

Texas Instruments

JESD204B Series

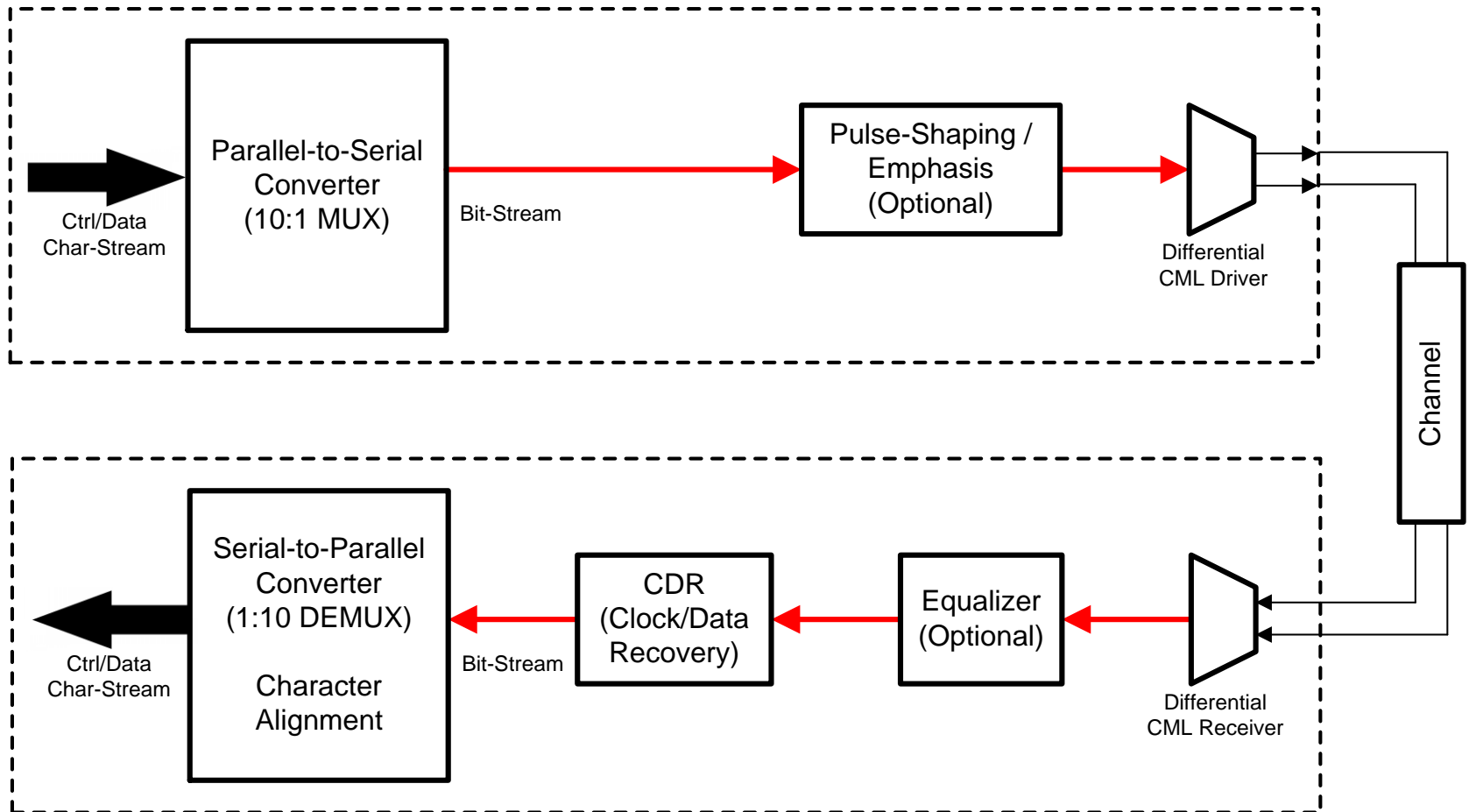
The Physical Layer (PHY)

Josh Carnes

HSDC Applications Engineer

Physical Layer (PHY)

JESD204B Tx PHY

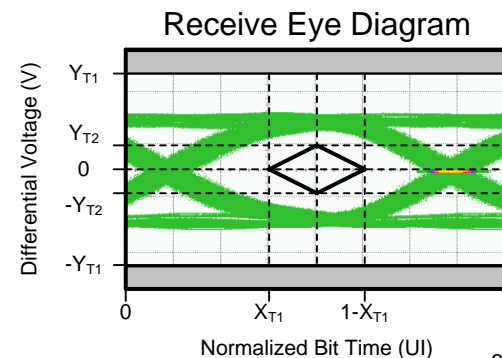
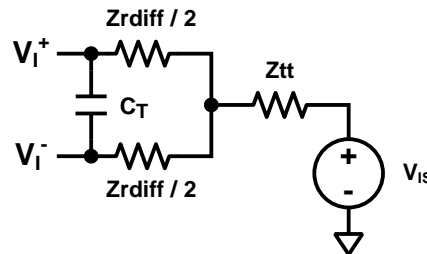
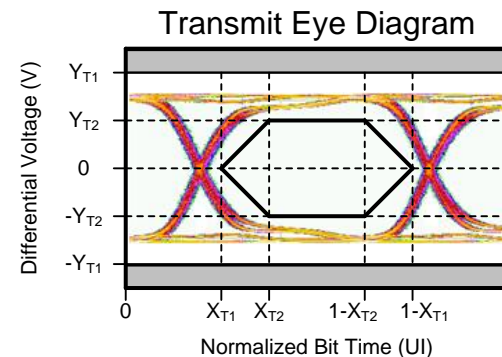
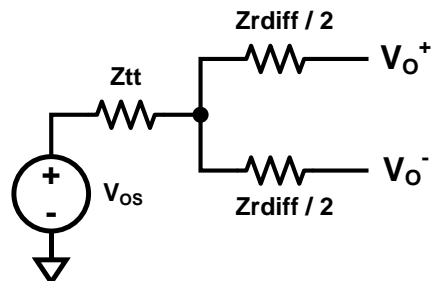


JESD204B Rx PHY

Speed Grades

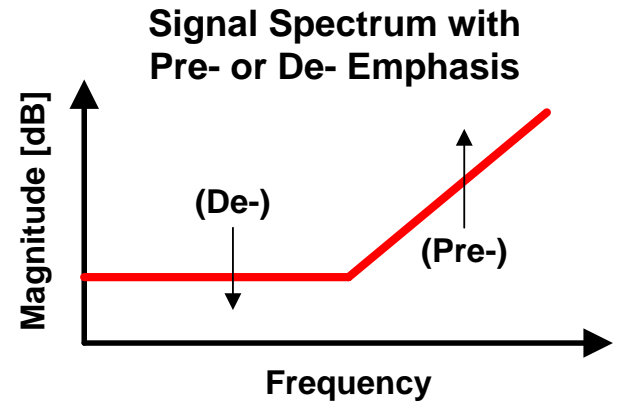
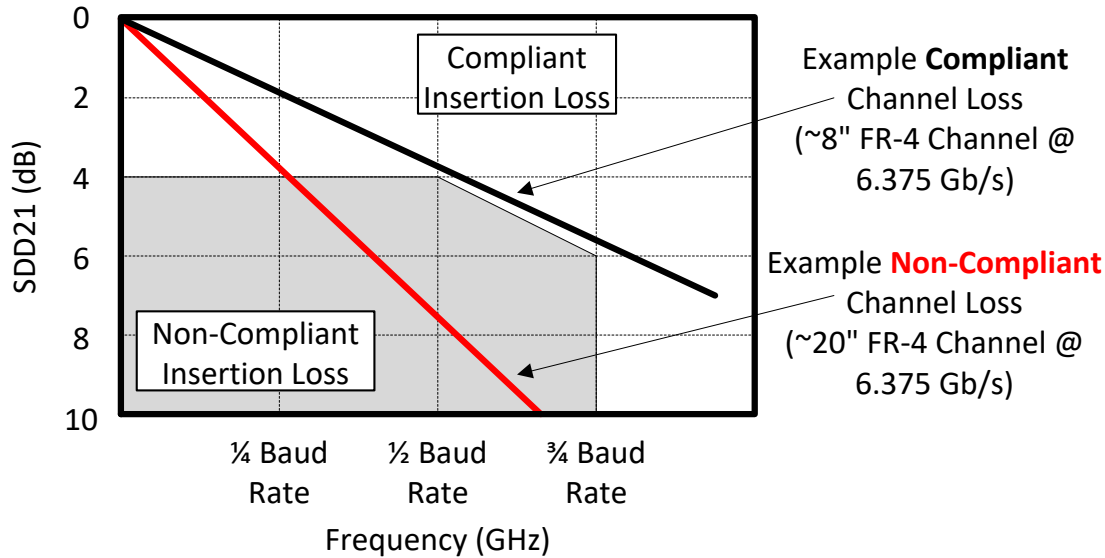
| Speed Grade | Data Rate | Rise/Fall Time | BER |
|---------------|-------------------------|----------------|---------|
| LV-OIF-Sx15 | 312.5 Mbps – 3.125 Gbps | ≥ 50 ps | ≤ 1e-12 |
| LV-OIF-6G-SR | 312.5 Mbps – 6.375 Gbps | ≥ 30 ps | ≤ 1e-15 |
| LV-OIF-11G-SR | 312.5 Mbps – 12.5 Gbps | ≥ 24 ps | ≤ 1e-15 |

| Symbol | Parameter | Conditions | Min | Max | Units |
|-------------|-----------------------------------|---|------|----------|-------|
| UI | Unit Interval | (Note 1) | 80 | 156.9 | ps |
| Trise/Tfall | Rise and Fall Times | 20% - 80% into 100 Ω load | 24 | (Note 2) | ps |
| T_Vcm | Output Common Mode Voltage | Applies only to AC coupling. Termination circuit of Figure 5 applied at the Transmitter terminals and Transmitter Ground with parameters as per (Note 3). | 0 | 1.8 | V |
| | | Required only if DC-Compliance is claimed. Termination circuit of Figure 5 applied at the Transmitter terminals and Transmitter Ground with parameters as per (Note 4). | 55 | 1135 | mV |
| | | Required only if DC-Compliance is claimed. Termination circuit of Figure 5 applied at the Transmitter terminals and Transmitter Ground with parameters as per (Note 5). | 530 | 1060 | mV |
| | | Required only if DC-Compliance is claimed. Termination circuit of Figure 5 applied at the Transmitter terminals and Transmitter Ground with parameters as per (Note 6). | 490 | 850 | mV |
| Vdiff | Differential Voltage | into floating 100 Ω load | 360 | 770 | mVppd |
| Idshort | Transmitter Short-Circuit Current | Transmitter terminal(s) shorted to each other or ground, power on. | -100 | +100 | mA |
| RLdiff | Differential Impedance | At DC | 80 | 120 | Ω |
| RLdiff | Differential Output Return Loss | From 100MHz to 0.75*Baud Rate | 8 | | dB |
| RLdcm | Common Mode | From 100MHz to 0.75*Baud Rate | 6 | | dB |

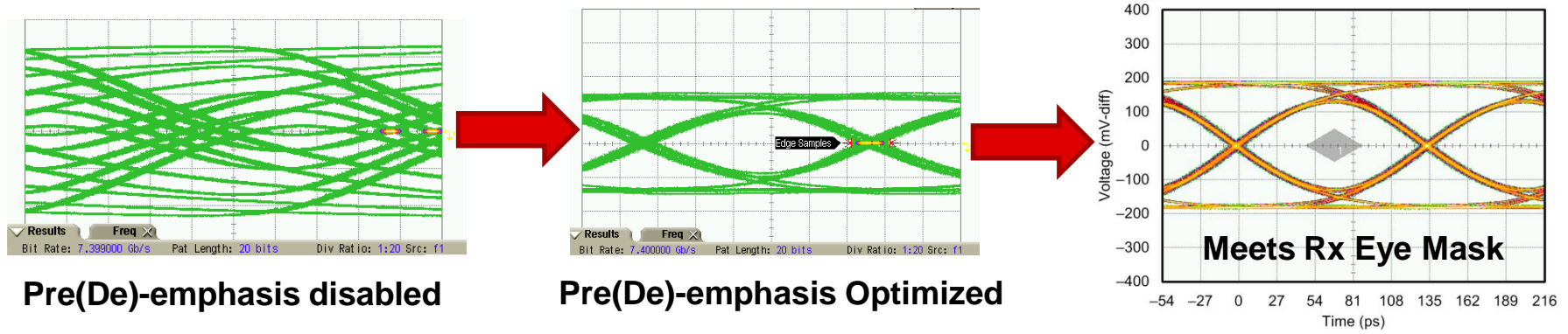


Electrical Interface Characteristics for LV-OIF-11G-SR

Solutions for Lossy Channels



7.4 Gb/s data rate at output of 20-inch FR-4 channel



Circuit Interface Coupling (Compliance)

