

ILIM2V Controller

Datasheet

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Document Revision History

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1.00	2012/4/13	Jay	First Release version
1.01	2012/05/18	Jay	Modified typing error. Modified pin configuration
1.02	2012/8/27	Jay Lee	Modified Naming
1.03	2012/10/15	Roy Lo	1, Package Pin name 2, Power On Timing
1.04	2013/6/11	Alan Liu	Modified DC Characteristics

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1 Description

ILIM2V is a 32-bit microcontroller that can work together with ILITek capacitive touch panel IC through SPI interfaces. ILIM2V can be designed with multiple ILI2101 in cascade mode for 10.1" to 32" applications.

ILIM2V can also be designed to work with ILI2101, ILI2105, and ILI2106 for 7" and 8.9" applications.

2 Feature

- 32-bit microcontroller
- Support 4-wire high-speed SPI interface.
- Support 2-wire high-speed I²C interface.
- Support USB 1.1 interface.
- 48 pin LQFP package.

3 Block Diagram

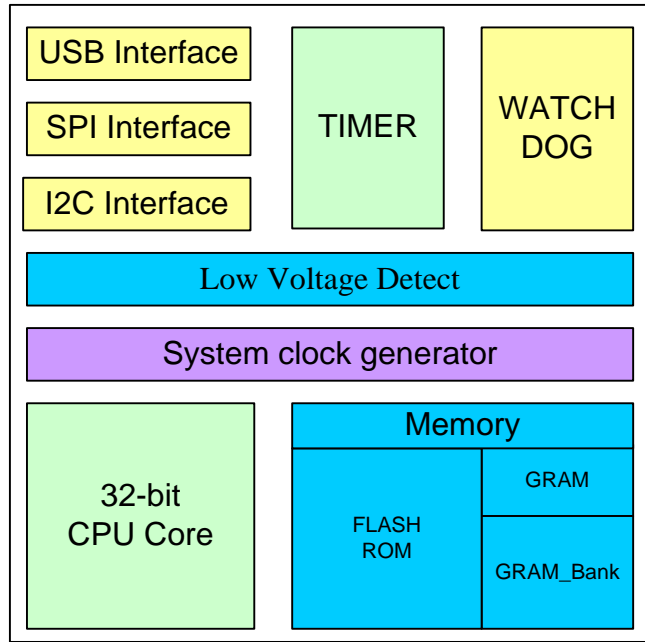


Figure 3-1: ILIM2V Block Diagram

4 Pin Configuration

4.1 ILIM2V (LQFP48)

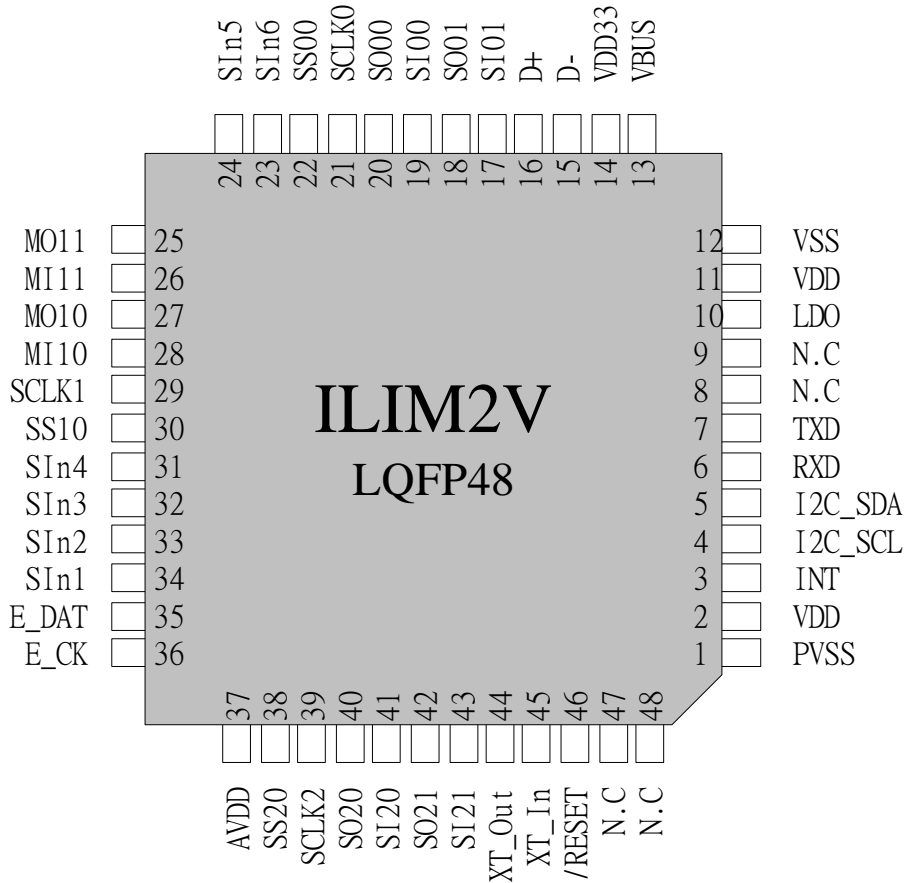


Figure 4-1: ILIM2V (LQFP48) Package Diagram

Table 4-1: ILIM2V Pin Assignments

Pin No.	Name	Type	Description
1	PVSS	I/O (D)	PLL Ground.
2	VDD	VDD (P)	Power Input
3	INT	I/O (D)	Interrupt pin for touch activities reports
4	I2C_SCL	I/O (D)	I2C clock pin
5	I2C_SDA	I/O (D)	I2C data input/output pin
6	RX	I/O (D)	RS232 debug port
7	TX	I/O (D)	RS232 debug port
8 - 9	N.C	--	Not Connect
10	LDO	VDD (P)	Connect to 0.1uF external capacitor to GND
11	VDD	VDD (P)	Power Input
12	VSS	GND	GND
13	VBUS	VDD (P)	USB Power Input
14	VDD33	VDD (P)	Connect to 0.1uF external capacitor
15	D-	I/O (D)	USB D- data pin
16	D+	I/O (D)	USB D+ data pin
17	SI01	I/O (D)	SPI channel 01 data input
18	SO01	I/O (D)	SPI channel 01 data output
19	SI00	I/O (D)	SPI channel 00 data input
20	SO00	I/O (D)	SPI channel 00 data output
21	SCLK0	I/O (D)	SPI channel 0 Clock
22	SS00	I/O (D)	SPI channel 00 Chip select
23 - 24	SIn4~SIn5	I(D)	For Ili2106 Chip Connector
25	MO11	I/O (D)	SPI channel 11 data output
26	MI11	I/O (D)	SPI channel 11 data input
27	MO10	I/O (D)	SPI channel 10 data output
28	MI10	I/O (D)	SPI channel 10 data input
29	SCLK1	I/O (D)	SPI channel 1 Clock
30	SS10	I/O (D)	SPI channel 10 Chip select
31 - 34	SIn1~SIn4	I(D)	For Ili2106 Chip Connector
35	E_DAT	I/O (D)	Emulation data port
36	E_CK	I/O (D)	Emulation clock port
37	AVDD	VDD (P)	Analog Power Input for internal PLL
38	SS20	I/O (D)	SPI channel 20 Chip select
39	SCLK2	I/O (D)	SPI channel 2 Clock

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40	SO20	I/O (D)	SPI channel 20 data output
41	SI10	I/O (D)	SPI channel 20 data input
42	SO21	I/O (D)	SPI channel 21 data output
43	SI11	I/O (D)	SPI channel 21 data input
44	XT_Out	CLK	External crystal clock output
45	XT_In	CLK	External crystal clock input
46	$\overline{\text{Reset}}$	I/O (D)	Reset pin (active low)
47 - 48	N.C	--	Not Connect

Table 4-2: Type Define

Symbol	Description
(D)	Digital pad
(P)	Power pad
CLK	Clock
IO	input / output pad
VDD	supply voltage
GND	ground

5 Electrical Character

5.1 Absolute Maximum Ratings

The absolute maximum rating is listed on following table. When ILIM2V is used out of the absolute maximum ratings, the ILIM2V may be permanently damaged. These are stress ratings only. Functional operation of this device at these or under any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability of the device.

Table 5-1: Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Voltage on VDD with respect to GND	VDD	-0.3	6.0	V
Interface supply voltage	VDDIO	- 0.3	VDD + 0.3	V
Operating temperature	T _{opr}	-20	+85	°C
Storage temperature	T _{stg}	-55	+125	°C

5.2 DC Characteristics

Table 5-2: Digital Power (VDD)

(GND = 0V, T_{opr} = 25°C)

Item	Symbol	Min	Typ.	Max	Unit	Condition
Power supply voltage	VDD	2.7	5	5.5	V	@ I ² C
		4.75	5	5.25	V	@ USB
Digital interface supply voltage	VDDIO	VDD	VDD	VDD	V	Vdd=5.5v @72MHz
LDO output voltage	LDO	-10%	1.8	+10%	V	

Table 5-3: DC Characteristics

(VDD = 3.3, GND = 0V, T_{opr} = 25°C)

Item	Symbol	Min	Typ.	Max	Unit	Condition
Power Ground	VSS	-0.3			V	
Operation current	I _{op}	-20%	55	+20%	mA	Vdd=5.5v @72MHz
Standby current (Sleep Mode)	I _{ST}	-20%	12	+20%	µA	

Item	Symbol	Min	Typ.	Max	Unit	Condition
Input clock frequency	f _{XIN}	-1%	12	+1%	MHz	External crystal

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5.3 Power On Timing

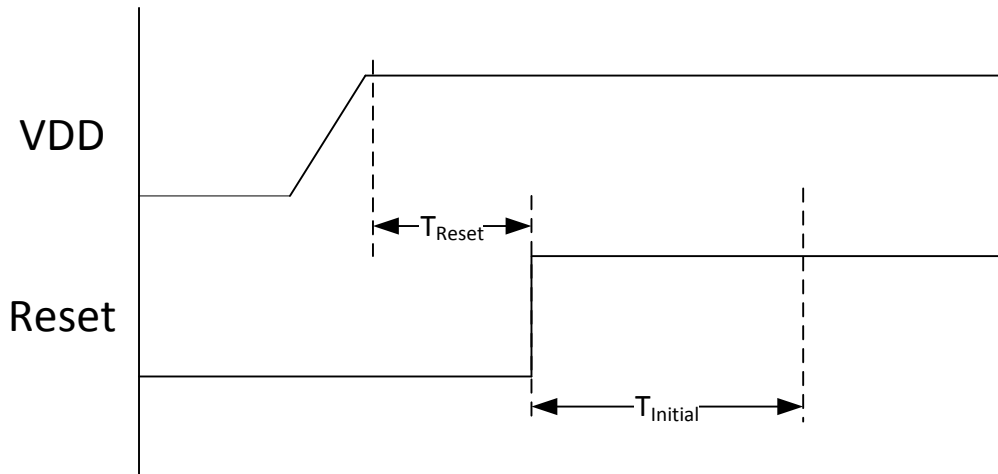


Table 5-4: Power On Timing

(VDD = 3.3, GND = 0V, $T_{opr} = 25^{\circ}\text{C}$)

Item	Min	Typ.	Max	Unit	Condition
T_{Reset}	50	-	-	uS	
$T_{initial}$	100	-	-	mS	

6 Package Information

6.1 LQFP48

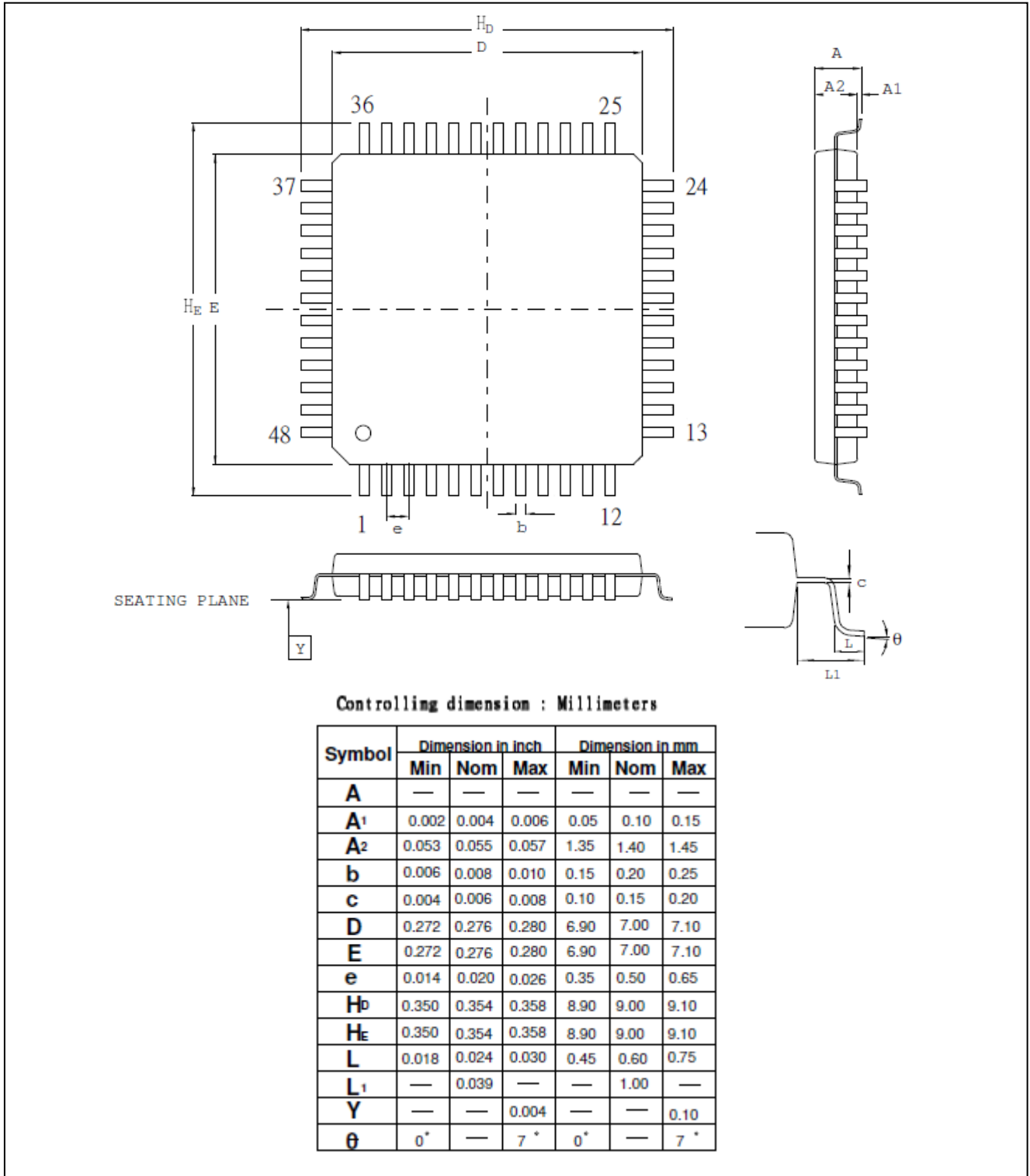


Figure 6-1: Package Information of LQFP48