

Specification

JS 600R(JC-700) F2F Decoder IC

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DESCRIPTION

which is providing high functional F2F Dual Decoding for Magnetic Card Reader.

FEATURES

- Low power CMOS Construction

- Enhanced Noise Protection

- Low power dissipation

Standby current : 1.2mA(5V), 400uA(3.3V)

Operating current : 1.5mA(5V), 600uA(3.3V)

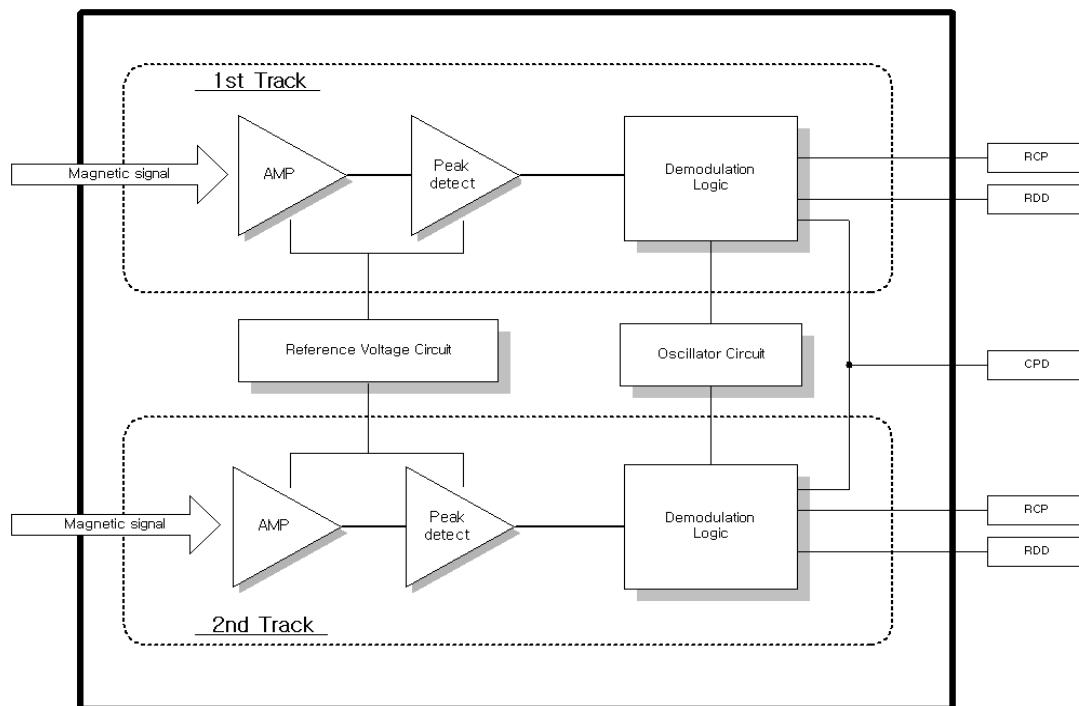
- Wide operating voltage range :

VDD= 3V ~ 5.5V

- Wide operating temperature range :

Ta = -35 C ~ +75 C

FUNCTIONAL BLOCK DIAGRAM



Pin No	Name	I/O	Description	Remark
1	HD1-1	I	Head Input 1	Track-1

2	HD1-2	I	Head Input 1	Track-1
3	AMP1	O	Amplifier Output 1	Track-1
4	PKI1	I	Peak Detect Input 1	Track-1
5	PKO1	O	Peak Detect Output 1	Track-1
6	OSC	I	External Bias Resistor	
7	VSS	---	Negative Power Supply	Ground
8	F2F1	I/O	F2F Input/Output 1	
9	RST	I	Reset	Low active
10	RDD1	O	Read Data 1	Track-1
11	RCP1	O	Read Clock Pulse 1	Track-1
12	INSEL	I	F2F Input Select	Low: F2F External Input
13	N/F	---	No Function	Internally Pulled-up
14	CPD	O	Card Present Detect	Internally Pulled-up
15	RCP2	O	Read Clock Pulse 2	Track-2
16	RDD2	O	Read Data 2	Track-2
17	F2F2	I/O	F2F Input/Output 2	
18	VDD	---	Positive Power Supply	3.0V~5.5V
19	VREF	O	Reference Voltage	VDD/2
20	PKO2	O	Peak Detect Output 2	Track-2
21	PKI2	I	Peak Detect Input 2	Track-2
22	AMP2	O	Amplifier Output 2	Track-2
23	HD2-1	I	Head Input 2	Track-2
24	HD2-2	I	Head Input 2	Track-2

FUNCTIONAL DESCRIPTION

JS600R provides decoding function for magnetic stripe storage system, with all the analog and digital circuits in a single chip. The analog block contains preamplifier, peak detector, comparator and reference generator. The digital block includes reference window signal generator, up/down counter for F2F signal measurement, bit-error detection and some control logic.

The read data signal from magnetic head contacted to magnetic stripe is applied to HD1 and HD2 described in block diagram. F2F pattern signal is generated by analog signal processing through an amplifier OP1, peak detector OP2 and comparator.

The operation of digital logic for data generation is activated by triggering oscillation circuit as soon as detecting F2F pattern transition. Card Present Detect (CPD) signal becomes active state after null 8 bits from the first bit reading. And also proper RDD and RCP signals are

generated. Misreading prevention circuits* are implemented to provide high reliability by fixing up new reference bit when broken bits are detected.

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (Non-Operating)

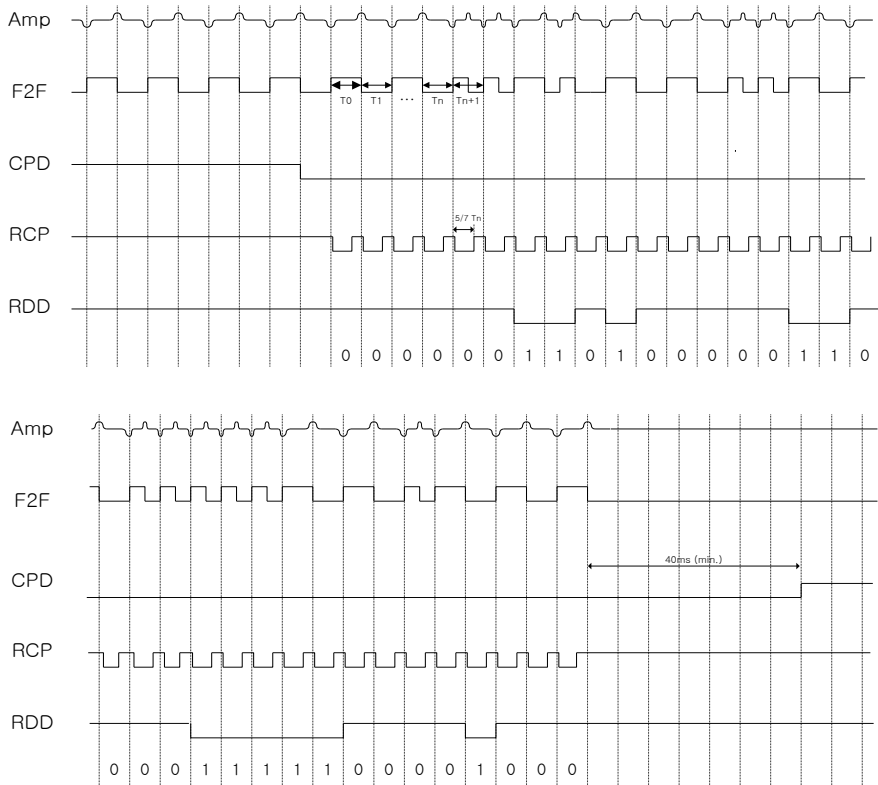
Supply Voltage 5.5 Volt
 Voltage Input Range 0 to VDD
 Input Current 20 mA
 Output Current 10 mA
 Storage Temperature Range -55 C ~ +150 C
 Lead Temperature 260 C / 10sec

Electrical Parameter

Test Condition : VDD=5.00 Volt, Temperature=25 C

Parameter	Condition	Min.	Typ.	Max.	Unit
Operating Voltage (VDD)		3.0	5.0	5.5	Volt
Device Current		400	1200	-	uA
Logic Low Out (VOL)	at 6.0 mA	0.4			Volt
Logic High Out (VOH)	at 6.0 mA	3.5			Volt
Oscillator Frequency		2.5			MHz
Operating Temperature		-35	+75		C

SIGNAL TIMING DIAGRAM



NOTE:

1. 8 or 9 head flux reversal for low density configuration.
2. TIMEOUT of the CPD signal occurs approx. 40 ms after last Head Signal transition.
3. The RDD is valid at 1.6 s (min.) before the negative edge of the RCP.
4. The low pulse width of RCP is approx. 70% of bit time.

● RDD

The Data signal is valid while the RCP is low. If RDD signal is high, the logical value of the bit is zero(0). If low, then the logical value of the bit is high(1).

● RCP

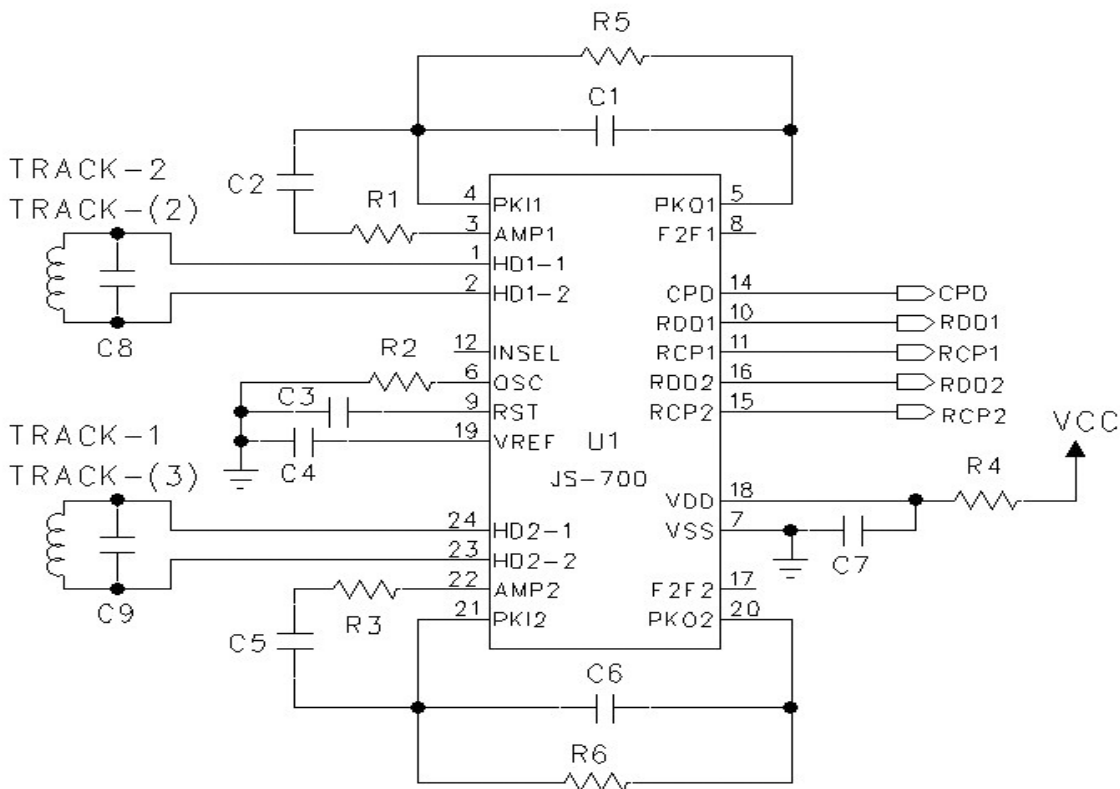
The RCP signal indicates that RDD is valid. The RDD should be loaded and stable before the RCP signal goes low (negative edge).

● CPD

Card Present Detect signal goes low after the 8 or 9th flux reversal, and it returns to high when approx. 40 ms was elapsed.

When no card is being inserted through magnetic reader system, the RDD, RCP and CPD signals stay high.

RECOMMENDED OPERATING CONDITIONS



Recommended component values

PART	75BPI	210BPI	REMARK
R1, R3	2 KΩ	1.5 KΩ	
R2	3.9 KΩ		OSC=3.0MHz

R5, R6			
R4	10(4.7) Ω		
C1, C6	1,200 pF	470 pF	
C2, C5	39 nF	10 nF	
C4	0.1 uF		
C3, C7	1 uF		
C9	(300pF)	(300pF)	

The above schematics and part values are provided only for reference, when impedance of magnetic head is 30 mH (150 Ω).