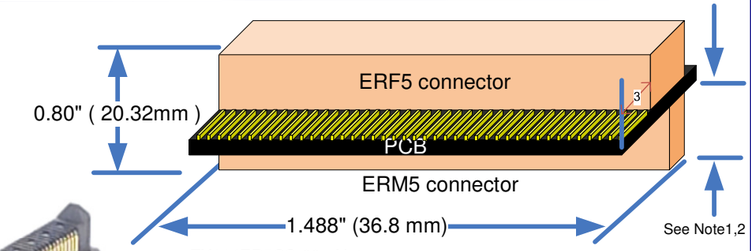
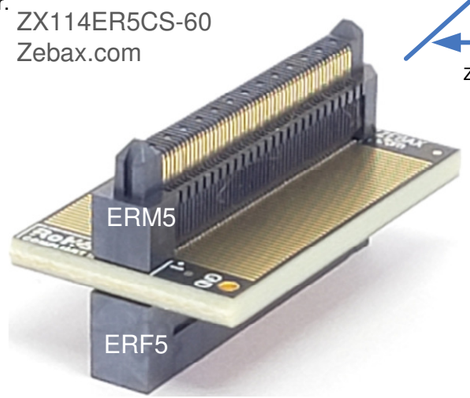
Product Name: ZX114ER5CS-60 Samtec Connector Saver - Breakout Adapter Rugged High Speed Strip PAM4 NRZ Edge Rate – Page 1 of 2

Product Description: 40 pins x 2 rows, 80 pins Samtec Connector Saver - breakout adapter. Offering **both** ERM5 & ERF5 Rugged High Speed Strip PAM4 NRZ Edge Rate Samtec connectors on connector saver module with debug access point providing full feature breakout adapter for purpose of test and measurement.

1- Each ERF5 signal is routed to associated ERM5 connector through board to board via. Pin 1 of ERM5 is connected to pin 1 of ERF5 connector.
2- All signals have 0.275" (7mm) trace access on both top and bottom layers of the PCB.
3- All traces have 10mils (0.275mm) width, enabling soldering of any probe wires (36AWG solid copper – See package includes)
4- All traces are 50 Ohms impedance controlled.
5- Four, 4, layers PCB design, inner layers are GND planes.
6- Accessible GND test point, The test point is connected to module GND planes.
7- Offering Extended height ERM5 connector (0.309" – 7.84mm) , providing interface clearance from host components.
8- Mated ERF5-ERM5 (Host with ZX114ER5CS-60) height 0.394" (10.00mm)
9- Ease of interface with single channel and differential scope probes.
10- User may relocate any ERM5 signal by cutting trace before the via and solder to new location or external test equipment.
11- Fully compatible with Single Ended , SE, and Differential Pair, DP, Samtec connector ERF5 ERM5 series as well as cable assemblies
12- Mates with any height and formfactor ERF5 ERM5 connector series such as ERM5, ERF5, and -RA configurations.
13- The module is shipped with 12pc of probing wires – See package includes, ZX00BC2PH1

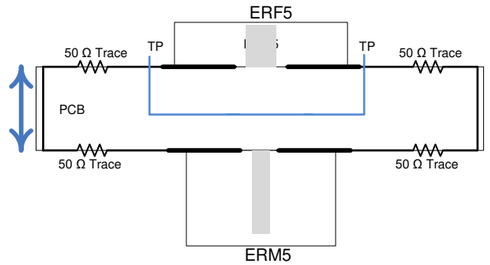


ZX114ER5CS-60 - Notes:
1- ERM5 height 0.309" (7.84mm)
2- Mated ERM5 – ERF5 height 0.394" (10.00mm)
3- PCB Extends 0.275" (7mm) from the ERF5 connector



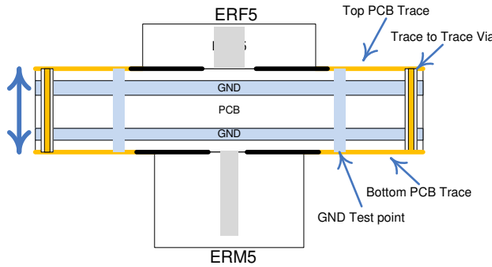
Electrical: Insertion loss > -2dB @8GHz
Trace impedance: 50 Ω
Operating Temperature: -55°C to +125°C
Trace width: 10mils (0.254mm)
Trace to Trace Spacing: 10mils (0.254mm)
Trace Length: 0.275" (7mm)
Trace to Trace via: 30mils (0.8mm) from end of PCB trace
PCB Clearance : 0.394" (10.0mm) from Host PCB (ERF5 on host)
36AWG Bare copper wire : 0.042mm diameter - See package includes, ZX00BC2PH1

ZX114ER5CS-60 -Simplified Circuit Diagram



All traces are controlled 50 Ω impedance
The GND Test Point , has direct connection to inner PCB ground planes

ZX114ER5CS-60 Cross section view



4 Layers PCB design - where 2 inner layers are Ground planes

ZX114ER5CS-60 Top View

Application: Manufacturing test and re-use, bringup, testing , debugging

Mates with : Samtec Rugged High Speed Strip PAM4 NRZ Edge Rate ERM05 , ERF05
Mates with any ERM5 ERF5 cable assembly or board to board interface solution.

Pitch: 0.50mm (0.0197") High Speed connector

Access:
For signal measurements:
1- Recommendation: Use 36AWG solid copper wire with pin header,ZX00BC2PH1 or similar

For signal relocation:
1- Cut the trace to the connecting via (30 mils [0.8mm] before end of trace)
2- Using 36AWG solid copper wire, make the required connections. See Signal Access & re-route, **Page 2** (figure "ZX114ER5CS-60 – portion of Top View ").

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

ZX114ER5CS-60 package includes:

Part number	Quantity	Description
ZX114ER5CS-60	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

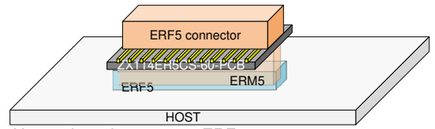
ITEM: ZX114ER5CS-60

DESCRIPTION: Samtec Connector Saver - Rugged High Speed Strip PAM4 NRZ Edge Rate

CHECKED: M. MARINA
DRAWN: MATTHEW
REVISION: 1.0
SHEET: 1 OF 2

Product Name: **ZX114ER5CS-60 Samtec Connector Saver - Breakout Adapter Rugged High Speed Strip PAM4 NRZ Edge Rate – Page 1 of 2**

Typical ZX114ER5CS-60 interface with host



Host onboard connector: ERF5

Typical Application:

ZX114ER5CS-60 is designed for purpose of test and debugging at full connector's bandwidth. It provides new approach in usage of breakout adapters by :

1- Utilizing single or differential scope probe.

2-Enabling design changes, by re-assignment of any signal by means of cut and solder, where any signal may be cut and assigned to new location by jumper wires.

Scope Probe wire Installation:

1- It is recommended to keep the probe wire length at 0.5" (1.2cm) long.

2- In order to avoid ground loop problems, please use the shortest Ground probe wire interfacing to the nearest GND reference. ZX114ER5CS-60 provides one GND test point to be utilized as GND reference interface with the host.

3- Both Keysight as well as Tektronix offer variety of single ended as well as differential probes along with their 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 as well as differential probes such as : P6245, P6248, P6247, P6246 or any of TDP7000 series and more

4- Please follow your vendor's guideline in installation of probe wires & accessories.

Signal Access & re-route:

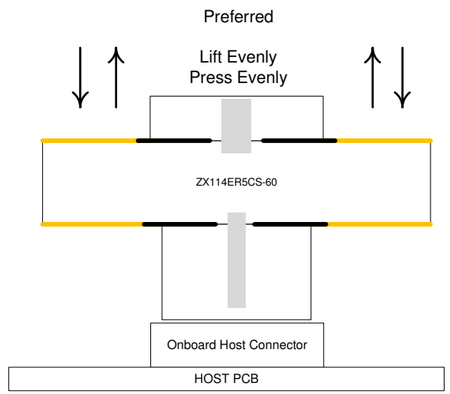
Re-routing any signal on ZX114ER5CS-60 may be implemented by cutting the trace min. of 30 mils (0.8mm) before end of the trace on top or bottom side of the PCB. The Via (inner connecting via) at end of the trace connects the top layer's signal (trace) to bottom layer's signal (trace). The inner connecting via may not be visible on most of Zebax designs. The via has clearance of 30mils from end of the trace.

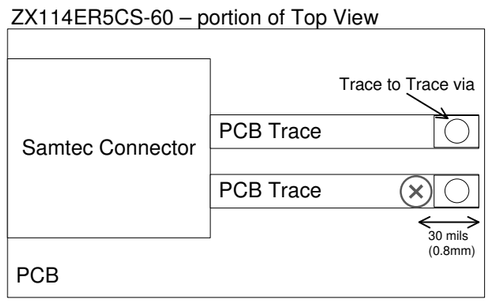
ZX114ER5CS-60 module is 4 layers PCB where the inner layers are Ground layers. They are connected to the GND test point . For improved signal integrity, please connect the GND test point to system GND reference point. See Cross Section View figure on Page 1 for details.

Mating and Un-mating:

Uneven or off—angle forces during mating and un-mating of ZX114ER5CS-60 from host or daughter card may cause overstress and damage to the contacts, housing or solder joints. Severe side-to-side rocking motions should be prohibited.

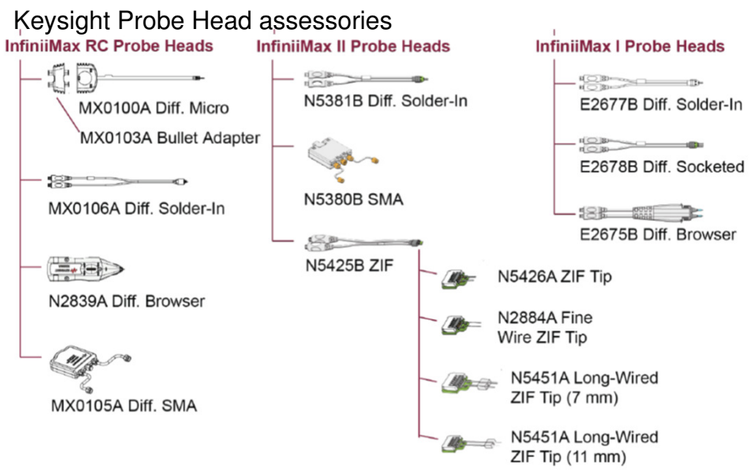
Un-mate ZX114ER5CS-60 by lifting one end of the connector (peeling) is permitted. However, this should only be done to initiate separation of the mated contacts at one end of the interfaced connector. The separation angle should be kept as low as possible as the contacts continue to un-mate, thereby spreading out the un-mating forces over the length of the interface connectors. The connectors should not be "peeled" beyond a 20° angle. See Figure below.





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



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DESCRIPTION:	Samtec Connector Saver - breakout adapter ERM5 ERF5
CHECKED: M. MARINA	DRAWN: MATTHEW
	REVISION: 1.0
	SHEET: 2 OF 2