Product Application Specification For Vertical Cool Edge Connector

REVISION RECORD

REV	PAGE	DESCRIPTION	ECN#	DATE	Prepare By
A	10	Official release	CD0907	2016-09-26	Matt.liu
B	10	update	CD1103	2017-09-12	Cat.zeng
C	10	Update	CD1138	2017-10-17	xg.liu

Prepared by :	Date:	Approved by :	Date:
_____	_____	_____	_____
(Product Engineer)		(Engineering Manager)	

TABLE OF CONTENT:

1. OBJECTIVE

This specification provides information and requirements for customer application of the Vertical Cool Edge connector. It is intended to provide general guidance for process development. It should be recognized that no single process will work under all customer applications and the customers should develop processes to meet individual needs. However, if the processes vary from the recommended one, Amphenol cannot guarantee acceptable results.

2. SCOPE

This specification provides information and requirements regarding application of Vertical Cool Edge connector to printed circuit boards (PCB). The connectors are designed for mother/daughter board applications and will accept different thickness of daughter card. They are available with multiple contact and power positions, guide pin and board lock are alternative.

Figure 1: Vertical Cool edge connectors

3. DRAWING AND APPLICABLE DOCUMENTS

- Amphenol Product Specification S-CE-001
- Application Amphenol Customer Drawings

Amphenol product drawings and specifications are available by accessing the Amphenol website or contacting the Amphenol Technical Service. In the event of a conflict between this specification and the product drawing, the drawing takes precedence. Customers should refer to the latest revision level of Amphenol product drawings for appropriate product details.

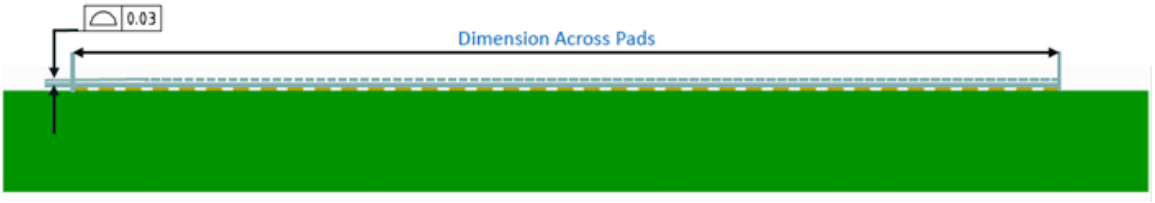
4. PC BOARD REQUIREMENTS

4.1 MATERIAL AND THICKNESS

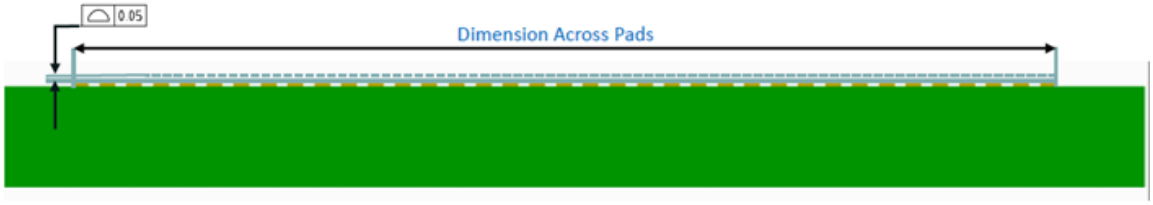
The pc board material shall be glass epoxy (FR4 or G-10). The recommended minimum pc board(mother board) thickness shall be 1.57mm

4.2 PC BOARD HIGH TEMPERATURE PAD CO-PLANARITY

Maximum allowable bow (co-planarity) shall be 0.03mm across the length of the pad area In the case of 0.13mm thick solder paste.



Maximum allowable bow (co-planarity) shall be 0.05mm across the length of the pad area In the case of 0.15mm thick solder paste.



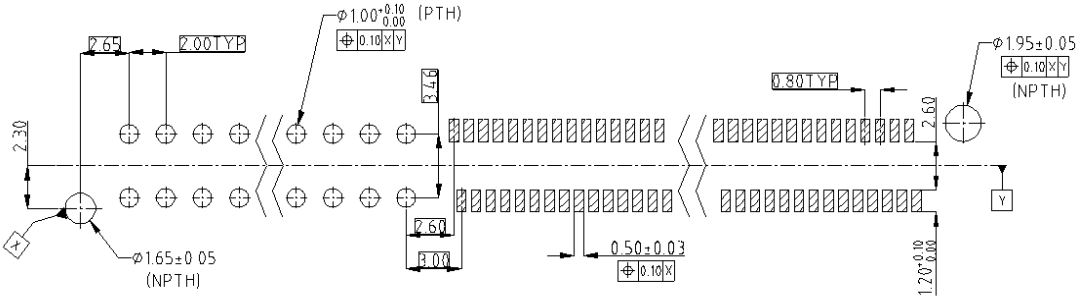
4.3 HOLE DIMENSIONS FOR POWER

The holes for the power must be drilled and plated through to dimensions which are defined in appropriate sales drawing.

4.4 LAYOUT

The holes for the connector assembly must be precisely located to ensure proper placement and optimum performance of the connector assembly. Recommended general holes, pads, dimensions, and tolerances are provided in Figure 2 to 5. It's a general layout, please refer to appropriate sales drawing for recommended PCB layout and thickness for each parts

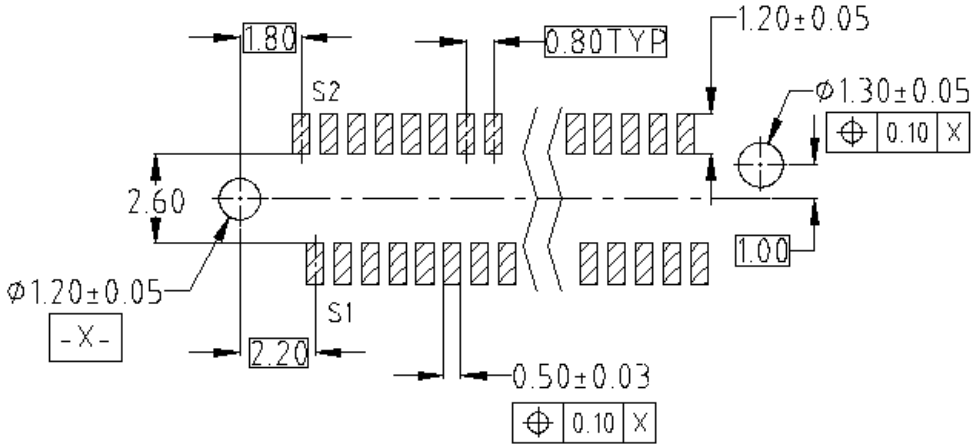
FOR 1.6mm EDGECARD WITH POWER AND SIGNAL PIN



RECOMMEND PCB LAYOUT
GENERAL TOLERANCE ±0.05

GENERAL PCB LAYOUT FOR MOTHER BOARD
(YOUR CONFIGURATION MAY VARY)

FOR 1.6mm EDGECARD WITH SIGNAL PIN ONLY

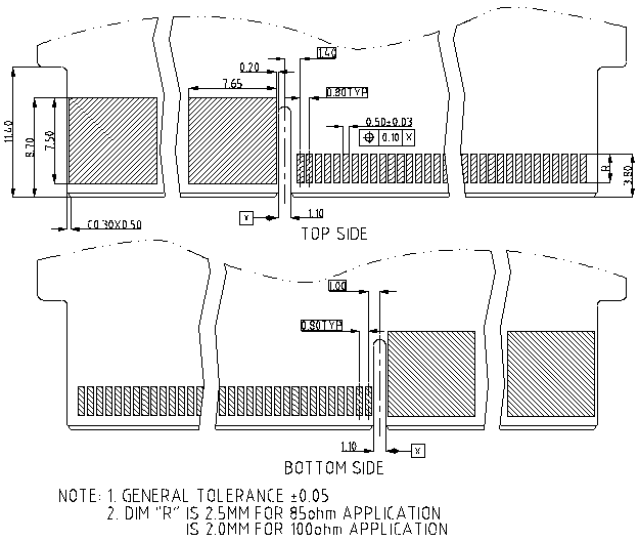


RECOMMEND PCB LAYOUT
GENERAL TOLERANCE ±0.05

GENERAL PCB LAYOUT FOR MOTHER BOARD
(YOUR CONFIGURATION MAY VARY)

FIGURE 3

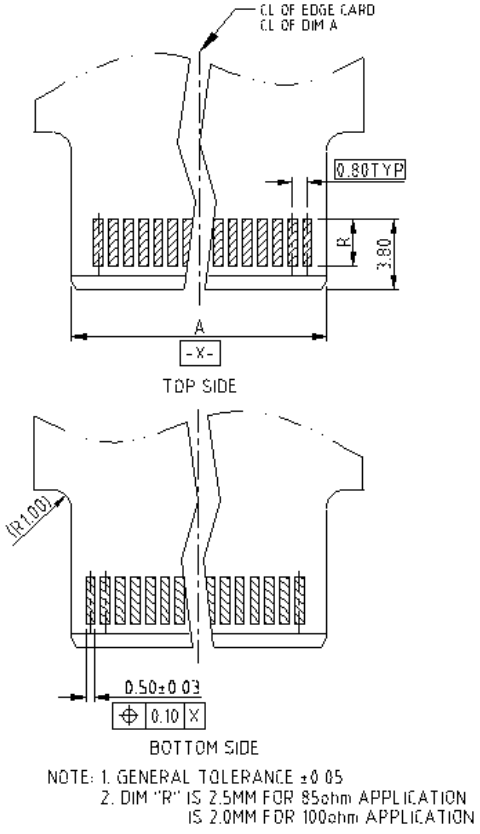
DAUGHTER CARD(EDGECARD)
WITH POWER AND SIGNAL PIN



GENERAL PCB LAYOUT FOR EDGECARD
(YOUR CONFIGURATION MAY VARY)

FIGURE 4

DAUGHTER CARD(EDGECARD)
WITH SIGNAL PIN ONLY



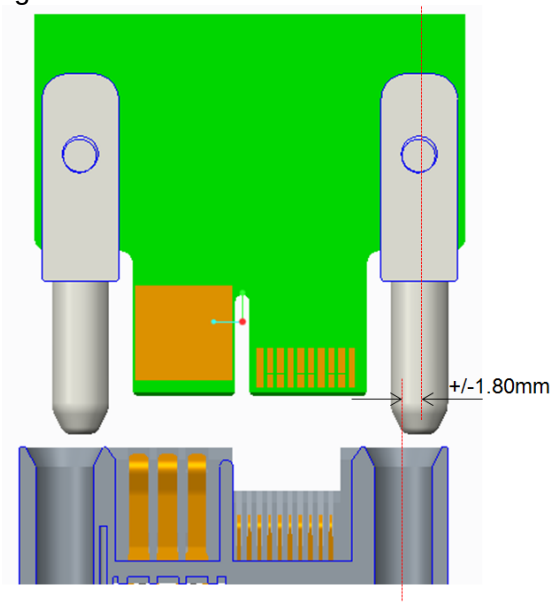
GENERAL PCB LAYOUT FOR EDGECARD
(YOUR CONFIGURATION MAY VARY)

FIGURE 5

5. MATING AND ALIGNMENT

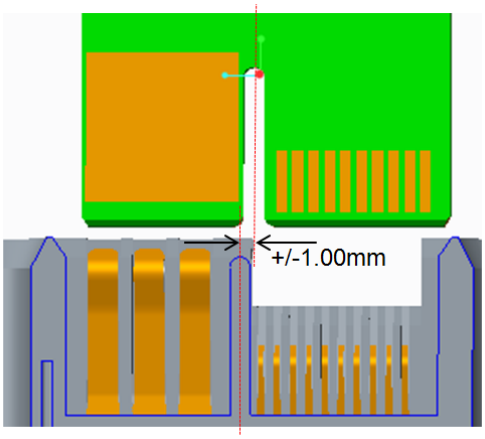
5.1 GUIDING FEATURES IN "X" DIRECTION, WITH GUIDE PIN

Nominal misalignment correction in "X" DIRECTION:+/-1.80mm



5.2 GUIDING FEATURES IN "X" DIRECTION, WITHOUT GUIDE PIN

Nominal misalignment correction in "X" DIRECTION:+/-1.00mm



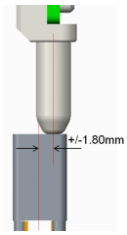
WITH POWER AND SIGNAL

Notes:

1. If signal pin only, Nominal misalignment correction could be +/-1.00mm , and if added guide pin, the nominal misalignment correction could be increased to +/-1.8mm;
2. This is a generic calculation based on Amphenol Cool Edge tolerances and may be impacted by the PCB manufactures capabilities.

5.3 GUIDING FEATURES IN "Y" DIRECTION, WITH GUIPDE PIN

Nominal misalignment correction in "Y" DIRECTION:+/-1.80mm

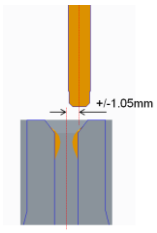


Notes:

This is a generic calculation based on Amphenol Cool Edge tolerances and may be impacted by the PCB manufactures capabilities.

5.4 GUIDING FEATURES IN "Y" DIRECTION, WITHOUT GUIPDE PIN

Nominal misalignment correction in "Y" DIRECTION:+/-1.05mm



Notes:

This is a generic calculation based on Amphenol Cool Edge tolerances and may be impacted by the PCB manufactures capabilities.

5.5 WIPE LENGTH

Nominal Power Pin Wipe (Fully Seated): D=5.7mm

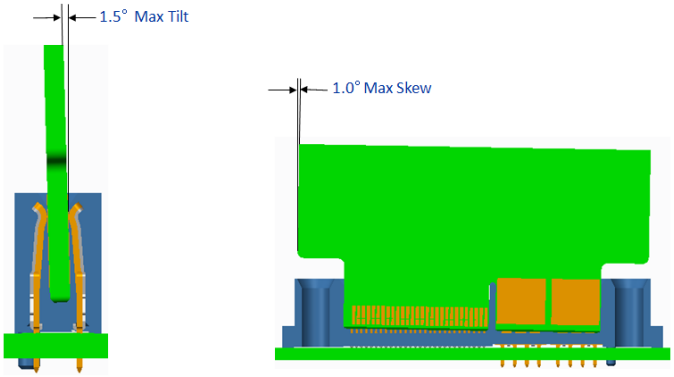
Nominal Signal Pin Wipe (Fully Seated): D=2.0mm (85 ohm system)

D=1.5mm (100 ohm system)

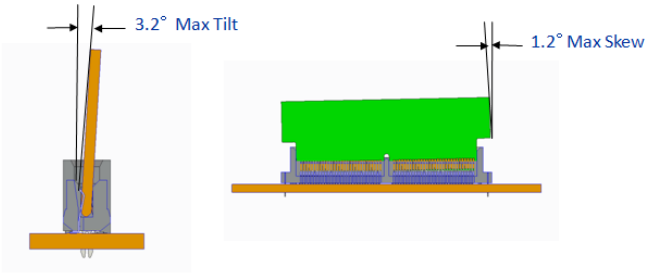
Notes:

This is a generic calculation based on Amphenol Cool Edge tolerances and may be impacted by the PCB manufactures capabilities.

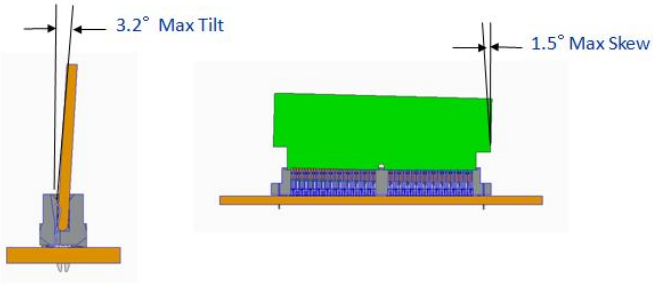
5.6 TILT AND SKEW



WITH POWER AND SIGNAL



SIGNAL ONLY WITH PLASTIC GUIDE



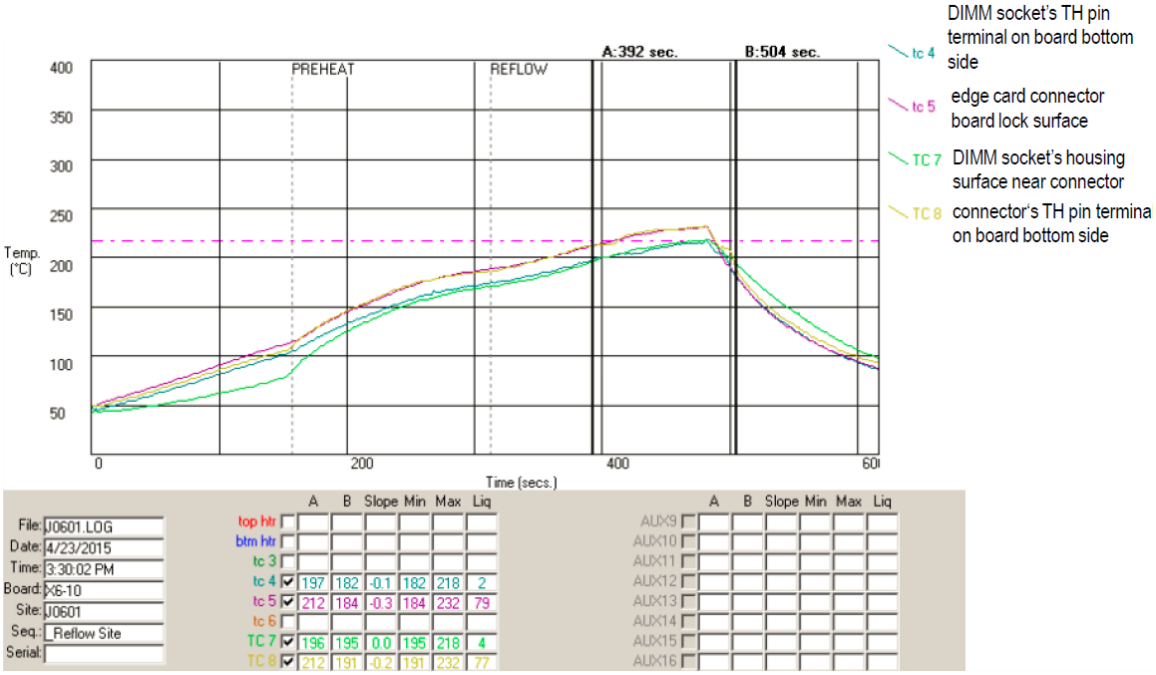
SIGNAL ONLY WITHOUT PLASTIC GUIDE

Notes:

1. This is a generic calculation based on Amphenol Cool Edge tolerances and may be impacted by the PCB manufactures capabilities.

6. RECOMMENDED REWORK PROCESS

It can be reworked well under BGA rework station, and it needs to re-design and make mini-stencil to print those TH pins together with SMT pads, it also needs to add a shield wall, it can avoid socket's housing material melting or bubble defect. The recommended rework profile is below.



7. CURRENT RATING FOR ONE SIGNAL PIN

Please refer to below table for current rating

PIN COUNT	Copper Alloy	High Conductivity Copper Alloy
25 PIN	1.1 A	1.6 A
50 PIN	0.8 A	1.2 A
100 PIN	0.6 A	1 A
200 PIN	0.5 A	0.8 A

8. CURRENT RATING FOR ONE Power PIN

Please refer to below table for current rating(4 layer for PCB)

PIN COUNT	Copper thickness/layer		
	3OZ	2OZ	1OZ
2	25A	22A	20A
4	23A	20A	18A
6	22A	19A	17A
8	20A	18A	16A
10	19A	17A	15A
12	18A	16A	14A