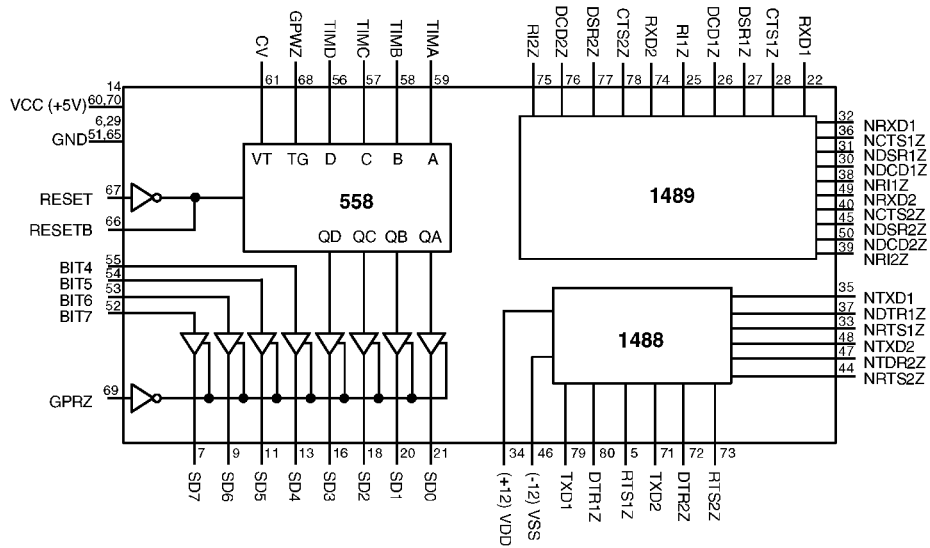


Block Diagram



Pin Description

Pin No.	Pin Name	I/O	Description
14,60,70	VCC		+5V power
6,29,51,65	GND		Ground
34	VDD		+12V power
46	VSS		-12v power
1,2,3,4,8,10,12,15,17,19 23,24,41,42,43,62,63,64	NC		No connection
76	DCD2Z	O	Receiver output DCD2Z
77	DSR2Z	O	Receiver output DSR2Z
78	CTS2Z	O	Receiver output CTS2Z
79	TXD1	I	Driver input TXD1
80	DTR1Z	I	Driver input DTR1Z
5	RTS1Z	I	Driver input RTS1Z
7,9,11,13,16,18,20,21	SD7~SD0	O	Data bus bit7~bit0
22	RXD1	O	Receiver output RXD1
25	RI1Z	O	Receiver output RI1Z
26	DCD1Z	O	Receiver output DCD1Z
27	DSR1Z	O	Receiver output DSR1Z

Pin No.	Pin Name	I/O	Description
28	CTS1Z	O	Receiver output CTS1Z
30	NDCD1Z	I	Receiver input NDCD1Z
31	NDSR1Z	I	Receiver input NDSR1Z
32	NRXD1Z	I	Receiver input NRXD1Z
33	NRTS1Z	O	Driver output NRTS1Z
35	NTXD1	O	Driver output NTXD1
36	NCTS1Z	I	Receiver input NCTS1Z
37	NDTR1Z	O	Receiver output NDTR1Z
38	NRI1Z	I	Receiver input NRI1Z
39	NRI2Z	I	Receiver input NRI2Z
40	NCTS2Z	I	Receiver input NCTS2Z
44	NRTS2Z	O	Receiver output NRTS2Z
45	NDSR2Z	I	Receiver input NDSR2Z
47	NDTR2Z	O	Receiver output NDTR2Z
48	NTXD2	O	Receiver output NTXD2
49	NRXD2	I	Receiver input NRXD2
50	NDCD2Z	I	Receiver input NDCD2Z
52	BIT7	I	Game port input data 7
53	BIT6	I	Game port input data 6
54	BIT5	I	Game port input data 5
55	BIT4	I	Game port input data 4
56	TIMD	I/O	RC constant #3
57	TIMC	I/O	RC constant #2
58	TIMB	I/O	RC constant #1
59	TIMA	I/O	RC constant #0
61	CV	I	Timer threshold voltage adjust
66	RESETB	O	Invert of power reset
67	RESET	I	Power reset
68	GPWZ	I	Game port write
69	GPRZ	I	Game port read
71	TXD2	I	Driver input TXD2
72	DTR2Z	I	Driver input DTR2Z
73	RTS2Z	I	Driver input RTS2Z
74	RXD2	O	Receiver output RXD2
75	RI2Z	O	Receiver output RI2Z

Absolute Maximum Ratings

Ambient Operation Temperature ... 0°C to 70°C	Storage Temperature.....-50°C to 125°C
Supply Voltage+14V	Supply Voltage-14V
Supply Voltage-0.5V to 7V	Applied Output Voltage.....-0.5V to VCC+0.3V
Applied Input Voltage.....-0.5V to 7V	Power Dissipation.....650mΩ
Applied Output voltage (for 1488 Driver)-14V to +14V	
Applied Input Voltage (for 1489 Receiver)-14V to +14V	

AC Characteristics

 (V_{DD}=+12V, V_{SS}=-12V, V_{CC}=5V, Ta=25°C)

Symbol	Parameter	Min.	Typ.	Max.	Unit
Driver input to driver output	1488 t _{PLH}	—	1.8	2.5	μs
	1488 t _{PHL}	—	1.8	2.5	μs
Receiver input to receiver output	1489 t _{PLH}	—	185	250	ns
	1489 t _{PHL}	—	185	250	ns
RESET to RESETB	t _{PHL}	—	100	150	ns
	t _{PLH}	—	100	150	ns
SD0~SD7	t _{D1}	—	100	150	ns
	t _{D2}	15	—	—	ns

DC Characteristics

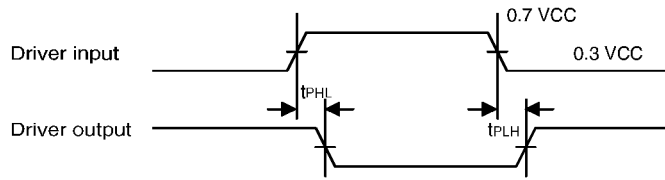
 (V_{CC}=5V, V_{DD}=+12V, V_{SS}=-12V, Ta=25°C)

Symbol	Parameter	Test Condition		Min.	Max.	Unit
		V _{DD}	Condition			
V _{IL} (TTL)	Input Low Voltage		—	-0.3	+0.8	V
V _{IH} (TTL)	Input High Voltage		—	+2.0	V _{CC} +0.3	V
V _{IL} (CMOS)	Input Low Voltage		—	-0.3	0.3 V _{CC}	V
V _{IH} (CMOS)	Input High Voltage		—	0.7V _{CC}	V _{CC} +0.3	V
V _{IL} (Hi-volt)	Input Low Voltage		—	V _{SS}	0.8	V
V _{IH} (Hi-volt)	Input High Voltage		—	2.4	V _{DD}	V
V _{OL}	Output Low Voltage		@ I _{OL} Max.		0.4	V
V _{OH}	Output High Voltage		@ I _{OH} Max.	2.4		V
V _{OL} (Hi-volt)	Output Low Voltage		V _{IH} =0.7V _{CC} R _L =3KΩ	-8		V
V _{OH} (Hi-volt)	Output High Voltage		V _{IL} =0.3V _{CC} R _L =3KΩ	+8		V

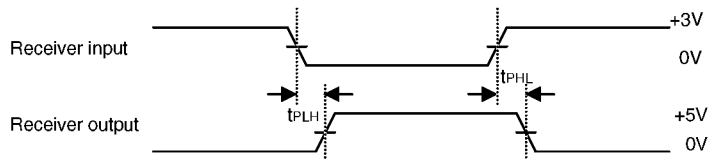
Symbol	Parameter	Test Condition		Min.	Max.	Unit
		V _{DD}	Condition			
I _{IL}	Input Low Current		V _{IL} =0V	-55	-105	μA
I _{IL} (Hi-volt)	Input Low Current		V _{IL} (Hi-volt)=-3V	-0.43	-1	mA
I _{IH} (Hi-volt)	Input High Current		V _{IH} (Hi-volt)=+3V	0.43	1	mA
I _{O_L}	Output Low Current (sink Current)		@ V _{OL} Max.	16		mA
				24		
				2		
I _{O_H}	Output High Current (source Current)		@ V _{OH} Min.	-8	—	mA
				-12		
				-5		
I _{OS+}	Positive Output short-circuit Current		V _{IL} (Hi-volt)=-3V V _O =0V	+6	+14	mA
I _{OS-}	Negative Output short-circuit Current		V _{IH} (Hi-volt)=+3V V _O =0V	-6	-14	mA
V _{ref}	Timer (558) Reference Voltage		—	2.7	3.3	V

Timing Diagrams

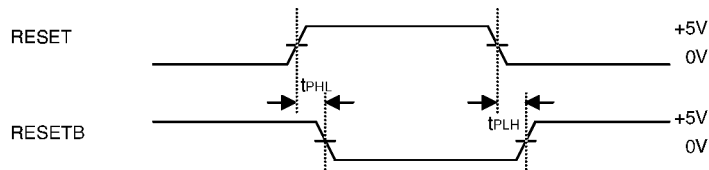
(1488) Driver Output Timing



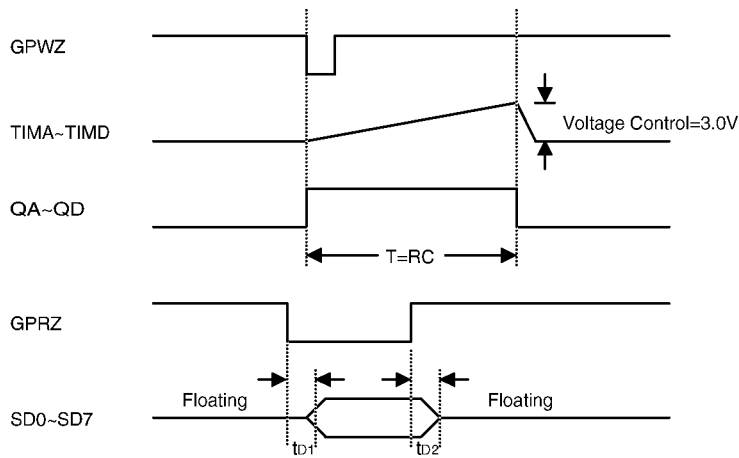
(1489) Receiver Output Timing



Reset Timing



Timer Timing



Application Diagram

