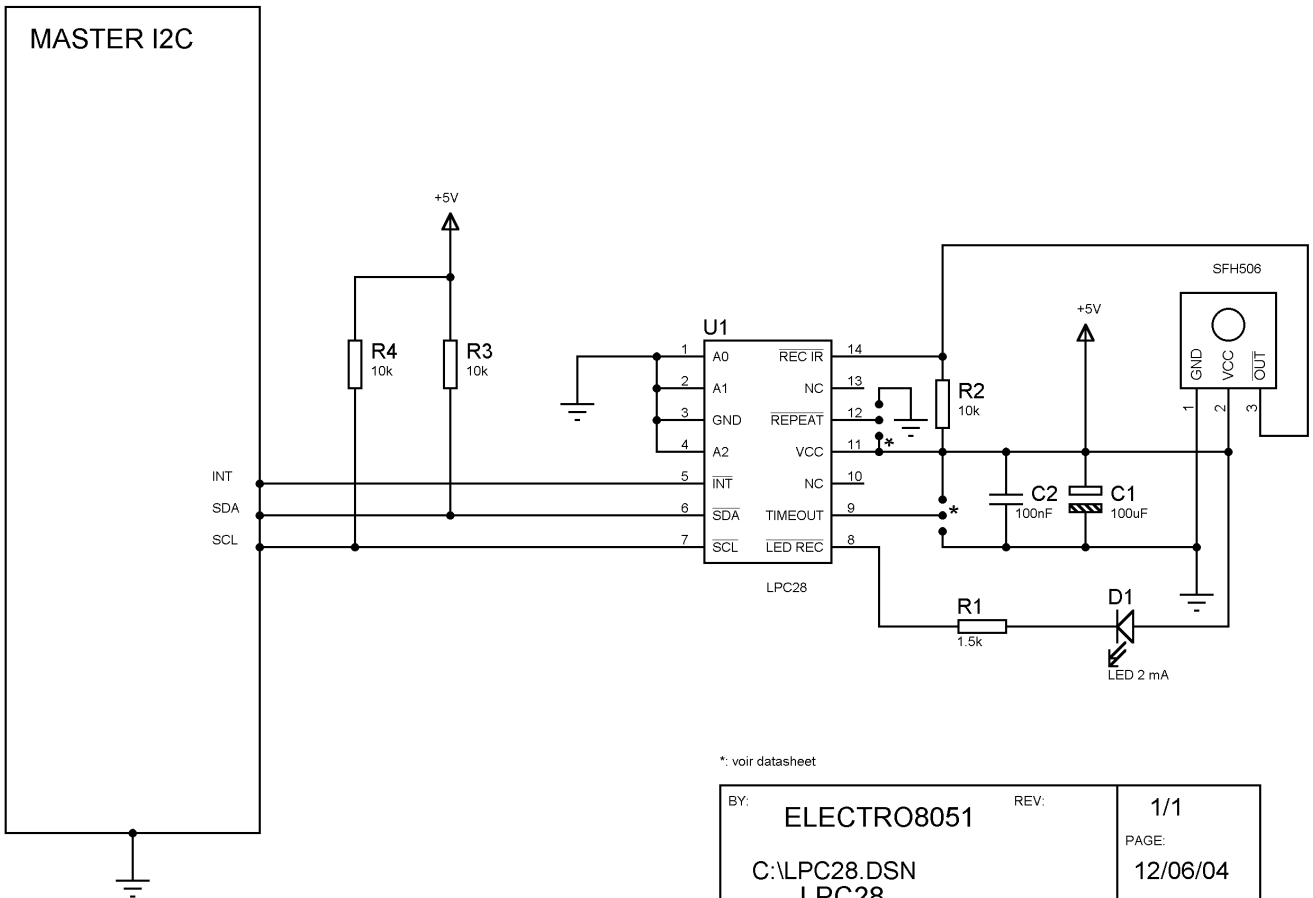
DATA SHEET

LPC28
Infrared I2C remote control decoder

Product specification

2004 Apr 13


MASTER I2C
+5V
R4
10k
R3
10k
U1
A0
A1
GND
A2
INT
SDA
SCL
REC IR
NC
REPEAT
VCC
NC
TIMEOUT
LED REC
LPC28
R2
10k
*
*
+5V
SFH506
GND
VCC
OUT
C2
100nF
C1
100uF
R1
1.5k
D1
LED 2 mA
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BY:
ELECTRO8051
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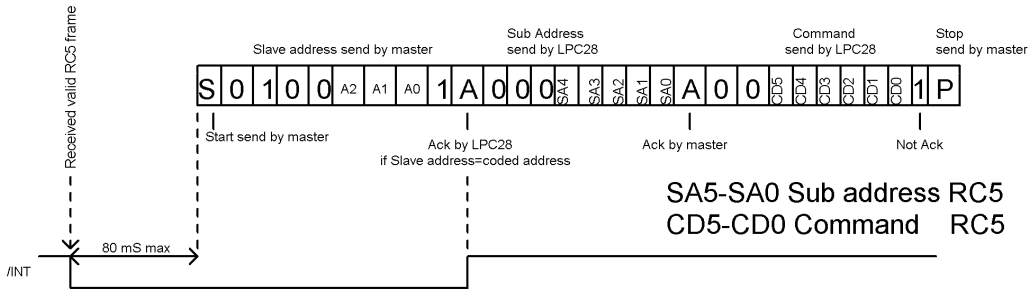
LPC28
12/06/04
DATE: 15/05/04

LPC28 I2C BUS PROTOCOL

I2C READ



LPC28 slave address								
A7	A6	A5	A4	A3	A2	A1	A0	
0	1	0	0	A2	A1	A0	R	HEX
0	1	0	0	0	0	0	1	41H
0	1	0	0	0	0	1	1	43H
0	1	0	0	0	1	0	1	45H
0	1	0	0	0	1	1	1	47H
0	1	0	0	1	0	0	1	49H
0	1	0	0	1	0	1	1	4BH
0	1	0	0	1	1	0	1	4DH
0	1	0	0	1	1	1	1	4EH

Pin	Name	Type	Active	Use
1	A0	Input		Slave address select
2	A1	Input		Slave address select
3	GND	Power		0V
4	A2	Input		Slave address select
5	INT	Output	Low	Active if RC5 code received
6	SDA	Input/Output	Low	I2C DATA
7	SCL	Input		I2C CLOCK
8	LED REC	Output	Low	Light when receiving RC5
9	TIMEOUT	Input	Hight	Select timeOut I2C
10	NC			
11	VCC	Power +		5V
12	REPEAT	Input	Low	Repeat 2 bytes in I2C read
13	NC			
14	REC IR	Input	Low	RC5 INPUT

DC ELECTRICAL CHARACTERISTICS

V_{DD} = 2.7 V to 6.0 V unless otherwise specified; T_{amb} = 0°C to +70°C or -40°C to +85°C, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP[1]	MAX	
I_{DD}	Power supply current, operating	5.0 V, 20 MHz[11]		15	25	mA
		3.0 V, 10 MHz[11]		4	7	mA
I_{ID}	Power supply current, Idle mode	5.0 V, 20 MHz[11]		6	10	mA
		3.0 V, 10 MHz[11]		2	4	mA
I_{PD}	Power supply current, Power Down mode	5.0 V[11]		1	10	µA
		3.0 V[11]		1	5	µA
V_{RAM}	RAM keep–alive voltage		1.5			V
V_{IL}	Input low voltage (TTL input)	4.0 V < V_{DD} < 6.0 V	-0.5		0.2 V_{DD}-0.1	V
		2.7 V < V_{DD} < 4.0 V	-0.5		0.7	V
V_{IL1}	Negative going threshold (Schmitt input)		-0.5		0.3 V_{DD}	V
V_{IH}	Input high voltage (TTL input)		0.2 V_{DD}+0.9		V_{DD}+0.5	V
V_{IH1}	Positive going threshold (Schmitt input)		0.7 V_{DD}		V_{DD}+0.5	V
HYS	Hysteresis voltage			0.2 V_{DD}		V
V_{OL}	Output low voltage all ports[5, 9]	I_{OL} = 3.2 mA, V_{DD} = 2.7 V			0.4	V
V_{OL1}	Output low voltage all ports[5, 9]	I_{OL} = 20 mA, V_{DD} = 2.7 V			1.0	V
V_{OH}	Output high voltage, all ports[3]	I_{OH} = -20 ∝A, V_{DD} = 2.7 V	V_{DD}-0.7			V
		I_{OH} = -30 ∝A, V_{DD} = 4.5 V	V_{DD}-0.7			V
V_{OH1}	Output high voltage, all ports[4]	I_{OH} = -1.0 mA, V_{DD} = 2.7 V	V_{DD}-0.7			V
C_{IO}	Input/Output pin capacitance[10]				15	pF
I_{IL}	Logical 0 input current, all ports[8]	V_{IN} = 0.4 V			-50	µA
I_{LI}	Input leakage current, all ports[7]	V_{IN} = V_{IL} or V_{IH}			±2	µA
I_{TL}	Logical 1 to 0 transition current, all ports[3, 6]	V_{IN} = 1.5 V at V_{DD} = 3.0 V	-30		-250	µA
		V_{IN} = 2.0 V at V_{DD} = 5.5 V	-150		-650	µA
R_{RST}	Internal reset pull–up resistor		40		225	kΩ
V_{BOLOW}	Brownout trip voltage with BOV = 1[12]		2.35		2.69	V
V_{BOHI}	Brownout trip voltage with BOV = 0		3.45		3.99	V
V_{REF}	Reference voltage		1.11	1.26	1.41	V
t_C (V_{REF})	Temperature coefficient			tbd		ppm/°C
SS	Supply sensitivity			tbd		%/V

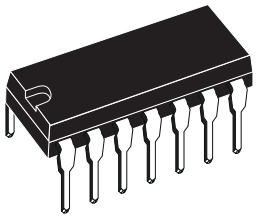
NOTES:

1. Typical ratings are not guaranteed. The values listed are at room temperature, 5 V.
2. See other Figures for details.
   Active mode: $I_{CC(MAX)}$ = tbd
   Idle mode: $I_{CC(MAX)}$ = tbd
3. Ports in quasi–bidirectional mode with weak pull–up (applies to all port pins with pull–ups). Does not apply to open drain pins.
4. Ports in PUSH–PULL mode. Does not apply to open drain pins.
5. In all output modes except high impedance mode.
6. Port pins source a transition current when used in quasi–bidirectional mode and externally driven from 1 to 0. This current is highest when V_{IN} is approximately 2 V.
7. Measured with port in high impedance mode. Parameter is guaranteed but not tested at cold temperature.
8. Measured with port in quasi–bidirectional mode.
9. Under steady state (non–transient) conditions, I_{OL} must be externally limited as follows:
   Maximum I_{OL} per port pin: 20 mA
   Maximum total I_{OL} for all outputs: 80 mA
   Maximum total I_{OH} for all outputs: 5 mA
   If I_{OL} exceeds the test condition, V_{OL} may exceed the related specification. Pins are not guaranteed to sink current greater than the listed test conditions.
10. Pin capacitance is characterized but not tested.

DIMENSIONS						
REF.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	1.39		1.65	0.055		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		15.24			0.600	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z	1.27		2.54	0.050		0.100

14-LEAD DUAL IN-LINE PACKAGE

Weight: not available



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