

# MCPC Compatible USB Port Multimedia Switch

## Supports USB, UART, Audio, ID, MIC, and Load Switch

Check for Samples: [TSU6721](#)

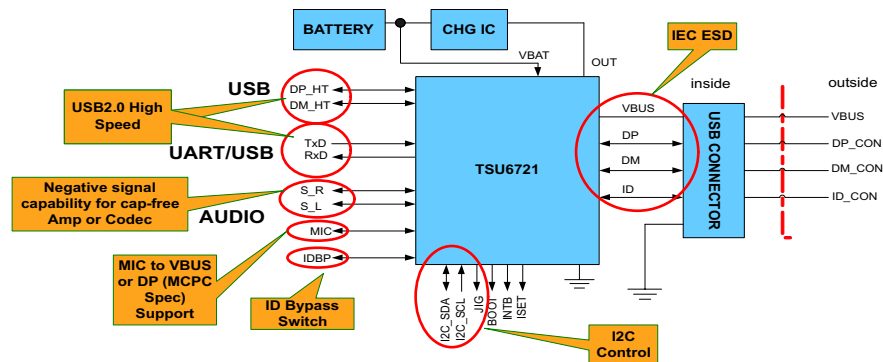
### FEATURES

- **Switch Matrix**
  - USB and UART Switch support USB 2.0 HS
  - Audio Switch with Negative Signal Capability
  - ID Bypass Switch
  - VBUS to MIC Switch
  - DP to MIC Switch to Support MCPC
- **Load Switch**
  - 100 mΩ Load Switch
  - OTG Support
  - 28 V VBUS Rating with Over-voltage Protection
  - Programmable Overcurrent Limiter/Protection
- **Charger Detection**
  - USB BCDv1.2 compliant
  - VBUS Detection
  - Data Contact Detection
  - Primary and Secondary Detection
- **Compatible Accessories**
  - USB Chargers (DCP, CDP)
  - Apple Charger
  - USB Data Port
  - Audio Headset with MIC and Remote
  - Docking Support
  - Factory Cable
- **Surge Protection on VBUS/DP/DM**
  - USB Connector Pins Without External Component
- **Additional Features**
  - I2C Interface with Host Processor
  - Switches Controlled by Automatic Detection or Manual Control
  - Interrupts Generated for Plug/Unplug
  - Decoupling FET Switch to VBUS Added to Reduce Degradation on MIC Line
  - Support Control Signals used In Manufacturing (JIG, BOOT)
- **ESD Performance Tested Per JESD 22**
  - 4000-V Human-Body Model (A114-B, Class II)
  - 1500-V Charged-Device Model (C101)
- **IEC ESD Performance**
  - ±8 kV Contact Discharge (IEC 61000-4-2) for VBUS/DP/DM/ID to GND

### APPLICATIONS

- Cell Phones and Smart Phones
- Tablet PCs
- Digital Cameras and Camcorders
- GPS Navigation Systems
- Micro USB Interface with USB/UART/AUDIO

### APPLICATION DIAGRAM



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

## TSU6721

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These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

### DESCRIPTION

TSU6721 is a high performance USB port multimedia switch featuring automatic switching and accessory detection. The device connects a common USB port to pass audio, USB data, charging, On The Go (OTG) and factory mode signals. The audio path has negative signal capability includes left (mono/stereo), right (stereo) as well as microphone signals. Furthermore, TSU6721 is compatible with the MCPC specification.

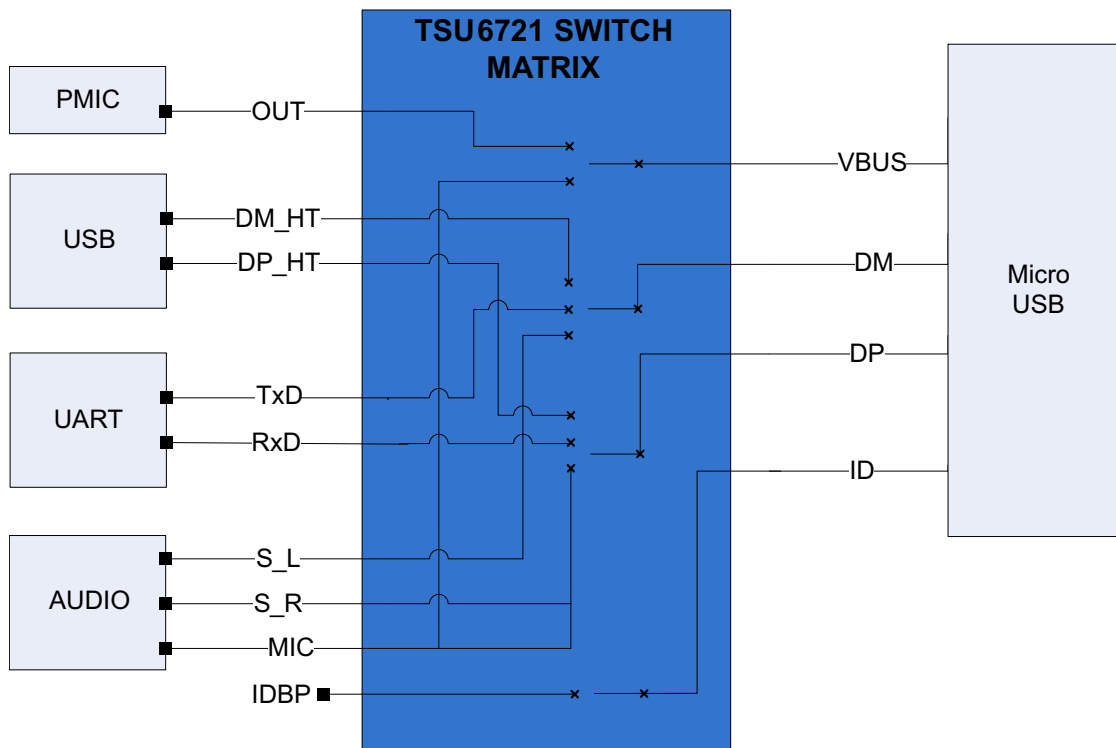
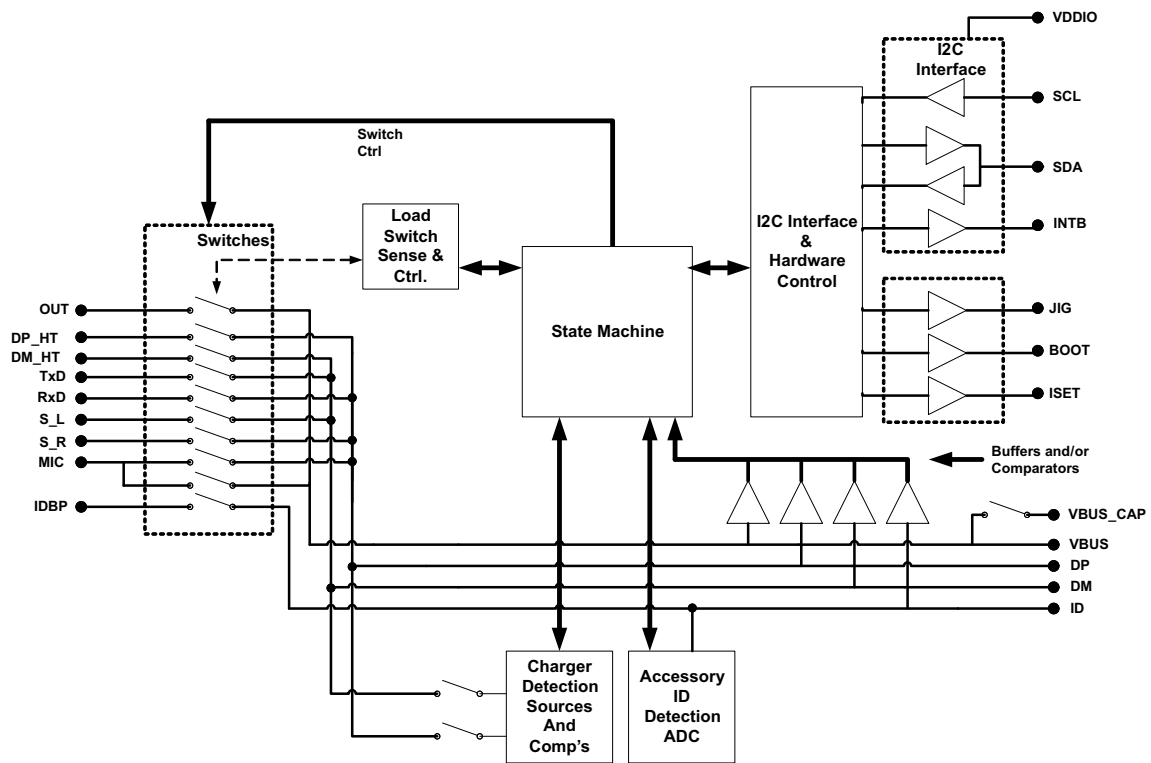
TSU6721 features impedance detection which supports the detection of various accessories that are attached through DP, DM and ID pins of the USB connector. The switch is controlled by automatic switching or manually through I<sup>2</sup>C.

TSU6721 has an integrated low resistive Load Switch that is used to isolate the charger from the external connector. OverVoltage Protection and programmable OverCurrent Limiter/Protection are additional features included to the Load Switch.

The charger detection satisfies USB charger specification v1.2. In addition to DCP, CDP and SDP, the device also detects Apple Chargers.

Power for this device is supplied through VBAT of the system or through VBUS when attached. TSU6721 supports factory mode testing when a USB/UART JIG cable is used in development and manufacturing.

**BLOCK DIAGRAM**



To request a full data sheet, please send an email to:

[signal-switches@list.ti.com](mailto:signal-switches@list.ti.com)

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
TSU6721YFFR	ACTIVE	DSBGA	YFF	25	3000	Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM	-40 to 85	TSU6721	<a href="#">Samples</a>

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

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(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

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(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "-" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

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**TAPE AND REEL INFORMATION**

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
TSU6721YFFR	DSBGA	YFF	25	3000	180.0	8.4	2.17	2.17	0.57	4.0	8.0	Q1

**TAPE AND REEL BOX DIMENSIONS**



\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TSU6721YFFR	DSBGA	YFF	25	3000	182.0	182.0	17.0

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