



(0.50 mm) .0197"

QSH-060-01-L-D-DP-A

QSH-060-01-L-D-A-K

QSH-030-01-F-D-A

QSH SERIES

# HIGH SPEED GROUND PLANE SOCKET

## SPECIFICATIONS

For complete specifications and recommended PCB layouts see [www.samtec.com?QSH](http://www.samtec.com?QSH)

### Insulator Material:

Liquid Crystal Polymer

### Contact Material:

Phosphor Bronze

Plating: Au or Sn over

50µ" (1.27 µm) Ni

### Current Rating:

Contact:

2 A per pin

(1 pin powered per row)

Ground Plane:

25 A per ground plane

(1 ground plane powered)

### Operating Temp Range:

-55°C to +125°C

### Voltage Rating:

175 VAC (5 mm Stack Height)

### Max Cycles: 100

RoHS Compliant: Yes

### Processing:

Lead-Free Solderable: Yes

SMT Lead Coplanarity:

(0.10 mm) .004" max (030-060)

(0.15 mm) .006" max (090)

### Board Stacking:

For applications requiring more than two connectors per board contact [ipg@samtec.com](mailto:ipg@samtec.com)

### Board Mates:

QTH

### Cable Mates:

HQCD, HQDP

(See Also Available note)



| QTH/QSH<br>5 mm Stack Height | Type | Rated @ 3dB Insertion Loss |                    |
|------------------------------|------|----------------------------|--------------------|
|                              |      | with PCB effects*          | w/o PCB effects**  |
| Single-Ended Signaling       | -D   | 9 GHz / 18 Gbps            | 9.5 GHz / 19 Gbps  |
| Differential Pair Signaling  | -D   | 8 GHz / 16 Gbps            | 10.5 GHz / 21 Gbps |
| Differential Pair Signaling  | -DP  | 9.5 GHz / 19 Gbps          | 16.5 GHz / 33 Gbps |

\*Performance data includes effects of a non-optimized PCB.

\*\*Test board losses de-embedded from performance data.

Performance data for other stack heights and complete test data available at [www.samtec.com?QSH](http://www.samtec.com?QSH) or contact [sig@samtec.com](mailto:sig@samtec.com)

Blade &  
Beam  
Design

Integral metal plane  
for power or ground

**Protocols  
Supported**

100 GbE

Hypertransport™

XAUI

PCI Express®

SATA

InfiniBand™

Download app notes at  
[www.samtec.com/appnote](http://www.samtec.com/appnote)  
Contact SIG @ samtec.com  
for questions on protocols

**Finalinch®**  
CERTIFIED

**28+**  
Gbps

## RECOGNITIONS

For complete scope of recognitions see [www.samtec.com/quality](http://www.samtec.com/quality)



FILE NO. E111594 FILE NO. 090571\_0\_000

## ALSO AVAILABLE (MOQ Required)

- 15 mm, 22 mm and 30 mm stack height (Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.)
- 30µ" (0.76 µm) Gold (Specify -H plating for Data Rate cable mating applications.)
- Edge Mount & Guide Posts
- 80 (-DP), 120, 150 positions per row
- Retention Option
- Contact Samtec.

| QSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | PINS PER ROW<br>NO. OF PAIRS | 01                                                                                                                                 | PLATING<br>OPTION | TYPE | A | OTHER<br>OPTION |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|------|---|-----------------|
| <p><b>-030, -060, -090</b><br/>(60 total pins per bank = -D)</p> <p><b>-020, -040, -060</b><br/>(20 pairs per bank = -D-DP)</p>                                                                                                                                                                                                                                                                                                                                      |                              |                                                                                                                                    |                   |      |   |                 |
| <p><b>-D</b> = (No. of Pins per Row/30) x (20.00) .7875 + (1.27) .050</p> <p><b>-DP</b> = (No. of Pairs per Row/20) x (20.00) .7875 + (1.27) .050</p>                                                                                                                                                                                                                                                                                                                |                              |                                                                                                                                    |                   |      |   |                 |
| <p><b>-F</b><br/>= Gold Flash on Signal Pins and Ground Plane, Matte Tin on tails</p> <p><b>-L</b><br/>= 10µ" (0.25 µm) Gold on Signal Pins and Ground Plane, Matte Tin on tails</p> <p><b>-C*</b><br/>= Electro-Polished Selective<br/>50µ" (1.27 µm) min Au over 150µ" (3.81 µm) Ni on Signal Pins in contact area,<br/>10µ" (0.25 µm) min Au over 50µ" (1.27 µm) Ni on Ground Plane in contact area, Matte Tin over 50µ" (1.27 µm) min Ni on all solder tails</p> |                              |                                                                                                                                    |                   |      |   |                 |
| <p><b>-D</b><br/>= Single-Ended</p> <p><b>-D-DP</b><br/>= Differential Pair (-01 only)</p> <p><b>-K</b><br/>= (8.25 mm) .325" DIA Polyimide Film Pick &amp; Place Pad</p> <p><b>-TR</b><br/>= Tape &amp; Reel (-090 positions maximum)</p> <p><b>-L</b><br/>= Latching Option (Not available on -060 (-D-DP) &amp; -090 positions)</p>                                                                                                                               |                              |                                                                                                                                    |                   |      |   |                 |
| <p>Diagram showing dimensions for -D and -DP configurations.</p> <p>Dimensions: (7.49) .295, (0.50) .0197, (0.15) .006, (3.05) .120, (3.25) .128.</p>                                                                                                                                                                                                                                                                                                                |                              | <p>Diagram showing dimensions for -L configuration.</p> <p>Dimensions: (7.24) .285, (0.76) .030, (0.89) .035 DIA, (0.64) .025.</p> |                   |      |   |                 |
| <p><b>*Note:</b> -C Plating passes 10 year MFG testing</p> <p><b>Note:</b> Some lengths, styles and options are non-standard, non-returnable.</p>                                                                                                                                                                                                                                                                                                                    |                              |                                                                                                                                    |                   |      |   |                 |

## OTHER SOLUTIONS

- Board Spacing Standoffs. See SO Series