



1394 Beta Connector Proposal

April 28, 1999

Max Bassler

Dave Brunker

John Lopata



1394 Beta Connector Proposal

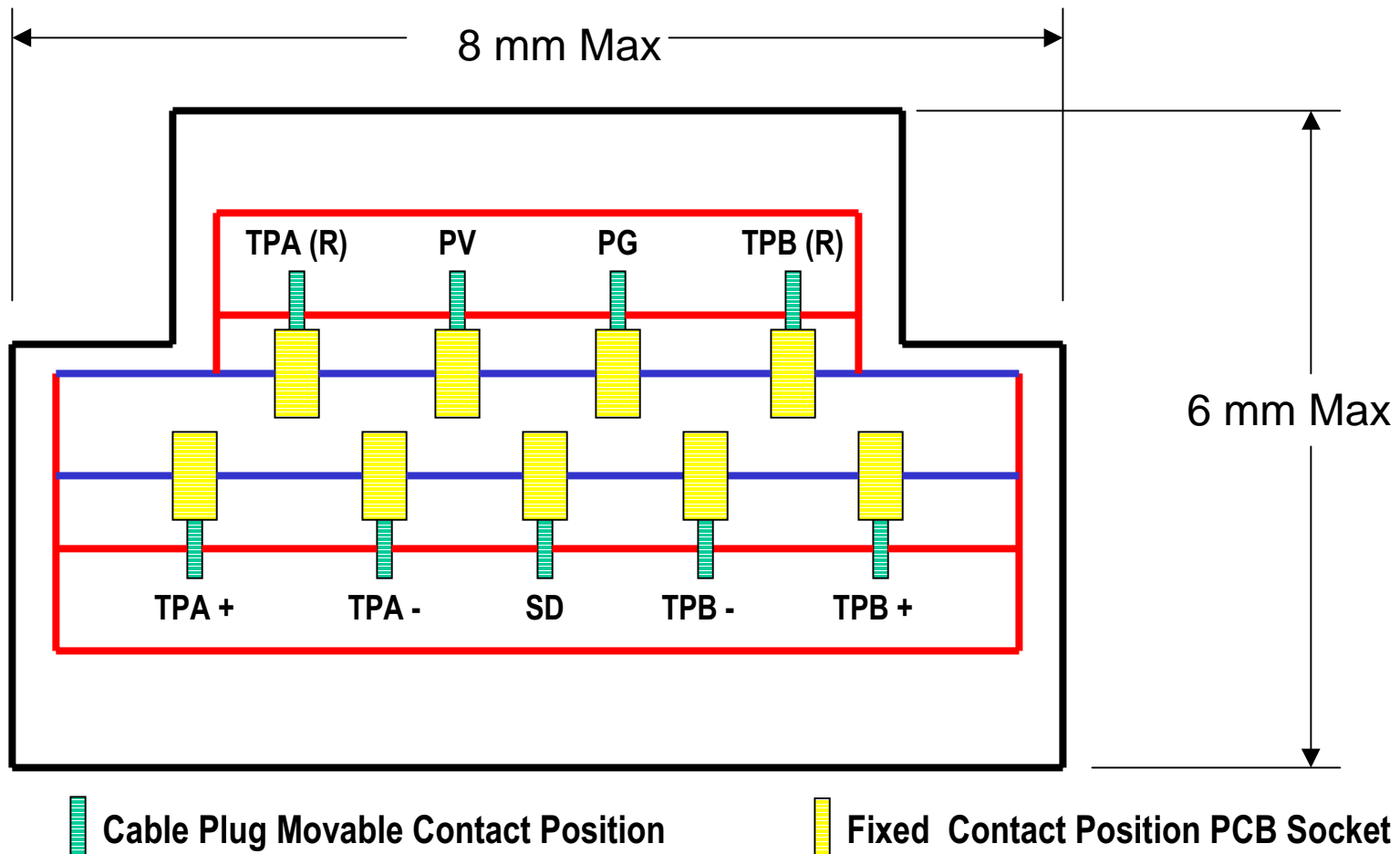
- Mechanical
 - **Maximum Interface Size: Width = 8 mm x Height = 6 mm**
 - **Reference [4 ckt: 7 mm x 5.1 mm] & [6 Ckt: 12.4 mm x 7.3 mm]**
 - **Fixed contact socket on the printed circuit board**
 - **Moveable contact on the cable plug**
 - **Backward compatible: cable or gender changer**
 - **Number of contacts: 2 Power and 4 Signal**
 - **Cycles: 1000**
 - **First mate power**
 - **Latch option needed**
 - **Panel mount option**
 - **Surface mount printed circuit board termination tails**
 - **Cable AWG: 22 AWG Power and 28 AWG Signal reference for 4.5 m length**



1394 Beta Connector Proposal

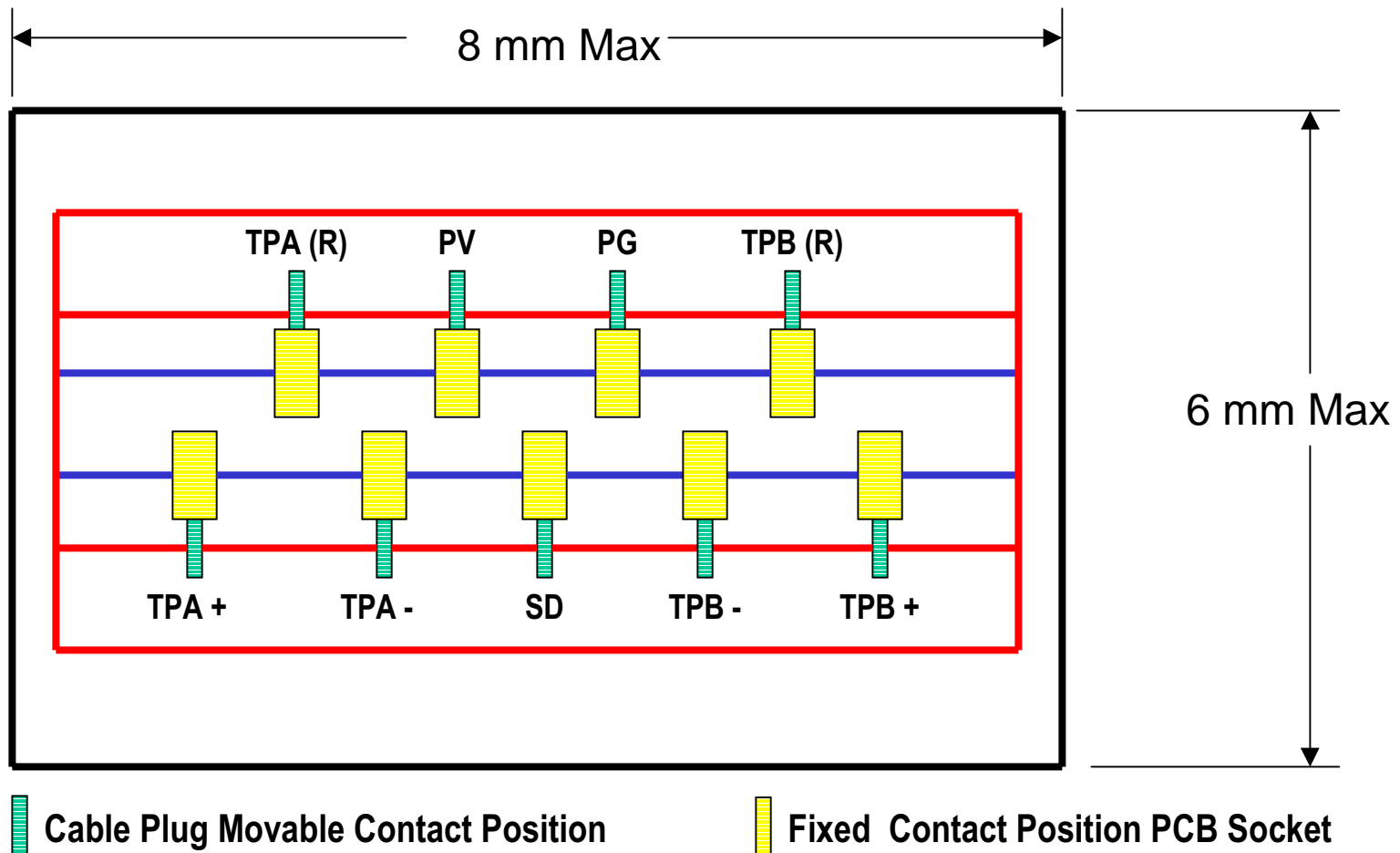
- **Electrical**
 - **Voltage: 40 VDC maximum**
 - **Current: 1.5 A per contact**
 - **Data Rate: up to S3200**
 - **Impedance: 110 +/- 25 Ohms through a 100 ps exception window**
 - **Cross Talk: less than 5%**
 - **Skew:**
 - **Intrapair < 10 ps**
 - **Interpair < 15 ps**
- **Target Cost**
 - **Connector: Equivalent to current high performance sockets**
 - **Cable Assembly: Equivalent to current high performance cable assemblies at given speeds (S800, S1600, S3200)**

1394 Beta Connector Proposal





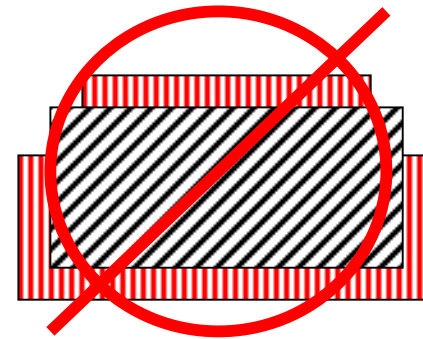
Bilingual 1394 Beta Connector Proposal



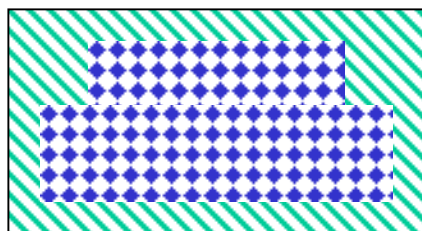
1394 Beta Connector Proposal



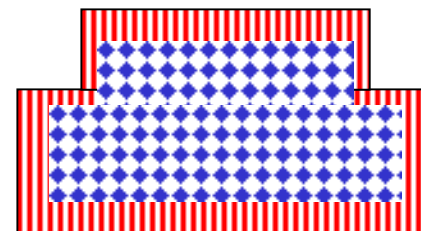
Bilingual PCB Socket mated to a Bilingual Cable Plug



Beta PCB Socket mated to a Bilingual Cable Plug



Bilingual PCB Socket mated to a Beta Cable Plug



Beta PCB Socket mated to a Beta Cable Plug



1394 Beta Connector Proposal Pin Out

Note: Final determination of TPA (+/-) and TPB (+/-) pin position will be determined by the silicon pin out and routing.

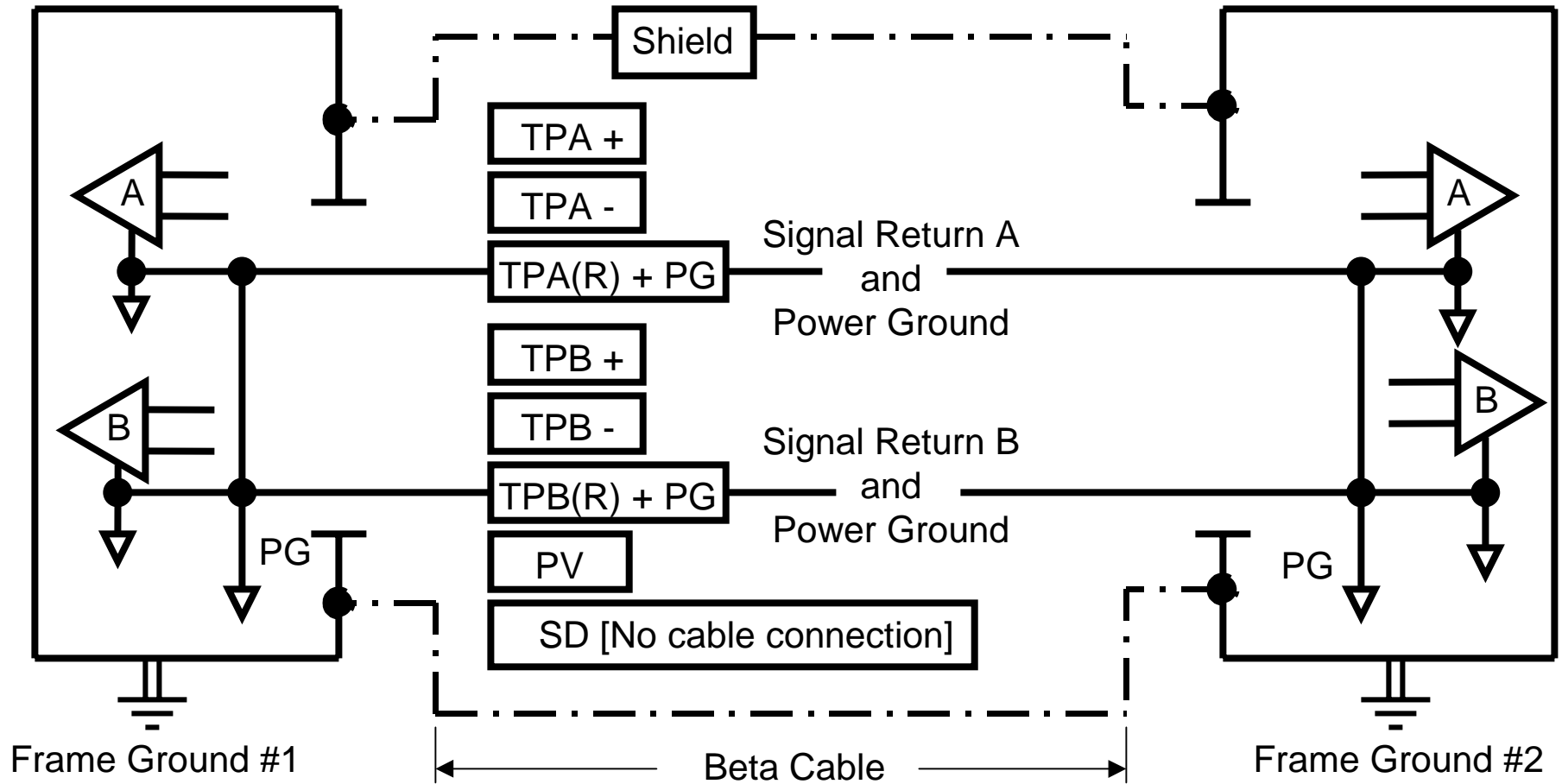
- TPA + Twisted Pair A (Plus)
- TPA - Twisted Pair A (Minus)
- TPA (R) Twisted Pair A (Return)
- TPB + Twisted Pair B (Plus)
- TPB - Twisted Pair B (Minus)
- TPB (R) Twisted Pair B (Return)
- PV Power (Voltage)
- PG Power (Ground)
- SD Speed Detect (S800, S1600, S3200)

Ground Scheme Alternative #1



Minimum Isolation System:

- Shield tied to Frame Ground
- Signal returns commoned with power ground and isolated from shield

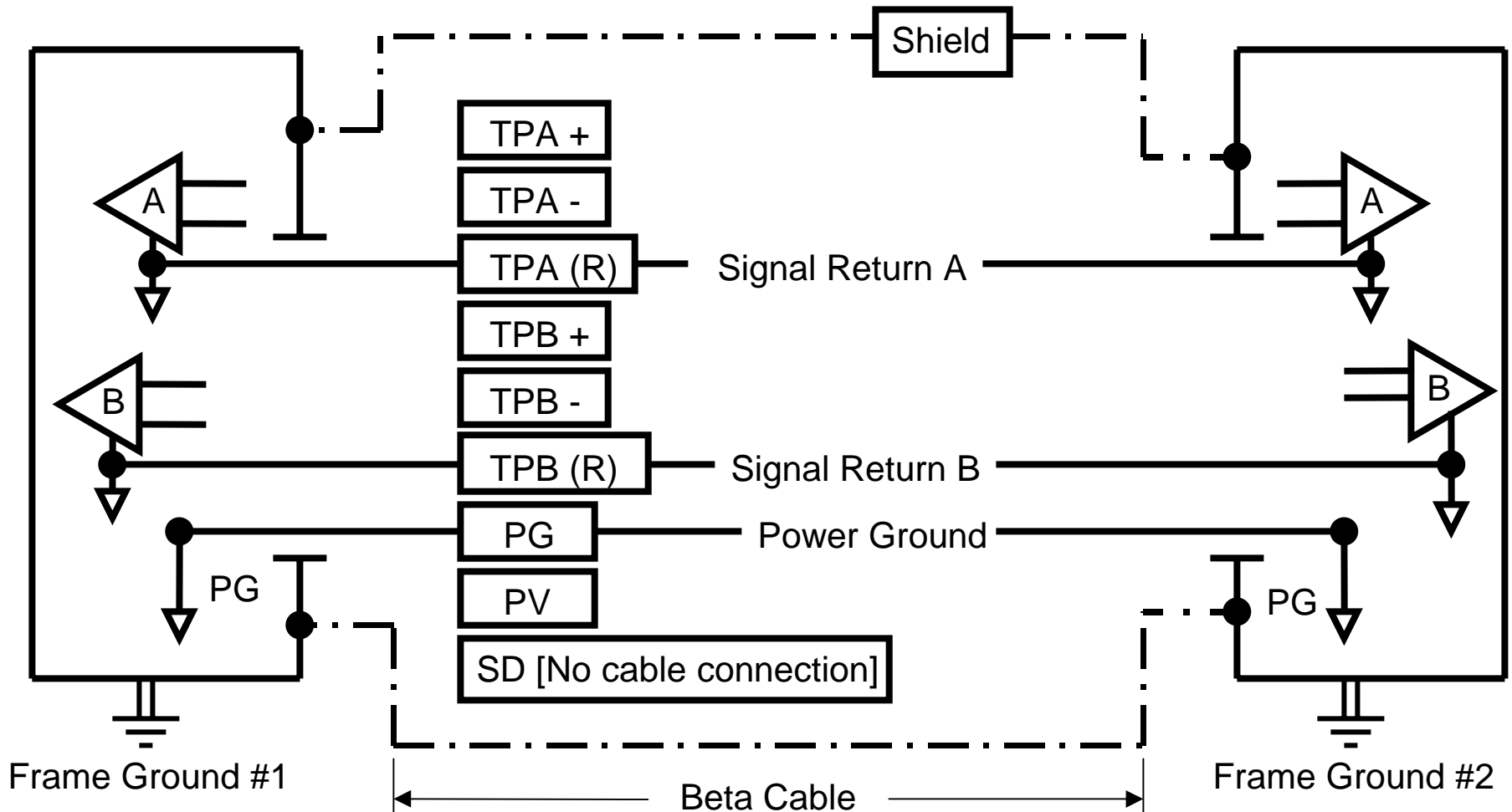


Ground Scheme Alternative #2



Frame to Frame Galvanic Contact:

- Shield tied to Frame Ground
- Signal returns isolated from power ground and fully dedicated to Rx input

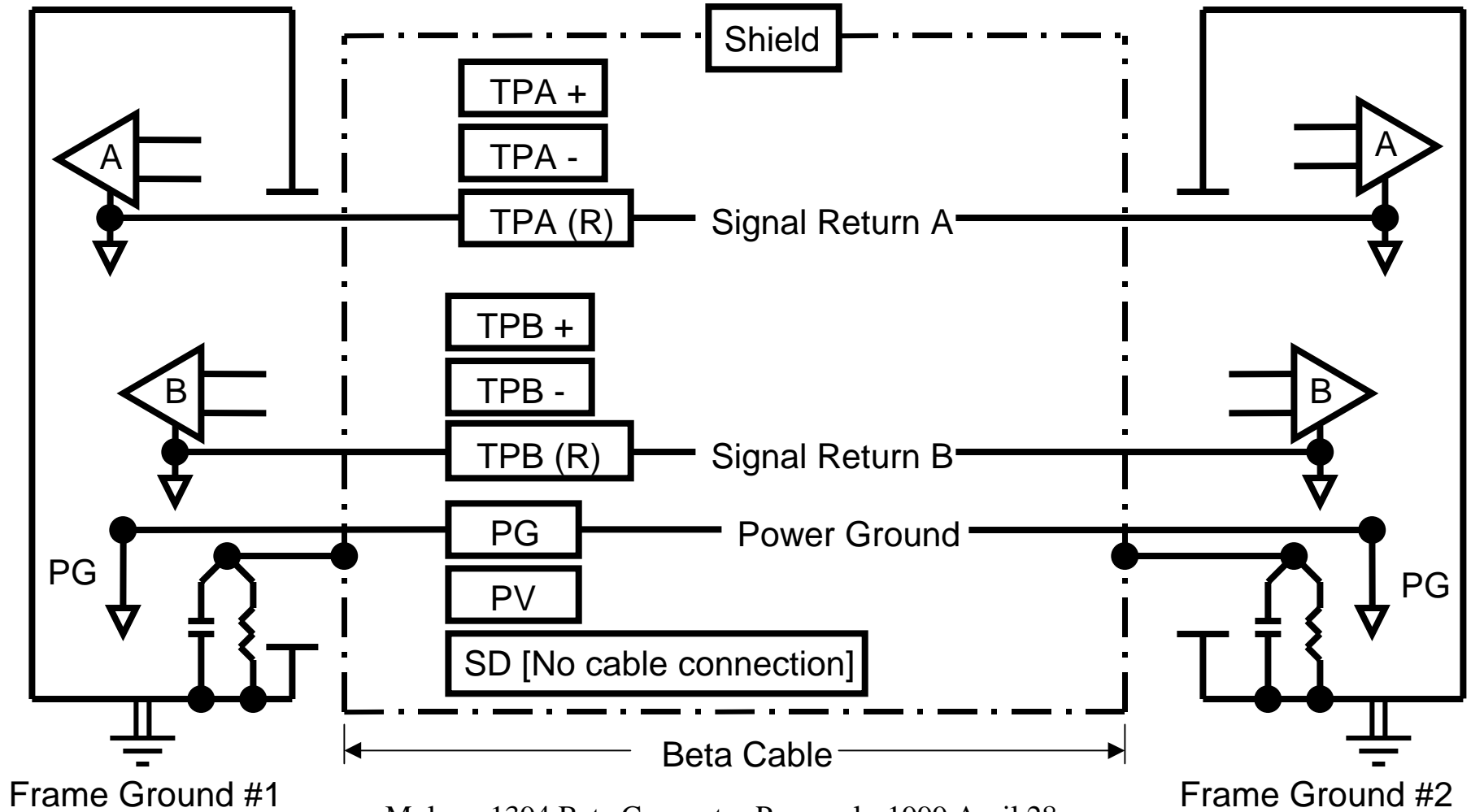


Ground Scheme Alternative #3



Full System Isolation:

- Shield isolated from Frame Ground
- Signal returns isolated from power ground and fully dedicated to Rx input





1394 Beta Connector Proposal Speed Detect Pin Application

- S800
 - Open connection to Speed Detect Pin
- S1600
 - Speed Detect Pin connected to Power Ground
- S3200
 - Speed Detect Pin connected to Power Voltage