



## 3-TO-1 DVI/HDMI SWITCH

### FEATURES

- Designed for Signaling Rates up to 1.65 Gbps in Support of UXGA Display
- Differential Interface Compatible with Transition Minimized Differential Signaling (TMDS) Electrical Specification
- Each Port Supports HDMI or DVI Inputs
- Isolated Digital Display Control (DDC) Bus for Unused Ports
- 5-V Tolerance to all DDC and HPD\_SINK Inputs
- Integrated Receiver Termination
- Inter-Pair Output Skew < 100 ps
- 8-dB Receiver Equalization to Compensate for 5-m DVI Cable Losses
- High Impedance Outputs When Disabled

- HBM ESD Protection Exceeds 3 kV
- 3.3-V Supply Operation
- 80-Pin TQFP Package
- ROHS Compatible and 260°C Reflow Rated

### APPLICATIONS

- Switching From Three Digital-Video (DVI) or Digital-Audio Visual (HDMI) Sources
- Digital TV
- Digital Projector
- Audio Video Receiver

### DESCRIPTION

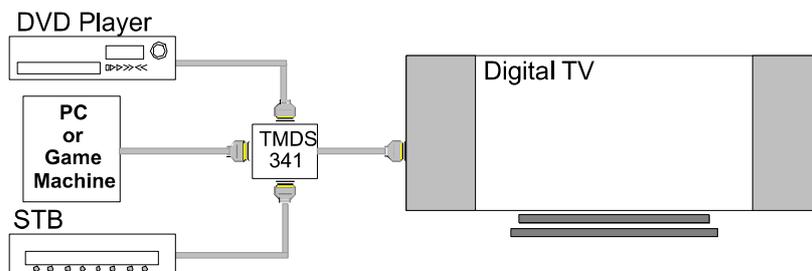
The TMDS341 is a 3-port digital video interface (DVI) or high-definition multimedia interface (HDMI) switch that allows up to 3 DVI or HDMI ports to be switched to a single display terminal. Four TMDS channels, one hot plug detector, and an I<sup>2</sup>C interface are supported on each port. Each TMDS channel allows signaling rates up to 1.65 Gbps.

The active source is selected by configuring source selectors, S1, S2, and S3. The selected TMDS inputs from each port are switched through a 3-to-1 multiplexer. The I<sup>2</sup>C interface of the selected input port is linked to the I<sup>2</sup>C interface of the output port, and the hot plug detector (HPD) of the selected input port is output to HPD\_SINK. For the unused ports, the I<sup>2</sup>C interfaces are isolated, and the HPD pins are kept low.

Termination resistors (50-Ω), pulled up to V<sub>CC</sub>, are integrated at each receiver input pin. External terminations are not required. A precision resistor is connected externally from the VSADJ pin to ground for setting the differential output voltage to be compliant with the TMDS standard. When the output is connected to a standard TMDS termination and  $\overline{OE}$  is high, the output is high impedance.

The TMDS341 provides fixed 8-dB input equalization and selectable 3-dB output de-emphasis to optimize system performance through 5-meter or longer DVI compliant cables. The device is characterized for operation from 0°C to 70°C.

### TYPICAL APPLICATION

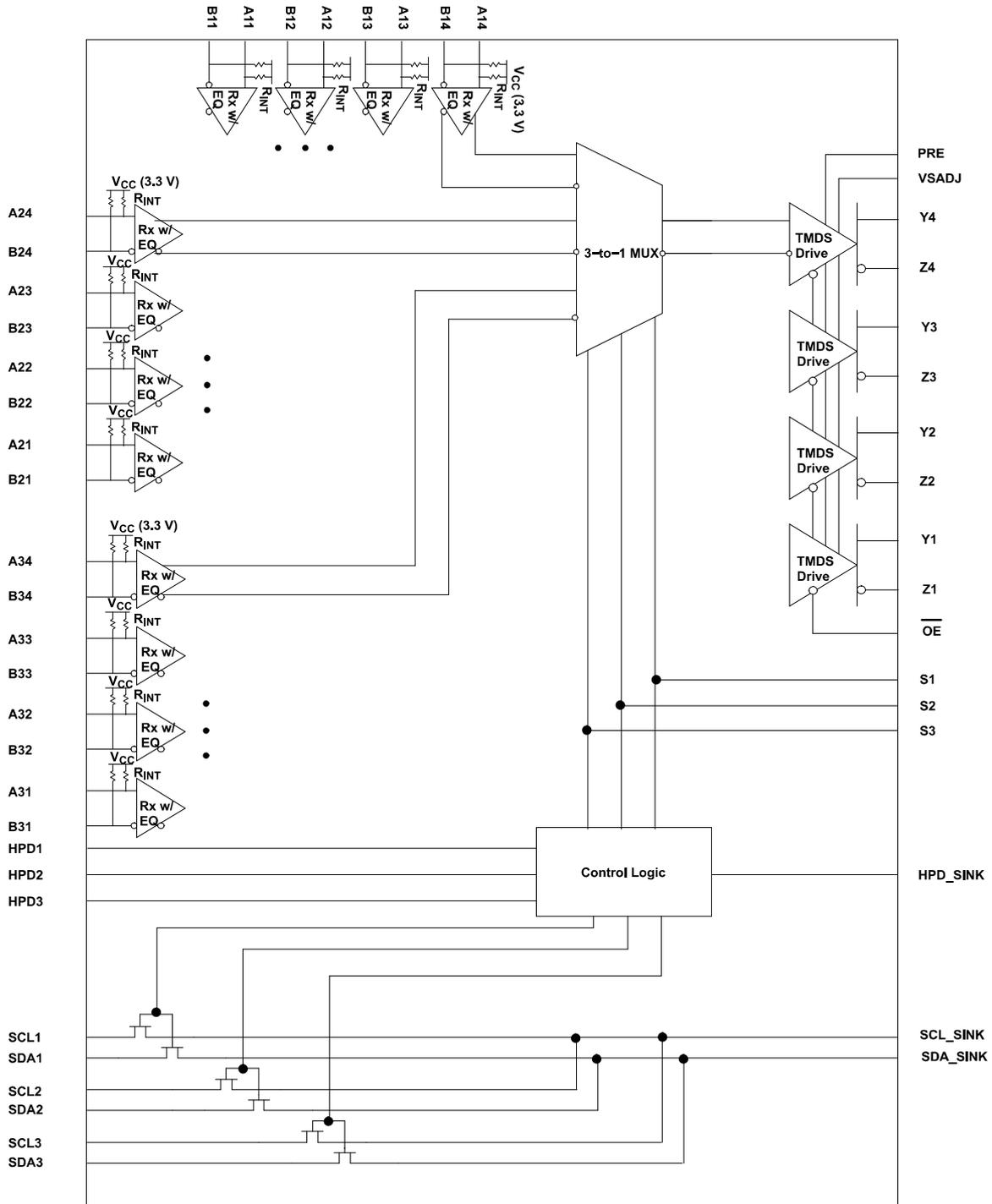


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These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

FUNCTIONAL BLOCK DIAGRAM



**PFC PACKAGE  
(TOP VIEW)**

