



50J6

Receiver, RF Keyless Entry System

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1. Constitution of the Radio Frequency Keyless Entry System with Door Lock Controller for vehicle

The radio frequency keyless entry is a system that it controls locking and unlocking the door by wireless remote controller. This system consists of two components. The TRANSMITTER is a device that transmits the signal when the button is pressed. The transmission signal consists of several synchronous codes, unique identification code, security code and function code. The RECEIVER is fixed inside the vehicle. It works intermittently to prevent the battery exhaustion. When the receiver detects the synchronous code, it runs continuously to receive the signals completely. After receiveing the signal, the receiver decides which operation will be performed. The user can select the following operations by pressing the button of the remote transmitter.

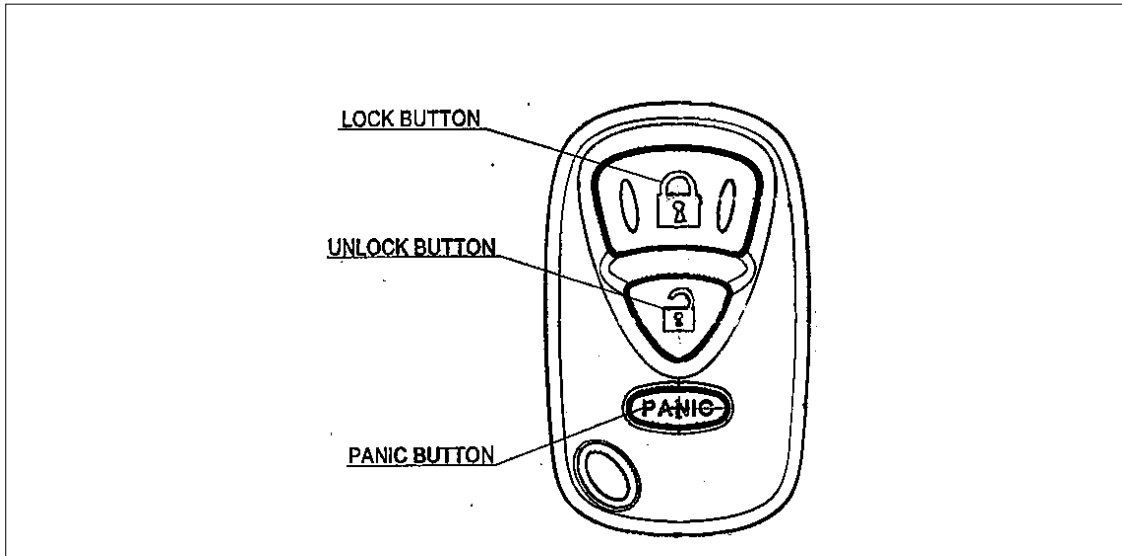
OPERATION	ACTION
LOCK	Lock the door
UNLOCK	Unlock the door (Open the window)
PANIC	Beep the horn and flush the small light. (it continues 30 seconds)

This receiver also controls wired operation. When the key is in the driver's side key cylinder, all doors will Unlock if the key is turned to UNLOCK and hold more than one second. In case of the operation time is shorter, the only diver's side door is mechanically unlocked. It is also available to control the door lock status by using the remote door control switch(both driver's and passenger's side).

Transmitter
 $f = 313.85\text{MHz}$

2. User's manual (provisionally)

REMOTE TRANSMITTER



You can lock and unlock your vehicle with the remote transmitter.

LOCK

When you push the LOCK button, all the doors will lock.

You cannot lock any of the doors with the remote transmitter if any door is open or the key is in the ignition switch.

UNLOCK

When you push the UNLOCK button , all the doors will unlock.

You cannot unlock any of the doors with the remote transmitter if the key is in the ignition switch.

When you push the UNLOCK button more than about 1.0 second , the window will open.

PANIC MODE

Panic mode allows you to remotely sound your vehicle's horn to attract attention. To activate this mode , press and hold the PANIC button for about one seconds. Your vehicle's horn will beep for about 30 seconds.

To cancel Panic mode before 30 seconds , press any button on the remote transmitter. You can also turn the ignition switch is in ON

3. Block diagram

This is the block diagram concerning to the receiver.

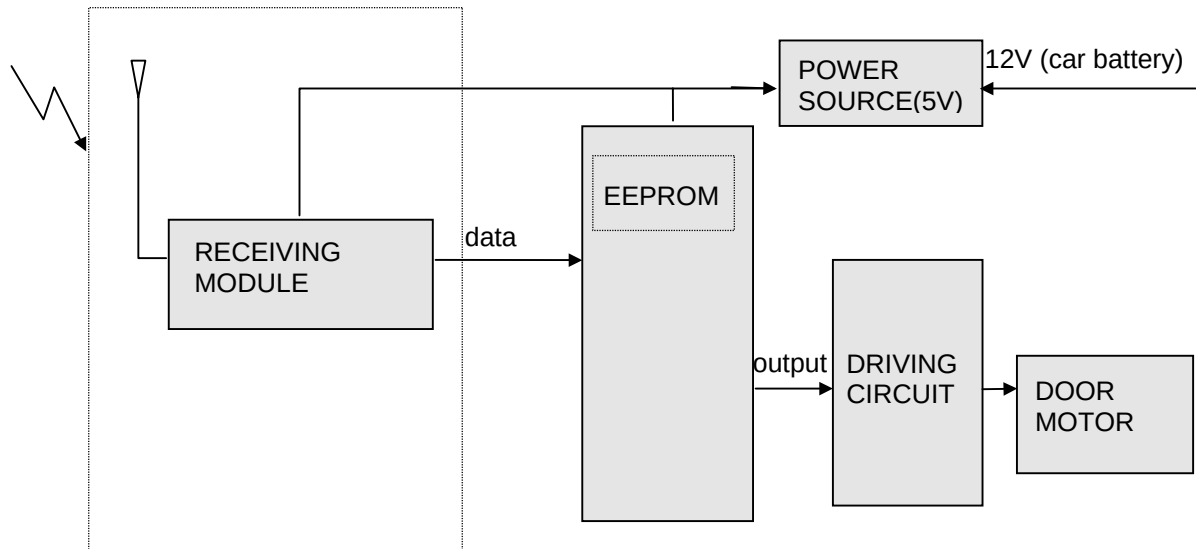


Figure 3.1 block diagram of the receiver

4. Specification

4.1 RF block

Local clock frequency	325.8MHz
Frequency generation	Crystal resonator
Modulation	Single Superheterodyne
Bandwidth	$\pm 200\text{KHz}$
Sensitivity	30dBuV

4.2 Others

Dimension	50 mm $\times$ 40 mm $\times$ 25 mm
Weight	25 g
Battery	Power Source (DC 5V)
Operation Voltage	DC 5V, 10mA
Operation temperature	$-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$

5. PCB

5.1 Circuit diagram

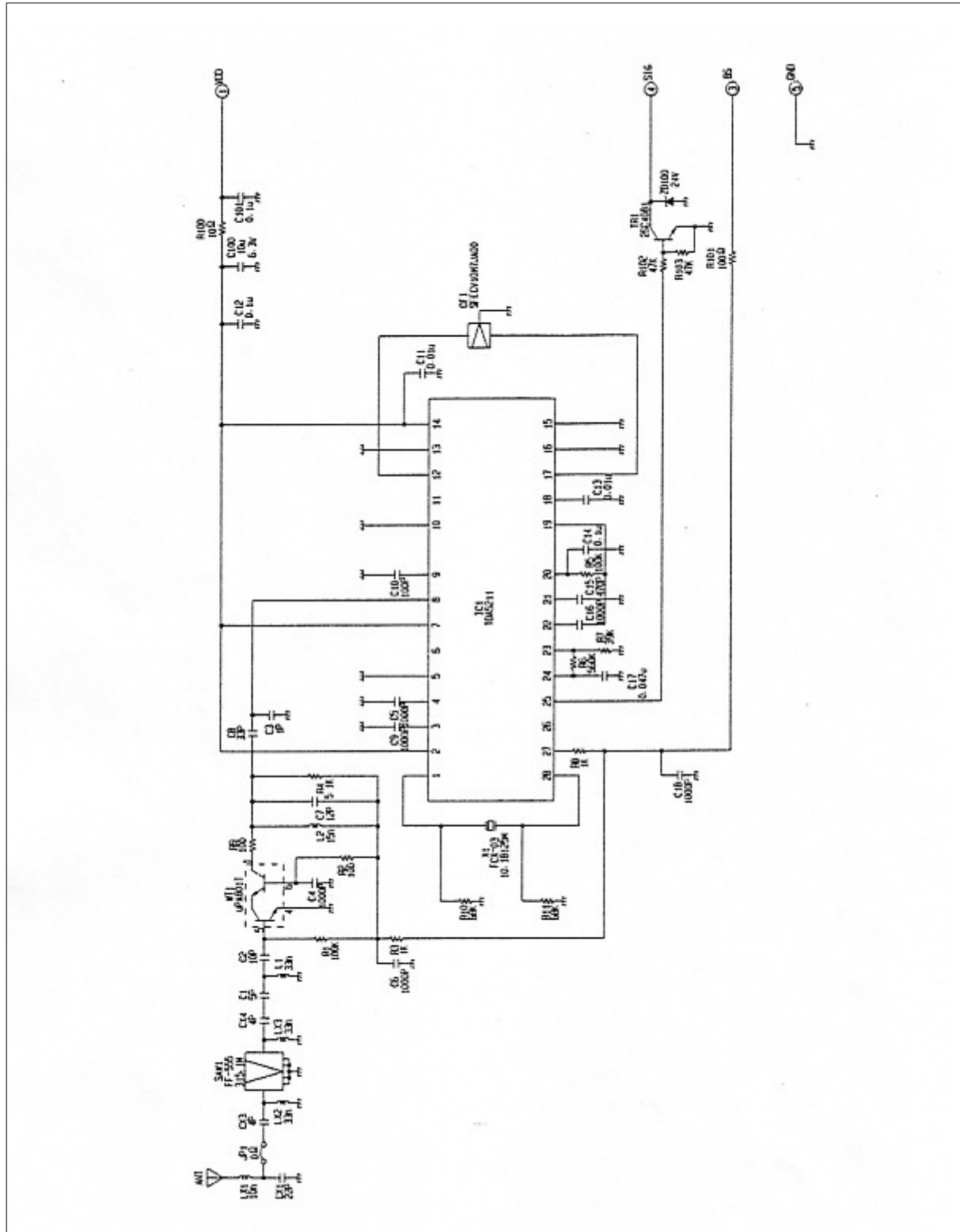


Figure 5.1 Circuit diagrams

5.2 Parts layout

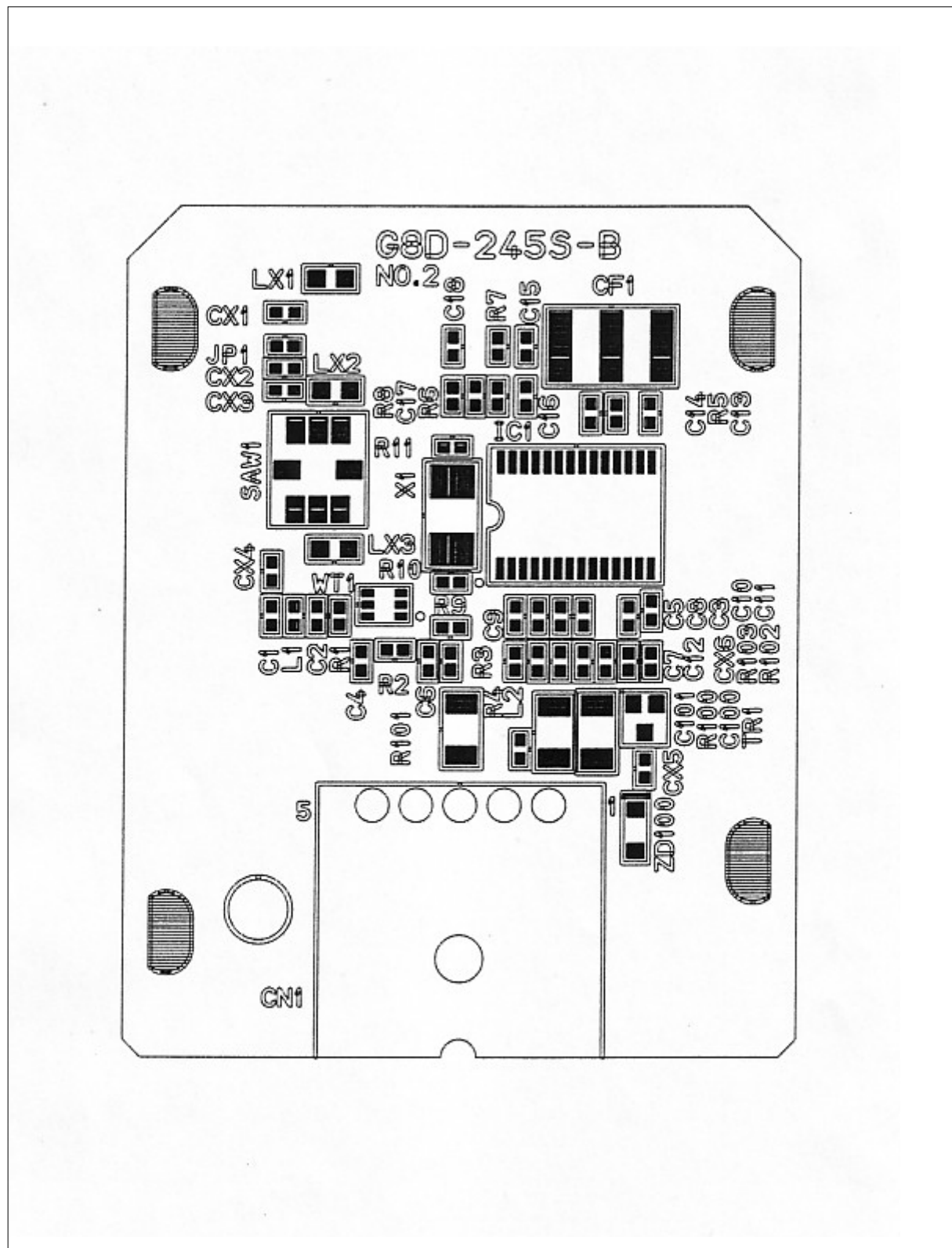


Figure 5.2 Parts layout (front)

5.3 Pattern layout

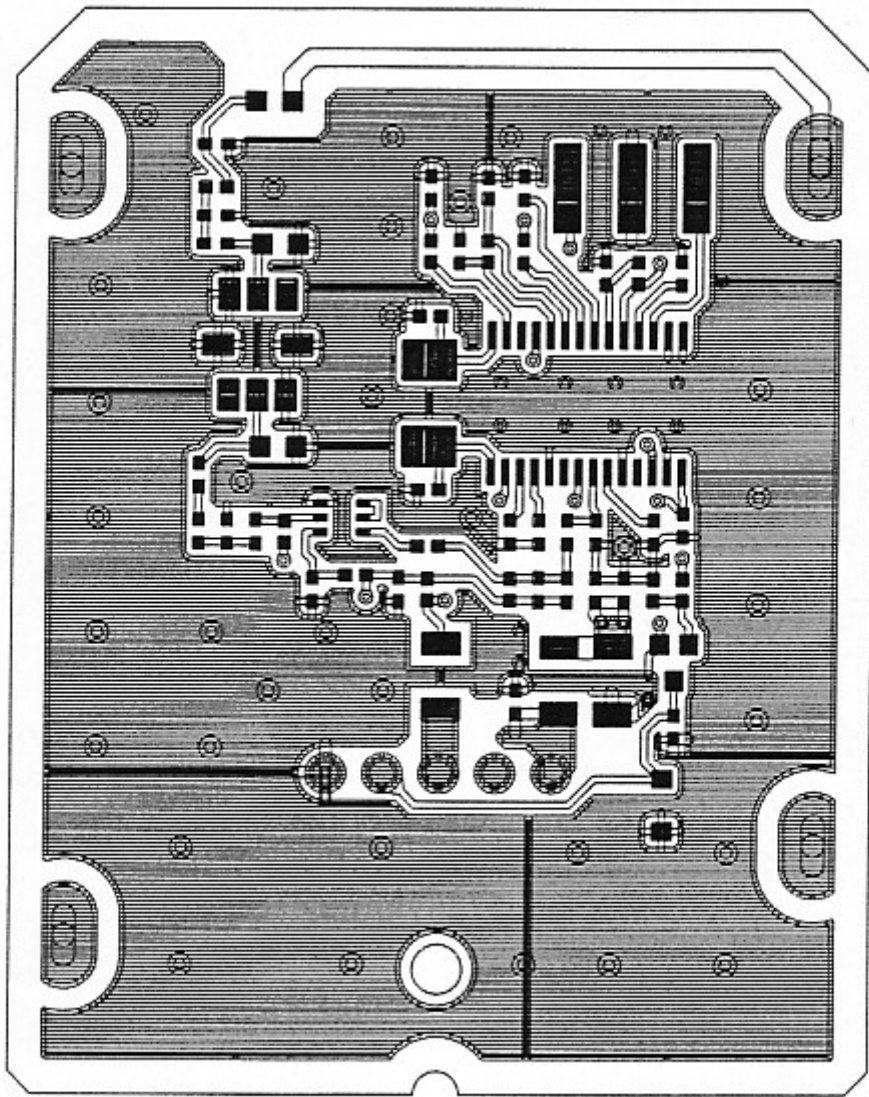


Figure 5.3 Pattern layout (front)

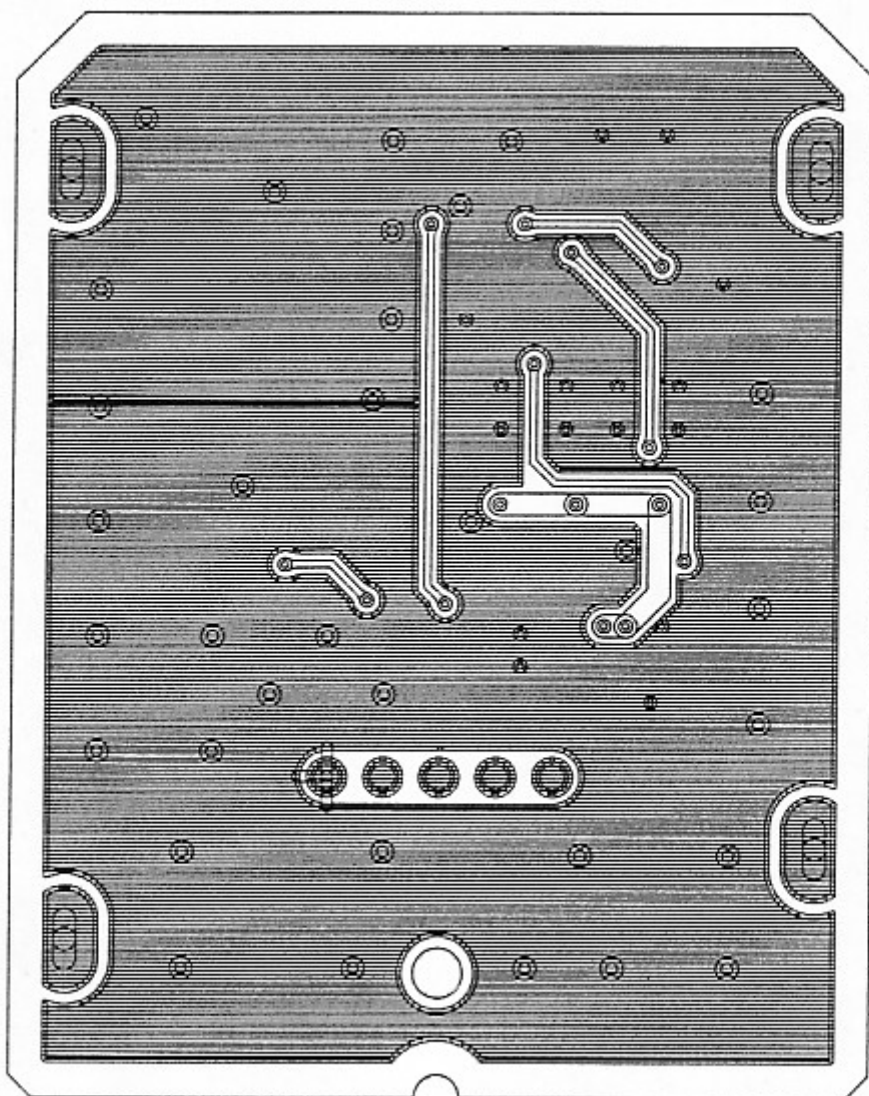


figure 5.4 pattern layout (back)

5.4 Parts list

No	PART NAME	MANUFACTURE	QTY	TYPE	SPECIFICATION	REMARKS
1	WAVE DETECTION IC	INFINEON	1	TDA5211GEG	28-PIN	IC1
2	SAW FILTER	EPSON	1	FF-555 315.1M	315.1MHz	SAW1
3	CERAMIC FILTER	MURATA	1	SFECV10M7JA00-R0	3-PIN	CF1
4	CRYSTAL OSCILLATOR	RIVER	1	FCX-03-10.18125-30-30	CI=150Ω CL=SERIES 10.18125MHz+387Hz	X1
5	DOUBLE TRANSISTOR	NEC	1	UPA801-T1	6-PIN MINI MOLD 2SC4226(X2)	WT1
6	TRANSISTOR	ROHM	1	2SC4081T106R		TR1
7	ZENER DIODE	NEC	1	RD24SB-T1	200mW ,24V	ZD100
8	CERAMIC CAPACITOR	*	2	CCM-L10CH1H040C-T2	4pF ,50V 1005 SIZE	CX3,CX4
9	CERAMIC CAPACITOR	*	1	CCM-L10CH1H050C-T2	5pF ,50V 1005 SIZE	C1
10	CERAMIC CAPACITOR	*	1	CCM-L10CH1H100D-T2	10pF ,50V 1005 SIZE	C2
11	CERAMIC CAPACITOR	*	1	CCM-L10CK1H010C-T2	1pF ,50V 1005 SIZE	C3
12	CERAMIC CAPACITOR	*	6	CKM-L10R1H102K-T2	1000pF,50V 1005 SIZE	C4,5,6,9,16 18
13	CERAMIC CAPACITOR	*	1	CCM-L10CH1H120J-T2	12pF ,50V 1005 SIZE	C7
14	CERAMIC CAPACITOR	*	1	CCM-L10CH1H330J-T2	33pF,50V 1005 SIZE	C8
15	CERAMIC CAPACITOR	*	1	CCM-L10CH1H101J-T2	100pF,50V 1005 SIZE	C10
16	CERAMIC CAPACITOR	MURATA	2	GRP155B11C103KA01E	0,01uF ,16V 1005 SIZE	C11,13
17	CERAMIC CAPACITOR	MURATA	3	GRP155B11A104KA01E	0.1uF ,10V 1005 SIZE	C12,14,C101
18	CERAMIC CAPACITOR	MURATA	1	GRP155B11H471KA01E	470pF ,50V 1005 SIZE	C15
19	CERAMIC CAPACITOR	MURATA	1	GRP155B11A473KA01E	0.047uF ,10V 1005 SIZE	C17

NOTE:

	.	.				DESIGNED	CHECKED	APPROVED
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	.	.						
	.	.						
	.	.				G8D-246S-B		
	.	.				SHEET No (1 / 3)		
A	.	.				DETAILED LISOY OF PARTS		
SYM	DATE	E/C CONTENTS	E/C No	SIGN	DWG NO.			

No	PART NAME	MANUFACTURE	QTY	TYPE	SPECIFICATION	REMARKS
20	TANTALUM CAPACITOR	MURATA	1	GRM31CB10J106KC01L	10uF , 6.3V 3216 SIZE	C100
21	CHIP CAPACITOR	MURATA	1	CCM-L10CH1H220J-T2	22pF 1005 SIZE	CX1
22	CHIP INDUCTOR	MURATA	1	LQP18MN10NG00D	10nH 1608 SIZE	LX1
23	CHIP INDUCTOR	MURATA	2	LQW18AN33NG00D	33nH 1608 SIZE	LX2,LX3
24	CHIP INDUCTOR	MURATA	1	LQP15MN33NG00D	33nH 1005 SIZE	L1
25	CHIP INDUCTOR	MURATA	1	LQP15MN15NG00D	15nH 1005 SIZE	L2
26	SQUARE CHIP RESISTOR	*	2	RK10CAZ100KJ-T1	100k Ω ,1/16W 1005 SIZE	R1,5
27	SQUARE CHIP RESISTOR	*	2	RK10CAZ100J-T1	100 Ω ,1/16W 1005 SIZE	R2,9
28	SQUARE CHIP RESISTOR	*	2	RK10CAZ1KJ-T1	1k Ω ,1/16W 1005 SIZE	R3,8
29	SQUARE CHIP RESISTOR	*	1	RK10CAZ5.1KJ-T1	5.1k Ω ,1/16W 1005 SIZE	R4
30	SQUARE CHIP RESISTOR	*	1	RK10CAZ560KJ-T1	560k Ω ,1/16W 1005 SIZE	R6
31	SQUARE CHIP RESISTOR	*	1	RK10CAZ39KJ-T1	39k Ω ,1/16W 1005 SIZE	R7
32	SQUARE CHIP RESISTOR	*	2	RK10CAZ68KJ-T1	68k Ω ,1/16W 1005 SIZE	R10,11
33	SQUARE CHIP RESISTOR	*	1	RK32CAY10J-T1	10 Ω ,1/4W 3216 SIZE	R100
34	SQUARE CHIP RESISTOR	*	1	RK32CAY100J-T1	100 Ω ,1/4W 3216 SIZE	R101
35	AQUARE CHIP RESISTOR	*	2	RK10CAZ47KJ-T1	47k Ω ,1/16W 3216 SIZE	R102,103
36	JUMPER RESISTOR	*	1	RK10CAZ00-T1	0 Ω ,1/16W 3216 SIZE	JP1
37	CONNECTOR	JAE	1	1L-AG5-5P-S3L2	5 POLE	CN1
38	PWB	SINKO	1	FR4		
39	ANTENNA	SUZUKI PRESS	1	C2680R 1/2H t=0.5		

NOTE:

G8D-246S-B
SHEET No (2 / 3)
DETAILED LISO OF PARTS
DWG NO.

[illegible]

5.5 Connector

This is the pin assignment of the connector.

No.	I/O	Assignment	Memorandum
1	INPUT	Battery	5V
2	—	(Not used)	
3	INPUT	Battery saving	5V
4	OUTPUT	SIGNAL	Active Lo
5		Ground	GND