

MP3/USB 2.0 High Speed Switch with Negative Signal Handling/Click and Pop Suppression

The Intersil ISL54210 dual SPDT (Single Pole/Double Throw) switch combines low distortion audio and accurate USB 2.0 high speed data (480Mbps) signal switching in the same low voltage device. When operated with a 2.7V to 3.6V single supply, these analog switches allow audio signal swings below-ground, allowing the use of a common USB and audio headphone connector in Personal Media Players and other portable battery powered devices.

The ISL54210 incorporates circuitry for the detection of the USB V_{BUS} voltage, which is used to switch between the audio and USB signal sources.

The part has an audio enable control pin (CTRL) to open all in-line switches and activate the audio click and pop circuitry. The high off-isolation and special click/pop circuitry of the audio switches eliminates click and pops in the headphones when the audio CODEC drivers are powering up or down or when a headphone is inserted or removed from the headphone jack.

It's available in a tiny 10 Ld 1.8mmx1.4mm ultra-thin μ TQFN package and a 10 Ld 3mmx3mm TDFN package. It operates over a temperature range of -40°C to +85°C.

Related Literature

- Technical Brief TB363 "Guidelines for Handling and Processing Moisture Sensitive Surface Mount Devices (SMDs)"

Features

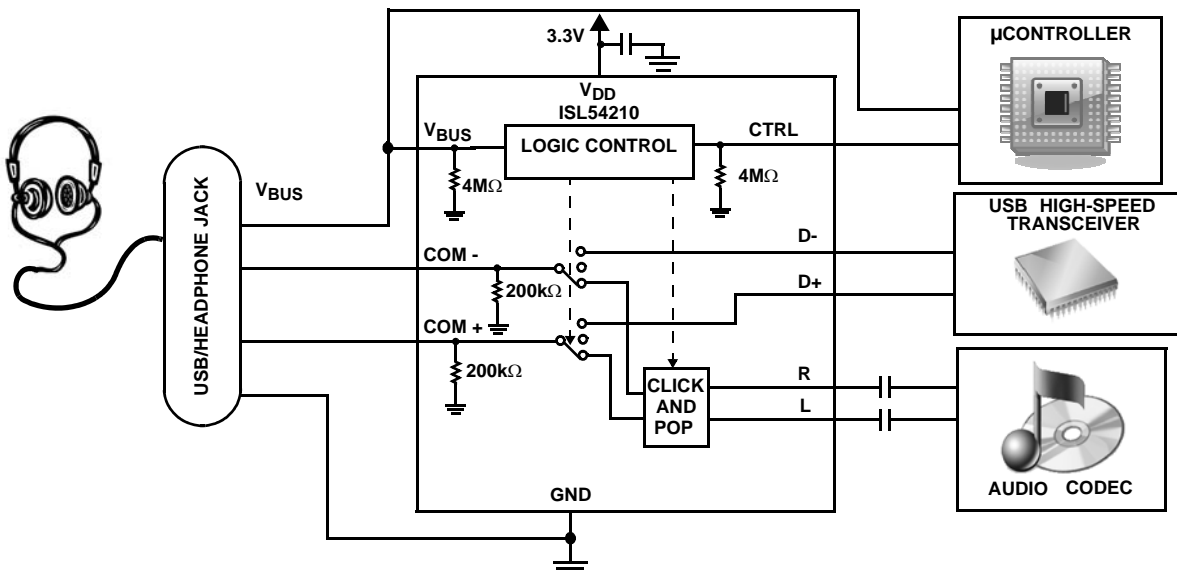
- High Speed (480Mbps) and Full Speed (12Mbps) Signaling Capability per USB 2.0
- Detection of V_{BUS} Voltage on USB Cable
- Low Distortion Negative Signal Capability
- Clickless/Popless Audio Switches
- Enable Pin to Open all Switches
- Low Distortion Headphone Audio Signals
 - THD+N at 1mW into 32 Ω Load 0.014%
- Crosstalk (20Hz to 20kHz) -100dB
- Off-Isolation (20Hz to 100kHz) 95dB
- Single Supply Operation (V_{DD}) 2.7V to 3.6V
- -3dB Bandwidth USB Switch 700MHz
- Available in μ TQFN and TDFN Packages
- Compliant with USB 2.0 Short Circuit Requirements Without Additional External Components
- Pb-Free (RoHS Compliant)

Applications

- MP3 and other Personal Media Players
- Cellular/Mobile Phones
- PDA's
- Audio/USB Switching

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Application Block Diagram



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