input pin for power amplify
15	VO1	Inverter 1 output pin for power amplify
16	VI2	Inverter 2 input pin for power amplify

Bit Format

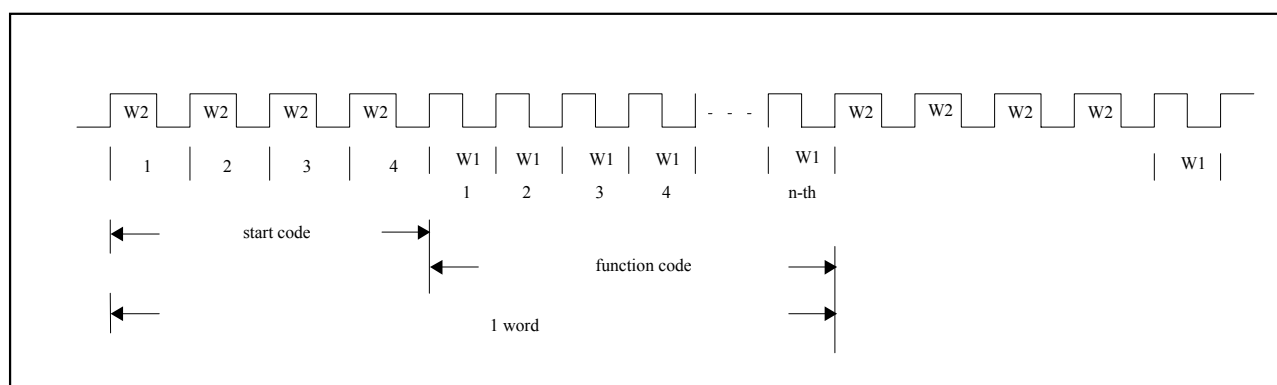


Data Format

W2 W2 W2 W2 (n) x W1 W2 W2 W2 W2 (n) x W1 W2 W2 W2 W2

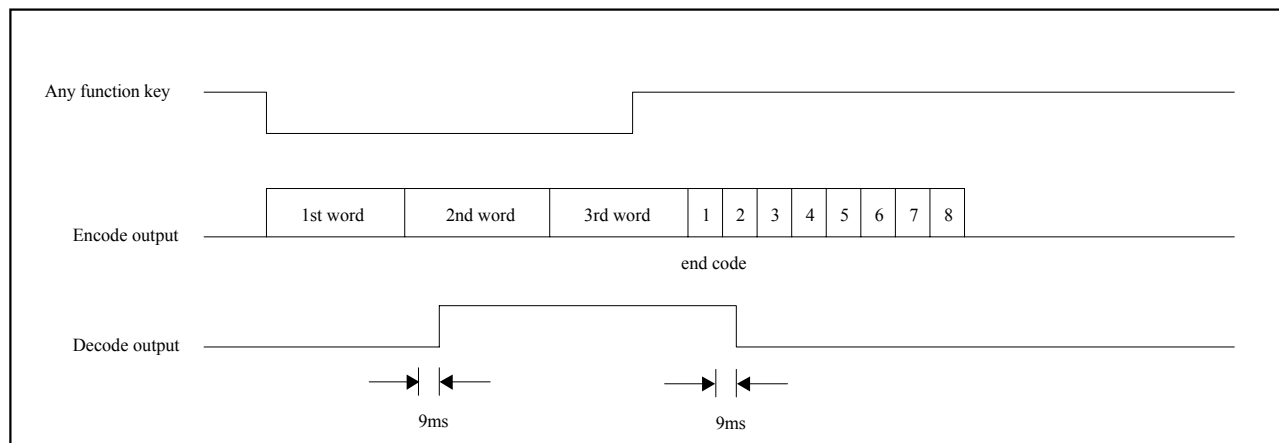
Number of Function Codes (n) W1	Function Key	Decode Result
4		End Code
10	Forward	Forward
16	Forward & Turbo	Forward
22	Turbo	Turbo
28	Turbo & Forward & Left	Forward & Left
34	Turbo & Forward & Right	Forward & Right
40	Backward	Backward
46	Backward & Right	Backward & Right

52	Backward & Left	Backward & Left
58	Left	Left
64	Right	Right

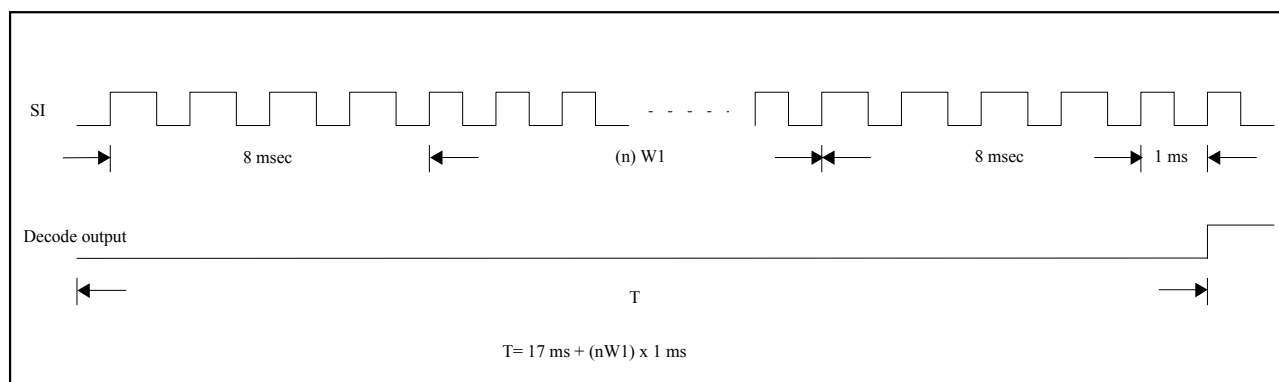


Encode/Decode Timing

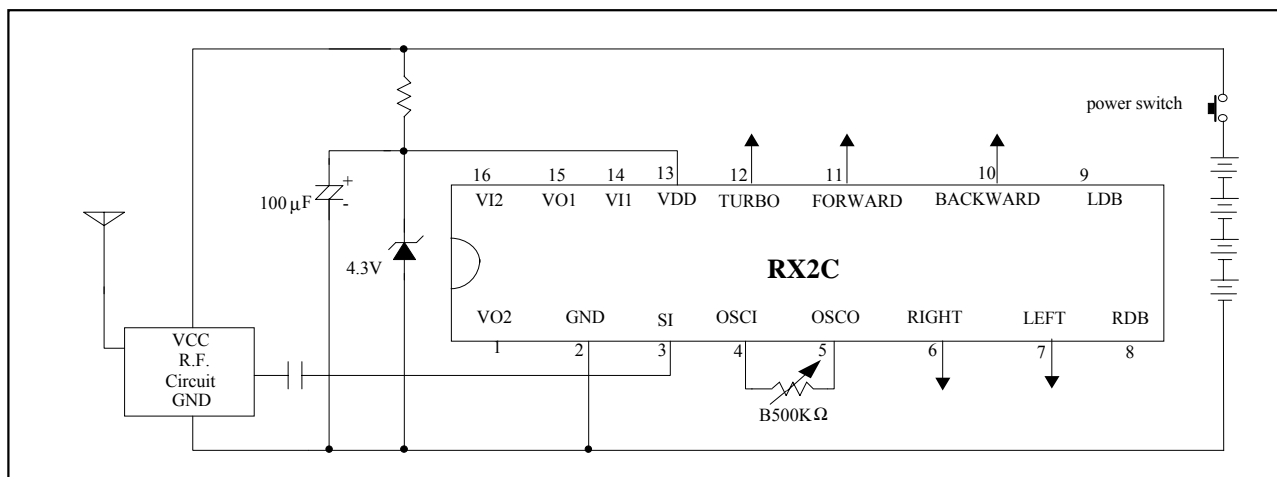
(A)



(B)

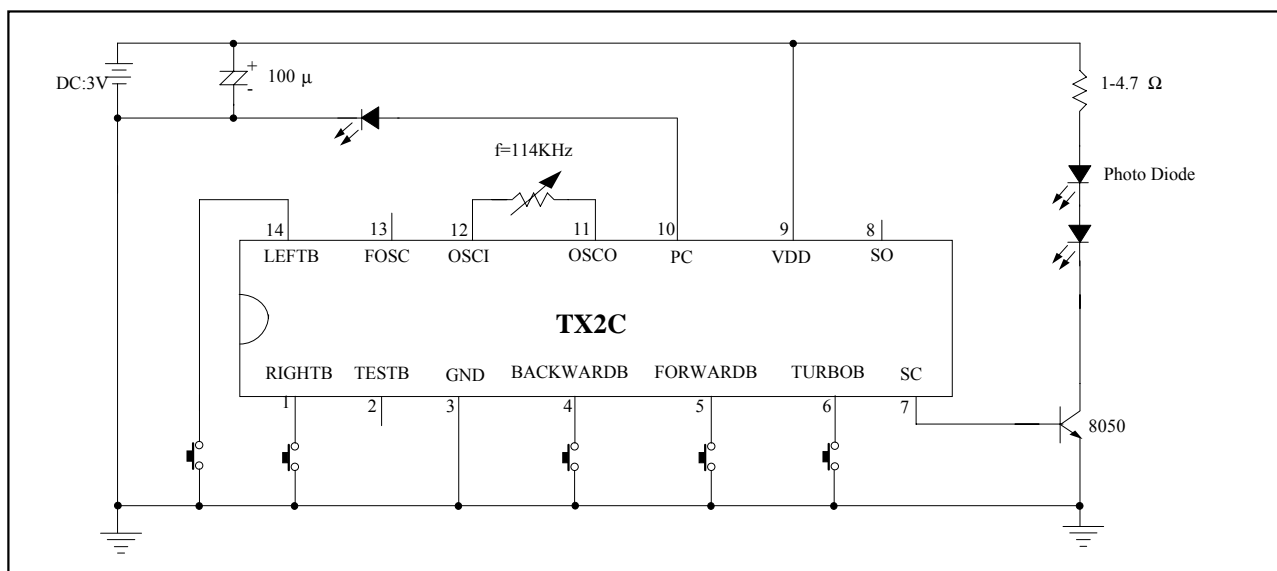


Receiver (RX2 Fosc \approx 128 KHz)

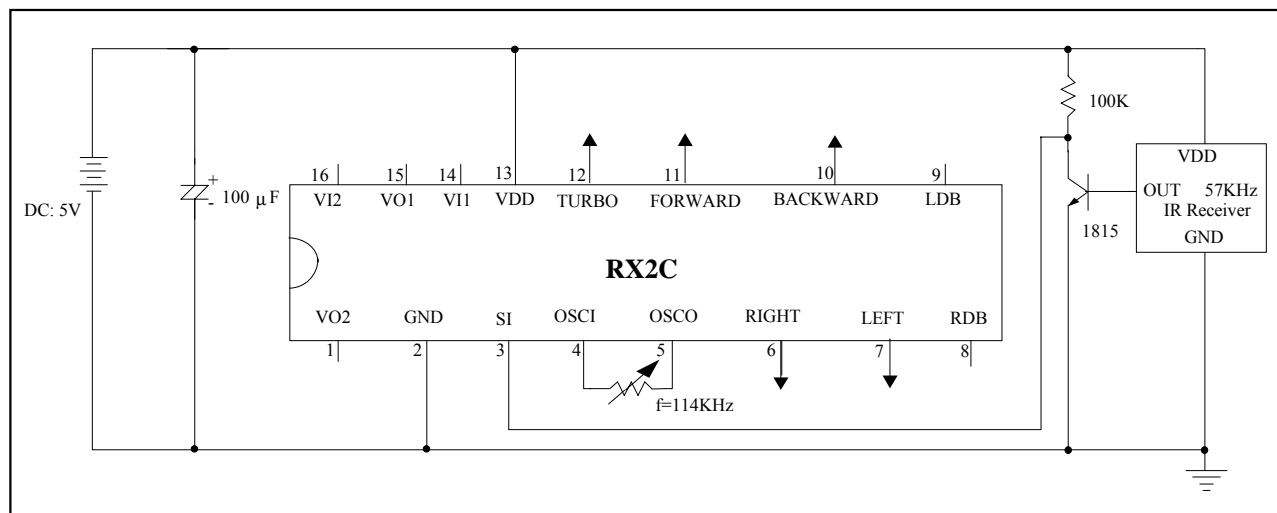


Infrared Application Circuit

Transmitter (TX2 Fosc \approx 114 KHz)

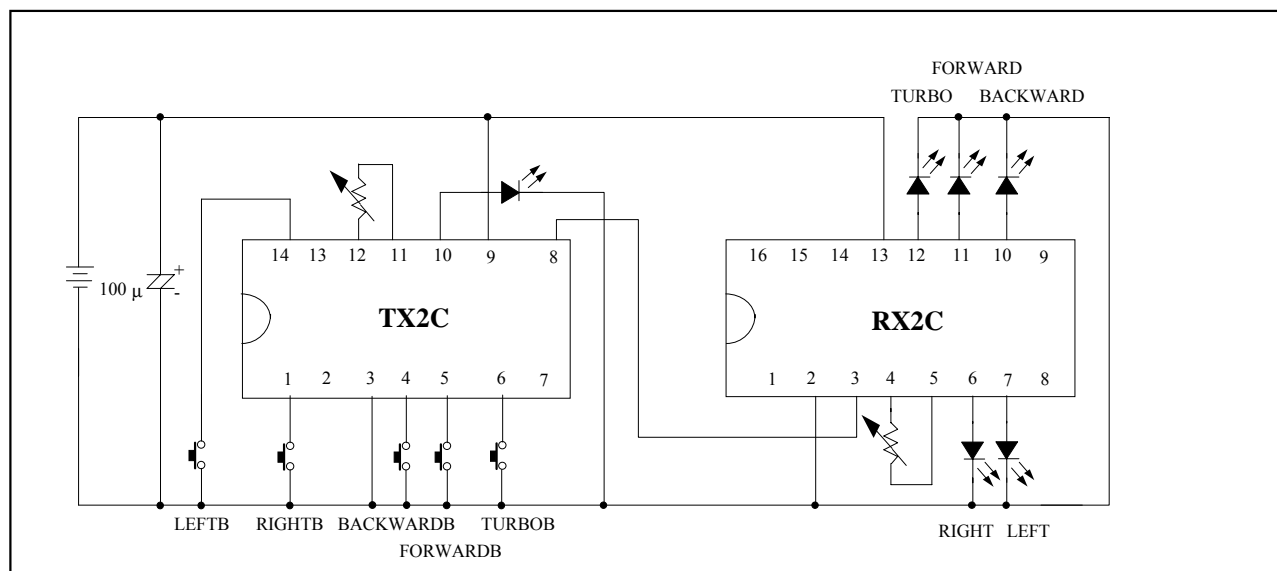


Receiver(RX2 Fosc \approx 114KHz)



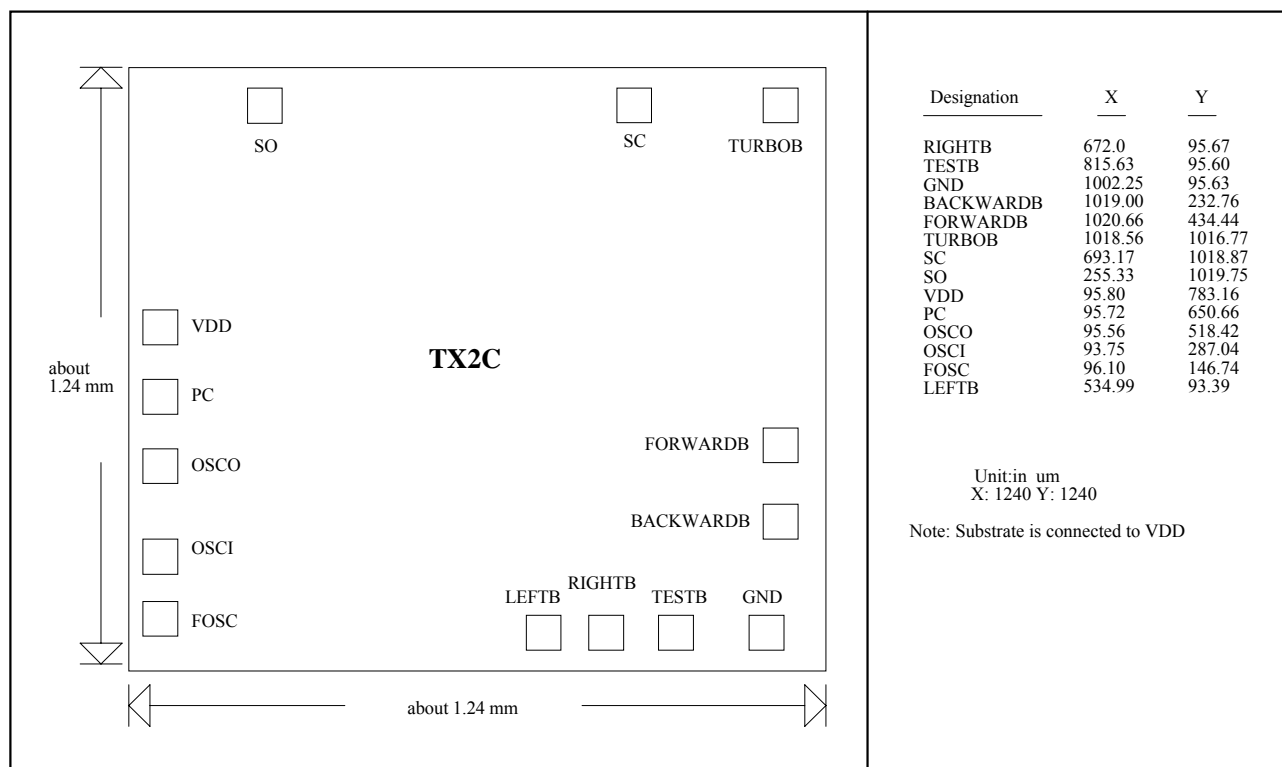
Testing Circuit

Fosc for TX2 \approx Fosc, RX2 \approx 128 KHz



Bonding Diagram

TX2



RX2

