



■ DESCRIPTION

The OTi-6888 is a USB host with MP3 interface controller. User can store the mp3 file in the USB device (USB flash disk, USB card reader and USB portable hard Disk). When the USB device is plugged into the USB port and the play key is pushed, the OTi-6888 will read the mp3 file from the USB device, and send the data to the MP3 decoder and DAC. The user can hear the MP3 song stored in the USB device.

The USB interfaces are for full speed operation (12Mb/s). It conforms to the USB Specification, Version 1.1. The USB transceiver is embedded in this controller. With stable slew-rate control, the controller reduces EMI.

The OTi-6888 has a Phase Lock Loop (PLL) embedded. The PLL provides all clocks needed in this controller. It needs an externally provided clock operating at 14.318MHz.

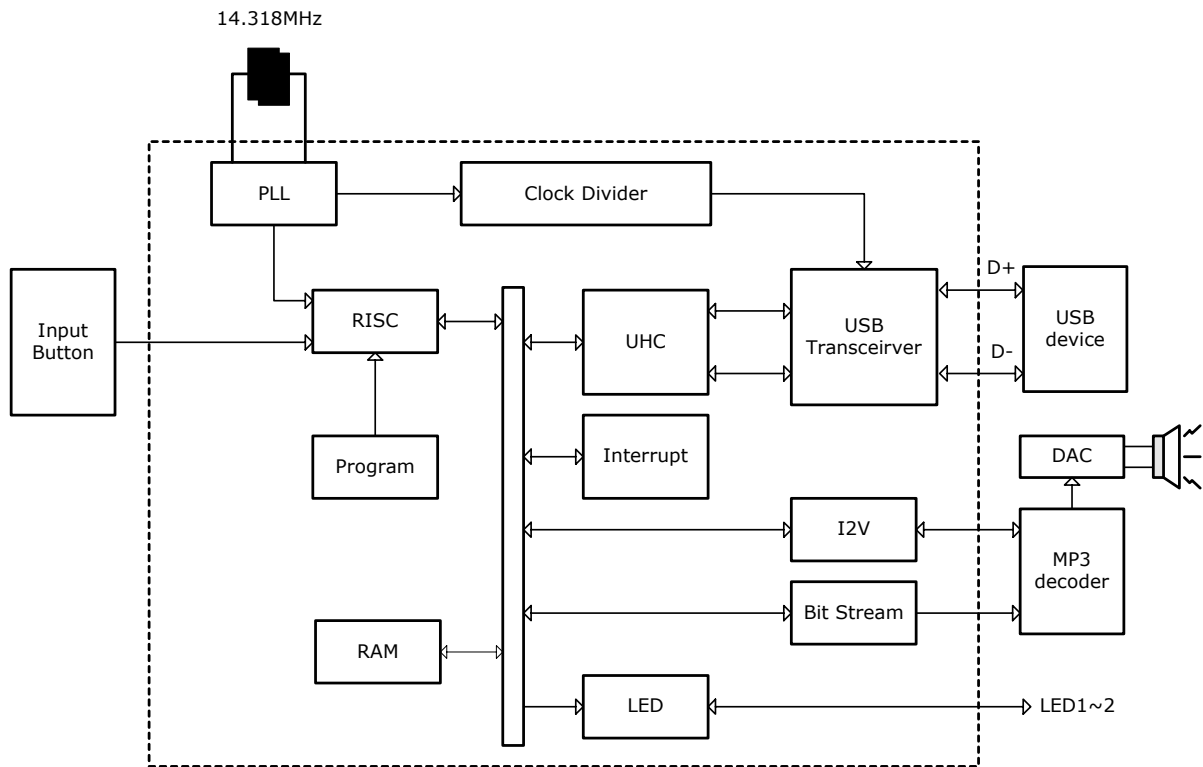
The controller has two LED control pins.

■ FEATURES

- ◆ The host controller conforms to Full-speed (12Mb/s) USB Specification, Version 1.1
- ◆ Supports the USB flash disk device (Version 1.1 or 2.0) with Mass storage class
- ◆ Supports the USB card reader device (Version 1.1 or 2.0) with Mass storage class
- ◆ Supports the USB portable hard disk (Version 1.1 or 2.0) with Mass storage class
- ◆ Integrated USB transceiver
- ◆ Integrated RISC micro-controller
 - High-performance RISC architecture
 - Single cycle instruction execution
- ◆ 14.318 MHz external clock
- ◆ 3.3 V power operation
- ◆ Integrated PLL
- ◆ Small form factor - standard 48-pin LQFP (7mmX7mm) package
- ◆ Supports File System including FAT12, FAT16, FAT32
- ◆ Search for whole disk (MP3 File)
- ◆ Input button for Play (Pause), Previous, Next, Volume + and Volume -

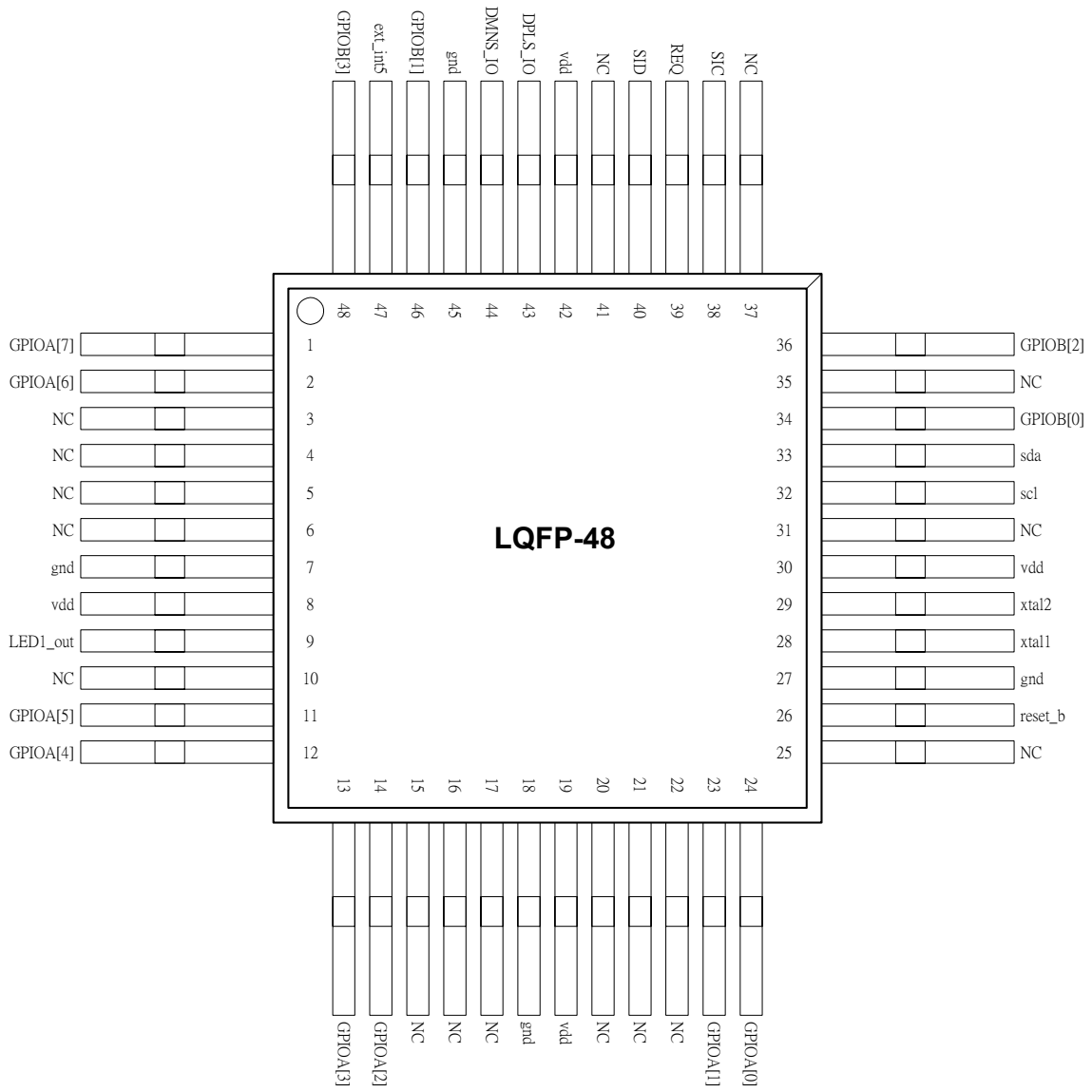


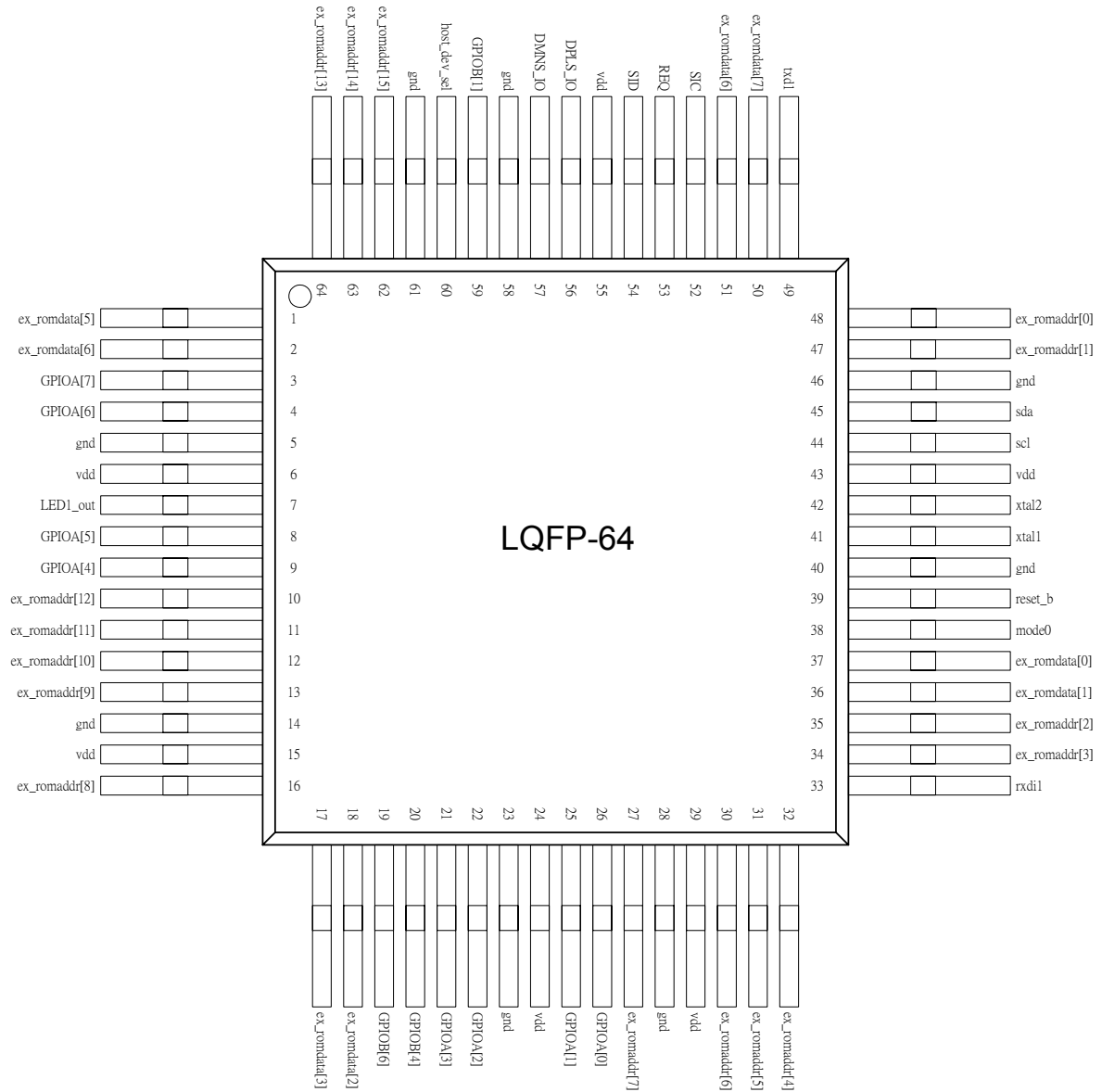
■ BLOCK DIAGARAM





■ PIN CONFIGUARTION







■ PIN DESCRIPTION

OTi-6888 has two different kinds of package, 48-pin and 64-pin. OTi-6888 with 48-pin package provides fundamental USB host function, however, it can provide external ROM functions if you choose 64-pin package.

Note: OTi-6888 with 48-pin package does not external ROM function.

Pin No.	Pin Name	Attribute	Description
1	GPIOA[7]	I/O	GPIO
2	GPIOA[6]	I/O	GPIO
3	NC		NC
4	NC		NC
5	NC		NC
6	NC		NC
7	gnd	I	gnd
8	vdd	I	vdd
9	LED1_out	O	Status indication
10	NC		NC
11	GPIOA[5]	I/O	GPIO
12	GPIOA[4]	I/O	GPIO
13	GPIOA[3]	I/O	GPIO
14	GPIOA[2]	I/O	GPIO
15	NC		NC
16	NC		NC
17	NC		NC
18	gnd	I	gnd
19	vdd	I	vdd
20	NC		NC
21	NC		NC
22	NC		NC
23	GPIOA[1]	I/O	GPIO
24	GPIOA[0]	I/O	GPIO
25	NC	O	NC
26	reset_b	I	Power on reset input , low active
27	gnd	I	gnd



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28	xtal1	I	Crystal input
29	xtal2	O	Crystal output
30	vdd	I	vdd
31	NC		NC
32	scl	O	The clock pin for I2C
33	sda	I/O	The data pin for I2C
34	GPIOB[0]	I/O	GPIO
35	NC		NC
36	GPIOB[2]	I/O	GPIO
37	NC		NC
38	SIC	O	The clock pin for bit stream
39	REQ	I	The request pin for bit stream
40	SID	O	The data pin for bit stream
41	NC	O	NC
42	vdd	I	vdd
43	DPLS_IO	I/O	USB D+
44	DMNS_IO	I/O	USB D-
45	gnd	I	gnd
46	GPIOB[1]	I/O	GPIO
47	ext_int5	I	External interrupt input
48	GPIOB[3]	I/O	GPIO

Note : OTi-6888 with 64-pin package with External ROM functions.

Pin No.	Pin Name	Attribute	Pad Name
1	ex_romdata[5]	I	ex_romdata_pad[5]
2	ex_romdata[4]	I	ex_romdata_pad[4]
3	GPIOA[7]	I/O	GPIOA_pad[7]
4	GPIOA[6]	I/O	GPIOA_pad[6]
5	gnd	I	gnd
6	vdd	I	vdd
7	LED1_out	O	LED1_out_pad
8	GPIOA[5]	I/O	GPIOA_pad[5]
9	GPIOA[4]	I/O	GPIOA_pad[4]



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10	ex_romaddr[12]	O	ex_romaddr_pad[12]
11	ex_romaddr[11]	O	ex_romaddr_pad[11]
12	ex_romaddr[10]	O	ex_romaddr_pad[10]
13	ex_romaddr[9]	O	ex_romaddr_pad[9]
14	gnd	I	gnd
15	vdd	I	vdd
16	ex_romaddr[8]	I	ex_romaddr_pad[8]
17	ex_romdata[3]	I	ex_romdata_pad[3]
18	ex_romdata[2]	I	ex_romdata_pad[2]
19	GPIOB[6]	I/O	GPIOB_pad[6]
20	GPIOB[4]	I/O	GPIOB_pad[4]
21	GPIOA[3]	I/O	GPIOA_pad[3]
22	GPIOA[2]	I/O	GPIOA_pad[2]
23	gnd	I	gnd
24	vdd	I	vdd
25	GPIOA[1]	I/O	GPIOA_pad[1]
26	GPIOA[0]	I/O	GPIOA_pad[0]
27	ex_romaddr[7]	O	ex_romaddr_pad[7]
28	gnd	I	gnd
29	vdd	I	vdd
30	ex_romaddr[6]	O	ex_romaddr_pad[6]
31	ex_romaddr[5]	O	ex_romaddr_pad[5]
32	ex_romaddr[4]	O	ex_romaddr_pad[4]
33	rxdi1	I	rxdi1_pad
34	ex_romaddr[3]	O	ex_romaddr_pad[3]
35	ex_romaddr[2]	O	ex_romaddr_pad[2]
36	ex_romdata[1]	O	ex_romdata_pad[1]
37	ex_romdata[0]	O	ex_romdata_pad[0]
38	mode0	I	mode0_pad
39	reset_b	I	reset_b_pad
40	gnd	I	gnd
41	xtal1	I	xtal1_pad
42	xtal2	O	xtal2_pad



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43	vdd	I	vdd
44	scl	O	scl_pad
45	sda	I/O	sda_pad
46	gnd	I	gnd
47	ex_romaddr[1]	O	ex_romaddr_pad[1]
48	ex_romaddr[0]	O	ex_romaddr_pad[0]
49	txd1	O	txd1_pad
50	ex_romdata[7]	I	ex_romdata_pad[7]
51	ex_romdata[6]	I	ex_romdata_pad[6]
52	SIC	O	SIC_pad
53	REQ	I	REQ_pad
54	SID	O	SID_pad
55	vdd	I	vdd
56	DPLS_IO	I/O	DPLS_IO_pad
57	DMNS_IO	I/O	DMNS_IO_pad
58	gnd	I	gnd
59	GPIOB[1]	I/O	GPIOB_pad[1]
60	host_dev_sel	I	host_dev_sel_pad
61	gnd	I	gnd
62	ex_romaddr[15]	O	ex_romaddr_pad[15]
63	ex_romaddr[14]	O	ex_romaddr_pad[14]
64	ex_romaddr[13]	O	ex_romaddr_pad[13]



■ D.C. CHARACTERS

DC Characteristics-1 (Ta=0 °C to +70 °C, Vcc = 3.3V ±10%)

Parameter	Symbol	MIN	TYP	MAX	Unit
Power Supply	VDD	3	3.3	3.6	V
Input Voltage	VIH	0.9x VDD	--	5	V
	VIL	-0.3	--	0.2 x VDD	V
Output Voltage	VOH	VDD-0.4	--	--	V
	VOL	--	--	0.4	V
Input leakage current	ILK	-1	--	1	uA
Working Current	IRW	--	--	--	mA
Operating Temperature	Ta	0	70		°C
Storage Temperature	Ts	-55	+	150	°C
IO output current	IOH	--	4	--	mA
	IOL	--	4	--	mA

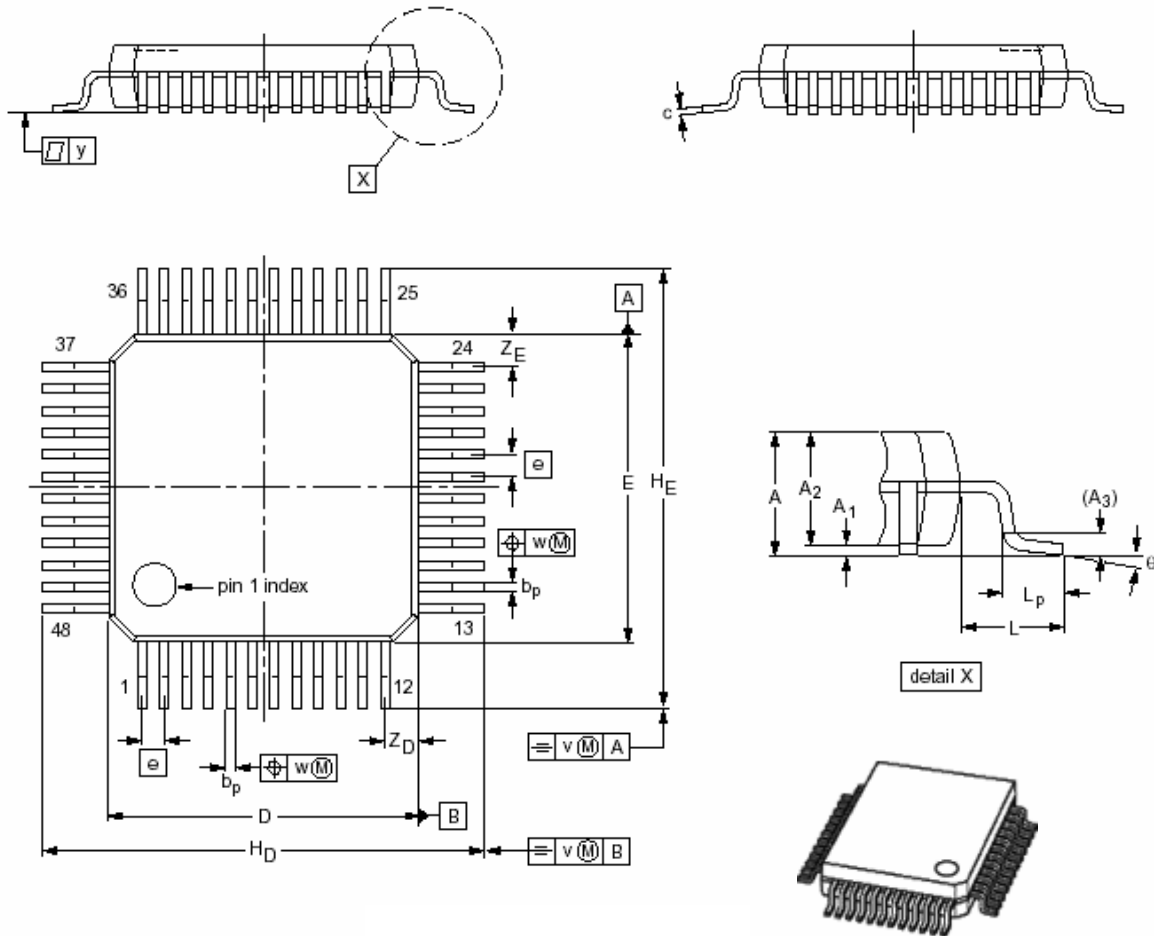
■ A.C. CHARACTERS

Parameter	Symbol	MIN	TYP	MAX	Unit
Input rising delay	TPIlh	0.35(2PF)	0.4(4PF)	0.54(8PF)	ns
Input falling delay	TPIhl	0.46(2PF)	0.53(4PF)	0.64(8PF)	ns
Output rising delay	TPOlh	1.35(10PF)	1.97(30PF)	2.59(50pF)	ns
Output falling delay	TPOhl	1.61(10PF)	2.41(30PF)	3.21(50pF)	ns



■ PACKAGE INFORMATION

LQFP-48 : plastic low profile quad flat package; 48 leads; body 7 x 7 x 1.4 mm



DIMENSIONS (mm are the original dimensions)

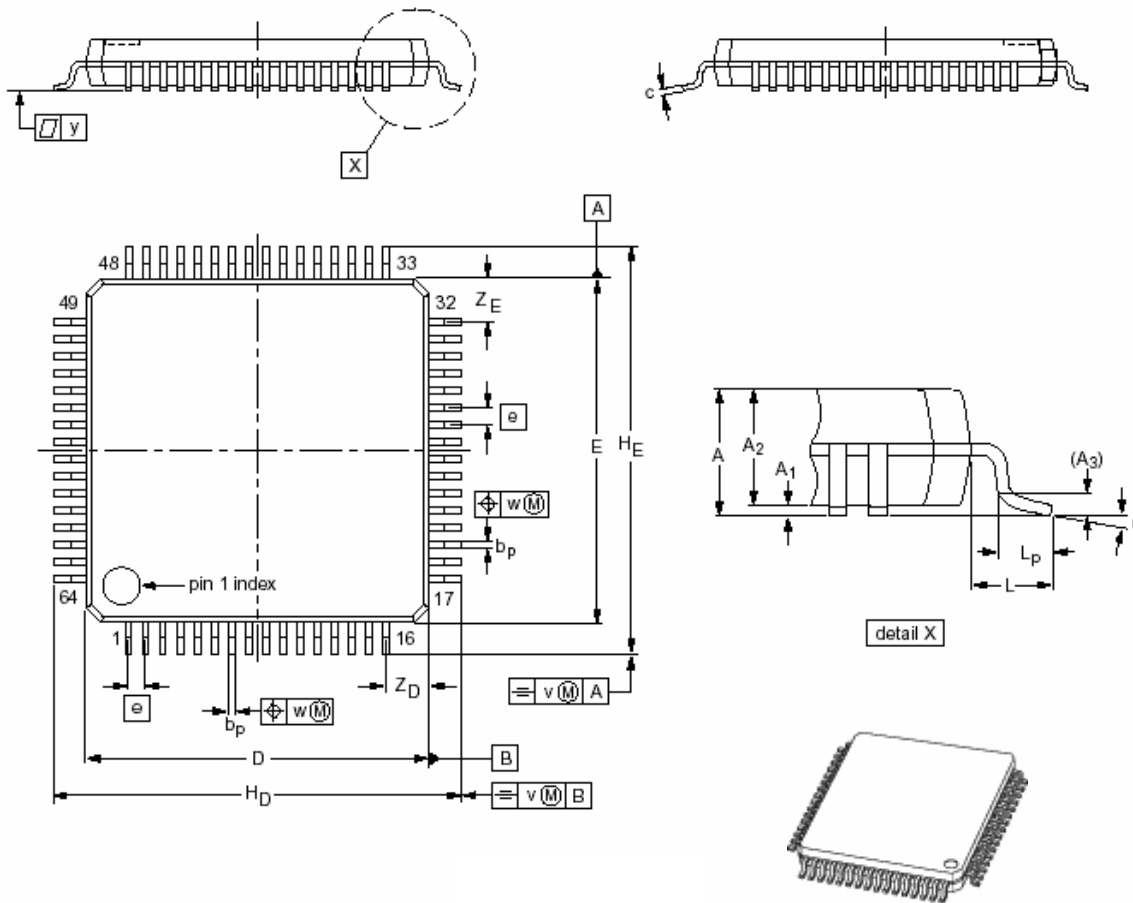
UNIT	A Max.	A ₁	A ₂	A ₃	bp	c	D ⁽¹⁾	E ⁽¹⁾	e	H _D	H _E	L	L _p	v	W	y	Z _D ⁽¹⁰⁾	Z _E ⁽¹⁾	θ
mm	1.6	0.20	1.45	0.25	0.27	0.18	7.1	7.1	0.5	9.15	9.15	1	0.75	0.2	0.12	0.1	0.95	0.95	7°
		0.05	1.35		0.17	0.12	6.9	6.9		8.85	8.85		0.45				0.55	0.55	0°

Note:

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.



LQFP-64 : plastic low profile quad flat package; 64 leads; body 10 x 10 x 1.4 mm



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _D	H _E	L	L _p	v	W	y	Z _D ⁽¹⁰⁾	Z _E ⁽¹⁾	θ
mm	1.6	0.20	1.45	0.25	0.27	0.18	10.1	10.1	0.5	12.15	12.15	1	0.75	0.2	0.12	0.1	1.45	1.45	7°
		0.05	1.35		0.17	0.12	9.9	9.9		11.85	11.85		0.45				1.05	1.05	0°

Note:

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.



Ours Technology Inc.

OTi-6888

USB 1.1 USB Host with MP3 Interface Controller

Note:

OTI reserves the right to make any changes without further notice to any products herein.

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