HIGH-PERFORMANCE TEST TO 65 GHz

The high-density array designs and advanced cabling solutions within Samtec’s Bulls Eye® product family enable optimized performance to 65 GHz. A compression interface, small footprint and high cycle count make Bulls Eye® ideal for high-performance test applications.

Bulls Eye® Product Family Features

- Compression interface to the board provides easy on/off and eliminates soldering costs
- Small footprint design significantly saves space on the board
- Microstrip or Stripline PCB transmission
- Assembly options: Dual Row (BE65A, BE40A, BDRA) and Quad Row (BQRA)
- Installation: While the attach process for each series is similar, each have unique specifications that need to be observed. Contact RFTechnicalGroup@samtec.com.

HIGH-DENSITY & SAVES BOARD SPACE

Bulls Eye® enables smaller evaluation boards and shorter trace lengths.
Replacement components are available (cables, blocks, elastomer) – See page 7

**SAMTEC MICROWAVE CABLE**  
**50 Ω, 23 AWG** | High Dynamic Stability

**Jacket:** FEP  
Ø .1050 (2.667)

**Shield:** 44 AWG Braid  
Ø .0895 (2.273)

**Shield:** Copper Foil  
Ø .0827 (2.101)

**Flat Wire:** SPC  
Ø .0807 (2.050)

**Dielectric:** FEP Solid  
Ø .0727 (1.847)

**Signal Conductor:** SPC  
23 AWG Ø .0226 (0.574)

---

<table>
<thead>
<tr>
<th>Insertion Loss</th>
<th>0.25 m</th>
<th>1 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 dB</td>
<td>&gt;40 GHz</td>
<td>13 GHz</td>
</tr>
<tr>
<td>-7 dB</td>
<td>&gt;40 GHz</td>
<td>&gt;40 GHz</td>
</tr>
</tbody>
</table>

**Used with BE40A Series**

---

**Jacket:** FEP  
Ø .1020 (2.591)

**Shield:** 44 AWG Braid  
Ø .0885 (2.248)

**Signal Conductor:** SPC  
23 AWG Ø .0226 (0.574)

**Flat Wire:** SPC  
Ø .0807 (2.050)

**Dielectric:** FEP Solid  
Ø .0727 (1.847)

---

<table>
<thead>
<tr>
<th>Insertion Loss</th>
<th>0.25 m</th>
<th>1 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 dB</td>
<td>&gt;20 GHz</td>
<td>16.6 GHz</td>
</tr>
<tr>
<td>-7 dB</td>
<td>&gt;20 GHz</td>
<td>&gt;20 GHz</td>
</tr>
</tbody>
</table>

**Used with BDRA and BQRA Series**
65 GHz BULLS EYE® ASSEMBLIES
IN DEVELOPMENT

Fixed-pin for Signal and Ground

Compression interface design, small footprint and high-cycle count make Bulls Eye® ideal for high-performance test applications.

---

086 Ultra-Low-Loss Microwave Cable
Compression Interface to the Board
Fixed-pin for both Signal and Ground
1.85 mm, Precision End 2 Interconnect

- High-density array test assembly
  - Double-row (BE65A)
- Microwave Cable
  - 23 AWG, foam core
  - Ultra-low-loss
  - 086 style
- Microstrip or stripline PCB Transmission
- Replacement components (cable and block)
- 50 Ω impedance
- End 2: 1.85 mm
- Cable management available with protective sleeve
- Test data: contact 
  RFTechnicalGroup@samtec.com

---

TRANSMISSION TYPES

MICROSTRIP

STRIPLINE
50 GHz BULLS EYE® ASSEMBLIES

Pogo-pin for Signal and Ground

Compression interface design, small footprint and high-cycle count make Bulls Eye® ideal for high-performance test applications.

Backward Compatible with BDRA Gen 1

High Stability Microwave Cable

Compression Interface to the Board

Pogo-pin for both Signal and Ground

- High-density array test assembly
  - Double-row (BE40A)
- Advanced cable solutions
  - 23 AWG, solid dielectric
  - Low-loss microwave
  - Copper foil shield
- Microstrip or stripline PCB Transmission
- Replacement components (cable and block)
- 50 Ω impedance
- Phase-matched pairs
- End 2: 2.92 mm, 2.40 mm
- Cable management available with protective sleeve
- Test boards available for performance verification, contact RFTechnicalGroup@samtec.com

TRANSMISSION TYPES

MICROSTRIP

STRIPLINE
20 GHz BULLS EYE® ASSEMBLIES

Fixed-pin for signal, elastomer for ground

Compression interface design, small footprint and high-cycle count make Bulls Eye® ideal for high-performance test applications.

<table>
<thead>
<tr>
<th>Elastomer for Grounding</th>
<th>Replacement Components (cable, block, elastomer)</th>
<th>Compression Interface to the Board</th>
<th>Fixed-pin Design</th>
</tr>
</thead>
</table>

- High-density array test assembly
  - Double-row (BDRA)
  - Quad-row (BQRA)
- Advanced Cable solutions
  - 23 AWG, solid dielectric
  - Low-loss microwave
- Stripline PCB Transmission
- Replacement components (cable, block and elastomer)
- 50 Ω impedance
- Phase-matched pairs
- End 2: 2.92 mm
- Cable management available with protective sleeve
- Test boards available for performance verification, contact RFTechnicalGroup@samtec.com

TRANSMISSION TYPES

BE40A (page 5) is backward compatible with BDRA
REPLACEMENT COMPONENTS

Testing can be a long, arduous process and engineers need an assembly that will stand up to the demands. Yet, even the best components have a life cycle. As a result, Samtec makes it easy to order replacement components for our Bulls Eye® assemblies. The following outlines each replacement component, and in which assembly it is used:

<table>
<thead>
<tr>
<th>SERIES</th>
<th>COMPONENT</th>
<th>ASSEMBLY USED IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE65B</td>
<td>Block</td>
<td>BE65A (In development)</td>
</tr>
<tr>
<td>BE65C</td>
<td>Cable</td>
<td>BE65A (In development)</td>
</tr>
<tr>
<td>BE40B</td>
<td>Block</td>
<td>BE40A</td>
</tr>
<tr>
<td>BE40C</td>
<td>Cable</td>
<td>BE40A</td>
</tr>
<tr>
<td>BE23S</td>
<td>Cable</td>
<td>BDRA and BQRA</td>
</tr>
<tr>
<td>BDR</td>
<td>Block</td>
<td>BDRA</td>
</tr>
<tr>
<td>BQR</td>
<td>Block</td>
<td>BQRA</td>
</tr>
<tr>
<td></td>
<td>Elastomer</td>
<td>BDRA and BQRA</td>
</tr>
</tbody>
</table>

**BE65B SERIES (In development)**
- Replacement block for 65 GHz Bulls Eye® (BE65A)
- Microstrip or stripline PCB transmission
- Double row

**BE65C SERIES (In development)**
- Replacement cable for 65 GHz Bulls Eye® (BE65A)
- Fixed-pin design for both signal and ground
- 23 AWG, 086 ultra-low-loss microwave cable

**BE40B SERIES**
- Replacement block for 50 GHz Bulls Eye® (BE40A)
- Microstrip or stripline PCB transmission
- Double row

**BE40C SERIES**
- Replacement cable for 50 GHz Bulls Eye® (BE40A)
- Pogo-pin design with ground/signal/ground
- 23 AWG solid dielectric low loss cable with additional copper foil shield

**BDR SERIES**
- Replacement block for 20 GHz Bulls Eye® (BDRA)
- Stripline PCB transmission
- Double row

**BQR SERIES**
- Replacement block for 20 GHz Bulls Eye® (BQRA)
- Stripline PCB transmission
- Quad row

**BE23S SERIES**
- Replacement cable for 20 GHz Bulls Eye® (BDRA, BQRA)
- Fixed-pin design for signal
- 23 AWG solid dielectric low loss cable

Contact RFTechnicalGroup@samtec.com for additional information.