

# NEBULA Series

High Reliability Rugged SATA Connectors



# Nebula: Rugged SATA Connectors



High reliability SATA 6.0 Gbps connector line designed for harsh environment and rugged storage applications within the commercial aerospace, defence and industrial market segments.

The Nebula Series by Smiths Interconnect is a high reliability SATA 6.0 Gbps connector line designed for rugged storage applications in harsh environment within the aerospace, defence and industrial market segments.

Used to transmit and receive critical data, the Nebula Connector Series provides the reliability required by mass storage devices to ensure maximum transfer speed under the most extreme environmental conditions. Standard SATA connectors were originally designed to meet the requirements of HDD (Hard Disk Drives) but are not durable enough to survive the capabilities of today's SSD (Solid State Drives) which are now being used more and more in remote and harsh environments.

Nebula Connector Series employs Hypertac® contacts as the foundation of its reliability which offer up to 100,000 mating cycles, immunity to shock, vibration and fretting, current carrying capacity up to 1.5 Amps per contact and low insertion/extraction forces; eliminating the quality and reliability issues associated with commodity connector solutions. Further, the pins and sockets are protected by recessed contacts within insulators which are made from rugged, heavy duty polymers that prevent cracking in extreme environments.

Smiths Interconnect's suite of products and services provides proven industry leading performance and unequalled reliability for heavy use, data storage applications such as rugged SSD storage solutions.

## Features & Benefits

Utilizes field proven Hypertac® contact technology

- Wire basket design with 360° of contacts
- 50% lower contact resistance than conventional contacts

Meets mechanical footprint of standard COTS SATA device connectors

Optional quarter-turn locking feature available

Straddle, vertical PCB and right angle PCB production products currently available

All materials pass NASA outgassing requirements

Rugged mechanical design including 50 µin of gold plating on all mating surfaces

High speed design

- Superior signal integrity beyond 6 Gbps which exceeds the data rate requirements for the SATA standard
- Highly optimised connector design for high speed data rates, impedance matching and minimal losses

Long contact life

- Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance

Extreme rugged performance

- Immunity to shock and vibration fretting
- 30 g of vibration (5 hrs. per axis)
- 100 g of shock (6 shocks per axis)

# Technical Characteristics

Contact Diameter	0.4 mm (0.016")
Pitch	1.27 mm (0.050 ")

## Mechanical & Environmental

Contact Resistance	< 8 mΩ (per contact)
Insertion/Extraction Force	3 lbs. max. / 2.5 lbs. max
Connector Life Cycle	> 5,000
Temperature Rating	-55°C to 125°C
Shock	100 g, 11 ms, half sine, 6 shocks per axis
Vibration	EIA 364-28, condition V test letter A, 30 g (3 axis, 5 hrs per axis)

## Materials & Finishes

Insulator	LCP
Pin	Beryllium copper 50 μin gold over nickel on mating surface, 5 μin gold over nickel on solder tails
Sockets	Brass bodies with beryllium copper contact wires 50 μin gold over nickel on mating surface, 5 μin gold over nickel on solder tails

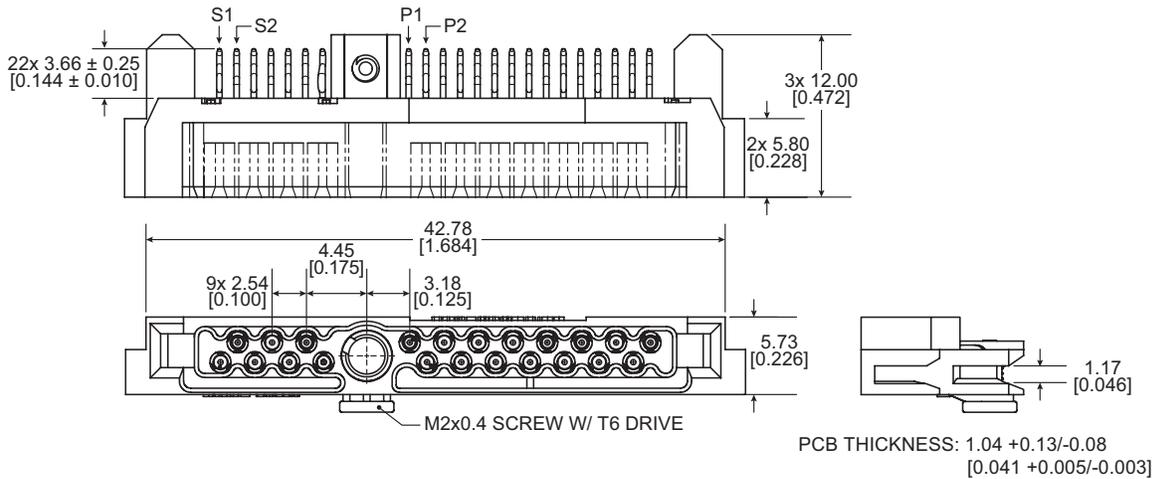
## Electrical

Current Rating	1.5 A per contact
DWV	> 500V
Data Rate	> 6.0 Gbps

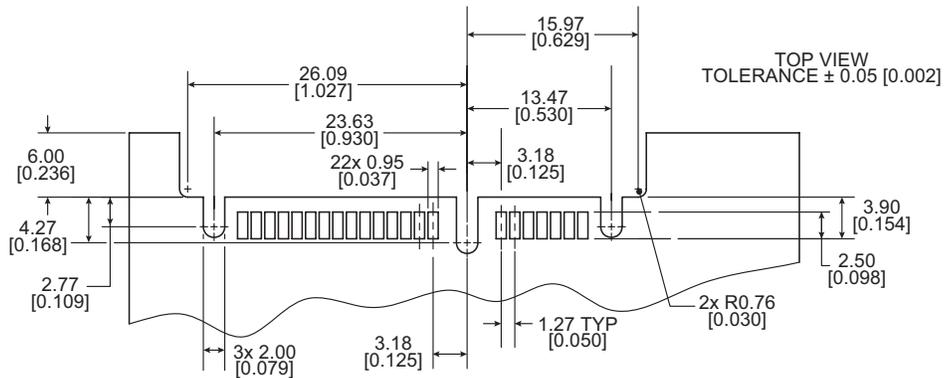
# Dimensions *Product drawings & PCB layouts*

## Straddle mount connector (device)

Product P/N: KSD22-SMT00H1TAH



## PCB layout

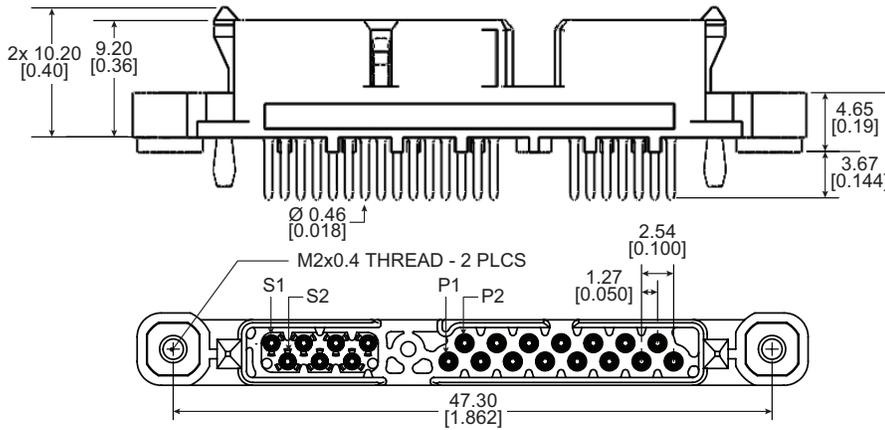
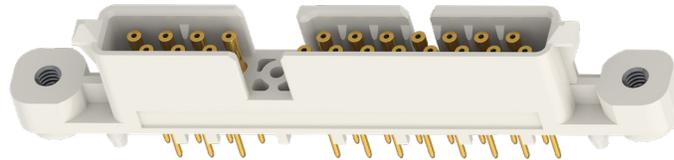


Dimension are in mm [inches]

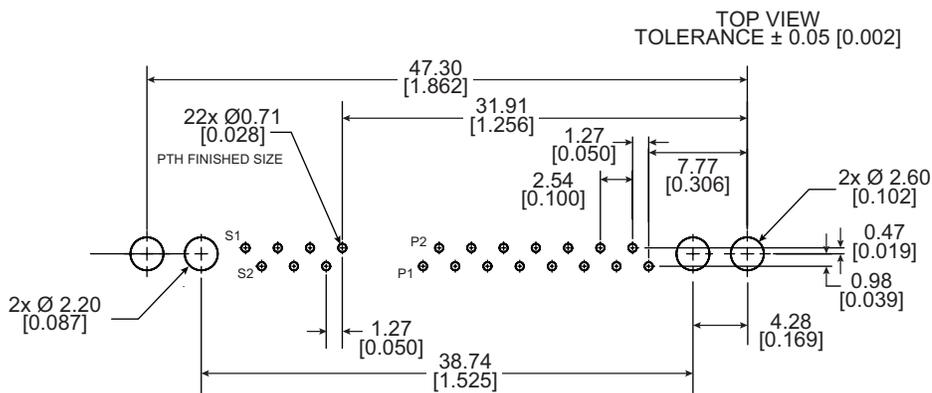
# Dimensions *Product drawings & PCB layouts*

## Vertical connector

Product P/N: KSD22-VFD04H0TAH



## PCB layout

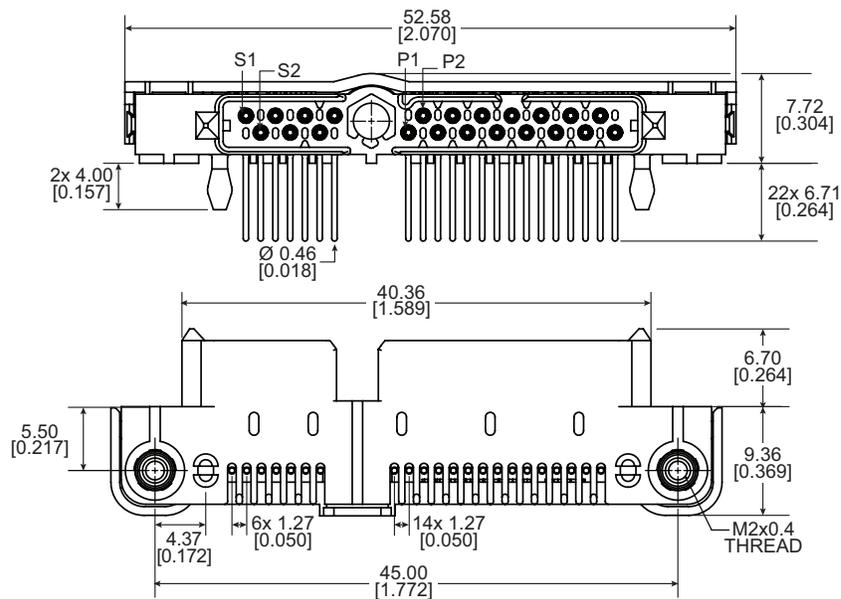
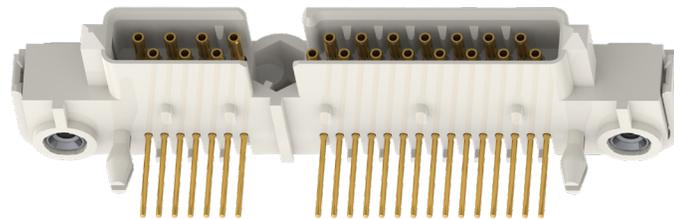


Dimension are in mm [inches]

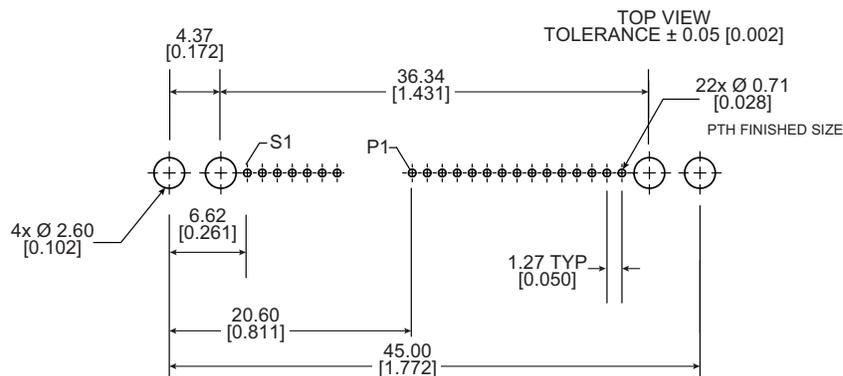
# Dimensions *Product drawings & PCB layouts*

## Right angle connector

Product P/N: KSD22-RFD08HOTAH



## PCB layout



Dimension are in mm [inches]

# How to Order



<b>1 Connector series</b>	<b>K S D</b> Nebula connector series [fixed]
<b>2 Number of contacts</b>	<b>2 2</b> Contacts [fixed]
<b>3 Application type</b>	<b>S</b> Straddle Mount ( <i>male</i> ) <b>V</b> Vertical ( <i>female</i> ) <b>R</b> Right angle ( <i>female</i> )
<b>4 Insulator (Contact Gender)</b>	<b>M</b> Plug ( <i>male</i> ) <b>F</b> Receptacle ( <i>female</i> )
<b>5 Termination style</b>	<b>T 0 0</b> Straddle mount <b>D 0 2</b> Solder Tail 0.063" (1.60 mm) PCB thickness <sup>(1)</sup> <b>D 0 3</b> Solder Tail 0.096" (2.44 mm) PCB thickness <sup>(1)</sup> <b>D 0 4</b> Solder Tail 0.125" (3.18 mm) PCB thickness <b>D 0 8</b> Solder Tail 0.250" (6.35 mm) PCB thickness
<b>6 Locking hardware</b>	<b>H 0</b> No locking hardware <b>H 1</b> Quarter turn female hardware ( <i>straddle</i> ) <b>H 2</b> Quarter turn male hardware ( <i>right angle</i> )
<b>7 Contact plating</b>	<b>T A H</b> 50 µin gold on the contact mating surface

Notes:  
 (1) Contact factory for availability

# Worldwide Support

## Connectors

### Americas

#### Sales

connectors.uscsr@smithsinterconnect.com

#### Technical Support

connectors.ustechsupport@smithsinterconnect.com

### Europe

#### Sales

connectors.emeacsr@smithsinterconnect.com

#### Technical Support

connectors.emeatechsupport@smithsinterconnect.com

### Asia

#### Sales

asiacsr@smithsinterconnect.com

#### Technical Support

asiatechsupport@smithsinterconnect.com

## Fibre Optics & RF Components

### Americas

#### Sales

focom.uscsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Europe

#### Sales

focom.emeacsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Asia

#### Sales

focom.asiacsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

## Semiconductor Test

### Americas

#### Sales

semi.uscsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Europe

#### Sales

semi.emeacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Asia

#### Sales

semi.asiacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

## RF/MW Subsystems

### Americas, Europe & Asia

#### Sales

subsystems.csr@smithsinterconnect.com

#### Technical Support

subsystems.techsupport@smithsinterconnect.com

# Connecting Global Markets

more > [smithsinterconnect.com](https://www.smithsinterconnect.com) | [in](#) [twitter](#) [youtube](#)