

**TDA19989BET**

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**Datasheet**

Datasheet confidential

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**150 MHz pixel rate HDMI 1.4 transmitter with 3 x 8-bit video inputs and CEC support**

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**General description** Hide

TDA19989BET is a very low power and very small size High-Definition Multimedia Interface (HDMI) v. 1.4 transmitter. It is backward compatible DVI 1.0 and can be connected to any DVI 1.0 and HDMI sink.

This device is primarily intended for mobile applications like Digital Video Camera (DVC), Digital Still Camera (DSC), Portable Multimedia Player (PMP), Mobile Phone and Ultra-Mobile Personal Computer (UM PC) where size and very low power are mandatory for battery autonomy. It allows mixing 3 x 8bit RGB or YCbCr video stream with a pixel rate up to 150 MHz together with one S/PDIF or two I2Sbus audio streams with an audio sampling rate up to 192 kHz.

In order to be compatible with most applications, TDA19989BET integrates a full programmable input formatter and color space conversion block. The video input formats accepted are YCbCr 4:4:4 (up to 3 x 8-bit), YCbCr 4:2:2 semiplanar (up to 2 x 12-bit) and YCbCr 4:2:2 compliant with ITU656 (up to 1 x 12-bit). In case of ITU656like format, the input pixel clock can be made active on one (SDR mode) or both edges (DDR mode). This device provides additional embedded feature like CEC (Consumer Electronic Control). CEC is a single bidirectional wire that transmits CEC commands (like Standby from remote control) over the home appliance network connected through this wire. This eliminates the need of any additional device to handle this feature thus improving BOM (Bill Of Materials) of the whole system and enabling the connected devices (CEC enabled) to be controlled by only one remote control.

TDA19989BET supports xvYCC HDMI 1.4 feature.

It can be switched to very low power Standby or Sleep modes to save power when HDMI is not used. TDA19989BET includes I2Cbus master interface for DDC-bus communication for EDID reading. This device can be controlled or configured via I2Cbus interface.

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**Features and benefits** Hide

**Compliance:**

- DVI 1.0
- HDMI 1.4
- EIA/CEA861B
- CEC (HDMI 1.4)
- SimplayHD

**Video:**

- xvYCC HDMI 1.4 feature
- Video formats with a pixel rate up to 150 MHz:
  - RGB 4:4:4
  - YCbCr 4:4:4
  - YCbCr 4:2:2 semiplanar
  - YCbCr 4:2:2 ITU656

**Maximum resolution:**

- 1080p for TV
- 1600 x 1200 at 60 Hz for PC (UXGA60)
- 720p/1080i in ITU656

**Programmable color space converter:**

- RGB to YCbCr
- YCbCr to RGB

Programmable input formatter and upsampler/interpolator allows input of any of the 4:4:4, 4:2:2 semiplanar, 4:2:2 ITU656like formats  
Horizontal synchronization, vertical synchronization and Data Enable (DE) inputs or VREF, HREF and FREF could be used for input data synchronization  
Pixel clock input can be made active on one or both edges (selectable by I2Cbus)  
Repetition of video samples as required by HDMI specification

**Audio:**

2 x I2Sbus 2 channels or one S/PDIF; audio data rate up to 192 kHz

**System operation:**

- Master DDCbus interface for EDID read
- Controllable via I2Cbus
- Downstream availability through the use of hot plug detect (HPD) and receiver detection (RxSense)

**Package:**

- TFBGA64
- Size 4.5 x 4.5 x 0.95 mm

**Power management:**

- External voltage supplies 1.8 V
- Low power
- Flexible power modes

**Miscellaneous:**

- POR (Power-On Reset)
- Audio and video inputs LV-CMOS 1.8 V compatible and LVCMOS 3.3 V tolerant
- 250 MHz to 1.5 GHz TMDS transmitter operation

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**Applications** Hide

- Digital Video Camera (DVC)
- Digital Still Camera (DSC)
- Portable Multimedia Player (PMP)
- Mobile Phone
- Ultra-Mobile Personal Computer (UM PC)

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**Parametrics/similar products** Hide

Type number	Package	package reference code	product status	Output number	HDMI v:	video	Max video pixel Rate (GHz)	High Bit Rate Audio	HDCP	CEC	Video Upscale	HDMI 1.4a: 3D	HDMI 1.4a: Adobe RGB	HDMI 1.4a: ARC	I/O	Supply voltage (V)	Total power Operation mode typical(W)
TDA19989BET	SOT962-3 (TFBGA64)	TFBGA64	Production	1	1.4a	1080p 50/60 Hz 8-bit color	150	no	no	yes	no	yes	yes	no	RGB/YUV	1.8 V	at 1080p:140

**Similar products**

TDA19989BET links to the similar products page containing an overview of products that are similar in function or related to the type number(s) as listed on this page. The similar products page includes products from the same catalog tree(s), relevant selection guides and products from the same functional category.

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**Pricing/ordering/availability** Hide

Type number	Ordering code(12NC)	Orderable part number	Region	Distributor	In stock	Order quantity	Inventory date	Buy online	Samples
TDA19989BET/C1	9352 921 96518	TDA19989BET/C1,518							not available
TDA19989BET/C1	9352 921 96551	TDA19989BET/C1,551	NA	MOUSER ELECTRONIC	250		4/2/2011	<a href="#">Buy online</a>	Order samples
			NA	MOUSER ELECTRONIC	250		4/2/2011	<a href="#">Buy online</a>	
TDA19989BET/C1	9352 921 96557	TDA19989BET/C1,557							not available

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**Products/packages** Hide

Type number	Orderable part number	Ordering code (12NC)	Product status	Package	Packing	Marking	ECCN
TDA19989BET/C1	TDA19989BET/C1,518	9352 921 96518	Volume production	SOT962-3 (TFBGA64)	Reel Dry Pack, SMD, 13"	Standard Marking	
TDA19989BET/C1	TDA19989BET/C1,551	9352 921 96551	Volume production	SOT962-3 (TFBGA64)	Tray Dry Pack, Bakeable, Single	Standard Marking	
TDA19989BET/C1	TDA19989BET/C1,557	9352 921 96557	Volume production	SOT962-3 (TFBGA64)	Tray Dry Pack, Bakeable, Multiple	Standard Marking	

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**Quality/reliability/chemical conten** Hide

Type number	Orderable part number	Chemical content	RoHS	Leadfree conversion date	RHF	IFR (FIT)	MTBF (hours)	MSL	MSL LF
TDA19989BET/C1	TDA19989BET/C1,518	TDA19989BET/C		Always Pb-free				NA	3
TDA19989BET/C1	TDA19989BET/C1,551	TDA19989BET/C		Always Pb-free				NA	3
TDA19989BET/C1	TDA19989BET/C1,557	TDA19989BET/C		Always Pb-free				NA	3

Quality and reliability disclaimer

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