



SiI9244 MHL Transmitter with HDMI Input

Data Brief

Document # SiI-DB-1091-A02

October 2010

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General Description

The SiI9244 Silicon Image Mobile High-definition Link (MHL™) Transmitter facilitates the design of low ball count, low-power mobile HD video output applications. It implements MHL technology that uses a single twisted pair and 5 pins of a mobile connector to carry formatted video and audio to MHL-capable receivers. MHL signals are readily converted to a standard HDMI signal through a MHL-to-HDMI bridge when needed.

Silicon Image Mobile High-definition Link products use the latest generation of TMDS core technology. With this ultra-low-power solution, mobile phones, HD camcorders, digital still cameras, and personal mobile devices can connect to a large installed base of HDMI TVs.

HDMI Interface

- HDMI serial link receiver interface
- HDMI-to-MHL transcode mode
- CEA/EIA 861D video format up to 1920x1080p @ 24/30 fps
- Maximum input frequency 75 MHz.

Additional Features

- 1 MHz local I²C bus
- Standard part covers extended (–30 to +85 °C) temperature range.

Features

The SiI9244 transmitter and a MHL-to-HDMI bridge together meet the HDMI compliance test specification.

- The transmitter sends all data and clock signals over a single differential pair
- A single-wire control bus supports all sideband signaling for DDC, remote control, and HPD

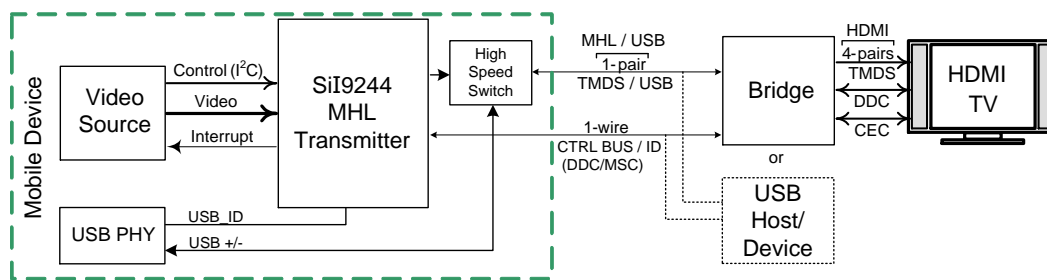


Figure 1. Typical Application of the SiI9244 Transmitter

Ball Diagrams

Figure 2 shows the pin assignments of the SiI9244 transmitter. Pin names are generalized by type for this document. The list below the diagram describes the purpose of each type. The package is a 49-ball VFPGA package.

	1	2	3	4	5	6	7	
A	RSVDH	GND	MDATA_IO	MDATA_IO	NC	NC	MCTRL_I	A
B	RSVDL	RSVDH	RSVDL	GND	VCC33	USB_IO	RSVDL	B
C	CCTRL_I	RSVDH	MCTRL_I	VCC12	GND	MCTRL_I	CCTRL_O	C
D	CCTRL_IO	RSVDL	GND	VCC18	VCC12	CCTRL_I	CCTRL_I	D
E	HCTRL_IO	GND	VCC18	VCC12	VCC33	VCC12	GND	E
F	HDATA_I	GND	HCTRL_I	HCTRL_I	VCC12	GND	HCTRL_O	F
G	HDATA_I	HDATA_I	HDATA_I	HDATA_I	HDATA_I	HDATA_I	HDATA_I	G
	1	2	3	4	5	6	7	

Pin Name	Purpose
HDATA_I	HDMI data Input
HCTRL_x	HDMI control Input, Output, or Input/Output
ADATA_I	Audio data Input (S/PDIF, I ² D)
ACTRL_I	Audio control Input (WS, MCLK, SCK)
CCTRL_x	Chip control Input, Output, or Input/Output (INT, RESET, CSCL, CSDA, etc.)
MDATA_IO	MHL data Input/Output (TMDS-level signals)
MCTRL_I	MHL control Input (CBUS, VSENSE, etc.)
USB_IO	USB Input/Output (differential signals, ID information)

Figure 2. Ball Diagram (Top View)

Packaging

Package Dimensions

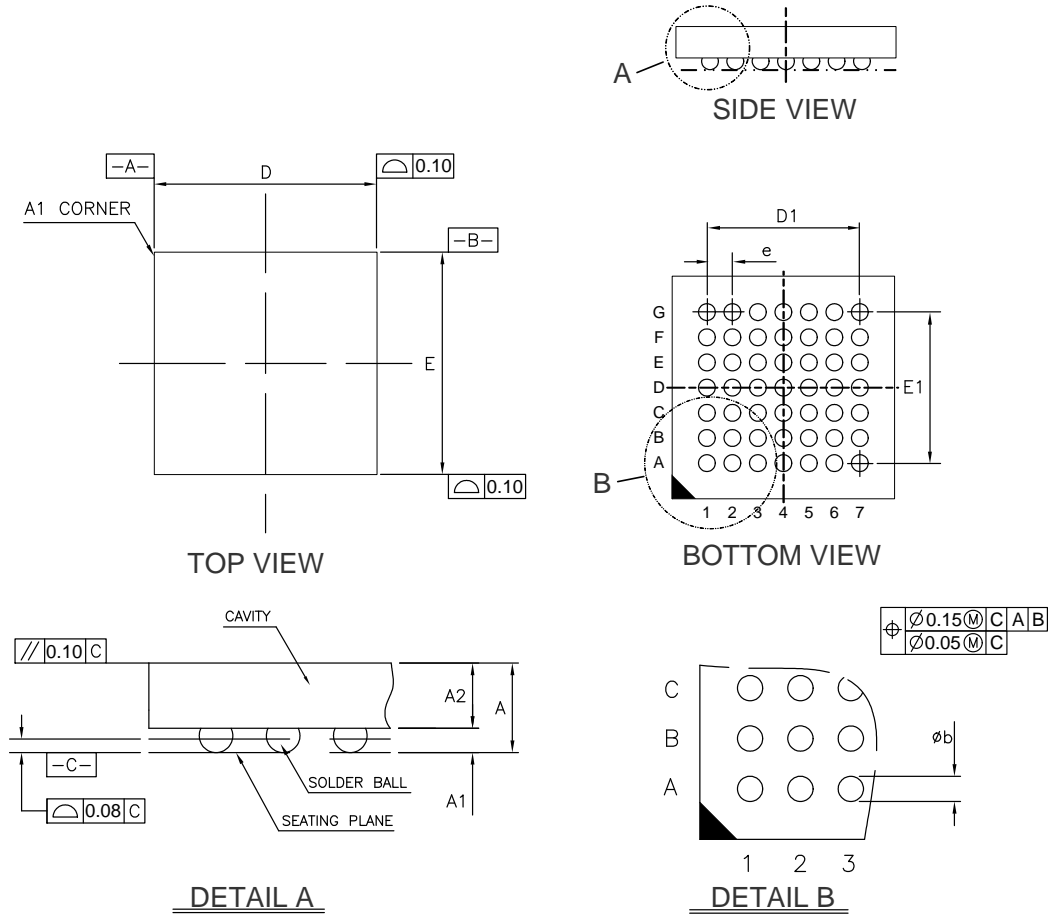


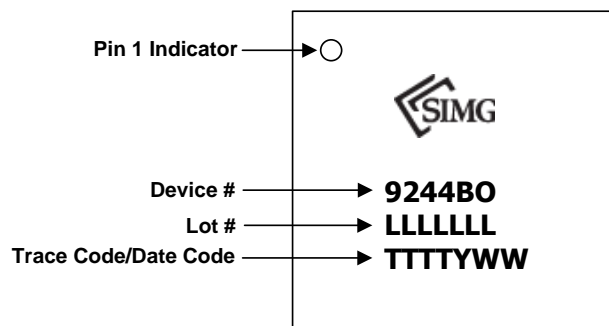
Figure 3. Package Diagram

JEDEC Package Code MO-225

Item	Description	Min	Typ	Max
A	Thickness	—	—	0.80
A1	Stand-off	0.13	0.18	0.23
A2	Body thickness	0.446	0.486	0.57
D	Body size	3.40	3.50	3.60
E	Body size	3.40	3.50	3.60
D1	Footprint	—	2.40	—
E1	Footprint	—	2.40	—
b	Ball width	0.20	0.25	0.30
e	Ball pitch	—	0.40	—

Marking Specification

Marking drawings are not to scale.



Universal Packages SiI9244BO	
Legend	Description
LLLLLLL	Lot Number
Y	Year of Mfr
WW	Week of Mfr
TTTT	Trace Code

Figure 4. Marking Diagram

Ordering Information

Part Number	Pixel Clock Range	Interface	Resolution/Refresh Rate	Package	Temperature Grade
SiI9244BO	25–75 MHz	HDMI	1080p/30 Hz	49 VFBGA	Extended (–30 to +85 °C)

The universal package can be used in lead-free and ordinary process lines.

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