



# Tensolite's High Density Shielded Interconnect Products

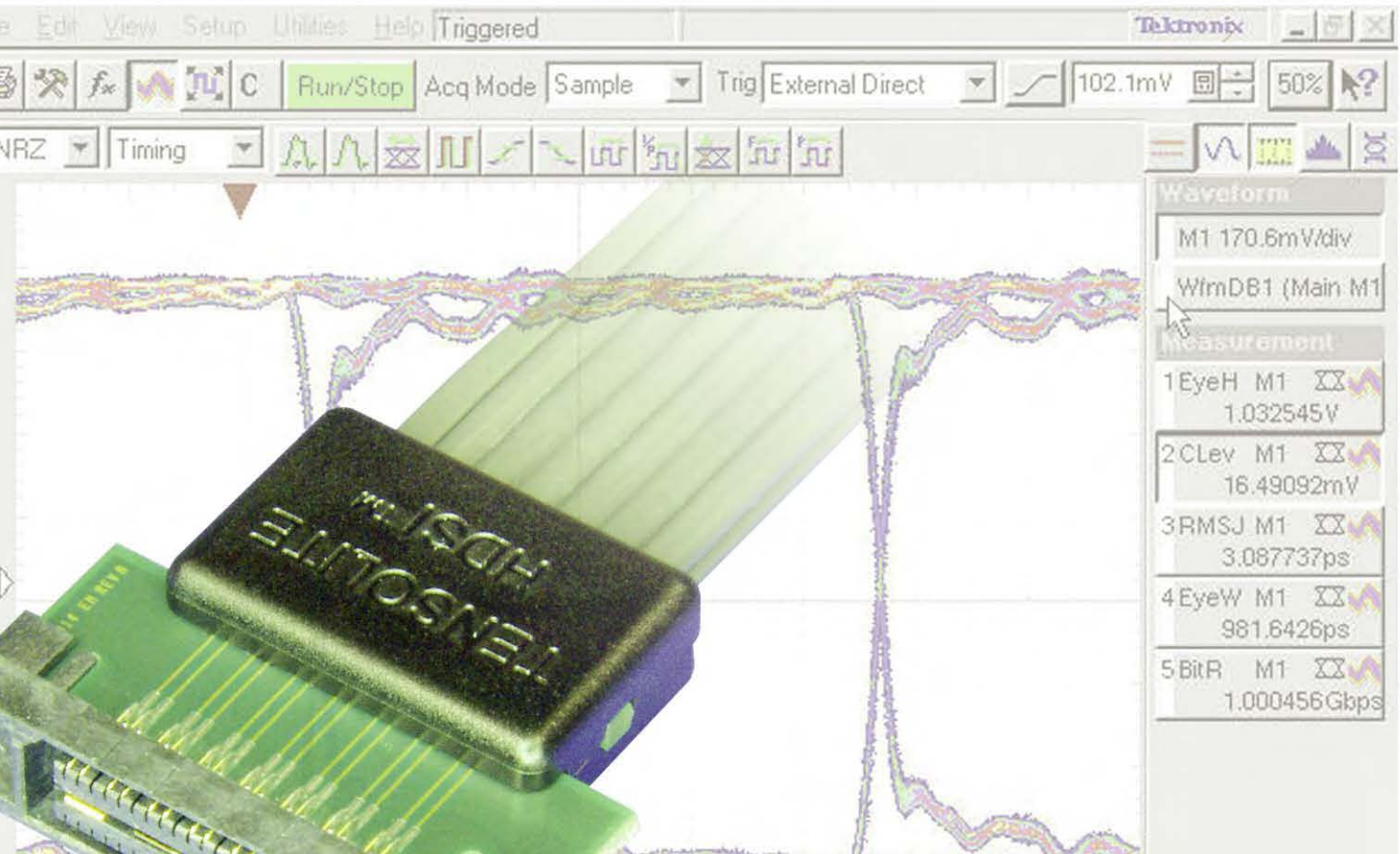
Tensolite's HDSI® and HDSI-DP™ assemblies use ribbonized coaxial cable, matched impedance PCB's and common connectors to meet today's demand for smaller, faster and lighter interconnect solutions. HDSI® is available in single-ended and differential configurations.

Tensolite's unique mass-termination processes provide our customers with superior quality at a lower cost. Whether your termination requires printed circuit boards, flex circuits or flying lead-sets our capabilities will meet your needs. Our HDSI product offering utilizes industry standard connectors as well as allowing the customer the flexibility to choose their own interconnect solution.

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HDSI-DP™ - 0.5m @ 1GB/s



## Introducing Tensolite's HDSI®, High-Density Shielded Interconnects, perfect for a wide variety of demanding, high-speed applications:

HDSI® assemblies are ideal for high-speed digital or analog signal transmission in high-end servers, telecommunication switches/routers, and Automated Test Equipment.

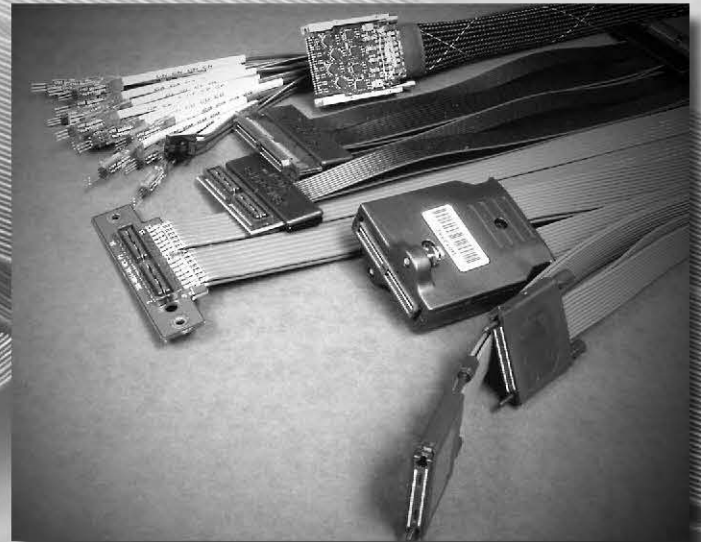
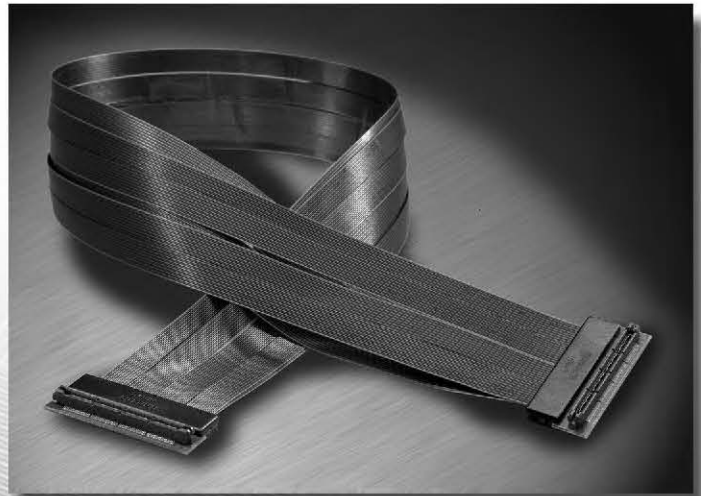
Tensolite High-Density Shielded Interconnects are low profile, micro-miniature, ribbonized coax cable assemblies featuring Samtec's Q-Strip™ and Tyco MICTOR connectors. HDSI assemblies are extremely flexible, allow tight bend radii, and are easy to route in tight spaces. These low profile, high-density interconnects offer optimal signal integrity achieved through matched impedance cable assemblies. Tensolite assemblies are built to order to meet your bulkhead or board interconnect requirement. Specify number of signal lines, edge-mount or surface-mount connector style, plug or receptacle, and overall length.

Q-Strip™ is a trademark of Samtec, Inc

*See our web site for Technical Data Sheets [www.tensolite.com](http://www.tensolite.com)*

### **Ideal for a wide variety of demanding, high-speed applications:**

- ATE
- High-End Servers
- Backplane to Backplane
- Production or Benchtop Testing
- Data Telecom Switches
- Extender Cables
- I/O Assemblies



# HDSI® Edge Mount to Edge Mount

## Technical Data Sheet: Test Results

### Ribbonized Coax– Electrical Specifications

|                                   |      |           |
|-----------------------------------|------|-----------|
| Impedance, Nominal:               | 50   | Ohms      |
| Center Conductor DCR (MAX):       | 0.92 | Ohms/Foot |
| Ribbonized Conductor Ampacity:    | 0.2  | AMPS      |
| Coax Shield DCR (MAX):            | 0.22 | Ohms/Foot |
| Capacitance Nominal:              | 29.0 | pF/Foot   |
| Velocity of Propagation, Nominal: | 70   | %         |
| Electrical Delay:                 | 1.45 | nS/Foot   |
| Electrical Delay:                 | 121  | pS/Inch   |
| UL Style:                         | 1354 |           |
| UL Voltage:                       | 30   | VOLTS     |
| UL Temperature:                   | 80   | Degrees C |

### Ribbonized Coax– Mechanical Specifications

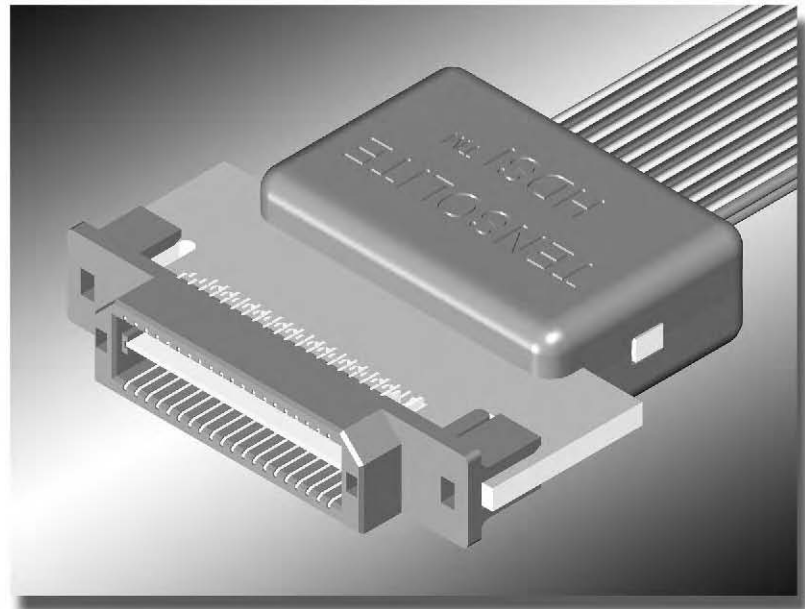
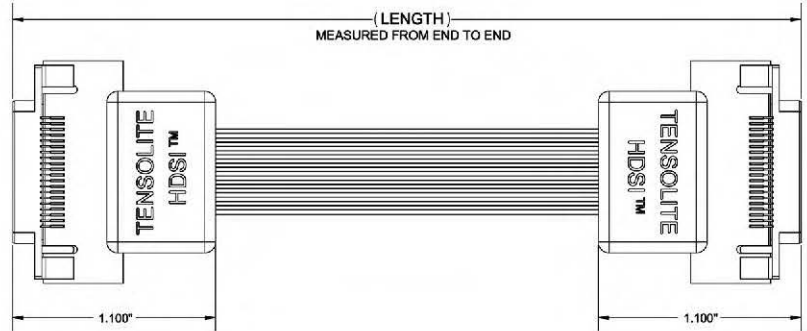
|                        |       |                 |
|------------------------|-------|-----------------|
| Configuration:         | 20    | Coaxes          |
| Center Conductor:      | 38    | AWG             |
| Height:                | 0.031 | +/- .002 Inches |
| Pitch:                 | 0.025 | +/- .002 Inches |
| Width (20 Conductors): | 0.500 | +/- .008 Inches |
| Span (20 Conductors):  | 0.450 | +/- .008 Inches |

### Connector– Mechanical Specifications

QSE-040-01-F-D-EM2 Samtec 0.80mm Edge Mount Socket  
 QTE-040-01-F-D-EM2 Samtec 0.80mm Edge Mount Plug

### HDSI Assembly - Electrical Specifications: (Summary)

|                     |                    |
|---------------------|--------------------|
| Insertion Loss:     | See Table Below    |
| Risetime:           | See Table Below    |
| Bandwidth:          | See Table Below    |
| Group Skew:         | See Table Below    |
| Adjacent Pair Skew: | See Table Below    |
| VSWR:               | 1.5:1 <1 Ghz       |
| Crosstalk (NEXT):   | <10% Up to 250 MHz |
| Crosstalk (FEXT):   | <10% Up to 500 MHz |



| Length<br>Inches | Length<br>Feet | Length<br>Meters | Typical Insertion Loss In dB At Freq. (In MHz.) |               |               |               |                | Max. Group<br>Skew<br>psec | Max. Adj.<br>Pair Skew<br>psec | BW<br>-3 dB<br>MHZ | Risetime<br>-3 dB BW<br>psec |
|------------------|----------------|------------------|-------------------------------------------------|---------------|---------------|---------------|----------------|----------------------------|--------------------------------|--------------------|------------------------------|
|                  |                |                  | Up To<br>100                                    | 100 To<br>250 | 250 To<br>500 | 500 To<br>750 | 750 To<br>1000 |                            |                                |                    |                              |
| 3.94             | 0.328          | 0.10             | 0.27                                            | 0.43          | 0.60          | 0.73          | 0.85           | 36                         | 22                             | 1421               | 246                          |
| 9.84             | 0.820          | 0.25             | 0.45                                            | 0.72          | 1.04          | 1.28          | 1.49           | 44                         | 26                             | 985                | 355                          |
| 12.00            | 1.000          | 0.305            | 0.52                                            | 0.83          | 1.20          | 1.48          | 1.72           | 47                         | 28                             | 900                | 389                          |
| 19.69            | 1.641          | 0.50             | 0.75                                            | 1.22          | 1.77          | 2.19          | 2.56           | 57                         | 34                             | 719                | 487                          |
| 29.53            | 2.461          | 0.75             | 1.05                                            | 1.72          | 2.50          | 3.11          | 3.63           | 70                         | 42                             | 608                | 575                          |
| 39.37            | 3.281          | 1.00             | 1.35                                            | 2.22          | 3.23          | 4.02          | 4.70           | 83                         | 50                             | 542                | 646                          |
| 49.21            | 4.101          | 1.25             | 1.65                                            | 2.72          | 3.96          | 4.93          | 5.77           | 97                         | 58                             | 484                | 723                          |
| 59.05            | 4.921          | 1.50             | 1.95                                            | 3.21          | 4.69          | 5.84          | 6.84           | 110                        | 66                             | 421                | 830                          |

| Length<br>Inches | Length<br>Feet | Length<br>Meters | Typical Crosstalk (Next) Freq. (In MHz.) |               |               |                | Typical Crosstalk (Fext) Freq. (In MHz.) |               |               |                |
|------------------|----------------|------------------|------------------------------------------|---------------|---------------|----------------|------------------------------------------|---------------|---------------|----------------|
|                  |                |                  | Up To<br>250                             | 250 To<br>500 | 500 To<br>750 | 750 To<br>1000 | Up To<br>250                             | 250 To<br>500 | 500 To<br>750 | 750 To<br>1000 |
| 3.94             | 0.328          | 0.10             | 8.5%                                     | 16.5%         | 23.0%         | 27.0%          | 5.8%                                     | 8.5%          | 10.0%         | 12.0%          |
| 9.84             | 0.820          | 0.25             | 8.5%                                     | 16.5%         | 22.0%         | 26.0%          | 5.3%                                     | 7.8%          | 9.2%          | 10.9%          |
| 12.00            | 1.000          | 0.305            | 8.5%                                     | 16.0%         | 21.5%         | 25.5%          | 5.3%                                     | 7.4%          | 8.9%          | 10.7%          |
| 19.69            | 1.641          | 0.50             | 8.5%                                     | 15.5%         | 20.0%         | 25.0%          | 4.9%                                     | 7.2%          | 8.3%          | 9.8%           |
| 29.53            | 2.461          | 0.75             | 8.0%                                     | 14.5%         | 19.5%         | 23.5%          | 4.4%                                     | 6.5%          | 7.5%          | 8.7%           |
| 39.37            | 3.281          | 1.00             | 7.5%                                     | 13.5%         | 18.0%         | 21.0%          | 3.9%                                     | 5.8%          | 6.6%          | 7.6%           |
| 49.21            | 4.101          | 1.25             | 7.5%                                     | 13.5%         | 17.5%         | 21.0%          | 3.5%                                     | 5.1%          | 5.7%          | 6.5%           |
| 59.05            | 4.921          | 1.50             | 7.5%                                     | 13.0%         | 17.5%         | 20.5%          | 3.0%                                     | 4.4%          | 4.9%          | 5.4%           |

# HDSI® Edge Mount to Surface Mount

## Technical Data Sheet: Test Results

### Ribbonized Coax– Electrical Specifications

|                                   |      |           |
|-----------------------------------|------|-----------|
| Impedance, Nominal:               | 50   | Ohms      |
| Center Conductor DCR (MAX):       | 0.92 | Ohms/Foot |
| Ribbonized Conductor Ampacity:    | 0.2  | AMPS      |
| Coax Shield DCR (MAX):            | 0.22 | Ohms/Foot |
| Capacitance Nominal:              | 29.0 | pF/Foot   |
| Velocity of Propagation, Nominal: | 70   | %         |
| Electrical Delay:                 | 1.45 | nS/Foot   |
| Electrical Delay:                 | 121  | pS/Inch   |
| UL Style:                         | 1354 |           |
| UL Voltage:                       | 30   | VOLTS     |
| UL Temperature:                   | 80   | Degrees C |

### Ribbonized Coax– Mechanical Specifications

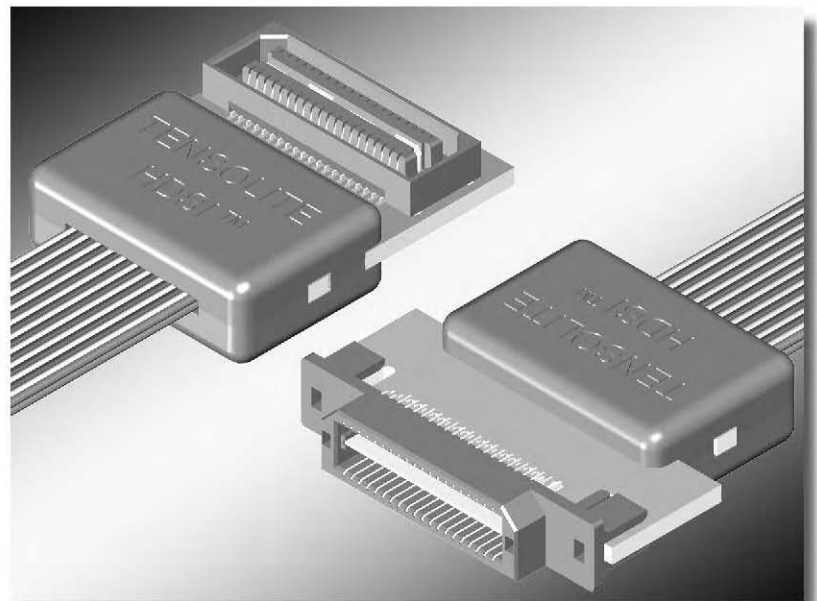
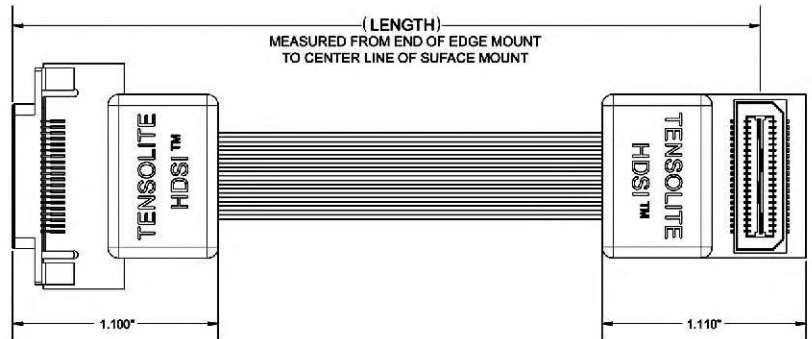
|                        |       |                 |
|------------------------|-------|-----------------|
| Configuration:         | 20    | Coaxes          |
| Center Conductor:      | 38    | AWG             |
| Height:                | 0.031 | +/- .002 Inches |
| Pitch:                 | 0.025 | +/- .002 Inches |
| Width (20 Conductors): | 0.500 | +/- .008 Inches |
| Span (20 Conductors):  | 0.450 | +/- .008 Inches |

### Connector– Mechanical Specifications

QSE-040-01-F-D Samtec 0.80mm Surface Mount Socket  
 QTE-040-01-F-D-EM2 Samtec 0.80mm Edge Mount Plug

### HDSI Assembly - Electrical Specifications: (Summary)

|                     |                    |
|---------------------|--------------------|
| Insertion Loss:     | See Table Below    |
| Risetime:           | See Table Below    |
| Bandwidth:          | See Table Below    |
| Group Skew:         | See Table Below    |
| Adjacent Pair Skew: | See Table Below    |
| VSWR:               | 1.5:1 <1 Ghz       |
| Crosstalk (NEXT):   | <10% Up to 250 MHz |
| Crosstalk (FEXT):   | <10% Up to 500 MHz |



| Length<br>Inches | Length<br>Feet | Length<br>Meters | Typical Insertion Loss In dB At Freq. (In MHz.) |               |               |               |                | Max. Group<br>Skew<br>psec | Max. Adj.<br>Pair Skew<br>psec | BW<br>-3 dB<br>MHZ | Risetime<br>-3 dB BW<br>psec |
|------------------|----------------|------------------|-------------------------------------------------|---------------|---------------|---------------|----------------|----------------------------|--------------------------------|--------------------|------------------------------|
|                  |                |                  | Up To<br>100                                    | 100 To<br>250 | 250 To<br>500 | 500 To<br>750 | 750 To<br>1000 |                            |                                |                    |                              |
| 3.94             | 0.328          | 0.10             | 0.40                                            | 0.66          | 0.98          | 1.24          | 1.45           | 36                         | 22                             | 1207               | 290                          |
| 9.84             | 0.820          | 0.25             | 0.58                                            | 0.96          | 1.42          | 1.78          | 2.10           | 47                         | 28                             | 908                | 385                          |
| 12.00            | 1.000          | 0.305            | 0.64                                            | 1.07          | 1.58          | 1.98          | 2.33           | 51                         | 31                             | 841                | 416                          |
| 19.69            | 1.641          | 0.50             | 0.88                                            | 1.46          | 2.15          | 2.70          | 3.17           | 65                         | 39                             | 682                | 513                          |
| 29.53            | 2.461          | 0.75             | 1.18                                            | 1.96          | 2.88          | 3.61          | 4.24           | 83                         | 50                             | 572                | 612                          |
| 39.37            | 3.281          | 1.00             | 1.48                                            | 2.46          | 3.61          | 4.52          | 5.31           | 101                        | 61                             | 504                | 694                          |
| 49.21            | 4.101          | 1.25             | 1.78                                            | 2.95          | 4.34          | 5.43          | 6.37           | 119                        | 72                             | 453                | 773                          |
| 59.05            | 4.921          | 1.50             | 2.08                                            | 3.45          | 5.07          | 6.35          | 7.44           | 137                        | 82                             | 407                | 860                          |

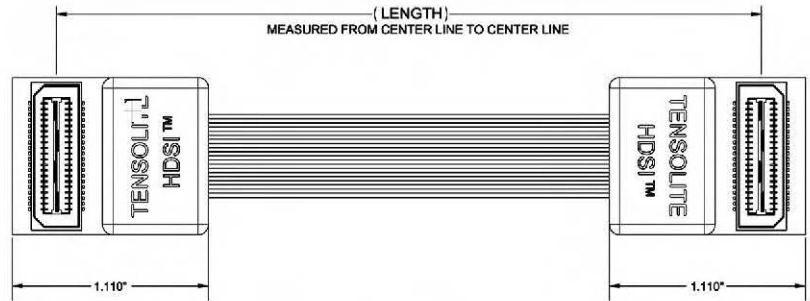
| Length<br>Inches | Length<br>Feet | Length<br>Meters | Typical Crosstalk (Next) Freq. (In MHz.) |               |               |                | Typical Crosstalk (Fext) Freq. (In MHz.) |               |               |                |
|------------------|----------------|------------------|------------------------------------------|---------------|---------------|----------------|------------------------------------------|---------------|---------------|----------------|
|                  |                |                  | Up To<br>250                             | 250 To<br>500 | 500 To<br>750 | 750 To<br>1000 | Up To<br>250                             | 250 To<br>500 | 500 To<br>750 | 750 To<br>1000 |
| 3.94             | 0.328          | 0.10             | 8.5%                                     | 16.5%         | 23.0%         | 27.0%          | 6.2%                                     | 8.7%          | 11.0%         | 12.8%          |
| 9.84             | 0.820          | 0.25             | 8.5%                                     | 16.5%         | 22.0%         | 26.0%          | 5.1%                                     | 7.8%          | 10.3%         | 11.8%          |
| 12.00            | 1.000          | 0.305            | 8.5%                                     | 16.0%         | 21.5%         | 25.5%          | 5.1%                                     | 7.5%          | 9.9%          | 11.8%          |
| 19.69            | 1.641          | 0.50             | 8.5%                                     | 15.5%         | 20.0%         | 25.0%          | 4.9%                                     | 7.3%          | 9.4%          | 10.8%          |
| 29.53            | 2.461          | 0.75             | 8.0%                                     | 14.5%         | 19.5%         | 23.5%          | 4.4%                                     | 7.0%          | 8.6%          | 9.8%           |
| 39.37            | 3.281          | 1.00             | 7.5%                                     | 13.5%         | 18.0%         | 21.0%          | 4.4%                                     | 6.3%          | 7.8%          | 8.7%           |
| 49.21            | 4.101          | 1.25             | 7.5%                                     | 13.5%         | 17.5%         | 21.0%          | 4.1%                                     | 5.7%          | 7.0%          | 7.7%           |
| 59.05            | 4.921          | 1.50             | 7.5%                                     | 13.0%         | 17.5%         | 20.5%          | 3.7%                                     | 5.2%          | 6.4%          | 6.7%           |

# HDSI® Surface Mount to Surface Mount

## Technical Data Sheet: Test Results

### Ribbonized Coax– Electrical Specifications

|                                   |      |           |
|-----------------------------------|------|-----------|
| Impedance, Nominal:               | 50   | Ohms      |
| Center Conductor DCR (MAX):       | 0.92 | Ohms/Foot |
| Ribbonized Conductor Ampacity:    | 0.2  | AMPS      |
| Coax Shield DCR (MAX):            | 0.22 | Ohms/Foot |
| Capacitance Nominal:              | 29.0 | pF/Foot   |
| Velocity of Propagation, Nominal: | 70   | %         |
| Electrical Delay:                 | 1.45 | nS/Foot   |
| Electrical Delay:                 | 121  | pS/Inch   |
| UL Style:                         | 1354 |           |
| UL Voltage:                       | 30   | VOLTS     |
| UL Temperature:                   | 80   | Degrees C |

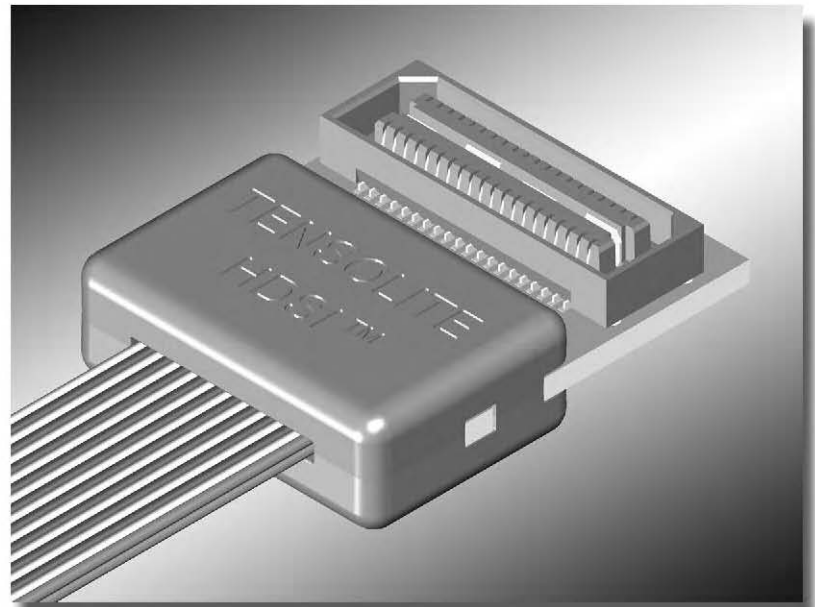


### Ribbonized Coax– Mechanical Specifications

|                        |           |             |
|------------------------|-----------|-------------|
| Configuration:         | 20        | Coaxes      |
| Center Conductor:      | 38        | AWG         |
| Height:                | 0.031 +/- | .002 Inches |
| Pitch:                 | 0.025 +/- | .002 Inches |
| Width (20 Conductors): | 0.500 +/- | .008 Inches |
| Span (20 Conductors):  | 0.450 +/- | .008 Inches |

### Connector– Mechanical Specifications

|                       |                             |
|-----------------------|-----------------------------|
| QSE-020-01-F-D Samtec | 0.80mm Surface Mount Socket |
| QTE-020-01-F-D Samtec | 0.80mm Surface Mount Plug   |



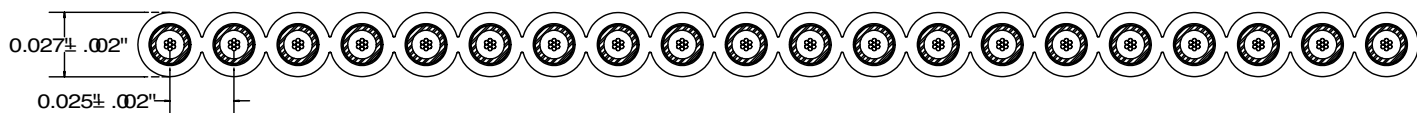
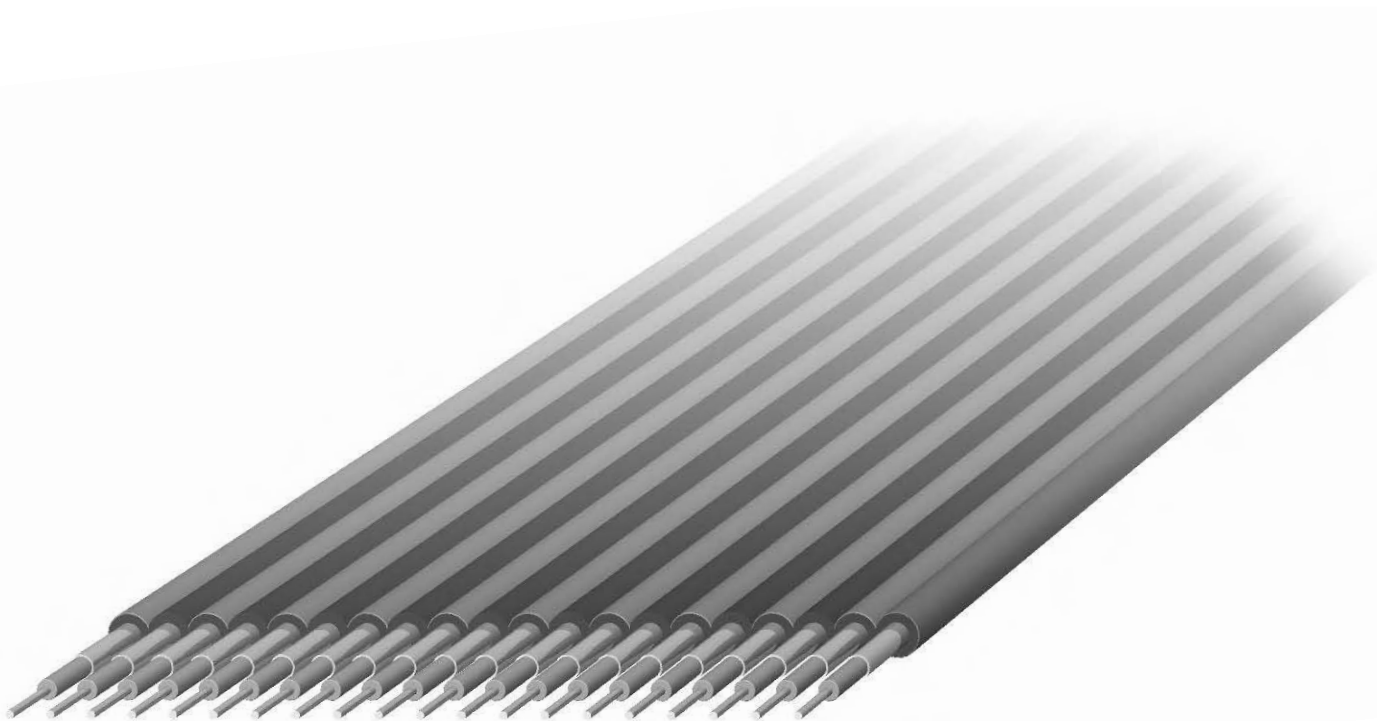
### HDSI Assembly - Electrical Specifications: (Summary)

|                     |                    |
|---------------------|--------------------|
| Insertion Loss:     | See Table Below    |
| Risetime:           | See Table Below    |
| Bandwidth:          | See Table Below    |
| Group Skew:         | See Table Below    |
| Adjacent Pair Skew: | See Table Below    |
| VSWR:               | 1.5:1 <1 Ghz       |
| Crosstalk (NEXT):   | <10% Up to 250 MHz |
| Crosstalk (FEXT):   | <10% Up to 500 MHz |

| Length Inches | Length Feet | Length Meters | Typical Insertion Loss In dB At Freq. (In MHz.) |            |            |            |             | Max. Group Skew psec | Max. Adj. Pair Skew psec | BW -3 dB MHz | Risetime -3 dB BW psec |
|---------------|-------------|---------------|-------------------------------------------------|------------|------------|------------|-------------|----------------------|--------------------------|--------------|------------------------|
|               |             |               | Up To 100                                       | 100 To 250 | 250 To 500 | 500 To 750 | 750 To 1000 |                      |                          |              |                        |
| 3.94          | 0.328       | 0.10          | 0.65                                            | 1.21       | 1.94       | 2.56       | 3.13        | 36                   | 22                       | 1087         | 322                    |
| 9.84          | 0.820       | 0.25          | 0.83                                            | 1.51       | 2.38       | 3.11       | 3.77        | 47                   | 28                       | 867          | 404                    |
| 12.00         | 1.000       | 0.305         | 0.89                                            | 1.62       | 2.54       | 3.31       | 4.00        | 51                   | 31                       | 810          | 432                    |
| 19.69         | 1.641       | 0.50          | 1.13                                            | 2.00       | 3.11       | 4.03       | 4.84        | 65                   | 39                       | 662          | 529                    |
| 29.53         | 2.461       | 0.75          | 1.43                                            | 2.50       | 3.84       | 4.94       | 5.91        | 83                   | 50                       | 546          | 641                    |
| 39.37         | 3.281       | 1.00          | 1.73                                            | 3.00       | 4.57       | 5.85       | 6.98        | 101                  | 61                       | 474          | 739                    |
| 49.21         | 4.101       | 1.25          | 2.03                                            | 3.50       | 5.30       | 6.76       | 8.05        | 119                  | 72                       | 425          | 824                    |
| 59.05         | 4.921       | 1.50          | 2.33                                            | 3.99       | 6.03       | 7.68       | 9.12        | 137                  | 82                       | 391          | 895                    |

| Length Inches | Length Feet | Length Meters | Typical Crosstalk (Next) Freq. (In MHz.) |            |            |             | Typical Crosstalk (Fext) Freq. (In MHz.) |            |            |             |
|---------------|-------------|---------------|------------------------------------------|------------|------------|-------------|------------------------------------------|------------|------------|-------------|
|               |             |               | Up To 250                                | 250 To 500 | 500 To 750 | 750 To 1000 | Up To 250                                | 250 To 500 | 500 To 750 | 750 To 1000 |
| 3.94          | 0.328       | 0.10          | 8.5%                                     | 16.5%      | 23.0%      | 27.0%       | 7.5%                                     | 10.0%      | 12.0%      | 14.0%       |
| 9.84          | 0.820       | 0.25          | 8.5%                                     | 16.5%      | 22.0%      | 26.0%       | 4.5%                                     | 8.5%       | 11.5%      | 13.5%       |
| 12.00         | 1.000       | 0.305         | 8.5%                                     | 16.0%      | 21.5%      | 25.5%       | 4.5%                                     | 8.0%       | 11.0%      | 13.5%       |
| 19.69         | 1.641       | 0.50          | 8.5%                                     | 15.5%      | 20.0%      | 25.0%       | 4.5%                                     | 7.5%       | 10.5%      | 12.0%       |
| 29.53         | 2.461       | 0.75          | 8.0%                                     | 14.5%      | 19.5%      | 23.5%       | 4.0%                                     | 7.0%       | 9.0%       | 10.0%       |
| 39.37         | 3.281       | 1.00          | 7.5%                                     | 13.5%      | 18.0%      | 21.0%       | 4.0%                                     | 6.0%       | 8.0%       | 9.0%        |
| 49.21         | 4.101       | 1.25          | 7.5%                                     | 13.5%      | 17.5%      | 21.0%       | 3.5%                                     | 5.0%       | 7.0%       | 8.0%        |
| 59.05         | 4.921       | 1.50          | 7.5%                                     | 13.0%      | 17.5%      | 20.5%       | 3.0%                                     | 5.0%       | 7.0%       | 8.0%        |

# HDSI® 38 AWG, 50 Ohm, Ribbonized Coax



178-2105-66 | 50 Ohm RIBBON COAX, 38 AWG

Conductor: 38 AWG, 7X46 Silver Plated Copper.  
Core Tube: Extruded FEP.  
Shield: 48 AWG Spiral Shield, Metalized Tape Under Colored Tape.  
Coverage: >95%.  
Outer Jacket: PVC, Clear.  
Characteristic Impedance: 75+/-3 Ohms.  
Center Conductor DCR (MAX): 0.92 Ohms/Foot.  
Ribbonized Conductor Ampacity: 0.2 AMPS.  
Coax Shield DCR (MAX): 0.22 Ohms/Foot.  
Capacitance: 29.0 pF/ft Nom.  
Velocity Of Propagation, Nominal: 70%.  
Electical Delay: 1.45 nS/Foot.  
Electical Delay: 121 pS/Inch.

## HDSI DP™ (Differential Pair)

Tensolite's High-Density Shielded Interconnect – Differential Pair (HDSI-DP™) offers all of the advantages of differential signaling without the increased space requirements normally associated with this signaling method.

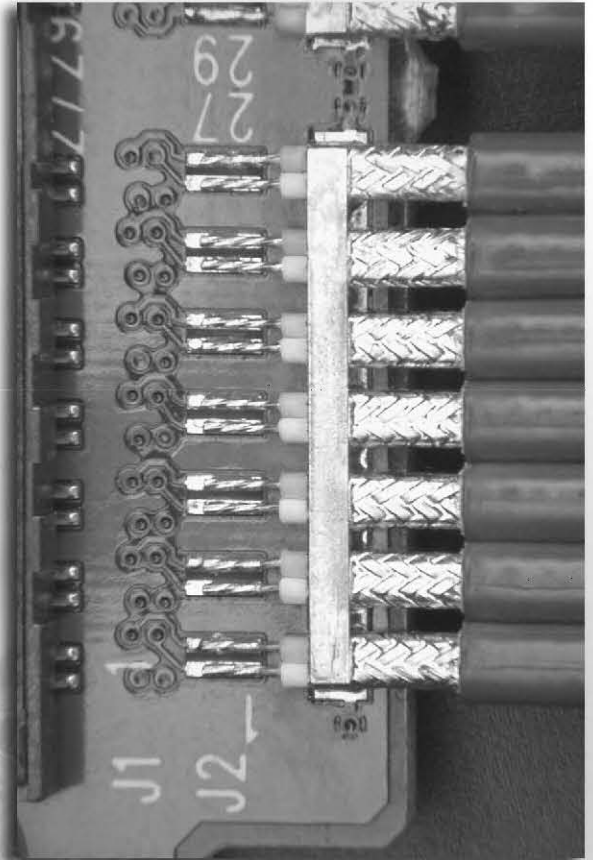
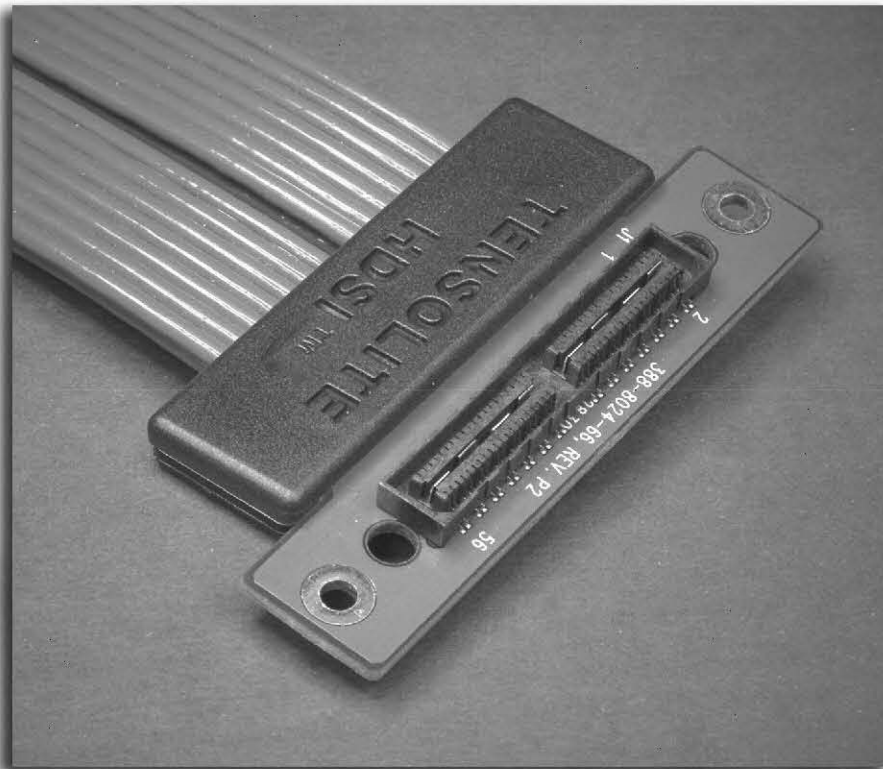
The assemblies employ Samtec's Q-strip™ connectors and results in up to 25 pairs per inch. HDSI-DP™ assemblies use 30 Awg, 100 ohm, ultra-low skew, differential cable with both conductors coupled within a common shield.

HDSI-DP™ matched impedance assemblies are available in configurations ranging from 7 to 200 pairs, plug or receptacle, edge-mount or surface-mount connectors, and custom lengths. HDSI-DP™ assemblies exhibit superior noise immunity and are ideal for LVDS applications.

### **Ideal for a wide variety of demanding, high-speed applications:**

- LVDS
- ATE
- High-End Servers
- Backplane to Backplane
- Production or Benchtop Testing
- Data Telecom Switches
- Extender Cables
- I/O Assemblies

*See our web site for Technical Data Sheets [www.tensolite.com](http://www.tensolite.com)*





# HDSI DP™ Edge Mount to Edge Mount

## Technical Data Sheet: Test Results

### Ribbonized Coax (Differential Pair)-Electrical Specifications

|                                   |         |           |
|-----------------------------------|---------|-----------|
| Impedance, Nominal:               | 100 ±10 | Ohms      |
| Center Conductor DCR (MAX):       | 0.11    | Ohms/Foot |
| Ribbonized Conductor Ampacity:    | 1.0     | AMPS      |
| DP Shield DCR (MAX):              | 0.03    | Ohms/Foot |
| Capacitance Nominal:              | 12.0    | pF/Foot   |
| Velocity of Propagation, Nominal: | 84      | %         |
| Electrical Delay:                 | 1.20    | nS/Foot   |
| Electrical Delay:                 | 100     | pS/Inch   |
| Temperature:                      | 80      | Degrees C |

### Ribbonized Coax (Differential Pair)-Mechanical Specifications

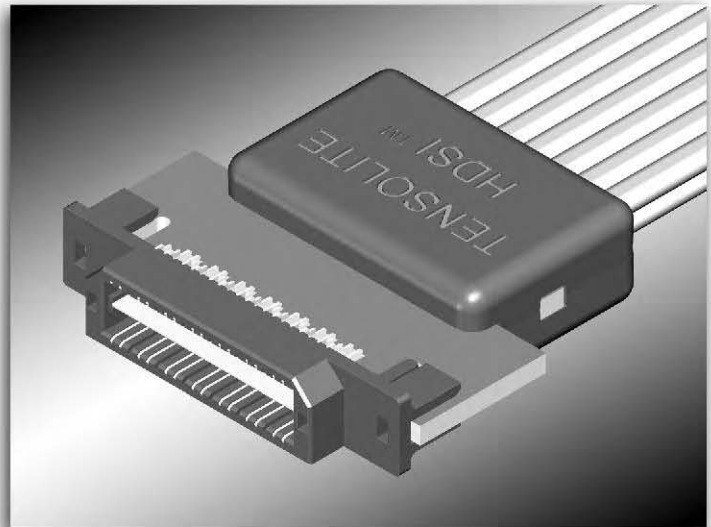
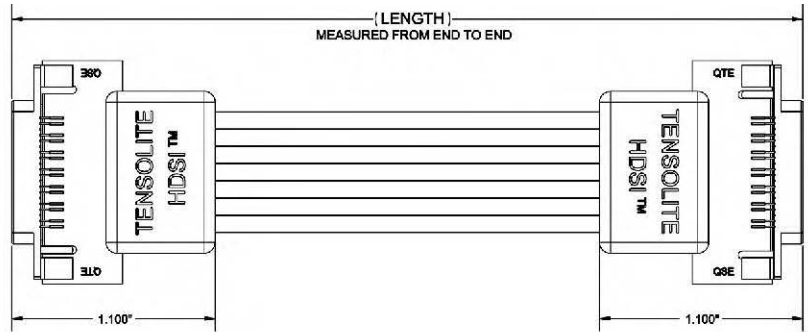
|                        |                        |
|------------------------|------------------------|
| Configuration:         | 7 Pairs                |
| Center Conductor:      | 30 AWG                 |
| Height:                | 0.068 +/- .003 Inches  |
| In Pair Pitch:         | 0.028 +/- .003 Inches  |
| Adjacent Pair (Pitch): | 0.0945 +/- .003 Inches |
| Width (7 Pairs):       | 0.665 +/- .010 Inches  |
| Span (7 Pairs):        | 0.595 +/- .010 Inches  |

### Test Component– Mechanical Specifications

178-2032-66 Tensolite Cable  
 QSE-014-01-F-D-DP-EM2 Samtec 0.80mm Edge Mount Socket  
 QTE-014-01-F-D-DP-EM2 Samtec 0.80mm Edge Mount Plug

### HDSI-DP Assembly - Electrical Specifications: (Summary)

|                     |                    |
|---------------------|--------------------|
| Insertion Loss:     | See Table Below    |
| Risetime:           | See Table Below    |
| Bandwidth:          | See Table Below    |
| Group Skew:         | See Table Below    |
| Adjacent Pair Skew: | See Table Below    |
| VSWR:               | 1.5:1 <1 Ghz       |
| Crosstalk (NEXT):   | <10% Up to 500 MHz |
| Crosstalk (FEXT):   | <10% Up to 500 MHz |



| Length Inches | Length Feet | Length Meters | Typical Insertion Loss In dB At Freq. (In MHz.) |            |            |             |              |              |              | Typ. In-Pair Skew psec | Max. In-Pair Skew psec | Typ. Group Skew psec | Max. Group Skew psec | Typical Risetime psec |              |
|---------------|-------------|---------------|-------------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|------------------------|------------------------|----------------------|----------------------|-----------------------|--------------|
|               |             |               | Up To 250                                       | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 |                        |                        |                      |                      |                       | 1750 To 2000 |
| 3.94          | 0.328       | 0.10          | 0.24                                            | 0.34       | 0.44       | 0.54        | 0.64         | 0.74         | 0.84         | 0.94                   | 4                      | 7                    | 8                    | 12                    | 153          |
| 9.84          | 0.820       | 0.25          | 0.41                                            | 0.56       | 0.71       | 0.86        | 1.01         | 1.16         | 1.31         | 1.46                   | 10                     | 14                   | 16                   | 25                    | 186          |
| 12.00         | 1.000       | 0.305         | 0.54                                            | 0.69       | 0.84       | 0.99        | 1.14         | 1.29         | 1.44         | 1.59                   | 12                     | 17                   | 19                   | 29                    | 199          |
| 19.69         | 1.641       | 0.50          | 0.87                                            | 1.02       | 1.17       | 1.32        | 1.47         | 1.62         | 1.77         | 1.92                   | 20                     | 27                   | 29                   | 45                    | 242          |
| 29.53         | 2.461       | 0.75          | 1.05                                            | 1.25       | 1.45       | 1.65        | 1.85         | 2.05         | 2.25         | 2.45                   | 30                     | 39                   | 42                   | 66                    | 299          |
| 39.37         | 3.281       | 1.00          | 1.23                                            | 1.53       | 1.83       | 2.13        | 2.43         | 2.73         | 3.03         | 3.33                   | 40                     | 51                   | 54                   | 86                    | 355          |
| 49.21         | 4.101       | 1.25          | 1.40                                            | 1.75       | 2.10       | 2.45        | 2.80         | 3.15         | 3.50         | 3.85                   | 50                     | 64                   | 67                   | 107                   | 411          |
| 59.05         | 4.921       | 1.50          | 1.87                                            | 2.34       | 2.82       | 3.29        | 3.77         | 4.24         | 4.72         | 5.19                   | 60                     | 76                   | 80                   | 127                   | 467          |

| Length Inches | Length Feet | Length Meters | Typical Crosstalk (NEXT) At Freq. (In MHz.) |            |            |             |              |              |              | Typical Crosstalk (Fext) Freq. (In MHz.) |           |            |            |             |              |              |              |              |
|---------------|-------------|---------------|---------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|------------------------------------------|-----------|------------|------------|-------------|--------------|--------------|--------------|--------------|
|               |             |               | Up To 250                                   | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000                             | Up To 250 | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000 |
| 3.94          | 0.328       | 0.10          | 6.3%                                        | 7.4%       | 8.2%       | 8.7%        | 9.2%         | 9.6%         | 9.9%         | 10.2%                                    | 4.7%      | 5.8%       | 6.6%       | 7.2%        | 7.7%         | 8.2%         | 8.6%         | 9.0%         |
| 9.84          | 0.820       | 0.25          | 6.2%                                        | 7.3%       | 8.0%       | 8.6%        | 9.0%         | 9.4%         | 9.8%         | 10.1%                                    | 4.7%      | 5.8%       | 6.6%       | 7.2%        | 7.7%         | 8.1%         | 8.5%         | 8.9%         |
| 12.00         | 1.000       | 0.305         | 6.1%                                        | 7.2%       | 8.0%       | 8.5%        | 9.0%         | 9.4%         | 9.7%         | 10.0%                                    | 4.6%      | 5.7%       | 6.4%       | 7.0%        | 7.6%         | 8.0%         | 8.4%         | 8.7%         |
| 19.69         | 1.641       | 0.50          | 6.1%                                        | 7.1%       | 7.8%       | 8.4%        | 8.8%         | 9.2%         | 9.5%         | 9.8%                                     | 4.5%      | 5.6%       | 6.3%       | 6.9%        | 7.4%         | 7.8%         | 8.1%         | 8.5%         |
| 29.53         | 2.461       | 0.75          | 6.0%                                        | 7.0%       | 7.7%       | 8.3%        | 8.7%         | 9.1%         | 9.4%         | 9.7%                                     | 4.3%      | 5.3%       | 6.1%       | 6.7%        | 7.1%         | 7.6%         | 7.9%         | 8.3%         |
| 39.37         | 3.281       | 1.00          | 5.9%                                        | 6.9%       | 7.6%       | 8.1%        | 8.5%         | 8.9%         | 9.2%         | 9.5%                                     | 4.1%      | 5.0%       | 5.7%       | 6.2%        | 6.6%         | 6.9%         | 7.2%         | 7.5%         |
| 49.21         | 4.101       | 1.25          | 5.8%                                        | 6.8%       | 7.5%       | 8.0%        | 8.4%         | 8.8%         | 9.1%         | 9.4%                                     | 3.7%      | 4.6%       | 5.2%       | 5.7%        | 6.1%         | 6.5%         | 6.8%         | 7.1%         |
| 59.05         | 4.921       | 1.50          | 5.7%                                        | 6.7%       | 7.3%       | 7.8%        | 8.2%         | 8.6%         | 8.9%         | 9.1%                                     | 3.6%      | 4.4%       | 4.9%       | 5.3%        | 5.7%         | 6.0%         | 6.3%         | 6.5%         |

# HDSI DP™ Edge Mount to Surface Mount

## Technical Data Sheet: Test Results

### Ribbonized Coax (Differential Pair)-Electrical Specifications

|                                   |         |           |
|-----------------------------------|---------|-----------|
| Impedance, Nominal:               | 100 ±10 | Ohms      |
| Center Conductor DCR (MAX):       | 0.11    | Ohms/Foot |
| Ribbonized Conductor Ampacity:    | 1.0     | AMPS      |
| DP Shield DCR (MAX):              | 0.03    | Ohms/Foot |
| Capacitance Nominal:              | 12.0    | pF/Foot   |
| Velocity of Propagation, Nominal: | 84      | %         |
| Electrical Delay:                 | 1.20    | nS/Foot   |
| Electrical Delay:                 | 100     | pS/Inch   |
| Temperature:                      | 80      | Degrees C |

### Ribbonized Coax (Differential Pair)-Mechanical Specifications

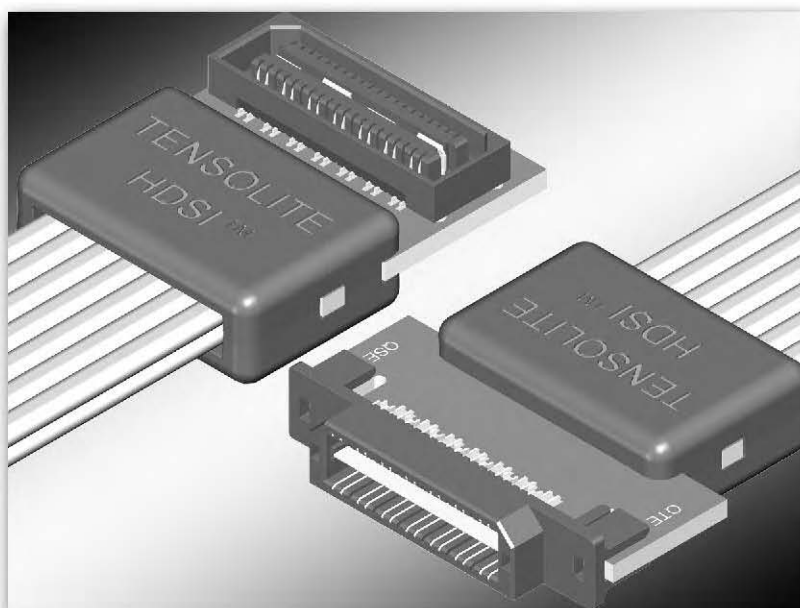
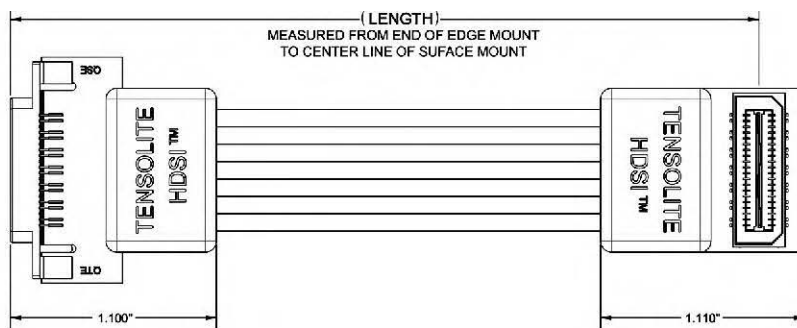
|                        |                        |
|------------------------|------------------------|
| Configuration:         | 7 Pairs                |
| Center Conductor:      | 30 AWG                 |
| Height:                | 0.068 +/- .003 Inches  |
| In Pair Pitch:         | 0.028 +/- .003 Inches  |
| Adjacent Pair (Pitch): | 0.0945 +/- .003 Inches |
| Width (7 Pairs):       | 0.665 +/- .010 Inches  |
| Span (7 Pairs):        | 0.595 +/- .010 Inches  |

### Test Component- Mechanical Specifications

|                       |                                    |
|-----------------------|------------------------------------|
| 178-2032-66           | Tensolite Cable                    |
| QSE-014-01-F-D-DP-A   | Samtec 0.80mm Surface Mount Socket |
| QTE-014-01-F-D-DP-A   | Samtec 0.80mm Surface Mount Plug   |
| QSE-014-01-F-D-DP-EM2 | Samtec 0.80mm Edge Mount Socket    |
| QTE-014-01-F-D-DP-EM2 | Samtec 0.80mm Edge Mount Plug      |

### HDSI-DP Assembly - Electrical Specifications: (Summary)

|                     |                    |
|---------------------|--------------------|
| Insertion Loss:     | See Table Below    |
| Risetime:           | See Table Below    |
| Bandwidth:          | See Table Below    |
| Group Skew:         | See Table Below    |
| Adjacent Pair Skew: | See Table Below    |
| VSWR:               | 1.5:1 <1 Ghz       |
| Crosstalk (NEXT):   | <10% Up to 500 MHz |
| Crosstalk (FEXT):   | <10% Up to 500 MHz |



| Length Inches | Length Feet | Length Meters | Typical Insertion Loss In dB At Freq. (In MHz.) |            |            |             |              |              |              | Typ. In-Pair Skew psec | Max. In-Pair Skew psec | Typ. Group Skew psec | Max. Group Skew psec | Typical Risetime psec |              |
|---------------|-------------|---------------|-------------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|------------------------|------------------------|----------------------|----------------------|-----------------------|--------------|
|               |             |               | Up To 250                                       | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 |                        |                        |                      |                      |                       | 1750 To 2000 |
| 3.94          | 0.328       | 0.10          | 0.24                                            | 0.34       | 0.44       | 0.54        | 0.64         | 0.74         | 0.84         | 0.94                   | 5                      | 8                    | 10                   | 15                    | 153          |
| 9.84          | 0.820       | 0.25          | 0.41                                            | 0.56       | 0.71       | 0.86        | 1.01         | 1.16         | 1.31         | 1.46                   | 11                     | 15                   | 17                   | 28                    | 186          |
| 12.00         | 1.000       | 0.305         | 0.54                                            | 0.69       | 0.84       | 0.99        | 1.14         | 1.29         | 1.44         | 1.59                   | 13                     | 18                   | 20                   | 32                    | 199          |
| 19.69         | 1.641       | 0.50          | 0.87                                            | 1.02       | 1.17       | 1.32        | 1.47         | 1.62         | 1.77         | 1.92                   | 21                     | 28                   | 30                   | 48                    | 242          |
| 29.53         | 2.461       | 0.75          | 1.05                                            | 1.25       | 1.45       | 1.65        | 1.85         | 2.05         | 2.25         | 2.45                   | 31                     | 40                   | 43                   | 69                    | 299          |
| 39.37         | 3.281       | 1.00          | 1.23                                            | 1.53       | 1.83       | 2.13        | 2.43         | 2.73         | 3.03         | 3.33                   | 41                     | 52                   | 56                   | 89                    | 355          |
| 49.21         | 4.101       | 1.25          | 1.40                                            | 1.75       | 2.10       | 2.45        | 2.80         | 3.15         | 3.50         | 3.85                   | 51                     | 65                   | 69                   | 110                   | 411          |
| 59.05         | 4.921       | 1.50          | 1.87                                            | 2.34       | 2.82       | 3.29        | 3.77         | 4.24         | 4.72         | 5.19                   | 61                     | 77                   | 82                   | 130                   | 467          |

| Length Inches | Length Feet | Length Meters | Typical Crosstalk (NEXT) At Freq. (In MHz.) |            |            |             |              |              |              | Typical Crosstalk (Fext) Freq. (In MHz.) |           |            |            |             |              |              |              |              |
|---------------|-------------|---------------|---------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|------------------------------------------|-----------|------------|------------|-------------|--------------|--------------|--------------|--------------|
|               |             |               | Up To 250                                   | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000                             | Up To 250 | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000 |
| 3.94          | 0.328       | 0.10          | 6.3%                                        | 7.4%       | 8.2%       | 8.7%        | 9.2%         | 9.6%         | 9.9%         | 10.2%                                    | 4.7%      | 5.8%       | 6.6%       | 7.2%        | 7.7%         | 8.2%         | 8.6%         | 9.0%         |
| 9.84          | 0.820       | 0.25          | 6.2%                                        | 7.3%       | 8.0%       | 8.6%        | 9.0%         | 9.4%         | 9.8%         | 10.1%                                    | 4.7%      | 5.8%       | 6.6%       | 7.2%        | 7.7%         | 8.1%         | 8.5%         | 8.9%         |
| 12.00         | 1.000       | 0.305         | 6.1%                                        | 7.2%       | 8.0%       | 8.5%        | 9.0%         | 9.4%         | 9.7%         | 10.0%                                    | 4.6%      | 5.7%       | 6.4%       | 7.0%        | 7.6%         | 8.0%         | 8.4%         | 8.7%         |
| 19.69         | 1.641       | 0.50          | 6.1%                                        | 7.1%       | 7.8%       | 8.4%        | 8.8%         | 9.2%         | 9.5%         | 9.8%                                     | 4.5%      | 5.6%       | 6.3%       | 6.9%        | 7.4%         | 7.8%         | 8.1%         | 8.5%         |
| 29.53         | 2.461       | 0.75          | 6.0%                                        | 7.0%       | 7.7%       | 8.3%        | 8.7%         | 9.1%         | 9.4%         | 9.7%                                     | 4.3%      | 5.3%       | 6.1%       | 6.7%        | 7.1%         | 7.6%         | 7.9%         | 8.3%         |
| 39.37         | 3.281       | 1.00          | 5.9%                                        | 6.9%       | 7.6%       | 8.1%        | 8.5%         | 8.9%         | 9.2%         | 9.5%                                     | 4.1%      | 5.0%       | 5.7%       | 6.2%        | 6.6%         | 6.9%         | 7.2%         | 7.5%         |
| 49.21         | 4.101       | 1.25          | 5.8%                                        | 6.8%       | 7.5%       | 8.0%        | 8.4%         | 8.8%         | 9.1%         | 9.4%                                     | 3.7%      | 4.6%       | 5.2%       | 5.7%        | 6.1%         | 6.5%         | 6.8%         | 7.1%         |
| 59.05         | 4.921       | 1.50          | 5.7%                                        | 6.7%       | 7.3%       | 7.8%        | 8.2%         | 8.6%         | 8.9%         | 9.1%                                     | 3.6%      | 4.4%       | 4.9%       | 5.3%        | 5.7%         | 6.0%         | 6.3%         | 6.5%         |

# HDSI DP™ Surface Mount to Surface Mount

## Technical Data Sheet: Test Results

### Ribbonized Coax (Differential Pair)-Electrical Specifications

|                                   |         |           |
|-----------------------------------|---------|-----------|
| Impedance, Nominal:               | 100 ±10 | Ohms      |
| Center Conductor DCR (MAX):       | 0.11    | Ohms/Foot |
| Ribbonized Conductor Ampacity:    | 1.0     | AMPS      |
| DP Shield DCR (MAX):              | 0.03    | Ohms/Foot |
| Capacitance Nominal:              | 12.0    | pF/Foot   |
| Velocity of Propagation, Nominal: | 84      | %         |
| Electrical Delay:                 | 1.20    | nS/Foot   |
| Electrical Delay:                 | 100     | pS/Inch   |
| Temperature:                      | 80      | Degrees C |

### Ribbonized Coax (Differential Pair)-Mechanical Specifications

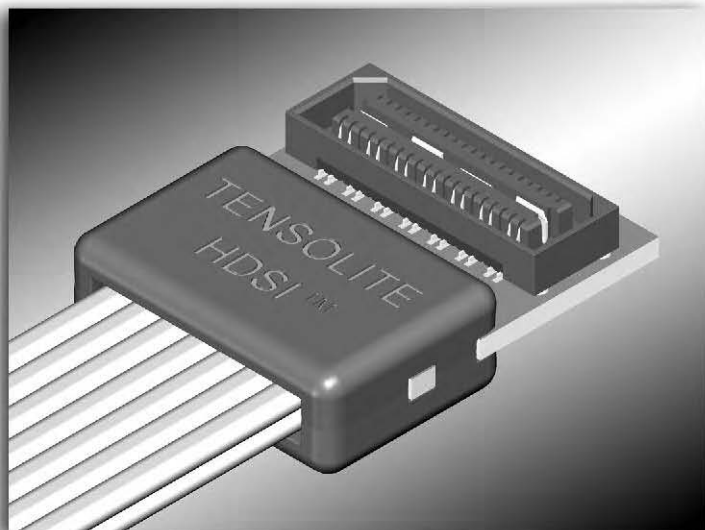
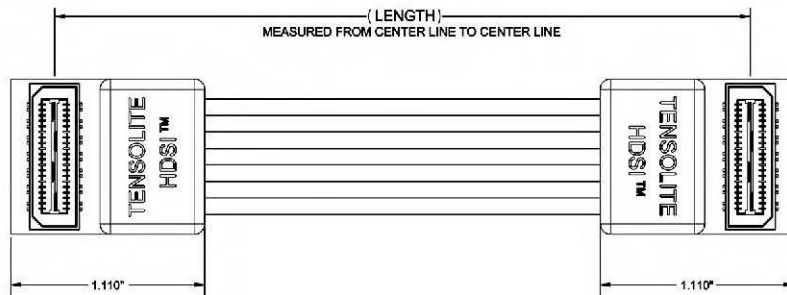
|                        |                        |
|------------------------|------------------------|
| Configuration:         | 7 Pairs                |
| Center Conductor:      | 30 AWG                 |
| Height:                | 0.068 +/- .003 Inches  |
| In Pair Pitch:         | 0.028 +/- .003 Inches  |
| Adjacent Pair (Pitch): | 0.0945 +/- .003 Inches |
| Width (7 Pairs):       | 0.665 +/- .010 Inches  |
| Span (7 Pairs):        | 0.595 +/- .010 Inches  |

### Test Component- Mechanical Specifications

178-2032-66 Tensolite Cable  
 QSE-014-01-F-D-DP-A Samtec 0.80mm Surface Mount Socket  
 QTE-014-01-F-D-DP-A Samtec 0.80mm Surface Mount Plug

### HDSI-DP Assembly - Electrical Specifications: (Summary)

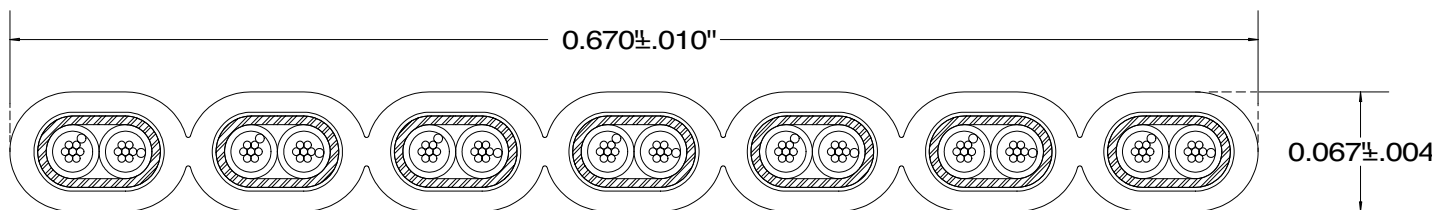
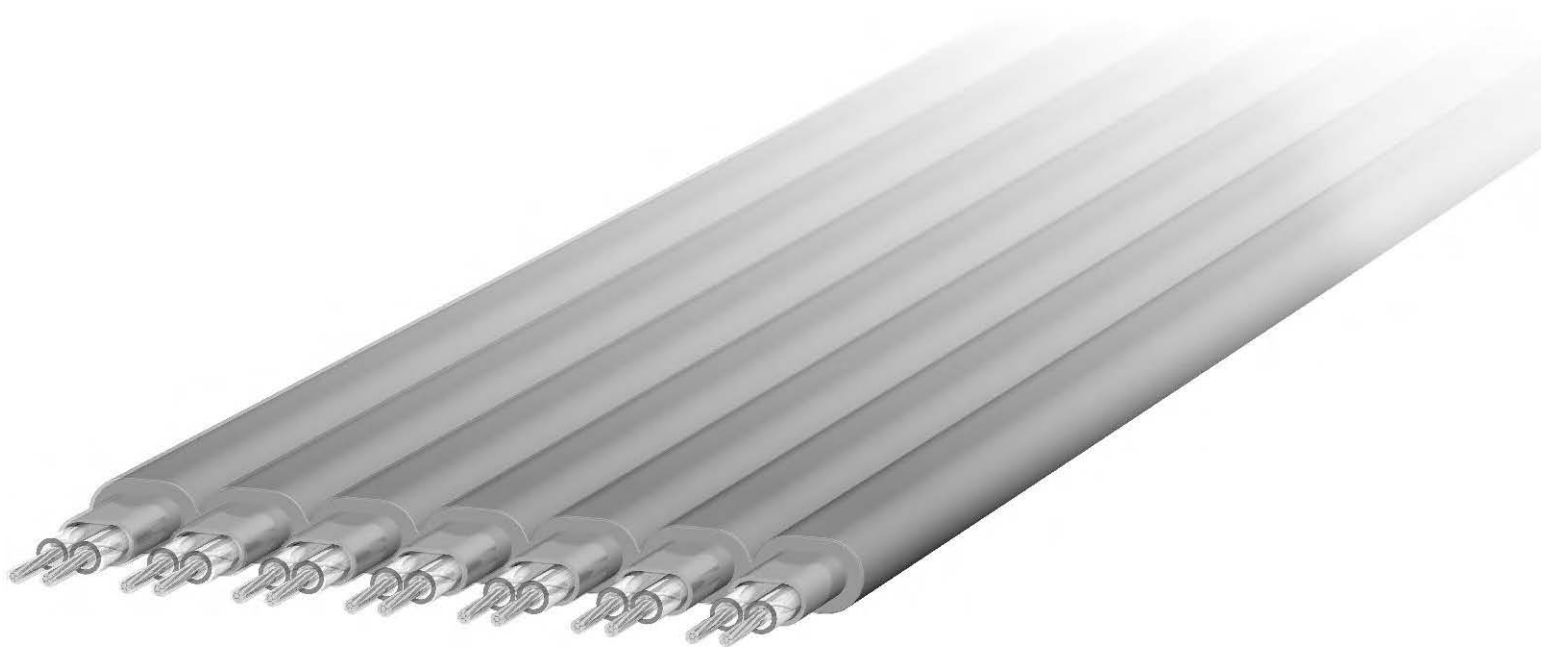
|                     |                    |
|---------------------|--------------------|
| Insertion Loss:     | See Table Below    |
| Risetime:           | See Table Below    |
| Bandwidth:          | See Table Below    |
| Group Skew:         | See Table Below    |
| Adjacent Pair Skew: | See Table Below    |
| VSWR:               | 1.5:1 <1 Ghz       |
| Crosstalk (NEXT):   | <10% Up to 500 MHz |
| Crosstalk (FEXT):   | <10% Up to 500 MHz |



| Length Inches | Length Feet | Length Meters | Typical Insertion Loss In dB At Freq. (In MHz.) |            |            |             |              |              |              |              | Typ. In-Pair Skew psec | Max. In-Pair Skew psec | Typ. Group Skew psec | Max. Group Skew psec | Typical Risetime psec |
|---------------|-------------|---------------|-------------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|--------------|------------------------|------------------------|----------------------|----------------------|-----------------------|
|               |             |               | Up To 250                                       | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000 |                        |                        |                      |                      |                       |
| 3.94          | 0.328       | 0.10          | 0.24                                            | 0.34       | 0.44       | 0.54        | 0.64         | 0.74         | 0.84         | 0.94         | 5                      | 9                      | 11                   | 18                   | 153                   |
| 9.84          | 0.820       | 0.25          | 0.41                                            | 0.56       | 0.71       | 0.86        | 1.01         | 1.16         | 1.31         | 1.46         | 11                     | 16                     | 19                   | 31                   | 186                   |
| 12.00         | 1.000       | 0.305         | 0.54                                            | 0.69       | 0.84       | 0.99        | 1.14         | 1.29         | 1.44         | 1.59         | 13                     | 19                     | 22                   | 35                   | 199                   |
| 19.69         | 1.641       | 0.50          | 0.87                                            | 1.02       | 1.17       | 1.32        | 1.47         | 1.62         | 1.77         | 1.92         | 21                     | 29                     | 32                   | 51                   | 242                   |
| 29.53         | 2.461       | 0.75          | 1.05                                            | 1.25       | 1.45       | 1.65        | 1.85         | 2.05         | 2.25         | 2.45         | 31                     | 41                     | 45                   | 72                   | 299                   |
| 39.37         | 3.281       | 1.00          | 1.23                                            | 1.53       | 1.83       | 2.13        | 2.43         | 2.73         | 3.03         | 3.33         | 41                     | 53                     | 57                   | 92                   | 355                   |
| 49.21         | 4.101       | 1.25          | 1.40                                            | 1.75       | 2.10       | 2.45        | 2.80         | 3.15         | 3.50         | 3.85         | 51                     | 66                     | 70                   | 113                  | 411                   |
| 59.05         | 4.921       | 1.50          | 1.87                                            | 2.34       | 2.82       | 3.29        | 3.77         | 4.24         | 4.72         | 5.19         | 61                     | 78                     | 83                   | 133                  | 467                   |

| Length Inches | Length Feet | Length Meters | Typical Crosstalk (NEXT) At Freq. (In MHz.) |            |            |             |              |              |              |              | Typical Crosstalk (Fext) Freq. (In MHz.) |            |            |             |              |              |              |              |
|---------------|-------------|---------------|---------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|--------------|------------------------------------------|------------|------------|-------------|--------------|--------------|--------------|--------------|
|               |             |               | Up To 250                                   | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000 | Up To 250                                | 250 To 500 | 500 To 750 | 750 To 1000 | 1000 To 1250 | 1250 To 1500 | 1500 To 1750 | 1750 To 2000 |
| 3.94          | 0.328       | 0.10          | 6.3%                                        | 7.4%       | 8.2%       | 8.7%        | 9.2%         | 9.6%         | 9.9%         | 10.2%        | 4.7%                                     | 5.8%       | 6.6%       | 7.2%        | 7.7%         | 8.2%         | 8.6%         | 9.0%         |
| 9.84          | 0.820       | 0.25          | 6.2%                                        | 7.3%       | 8.0%       | 8.6%        | 9.0%         | 9.4%         | 9.8%         | 10.1%        | 4.7%                                     | 5.8%       | 6.6%       | 7.2%        | 7.7%         | 8.1%         | 8.5%         | 8.9%         |
| 12.00         | 1.000       | 0.305         | 6.1%                                        | 7.2%       | 8.0%       | 8.5%        | 9.0%         | 9.4%         | 9.7%         | 10.0%        | 4.6%                                     | 5.7%       | 6.4%       | 7.0%        | 7.6%         | 8.0%         | 8.4%         | 8.7%         |
| 19.69         | 1.641       | 0.50          | 6.1%                                        | 7.1%       | 7.8%       | 8.4%        | 8.8%         | 9.2%         | 9.5%         | 9.8%         | 4.5%                                     | 5.6%       | 6.3%       | 6.9%        | 7.4%         | 7.8%         | 8.1%         | 8.5%         |
| 29.53         | 2.461       | 0.75          | 6.0%                                        | 7.0%       | 7.7%       | 8.3%        | 8.7%         | 9.1%         | 9.4%         | 9.7%         | 4.3%                                     | 5.3%       | 6.1%       | 6.7%        | 7.1%         | 7.6%         | 7.9%         | 8.3%         |
| 39.37         | 3.281       | 1.00          | 5.9%                                        | 6.9%       | 7.6%       | 8.1%        | 8.5%         | 8.9%         | 9.2%         | 9.5%         | 4.1%                                     | 5.0%       | 5.7%       | 6.2%        | 6.6%         | 6.9%         | 7.2%         | 7.5%         |
| 49.21         | 4.101       | 1.25          | 5.8%                                        | 6.8%       | 7.5%       | 8.0%        | 8.4%         | 8.8%         | 9.1%         | 9.4%         | 3.7%                                     | 4.6%       | 5.2%       | 5.7%        | 6.1%         | 6.5%         | 6.8%         | 7.1%         |
| 59.05         | 4.921       | 1.50          | 5.7%                                        | 6.7%       | 7.3%       | 7.8%        | 8.2%         | 8.6%         | 8.9%         | 9.1%         | 3.6%                                     | 4.4%       | 4.9%       | 5.3%        | 5.7%         | 6.0%         | 6.3%         | 6.5%         |

# HDSI DP™ 30 AWG, 100 Ohm, Twin-Ax



178-2032-66 | 100 Ohm RIBBON TWIN-AX, 30 AWG

Conductor: 30 AWG, 7X38 Silver Plated Copper.  
Filaments: PFA.

Air Core Dielectric: FEP.

( Two conductors are laid parallel)

Shield: 44 AWG Silver Plated Copper, Braided.  
Coverage: >90%.

Separator: Polyester Tape Wrap, >20% Overlap.

Outer Jacket: PVC, Grey.

Characteristic Impedance: 100+/-10 Ohms  
(Differential).

Capacitance: 12.0 pF/ft Nom.

Propagation Delay: 1.20 ns/ft Nom.

Within Pair Skew: <3 ps/ft.

Pair To Pair Skew: <5 ps/ft.

Attenuation: 50 dB/100' @ 625 MHz.

# Custom HDSI® Cable Assemblies

Tensolite provides high-density interconnect solutions, whether the application requires significant engineering design or building to customer print.

Our custom engineering services include design of ribbonized coaxial cable, printed circuit design and mechanical strain relief. Combine your preferred connector with a printed circuit designed with controlled impedance and minimized skew.

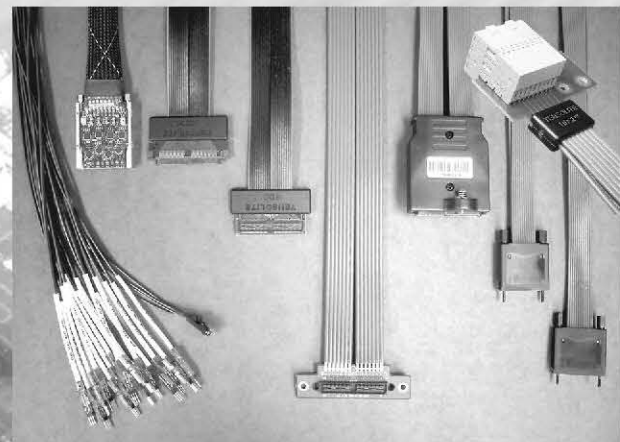
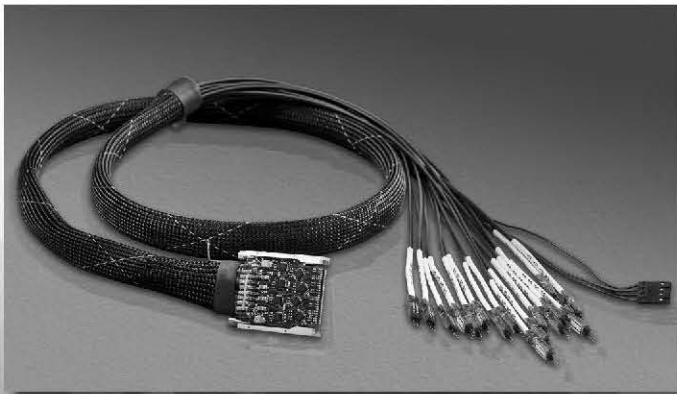
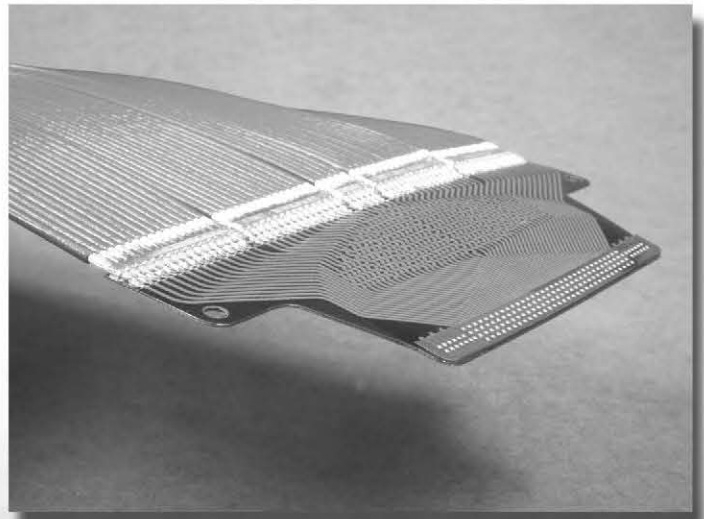
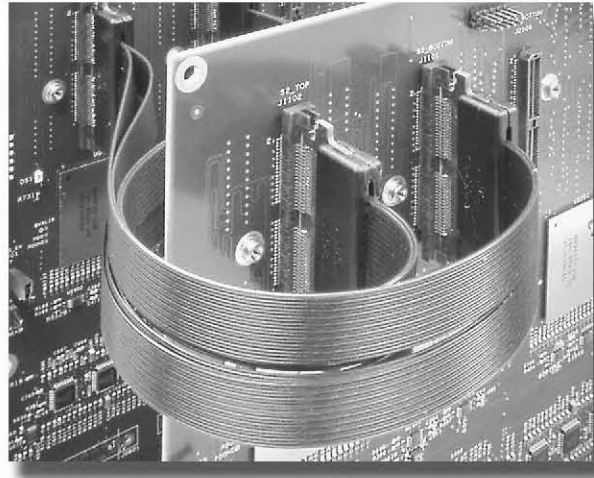
Satisfy cable requirements with low-skew ribbonized coax or flying leads. Mass termination solder connections between ribbon coax and printed circuits reduces manufacturing time and costs.

Tensolite provides custom single-ended or differential assemblies that can include multiple printed circuit boards or flex circuits.

New designs are tested for impedance, loss, risetime, and crosstalk. All production assemblies are tested for electrical continuity. RF testing is available on an AQL basis.

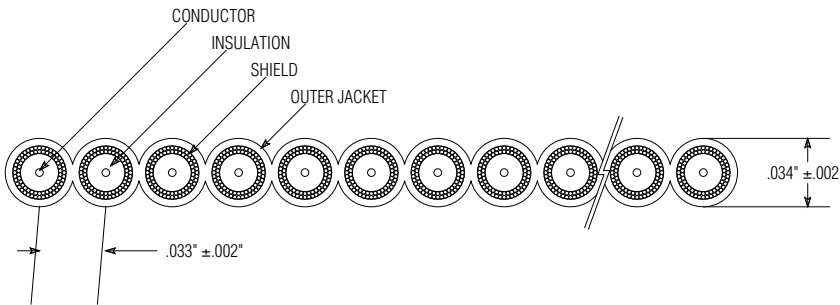
Tensolite Engineers will assist your design team and create a custom interconnect system utilizing our standard manufacturing processes. This will result in a high quality solution that saves the customer time and money.

ISO9001 registered.



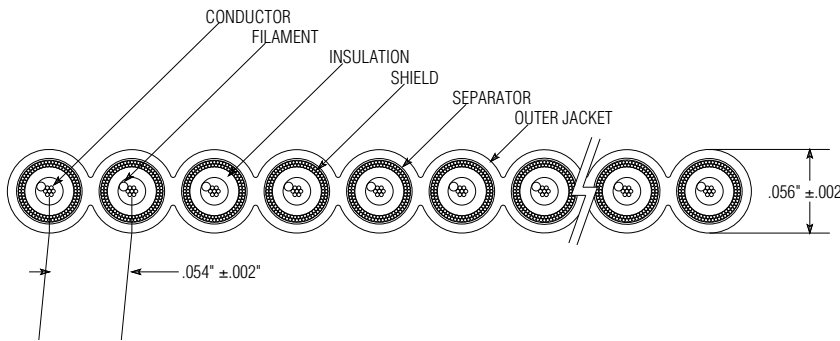
# Examples Of Custom Cable Profiles

178-2382-66 | 75 Ohm MICRO RIBBON COAX, 40 AWG



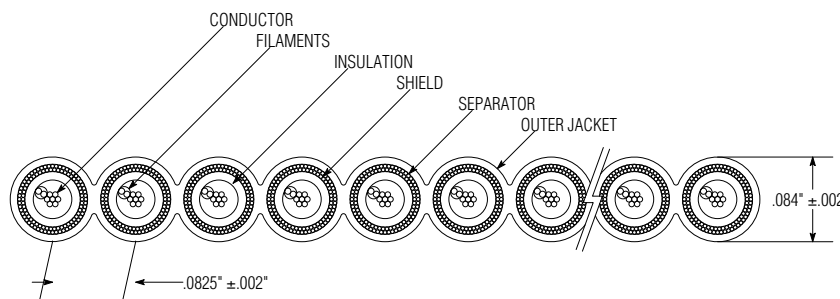
Conductor: 40 AWG, Solid Silver Plated Copper Alloy.  
 Insulation: FEP.  
 Dual Served Shield: 44 AWG Silver Plated Copper.  
 Outer Jacket: THV200, Black.  
 Characteristic Impedance: 75+/-3 Ohms.  
 Capacitance: 19 pF/ft Nom.  
 Propagation Delay: 1.45 ns/ft Nom.  
 Skew: <5 ps/ft @ 50% rising edge.  
 Attenuation (+/-10%)  
 300 MHz: -0.40 dB/ft  
 600 MHz: -0.60 dB/ft  
 1.75 GHz: -1.70 dB/ft

178-2030-66 | 75 Ohm RIBBON COAX, 34 AWG



Conductor: 34 AWG, 7/42 Silver Plated Copper.  
 Filaments: PFA.  
 Core Tube: FEP.  
 Served Shield: 1st layer-36 Ends @ 42 AWG SPC.  
 2nd layer-40 Ends @ 42 AWG SPC.  
 Separator: 0.001" Thick PTFE Tape Wrap.  
 Outer Jacket: THV200, 0.006" Wall Thickness.  
 Color: Gray.  
 Characteristic Impedance: 75+/-2 Ohms.  
 Propagation Delay: 1.200±0.008 ns/ft.  
 Skew: +/-0.08 ns/ft  
 Nom Cap: 16 pF/ft  
 Attenuation (+/-10%)  
 300 MHz: -0.2 dB/ft  
 600 MHz: -0.3 dB/ft  
 1.75 GHz: -0.6 dB/ft

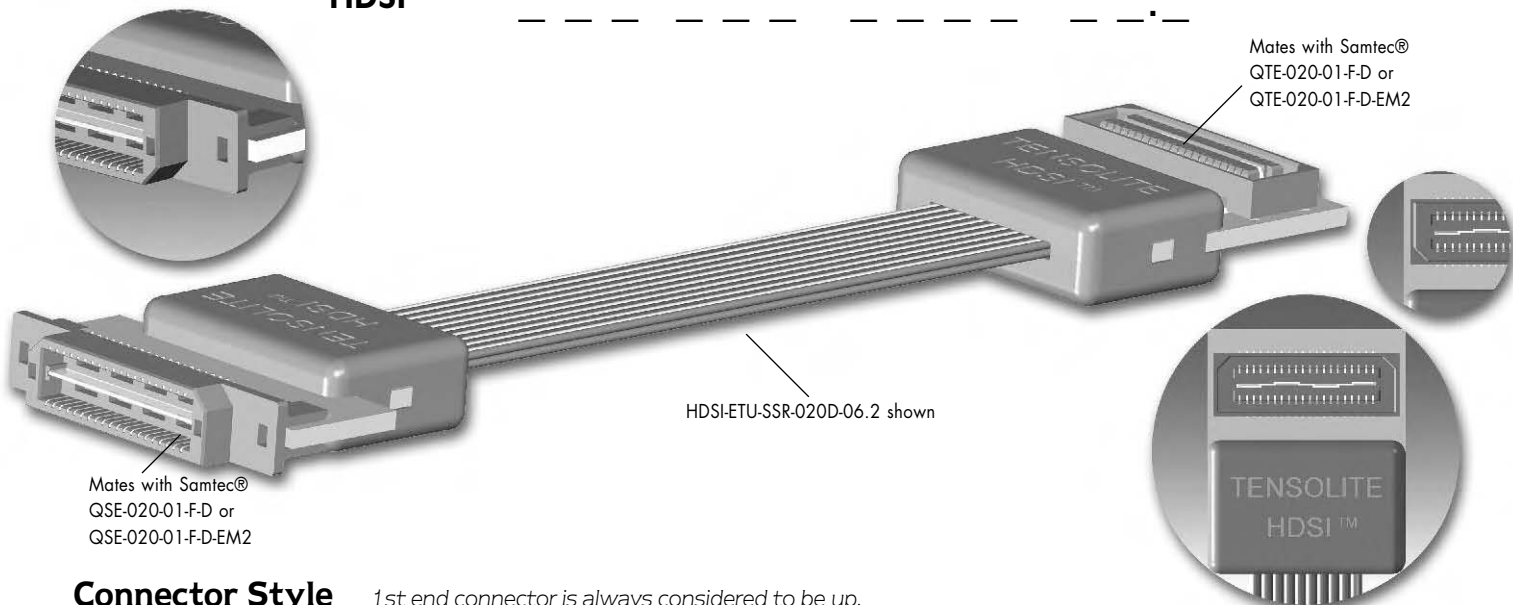
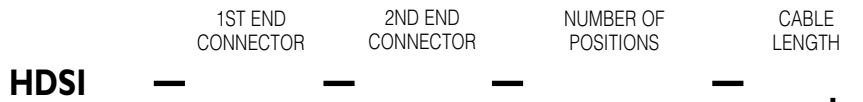
178-2381-66 | 75 Ohm RIBBON COAX, 28 AWG



Conductor: 28 AWG, 7/36 Silver Plated Copper.  
 Filaments: PFA.  
 Core Tube: FEP.  
 Dual Served Shield: 38 AWG Silver Plated Copper.  
 Outer Jacket: THV, Black.  
 Characteristic Impedance: 75+/-3 Ohms.  
 Capacitance: 15.2 pF/ft Nom.  
 Propagation Delay: 1.14 ns/ft Nom.  
 Skew: <5 ps/ft @ 50% rising edge.  
 Attenuation (+/-10%)  
 300 MHz: -0.14 dB/ft  
 600 MHz: -0.18 dB/ft  
 1.75 GHz: -0.43 dB/ft

# HDSI® & HDSI DP™ Part Numbering System

## Numbering Format



## Connector Style

1st end connector is always considered to be up.  
 \* Down or up is relative to orientation of 1st end connector

**X X X**

**Polarizer**

SURFACE MOUNT:

R - CONNECTOR UP POLARIZER OUT FROM CENTER  
 P - CONNECTOR UP POLARIZER IN TOWARDS CENTER  
 E - CONNECTOR DOWN POLARIZER OUT FROM CENTER  
 F - CONNECTOR DOWN POLARIZER IN TOWARDS CENTER

EDGE MOUNT:

U - POLARIZER FACING UP\*  
 D - POLARIZER FACING DOWN\*

**Connector Type**

S- ( QSE ) SOCKET  
 T- ( QTE ) PLUG

**Connector Style**

S- SURFACE MOUNT  
 E- EDGE MOUNT

### STEP-1: Determine style of 1st end connector

(Connector orientation on 1st end is always considered to be "UP")

### STEP-2: Determine style of 2nd end connector

(Connector orientation of 2nd end is relative to orientation of 1st end)

### STEP-3: Number of positions

(Indicate **S** for single or **D** for double populated)

#### Samtec® Single Ended Applications

|                 |                |               |                |               |
|-----------------|----------------|---------------|----------------|---------------|
| -020 <u>X</u> - | 020 <u>S</u> = | 20 Positions  | 020 <u>D</u> = | 40 Positions  |
| -040 <u>X</u> - | 040 <u>S</u> = | 40 Positions  | 040 <u>D</u> = | 80 Positions  |
| -060 <u>X</u> - | 060 <u>S</u> = | 60 Positions  | 060 <u>D</u> = | 120 Positions |
| -080 <u>X</u> - | 080 <u>S</u> = | 80 Positions  | 080 <u>D</u> = | 160 Positions |
| -100 <u>X</u> - | 100 <u>S</u> = | 100 Positions | 100 <u>D</u> = | 200 Positions |

#### Samtec® Differential Applications

|                 |                |          |                |          |
|-----------------|----------------|----------|----------------|----------|
| -014 <u>X</u> - | 014 <u>S</u> = | 7 Pairs  | 014 <u>D</u> = | 14 Pairs |
| -028 <u>X</u> - | 028 <u>S</u> = | 14 Pairs | 028 <u>D</u> = | 28 Pairs |
| -042 <u>X</u> - | 042 <u>S</u> = | 21 Pairs | 042 <u>D</u> = | 42 Pairs |
| -056 <u>X</u> - | 056 <u>S</u> = | 28 Pairs | 056 <u>D</u> = | 56 Pairs |
| -070 <u>X</u> - | 070 <u>S</u> = | 35 Pairs | 070 <u>D</u> = | 70 Pairs |

#### MICTOR® Single Ended Applications

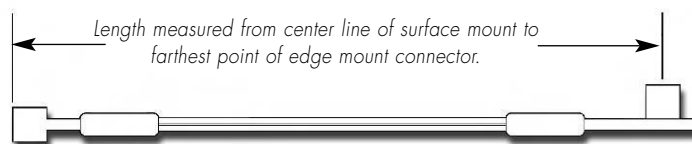
|                |               |
|----------------|---------------|
| 038 <u>D</u> = | 38 Positions  |
| 076 <u>D</u> = | 76 Positions  |
| 114 <u>D</u> = | 114 Positions |
| 152 <u>D</u> = | 152 Positions |
| 266 <u>D</u> = | 266 Positions |

### STEP-4: Determine cable length

(To the nearest 10th of an inch. Length tolerance is ±2%)

**NOTE:** Standard plating is gold flash. Additional plating options available.

Custom connector and assembly options also available. CALL FOR DETAILS.



See our web site for  
 Technical Data Sheets  
[www.tensolite.com](http://www.tensolite.com)



**CARLISLE**  
**INTERCONNECT TECHNOLOGIES**

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