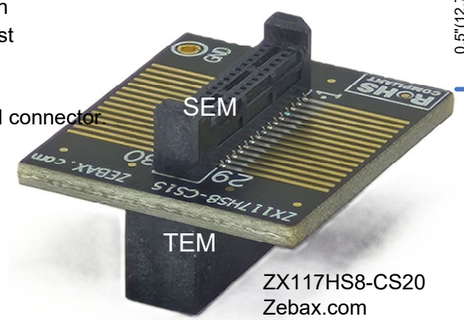
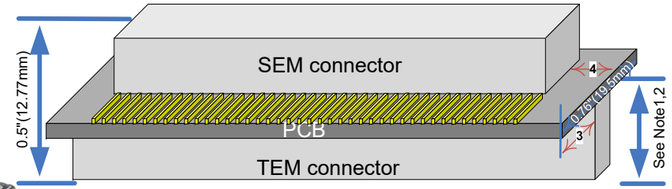
Product Name: ZX117HS8-CS20 Samtec Micro Tiger Eye™ Connector Saver Breakout Adapter SEM TEM – Page 1/2

Product Description: 20 pins × 2 rows (40-pin) Samtec Micro Tiger Eye™ Connector Saver / Breakout Adapter. The module provides both SEM and TEM connectors on a single connector saver board, with debug access points enabling a full-featured breakout adapter for test and measurement applications.

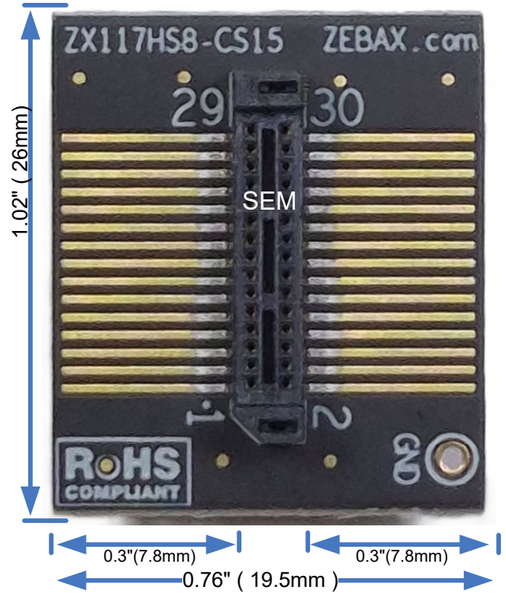
1- Each SEM signal is routed to corresponding TEM connector through a board to board via. Pin 1 of TEM is connected to pin 1 of SEM connector
2- All signal traces are 0.3 in (7.6 mm) in length on both the top and bottom layers of the PCB.
3- All traces have 14mils (0.35mm) width, enabling soldering of any probe wires (36AWG solid copper – See package contents)
4- All signal traces are impedance-controlled to improve signal integrity.
5- Four layers PCB design with inner layers are dedicated as solid GND planes, directly connected to the GND test point.
6- A single accessible GND test point is provided and directly connected to the module GND planes.
7- Features an extended height TEM connector (0.275" – 7.0mm).
8- Designed for easy interfacing with single-ended and differential oscilloscope probes.
9- Users may reroute any signal by cutting the trace before the via and soldering to a new location or external test equipment.
10- Compatible with all heights and form factors of Samtec Micro Tiger Eye™ SEM, SEML, and TEM connector series.
11- The module is shipped with 12pc of probing wires (see package contents: ZX00BC2PH1).



ZX117HS8-CS20
Zebax.com



Notes:
1- TEM height 0.26" (6.61mm)
2- Mated TEM – SEM height 0.27" (7.0mm)
3- PCB Extends 0.3" (7.6mm) from the TEM connector
4- SEM connector spacing from edge of PCB 0.11" (2.8mm)
5- TEM connector (Header , Plug) is flushed with PCB
6- ZX117HS8-10 width 0.76"(19.5mm)

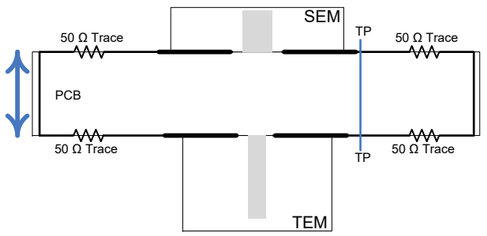


Electrical:

Insertion loss -2dB @8GHz
Trace impedance: 50 Ω
Operating Temperature: -55°C to +125°C
Trace width: 14mils (0.35mm)
Trace to Trace Spacing: 17mils (0.43mm)
Trace Length: 0.3" (7.6mm)
Trace to Trace via: 30mils (0.8mm) from the end of PCB trace
PCB Clearance : 0.27" (7mm) from Host PCB (SEM on host)
Samtec Connector:
Onboard Connector: SEM-120 2rows per 20 pins/row
TEM-120 2rows per 20 pins/row
Mates with: Any Samtec SEM SEML TEM form factors
Pitch: 0.031" (0.80mm) pin to pin pitch
Plating: 10μ" (0.25μm) Gold on contact

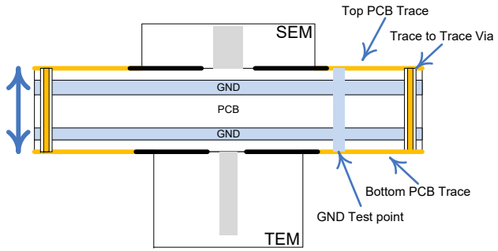
36AWG Bare copper wire : 9mils (0.23mm) diameter

ZX117HS8-CS20- Simplified Circuit Diagram



All traces are controlled to 50 Ω impedance
TP (GND Test Point) is directly connected to inner PCB GND planes, as well as the top and bottom GND fills and GND stitching vias

ZX117HS8-CS20 Cross section view



4 Layer PCB design with two dedicated ground planes
TP (GND Test Point) is directly connected to inner PCB GND planes, as well as the top and bottom GND fills and GND stitching vias

Application: Manufacturing test, loopback validation and re-use, pre-bringup, bringup, testing , debugging, design development emulation rerouting

Mates with : Compatible with **all** heights and form factors of Samtec Micro Tiger Eye™ connectors, including:
TEM120 (header), SEM120 and SEML120 (sockets) with 0.80 mm (0.0315") pitch.
Supports both Micro Tiger Eye™ sockets (SEM, SEML) and headers (TEM).
SEM-120-02-03.0-FG-D-A SEM-120-02-03.0-G-D-A SEM-120-02-03.0-H-D-A
TEM-120-02-03.0-FG-D-A TEM-120-02-03.0-G-D-A TEM-120-02-03.0-H-D-A
TEM-120-02-04.0-FG-D-A TEM-120-02-04.0-G-D-A TEM-120-02-04.0-H-D-A
TEM-120-02-07.0-FG-D-A TEM-120-02-07.0-G-D-A TEM-120-02-07.0-H-D-A
SEML-120-02-03.0-FG-D-A SEML-120-02-03.0-G-D-A SEML-120-02-03.0-H-D-A

Pitch: Samtec SEM TEM connector (0.80mm) 0.315" pitch.
Micro Tiger Eye Socket (SEM, SEML) & Header (TEM).

Additional details are provided on Page 2.

Compliance:

ISO2001 certified
RoHs - Lead Free
EU RoHS2
UL E111594 document
ELV- Vehicle Directive (Directive 2000/EC)
European Union Directive (203/11/EC)
Halogen Free per IEC-61249-2.21 : 2003
RoHs Directive 2011/65/EU
WEEE Directive (2012/12/EU)

Certificate of Compliance for Radioactive substances
Certificate of Compliance for Asbestos
Certificate of Compliance for Ozone Depleting Substances, ODS
Certificate REACH SVHC
Certificate of Compliance RoHS_EN_CoC

ZX117HS8-CS20 - Package Contents:

Part number	Quantity	Description
ZX117HS8-CS20	1	Connector Saver Breakout Adapter module
ZX00BC2PH1	12	36AWG Bare Copper wire to pin header wire assembly

Note
ALL ZEBAX products are **RoHS** compliant and **Lead Free** unless otherwise indicated.

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SPECIFIED DIMENSIONS ARE INCHES (MM).
ROHS COMPLIANT

ASSEMBLY DRAWING

ITEM: ZX117HS8-CS20

DESCRIPTION: Samtec Connector Saver Breakout Adapter SEM TEM 20 pins/row 40 pins

CHECKED: M. MARINA
DRAWN: SONYA
REVISSION: 1.0
SHEET: 1 OF 2

Product Name: ZX117HS8-CS20 Samtec Micro Tiger Eye™ Connector Saver Breakout Adapter SEM TEM – Page 2/2

Access:

For signal measurements: 1- Recommended method: Use 36AWG solid copper wire with pin header, See ordering information, ZX00BC2PH1

For signal relocation:
1- Cut the trace to the connecting via (30 mils [0.8mm] before end of the trace)
2- Using 36AWG solid copper wire, make the required connections. See Figure 1.

Typical Application: The ZX117HS8-CS20 is designed for test and debugging at the full connector bandwidth. It introduces a flexible approach to breakout adapter usage by:

1- Supporting single-ended or differential oscilloscope probes.
2- Enabling design modifications or signal re-assignment: any signal can be cut and redirected to a new location using jumper wires.

Scope Probe wire Installation:

1- It is recommended to keep the probe wire length at 0.5" (1.2cm).
2- To avoid ground loop issues, use the shortest possible ground probe wire connected to the nearest ground reference. The ZX117HS8-CS20 provides one GND test point for this purpose.
3- Both Keysight as well as Tektronix offer variety of single ended and differential probes along with accessories, below are few probes from each vendor:

a) Keysight differential probe or similar N2795A, N2796A, 1168V, 1134B along with E2677B differential Solder-in probe, N5426A ZIF Tip, N2884A Fine Wire ZIF Tip and more – See the figure “Probe Head Accessories”.
b) Tektronix offers several single-ended and differential probes such as : P6245, P6248, P6247, P6246 or any of TDP7000 series and more

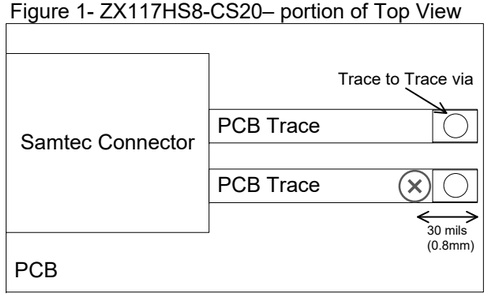
4- Follow your vendor’s guideline in installation of probe wires & accessories.

Signal Access & re-route:

Any signal re-routing on the ZX117HS8-CS20 can be implemented by cutting the trace at a minimum of 30 mils (0.8 mm) from the end of the trace on either the top or bottom PCB layer. The inner connecting via at end of the trace connects the top layer signal trace to the bottom layer signal trace. The **inner connecting via may not** be **visible** on most of our design. The via has a clearance of 30mils (0.8mm) from the end of the trace.

ZX117HS8-CS20 module uses 4 layer PCB, where the inner layers are dedicated ground planes. These are connected to the ground stitching vias and accessible through the GND test point. Refer to the Cross Section View (Page 1) for mores details.

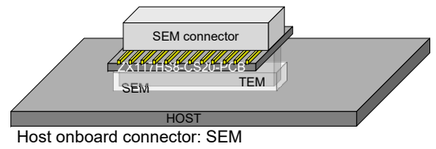
Figure 1- ZX117HS8-CS20– portion of Top View



Note: The hole for the Via may not be visible on Zebax Connector Saver breakout adapter designs. The via is located 30 mils (0.8mm) from end of the trace as marked

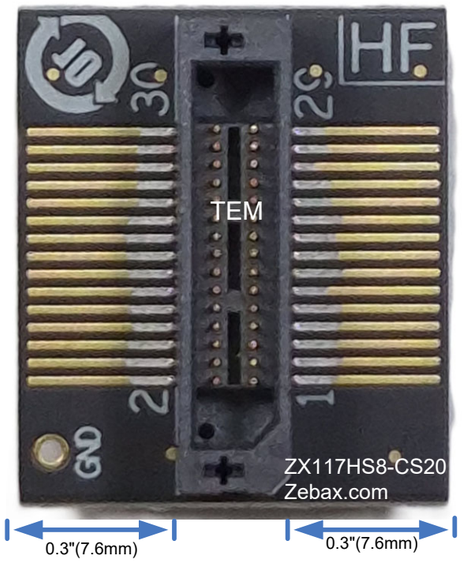
⊗ Ideal location to cut the trace

Typical ZX117HS8-CS20 interface with host

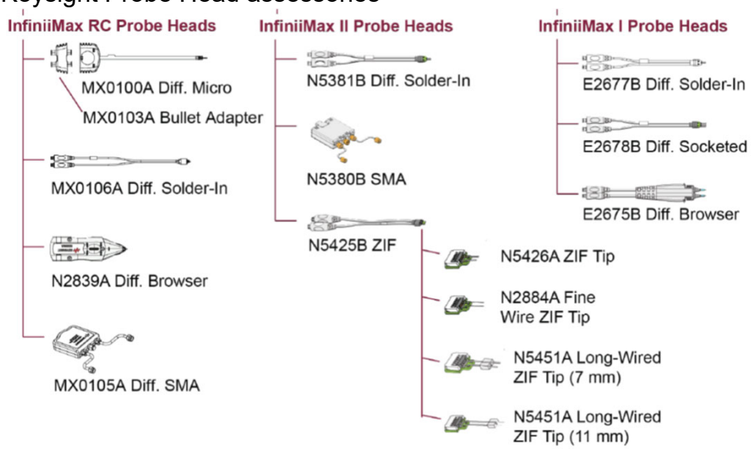


Host onboard connector: SEM

ZX117HS8-CS20 Bottom View



Keysight Probe Head assessories



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