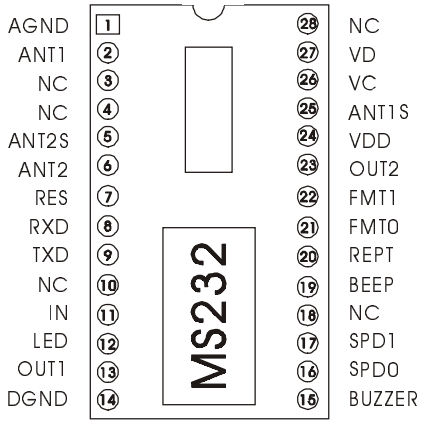
MS232

PROXIMITY CARD READER

DESCRIPTION

The ML232 is a highly integrated multi-chip module, which encapsulates all the required circuitry to perform proximity card reading. By adding power supply, antenna and appropriate line driver, a complete proximity card reader unit can be built.



FEATURE

- 5V power supply
- Low power consumption
- Direct LED driving capability
- Direct BEEPER driving capability
- One input port
- Two user controllable output port

APPLICATION

- Standalone proximity reader unit
- Embedded proximity reader application
- PC based proximity reader application
- Attendance application
- Centralized security system

PACKAGE

Standard 600mil 28-pin DIP package (0.1 inch pin spacing)

PIN DESCRIPTION

PIN#	I/O	PIN NAME	DESCRIPTION
1	-	AGND	GROUND FOR PROXIMITY READER
2	O	ANT1	ANTENNA OUTPUT
3	-	NC	RESERVED, NO CONNECTION
4	-	NC	RESERVED, NO CONNECTION
5	O	ANT2S	RESERVED
6	O	ANT2	ANTENNA OUTPUT
7	I	RES	LOW TO RESET THE UNIT

8	I	RXD	SERIAL DATA INPUT
9	O	TXD	SERIAL DATA OUTPUT
10	-	NC	RESERVED, NO CONNECTION
11	I	IN	GENERIC INPUT PORT
12	O	LED	HEART BEAT SIGNAL
13	O	OUT1	GENERIC OUTPUT PORT 1
14	-	GND	LOGIC GROUND
15	O	BUZZER	BUZZER DRIVE
16	I	SPD0	SELECT COMMUNICATION SPEED
17	I	SPD1	
18	-	NC	RESERVED, NO CONNECTION
19	I	BEEP	LOW TO ENABLE LOCAL BEEP SOUND
20	I	REPT	HIGH TO SEND CODE REPEATEDLY LOW TO SEND CODE ONCE
21	I	FMT0	SELECT OUTPUT FORMAT
22	I	FMT1	
23	O	OUT2	GENERIC OUTPUT PORT 2
24	-	VDD	+5V LOGIC POWER
25	O	ANT1S	RESERVED
26	-	VC	+5V ANTENNA POWER
27	-	VD	+5V READER POWER
28	-	NC	RESERVED, NO CONNECTION

FUNCTION

PIN	FUNCTION
SPD0	Set the communication speed to host. The frame structure is no parity, one start bit and one stop bit. There is no flow control.
SPD1	
BEEP	Low to generate a beep sound on valid card reading. High to disable sound.
MODE	High to keep sending the code to the host continuously. Low to send the code once.
FMT0	To select the output format of the code.
FMT1	

SPD1	SPD0	FUNCTION
H	H	1200 bit/s.
H	L	9600 bit/s.
L	H	38400 Kbit/s.

SPD1	SPD0	FUNCTION
L	L	115200 Kbit/s.

FMT1	FMT0	FUNCTION
H	H	Format 0, ASCII format: xxxxxxxxxxx<0x0a><0x0d> (i.e. 11 digit + <LF> + <CR>)
H	L	Format 1, ASCII format: xxx,xxxxx<0x0a><0x0d> (i.e. 3 digit + comma + 5 digit + <LF> + <CR>)
L	H	Format 2, ASCII format: xxxxx,xxxxxxxx<0x0a><0x0d> (i.e. 5 digit + comma + 8 digit + <LF> + <CR>)
L	L	Format 3, Packeted format.

OUTPUT CODE TO HOST

ACTION	FORMAT	CODE
READ CARD	0	xxxxxxxxxxx[0a][0d] where x is the ASCII card code
	1	xxx,xxxxx[0a][0d] where x is the ASCII card code
	2	xxxxx,xxxxxxxx[0a][0d] where x is the ASCII card code
	3	[02][06][byte1][byte2][byte3][byte4][byte5][cs][03] where: [cs]=[byte1]+[byte2]+[byte3]+byte[4]+byte[5], byte1 to byte5 are the hex card code
POWER UP	-	[52][53][54][0a][0d]
IN pull down	-	[50][4f][0a][0d]
IN released	-	[50][46][0a][0d]

CONTROL COMMANDS FROM HOST

COMMAND	HEX	DESCRIPTION
~L	[7e][4c]	Set OUT1 to low
~l	[7e][6c]	Set OUT1 to high
~R	[7e][52]	Set OUT2 to low
~r	[7e][72]	Set OUT2 to high
~B	[7e][42]	Set BUZZER to low
~b	[7e][62]	Set BUZZER to high
~0	[7e][30]	Pulse low on BUZZER to 100ms
~?	[7e][3f]	Query port status Response from host: [53][s1][s2][s3][s4][0a][0d]

		Where: [s1] : state of IN; [s2]: state of OUT1; [s3]: state of OUT2; [s4]: state of BUZZER

OPERATING CONDITION

		SYMBOL	MIN.	TYP.	MAX	UNIT
Supply Voltage		VDD, VC, VD	-	5	-	V
Input Voltage	H level	VIH	0.7 VDD	-	VDD	V
	L level	VIL	0	-	0.3 VDD	V
Output Voltage	H level	VOH @ IOH=-3mA	4	-	-	V
	L level	VOL @ IOL=20mA	-	-	0.7	V

APPLICATION CIRCUIT