

**DYNAMIC INDUSTRIES CO LTD**

UNIT 2205, 22F, 57, HUNG TO RD. KLN. HONG KONG.

TEL :-852-2389-8230

FAX :-852-2790-5521

ENGINEERING DEPARTMENT

ITEM NO: 0203 - 27MHz  
 MODEL NAME:- RC SNOW BOARD  
 FREQUENCY :- 27.145MHZ  
 DATE :- 13TH AUG.2001  
 BY: B.LEE  
 REV 0  
 PAGE 1 OF 2

**(CIRCUIT DESCRIPTION)****\*\* CIRCUIT DESCRIPTION :-****IN TRANSMIT MODE.**

WHEN ANY OF THE KEY KNOB IS PRESSED ON, A CW SIGNAL IS TRANSMITTED. THE CRYSTAL CONTROLLED OSCILLATOR Q1 OUTPUT IS COUPLED THROUGH C2 TO THE BASE OF Q2. FROM Q2 THE SIGNAL IS FED THROUGH C6 TO THE LOW PASS FILTER MADE UP OF C8, T-11 & C9 WHICH IS CONNECTED TO THE ANTENNA. THE MODULATION IS PROVIDED BY IC1. WHEN ONE OF THE KEY IS PUSHED, THE MODULATION SIGNAL WILL BE SENT TO THE BASE OF Q2 THAT WILL MODULATE RF WAVE DIRECTLY. ENERGY IS SUPPLIED BY A 9.V ALKALINE BATTERY.

**IN RECEIVE MODE**

Q1 IS THE SUPERREGENERATOR & DETECTOR.  
 Q2, Q3 ARE VOLTAGE REGULATOR  
 IC-1 IS THE SIGNAL PRE-AMPLIFIER AND DECODER.  
 Q4/Q5/Q6/Q7/Q8/Q9 ARE THE DRIVERS OF M1 ..  
 Q10/Q11/Q12/Q13/Q14/Q15 ARE THE DRIVERS OF M2 ..  
 FINAL Q16/Q17/Q18/Q19/Q20/Q21 ARE THE DRIVERS OF M3 ..

ENERGY CAN ALSO BE SUPPLIED BY( 5X1.5V UM-3 ) 7.5V ALKALINE BATTERY.

**\*\* ANTENNA AND GROUND CIRCUITRY.**

THIS UNIT MAKES USE OF AN EXTENAL 10-INCH ROD ANTENNA. THE ANTENNA IS INDUCTIVELY COUPLED. THE UNIT RELIES ON THE GROUND TRACE OF THE PRINTED CIRCUIT BOARD. NO EXTERNAL GROUND IS PROVIDED. ENERGY IS SUPPLIED BY A 9.V ALKALINE BATTERY.

# DYNAMIC INDUSTRIES CO LTD

UNIT 2205, 22F, 57, HUNG TO RD. KLN. HONG KONG.

TEL :-852-2389-8230

FAX :-852-2790-5521

ENGINEERING DEPARTMENT

ITEM NO: 0203-27 MHZ

MODEL NAME: RC SNOW BOARD

FREQUENCY :- 27.145MHZ

DATE :- 13TH AUG.2001

BY: B.LEE

REV 0.

PAGE 2 OF 2

## (CIRCUIT DESCRIPTION)

### \*\* BACKGROUND

THE DEVICE DESCRIBED HEREIN IS A WIRELES (RF) TOY GAME CONTROLLER TRANSMITTER FOR USE WITH THE TOY GAME CONTROLLED RECEIVER. IT HAS ONLY ONE CHANNEL OF OPERATION WHICH THE USER MAY CHOOSE ONLY, AND IS USED TO SEND BUTTON-STATE DATA FROM THE CONTROLLER TO A WIRELESS RECEIVER CONNECTED WITH MOTORS

### \*\* TYPICAL OPERATION

TYPICAL OPERATION WOULD INVOLVE THE USER TURNING ON THE UNIT TO THE TOY GAME. WHEN TURNED ON, THE UNIT COMES UP ON THE DEFAULT CHANNEL AND TRANSMITS A CONTINUOUSLY STEAM DATA. THE USER CAN NOT, AT WILL, CHANGE TO ANY OTHER OF THE PREDEFINED CHANNEL.

### CONFIGURATION

THE TRANSMITTER RF CIRCUITRY CONSISTS OF A CRYSTAL CONTROLLED OSCILLATOR, FOLLOWED BY ONE POWER AMPLIFIER, & FINALLY, AN ANTENNA. THE MAIN CHARACTERISTICS OF THIS CONFIGURATION ARE SHOWN BELOW :-

RF FREQUENCY RANGES	27.145MHZ
OCCUPIED BANDWIDTH (3DB)	+/- 2KHZ
FREQUENCY STABILITY	+/- 20 PPM
MODULATION METHOD	AM
OUTPUT POWER	80DBUV / M

### REFERENCE OSCILLATOR

A 27.145MHZ CRYSTAL OSCILLATOR IS USED TO GENERATE THE REFERENCE FREQUENCY. IT HAS A STABILITY OF +/- 20 PPM.

### AMPLIFIER

THE OSCILLATOR IS FOLLOWED BY ONE AMPLIFIER. THIS ACTS MORE AS BUFFER FOR THE OSCILLATOR THAN AS GAIN STAGE. AND ADD VERY LITTLE POWER TO THE SIGNAL. THE FINAL OUTPUT IS 80DBUV PER METER MAX

### ANTENNA

THE SYSTEM ANTENNA IS A ROD ANTENNA LINKED TO PCB METAL BRACKET. ROD ANTENNA CAN BE TURNED OUT OR IN PENDING USER'S WISH.

### MICROCONTROLLER

- \* THE TX SYSTEM IS CONTROLLED BY A SMALL MICROCONTROLLER RUNNING WITH A 128KHZ OSCILLATOR
- \* THE RX SYSTEM IS CONTROLLED BY A SMALL MICROCONTROLLER RUNNING WITH A 128KHZ OSCILLATOR