



# PRODUCT SPECIFICATION

DOCUMENT NO  
H100030

TITLE:  
29SAS SERIES CONNECTOR

PAGE: 1 OF 16

REV: K

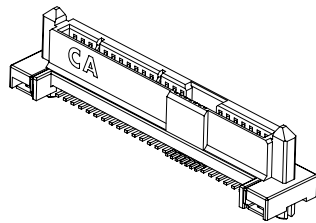
Pre: Steven

APPD: Ray

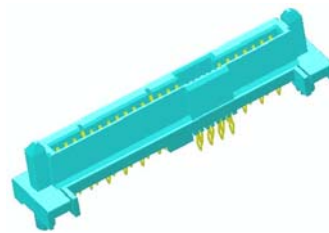
DATE:04/01/14'

## LIST OF REVISION

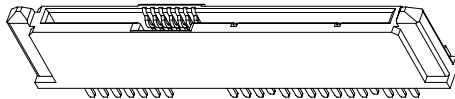
REV	PAGE	DESCRIPTION	DO. NO.	DATE
A	01~07	NEW RELEASE	H1606	05/04/06'
B	05~09	ADD OPTIIONS	H2100	03/15/07'
C	03	ADD ROHS COMPLIANT	H2300	06/26/07'
D	1,3,10,11,12	ADD P/N: CA-29SAS-X-15-X-X, CA-29SASP-X-1-X,CA-29SASR-F-10-XY5	H4096	06/01/10'
E	All	ADD P/N: CA-29SASR-X-10-CT	H4168	07/06/10'
F	All	Change CA-29SASP-X-1-X to CA-29SASP-X-13	H4416	11/29/10'
G	All	ADD P/N: CA-29SASR-F-10-TER	H4454	01/04/11'
H	All	REMOVE THE SPECIAL P/N	H4491	02/08/11'
J	14	ADD RETENTION FORCE	H5721	11/06/13'
K	12	CHANGE THE DRAWING PAGE 12	H5902	04/01/14'



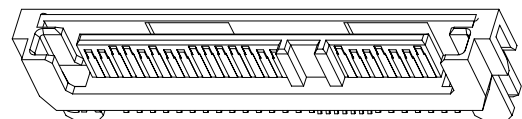
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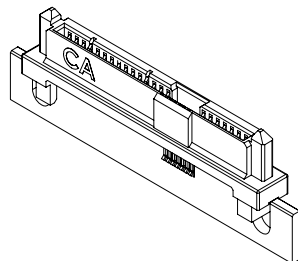
29SAS-X-12-XX



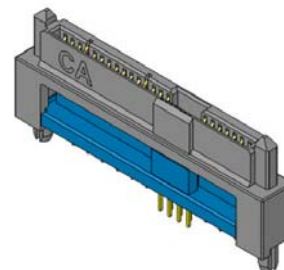
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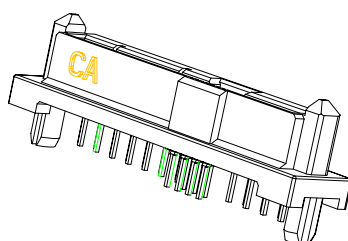
CA-29SASP-X-13



CA-29SAS-X1-14-X-X



CA-29SAS-F-21



29SAS-X-11-X-X



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### 1.SCOPE:

This specification covers performance, tests, and quality requirements for CACH Technologies Co., Ltd. 29SAS series connectors.

The applicable product descriptions and part numbers are as shown in table

Product No.	Description
CA-29SAS-X-10	29SAS REGULAR HEIGHT SMT TYPE SOCKET CONNECTOR.
CA-29SAS-X-12-XX	29SAS REGULAR HEIGHT PRESS FIT TYPE SOCKET CONNECTOR.
CA-29SAS-X-15-X-X	29P SAS SOCKET REGULAR MOLDING TYPE CONNECTOR.
CA-29SASP-X-13	29P SAS LATCH STRADDLE MOUNT PLUG CONNECTOR
CA-29SASP-X-1-X	29P SAS LATCH STRADDLE MOUNT PLUG CONNECTOR
CA-29SAS-X1-14-X-X	29SAS REGULAR STRADDLE MOUNT TYPE SOCKET CONNECTOR.
CA-29SAS-F-21	29P SAS EXTENDED HEIGHT THROUGH HOLE TYPE SOCKET CONNECTOR
29SAS-X-11-X-X	29P SAS THROUGH HOLE TYPE SOCKET CONNECTOR

### 2 Requirements:

#### 2.1 Design and Construction

Product shall be of the design, construction and physical dimensions specified on applicable product drawing

#### 2.2 Regulatory Requirements

2.2.1 Be an UL,C-UL Recognized Component

2.2.2 Housing plastics must be rate UL 94V-0

2.2.3 The connector should be ROHS compliant

#### 2.3.Reference Document

2.3.1 Serial ATA High Speed Serialized AT Attachment

2.3.2 EIA -364,Electrical Connector Test Procedures

### 3 Product Details

#### 3.1 Materials

3.1.1 Contact and Latch: Copper C5191-H, C2680-H

3.1.2 Base and Cover: LCP6130 , UL 94V-0 , Color: Black

#### 3.2 Finish

##### 3.2.1 Contact

a. Contact area: A: Gold Flash

C: 15u" Gold Plating.

F: 30u" Gold Plating.

b. The solder tail: 100 u" pure Tin plating.

c. Under plating: 50u" (minimum) Nickel plating.

##### 3.2.2 Latch

a. The solder tail: 100 u" pure Tin plating.

b. Under plating: 50u" (minimum) Nickel plating.



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### 3.3 Ratings

#### 3.3.1 Current

##### a. Power section(per pin)

-Continuous Current 1.5 A

-Peak Current 2.5A 1.5s

-Peak Current Pre-charge 6 A 1ms

##### b. Signal section (per pin)

-Continuous Current 500 mA

#### 3.3.2 Operating temperature: 0°C to 55°C

Non-operating temperature: -40°C to 85°C



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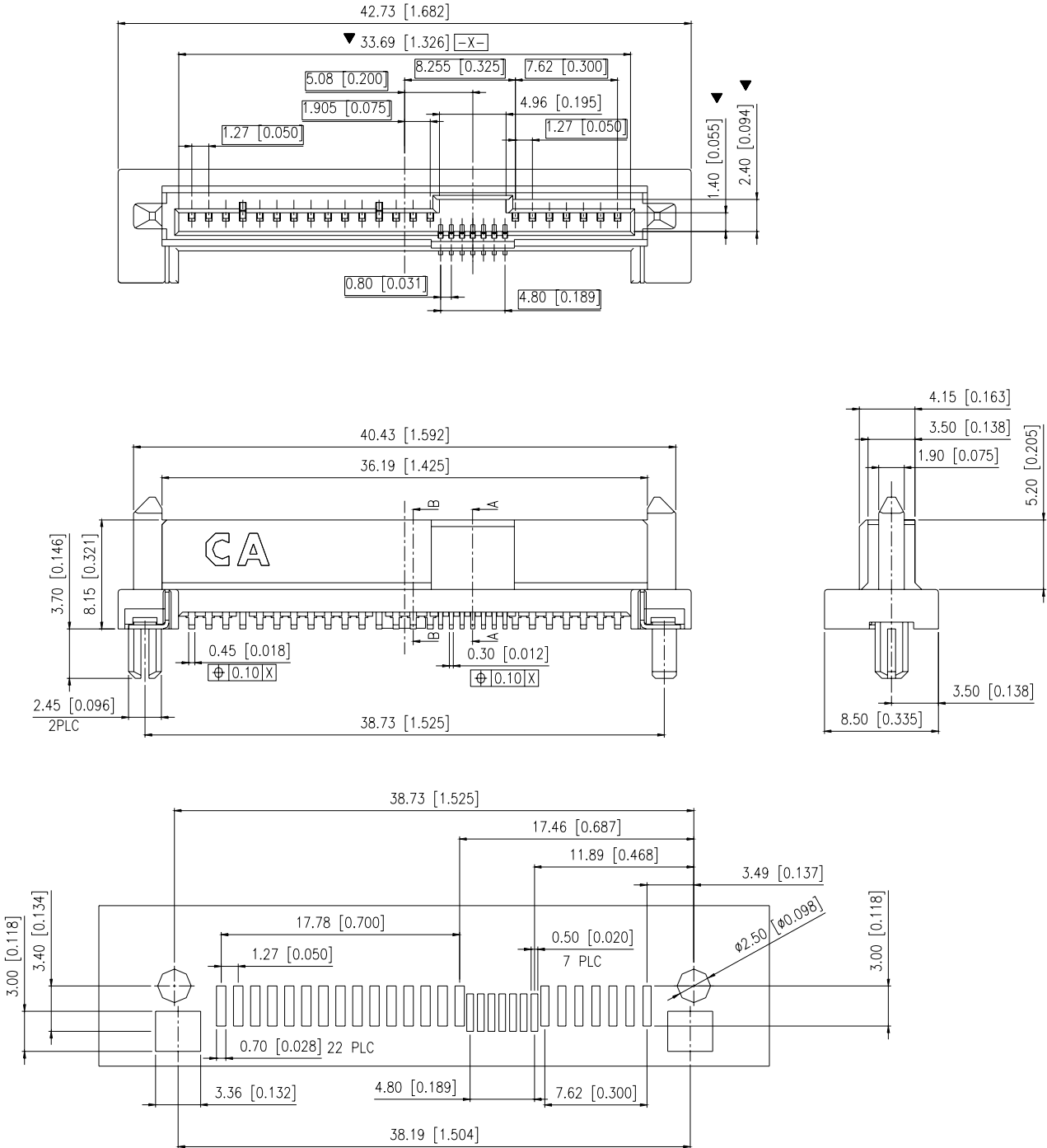
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## 3.4 Reference Drawing

### 3.4.1 CA-29SAS-X-10



RECOMMEND PCB LAYOUT TOLERANCE =  $\pm 0.05$ )

COMPONENT SIDE



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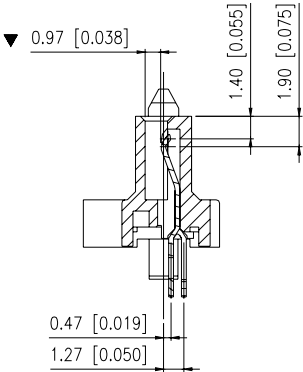
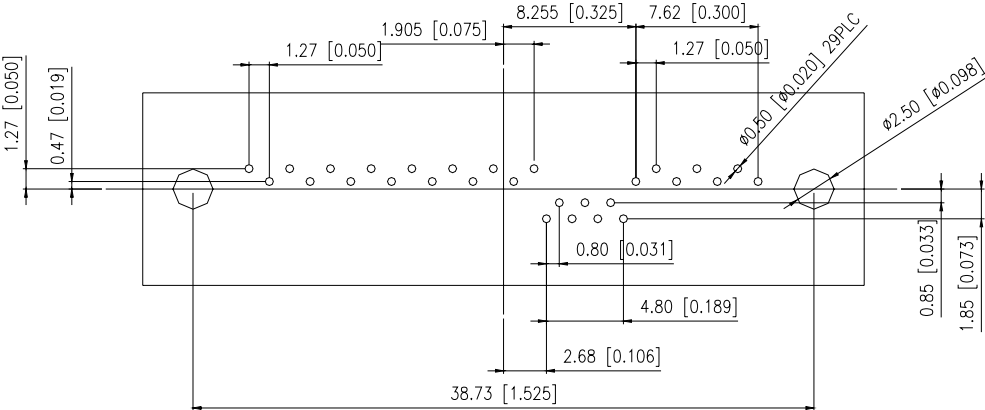
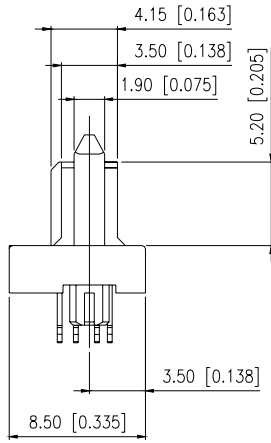
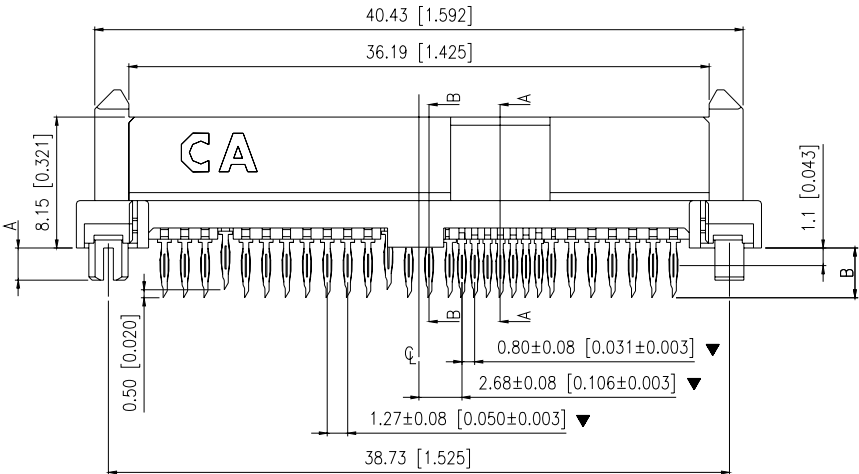
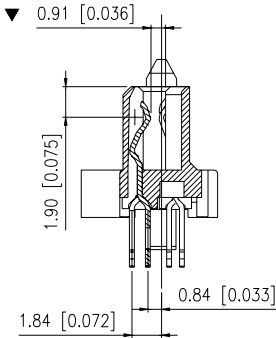
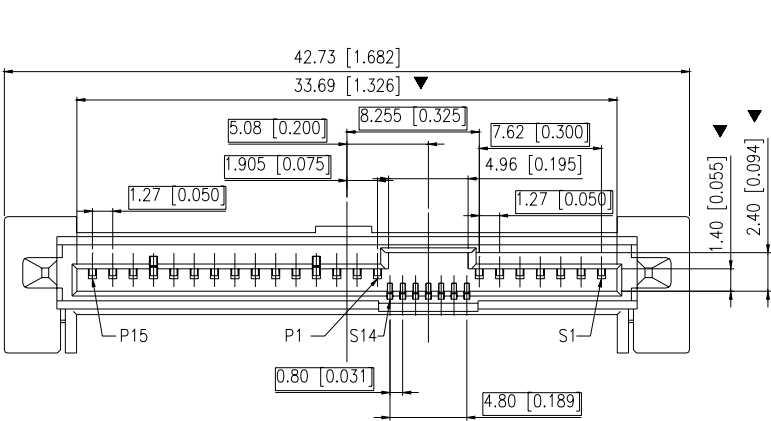
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3.4.2 CA-29SAS-X-12-XX



RECOMMEND PCB LAYOUT TOLERANCE=±0.05)  
COMPONENT SIDE





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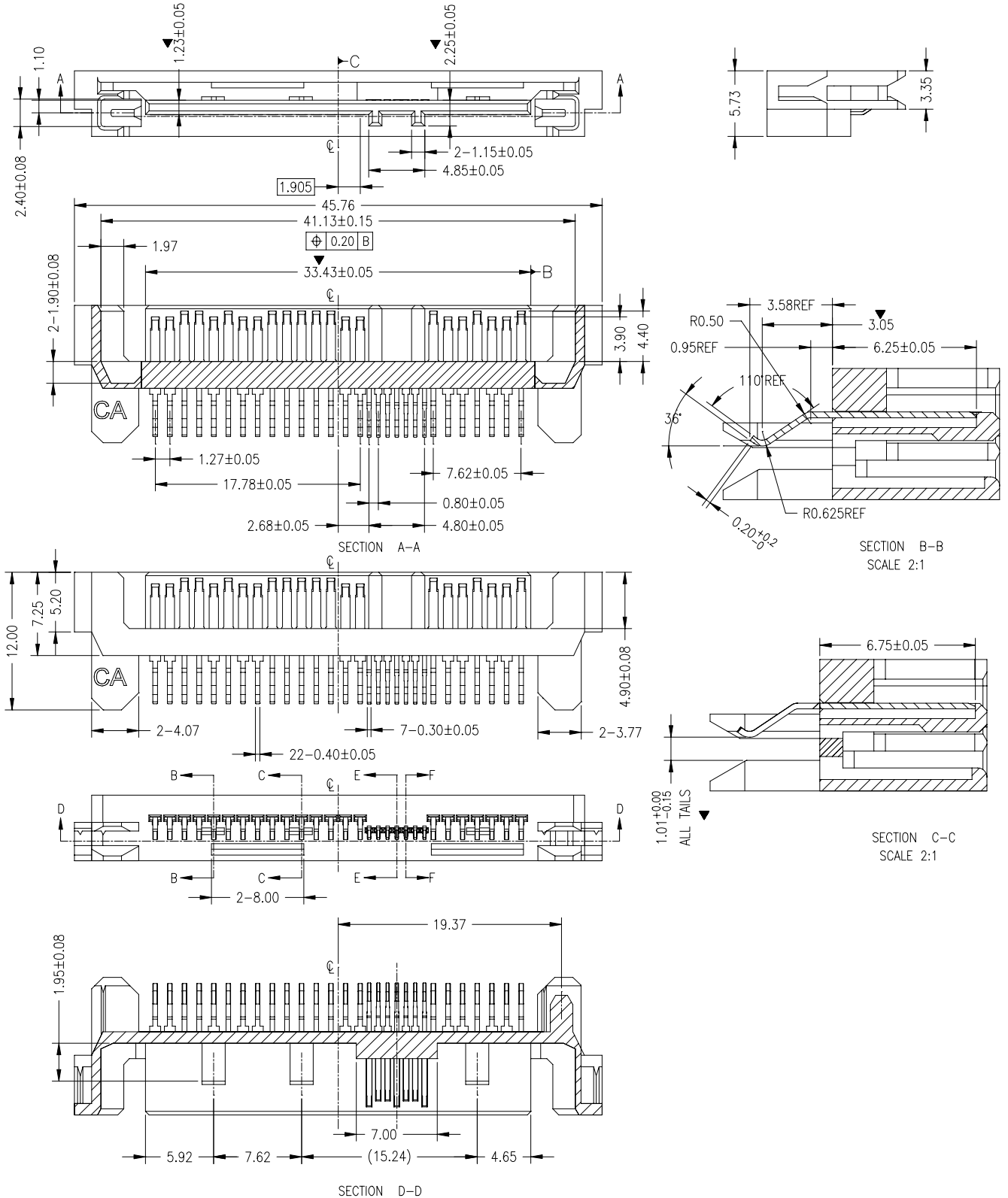
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## 3.4.4 CA-29SASP-X-13







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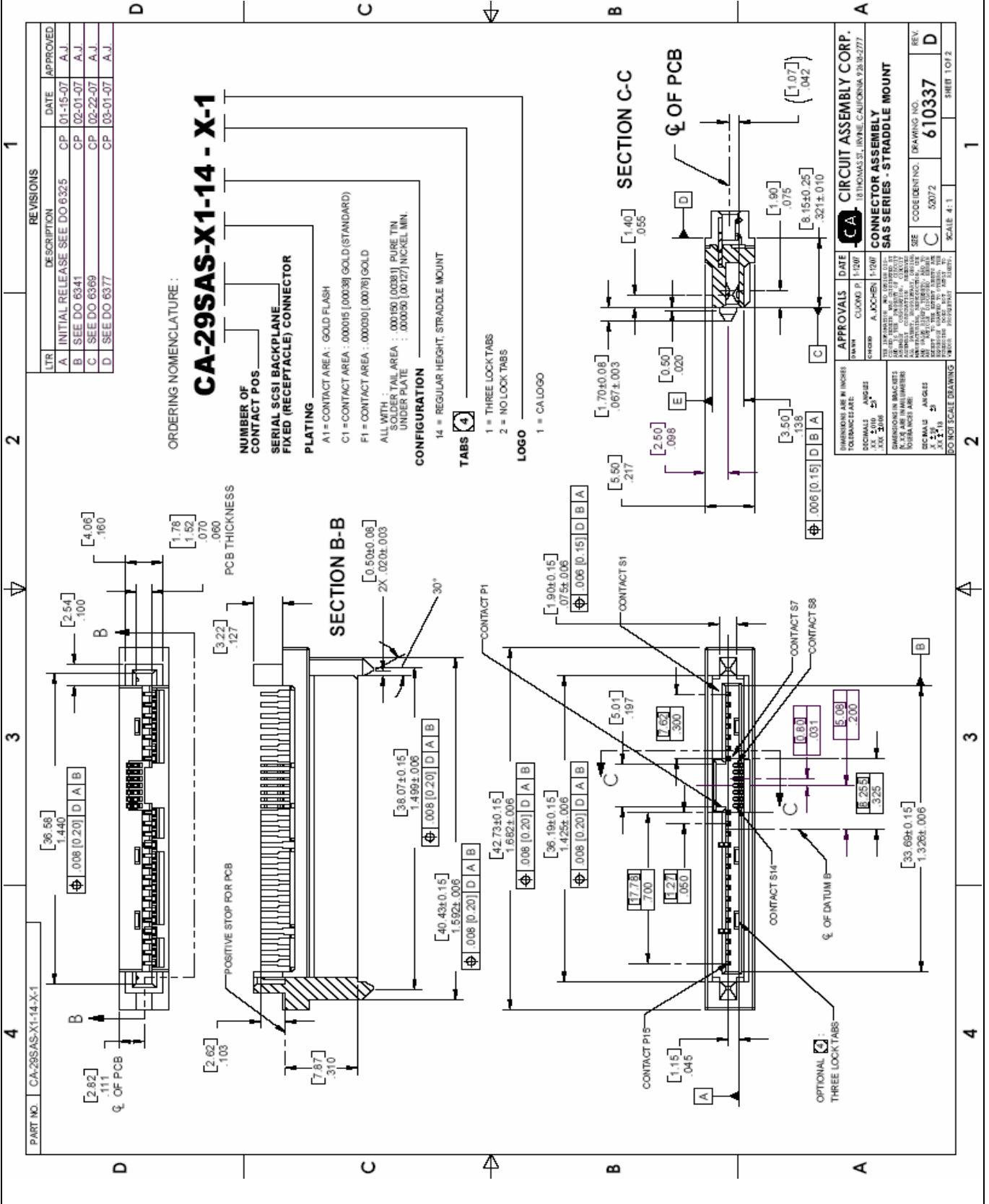
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## 3.4.5 CA-29SAS-X1-14-X-X





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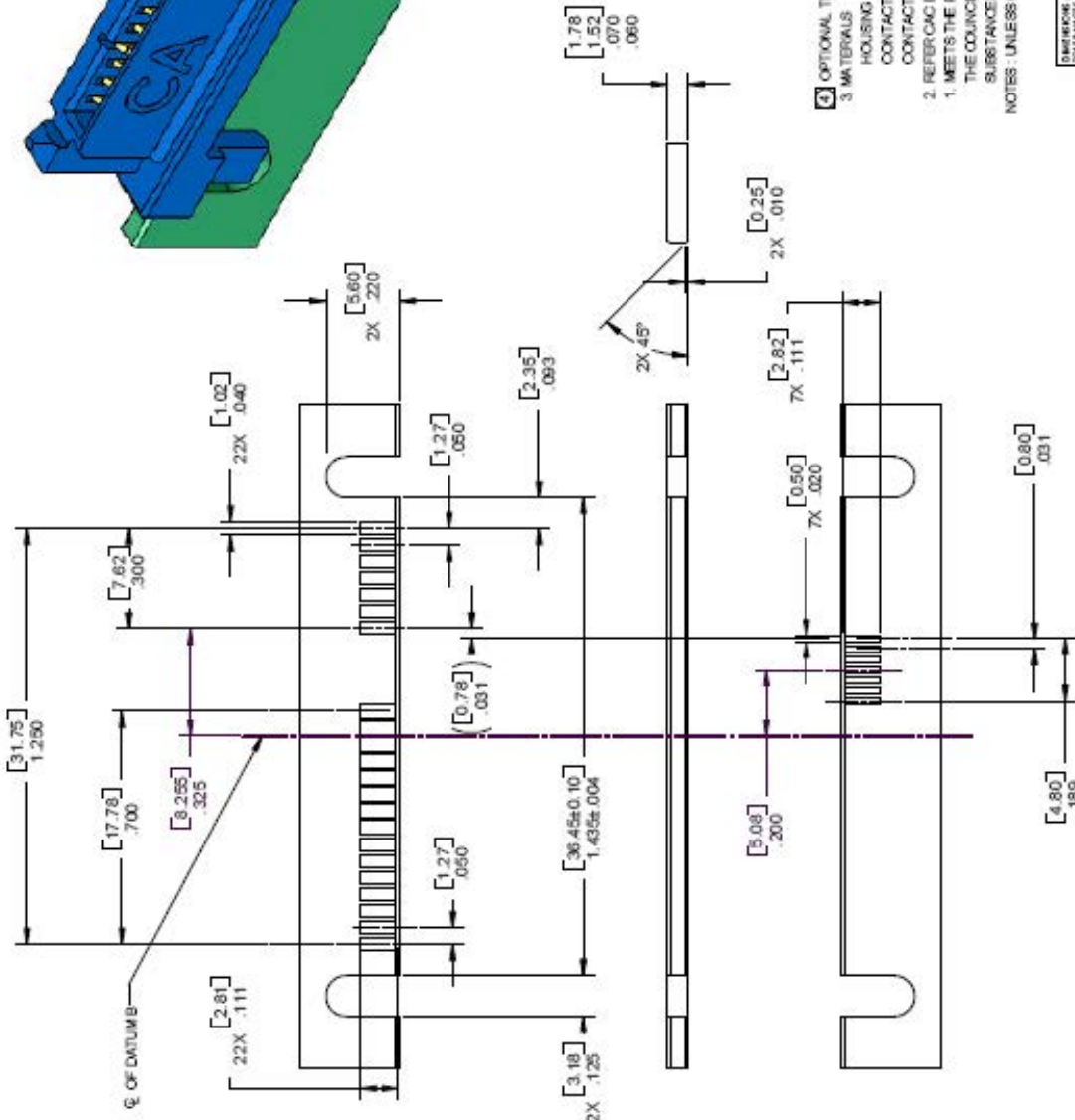
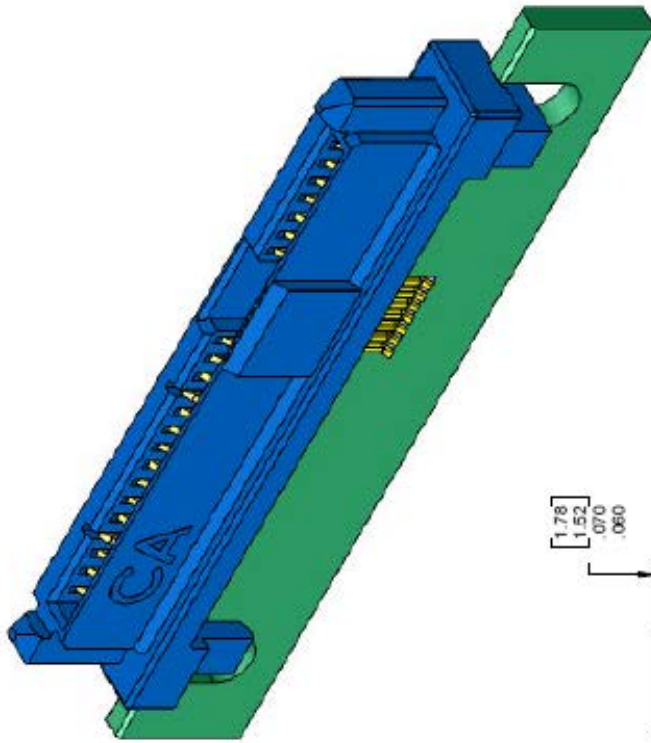
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DATE: 04/01/14'

REVISIONS		
DATE	DESCRIPTION	APPROVED
	SEE SHEET 1 OF 2	



### 3 OPTIONAL THREE LOCK TABS

- 3 MATERIALS  
HOUSING - HIGH TEMPERATURE THERMOPLASTIC, 30% GLASS FILLED, COLOR BLACK UL 94-V0  
CONTACT - PHOSPHOR BRONZE  
CONTACT PLATING - SEE ORDERING NOMENCLATURE
2. REFERENCE DRAWING # H100030 FOR SPECIFICATION.
1. MEETS THE REQUIREMENTS OF DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 17 JANUARY 2003 ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (RHS).
- NOTES: UNLESS OTHERWISE SPECIFIED

APPROVALS	DATE	APPROVED
DESIGNED BY: CHUNYU P. 1/13/07		
DRAWN BY: A. JOCHIM 1/13/07		
CHECKED BY: M. J. GIBSON 1/13/07		
APPROVED BY: J. J. GIBSON 1/13/07		
DATE: 04/01/14		
SCALE: 1:1		
DRAWING NO: 610337		
REV: D		
ISSUE NO: 5/20/72		
SCALE: 4:1		
SHEET 2 OF 2		

RECOMMENDED PCB LAYOUT





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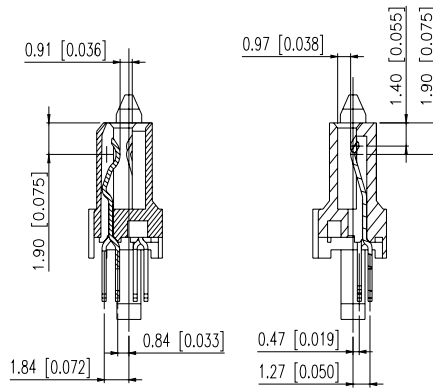
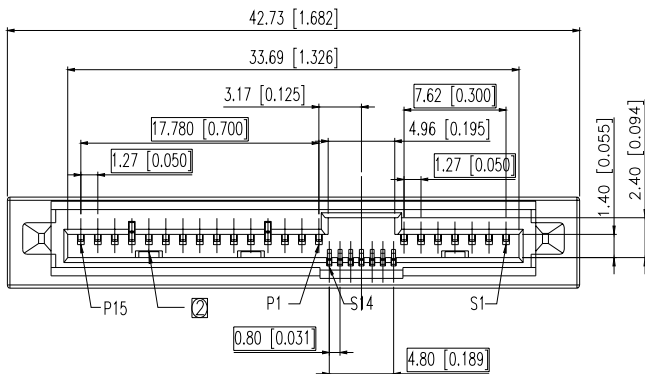
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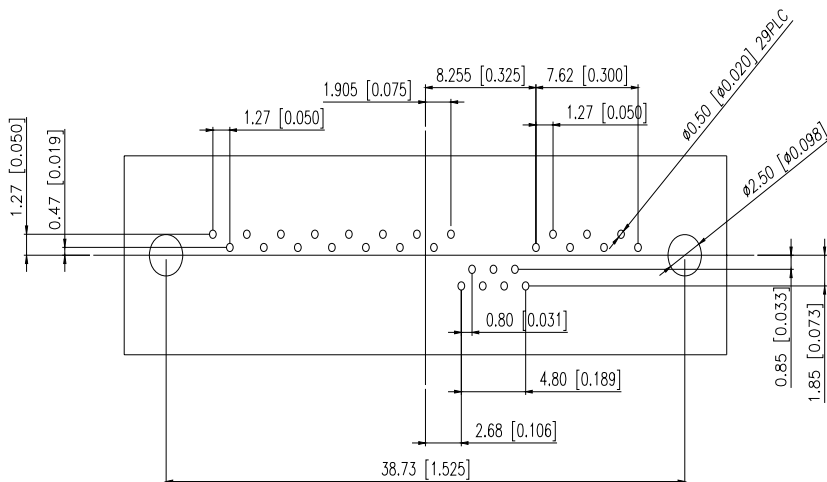
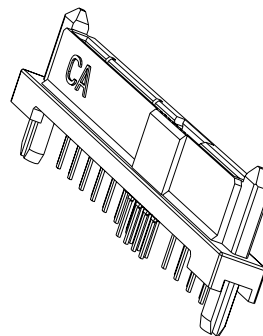
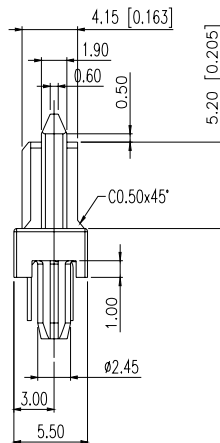
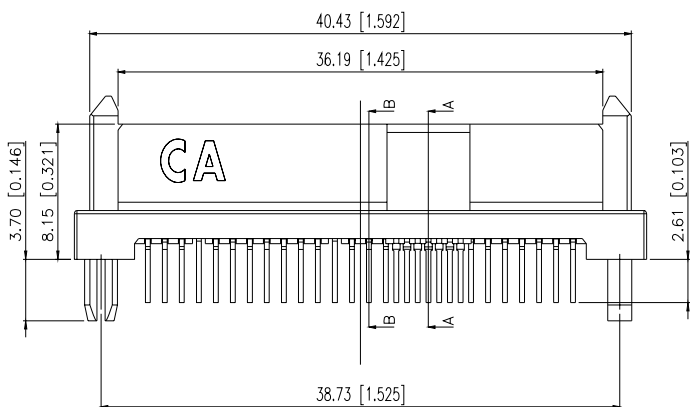
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## 3.4.7 29SAS-X-11-X-X



SECTION A-A

SECTION B-B



RECOMMEND PCB LAYOUT TOLERANCE=±0.05)

COMPONENT SIDE

ORDERING NOMENCLATURE :

29SAS -X-11-X-X

- NUMBER OF CONTACT POS \_\_\_\_\_
- SERIAL ATA \_\_\_\_\_
- HOST SOCKET \_\_\_\_\_
- PLATING: A:1u'; C:15u'; F:30u' \_\_\_\_\_
- HEIGHT:1=REGULAR; \_\_\_\_\_
- CONTACT: \_\_\_\_\_
- 1=THRU HOLE
- 2=PRESS FIT
- LOCK  : \_\_\_\_\_
- 1=HAVE THREE LOCK TABS
- 2=NOT HAVE THREE LOCK TABS
- MARK: \_\_\_\_\_
- 1=HAVE "CA" MARK
- 2=NOT HAVE "CA" MARK



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## 4 Performance and Testing

4.1 Test Requirement and Procedures Summary are shown in table1.

Table 1

### Electrical performance

Test description	Test condition	Requirement
Insulation resistance	After 500V DC for 1minute,measure the insulation resistance between the adjacent terminals of mated and unmated connector assemblies (EIA 364-21)	1000M Ohm minimum
Low-level Contact resistance	Subject mated contacts assembled in housing to 20 mV maximum open circuit at 100 mA maximum (EIA 364-23)	30 mOhm maximum, initial per mated pair. 15 mOhm maximum change from initial per mated contact.
Dielectric Withstanding voltage	Subject a voltage of 500VAC for 1 minute between adjacent terminals of mated and unmated connector at sea level. (EIA 364-20)	NO breakdown
Contact Current Rating(Power Segment)	<ol style="list-style-type: none"> <li>1. Mount the connector to a test PCB.</li> <li>2. Wire power pins P1, P2, P8 and P9 in parallel for power</li> <li>3. Wire ground pins P4, P5, P6, P10 and P12 in parallel for return</li> <li>4. Supply 6Amp total DC current to the power pins in parallel, returning from the parallel ground pins(P4,P5,P6,P10 and P12)</li> <li>5. Measure and record the temperature after 96 hours(45 minutes ON and 15 minutes OFF per hour)</li> <li>6. The ambient condition is still air at 25°C</li> </ol>	The temperature shall not exceed 30°C at any point in the connector when contact positions are powered

### Mechanical performance

Test description	Test condition	Requirement
Visual and dimensional inspections	EIA 364-18 Visual, dimensional and functional per applicable quality inspection plan	Meets product drawing requirements
Connector Insertion and Removal force	Mate and un-mate connect assemblies at maximum rate of 25mm per minute(EIA 364-13)	Maximum insertion force 25N(5.5 lbf) Minimum removal force 5N(1.1 lbf) Initial and after durability



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Durability test	500 cycles. Application test done at a maximum rate of 200 cycles per hour (EIA 364-09)	No physical damage. 15 mOhm maximum change from initial Contact Resistance
Contact retention force	Contact back off from housing at maximum rate of 25±3mm per minute(EIA 364-13)	Retention force 0.5Kgf Minimum.
Physical shock	EIA 364-27 Condition H Subject mated connectors to 50 g's half-sine shock pulses of 11 msec duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks	No discontinuities of 1 microsecond or longer duration. 15 mOhm maximum change from initial Contact Resistance
Solder ability	EIA-364-52 Solder Time: 4~5 seconds Solder Temperature: 260±5°C	Dipped portion should have 95% continuous solder coating coverage
Resistance to Soldering Heat(Only for SMT type connector)	Refer to section 4.2.3 for soldering profile	No damage in appearance of connector
Random vibration	Mate connectors and vibrate per EIA 364-28, test condition VII	No discontinuities of 1microsecond or longer duration. 15 mOhm maximum change from initial Contact Resistance
<b>Environmental performance</b>		
Mixed Flowing Gas	1 half of samples are exposed un-mated for 7 days and then mated for 7 addition days. The other half of samples are exposed mated for full 14 days test period Per EIA 364-65, Class 2A	No damage 15 mOhm maximum change from initial Contact Resistance
Thermal shock	Subject mated connectors to 10 cycles between -55°C&+85°C (EIA 364-32 Test Condition I.)	No physical damage 15 mOhm maximum change from initial Contact Resistance
Humidity	Subject the connector to temperature and humidity of 40°C at 90-95%RH for 96 hours (EIA 364-31 Method II Condition A)	No physical damage 15 mOhm maximum change from initial Contact Resistance
Temperature life	Subject mated connectors to temperature life at +85°C for 500 hours (EIA 364-17, Test Condition III. Method A)	No physical damage 15 mOhm maximum change from initial Contact Resistance



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4.2 Product Qualification and Test Sequence

TABLE 2

ITEM	TEST	TEST GROUP (a)							
		A	B	C	D	E	F	G	H
		TEST SEQUENCE (b)							
1.	Examination of the connector(s)	1,5	1, 9	1,8	1,8	1, 7	1	1,3	1
2.	Low-level Contact resistance	2,4	3, 7	2,4,6		4, 6			
3.	Insulation resistance				2,6				
4.	Dielectric withstanding voltage				3,7				
5.	Current rating			7					
6.	Insertion force		2						
7.	Removal force		8						
8.	Durability	3	4			2			
9.	Contact retention force								2
10.	Physical shock		6						
11.	Vibration		5						
12.	Humidity				5				
13.	Temperature life			3					
14.	Reseating (manually unplug/plug three times)			5		5			
15.	Mixed flowing gas					3			
16.	Thermal shock				4				
16.	Solder ability						2		
17.	Resistance to Soldering Heat							2	

NOTE:

(a) Preconditioning, 20 cycles for the durability cycle requirement, 50 cycles for the 500 durability cycle requirement. The mating and un-mating cycle is at the maximum rate of 200 cycles per hour.



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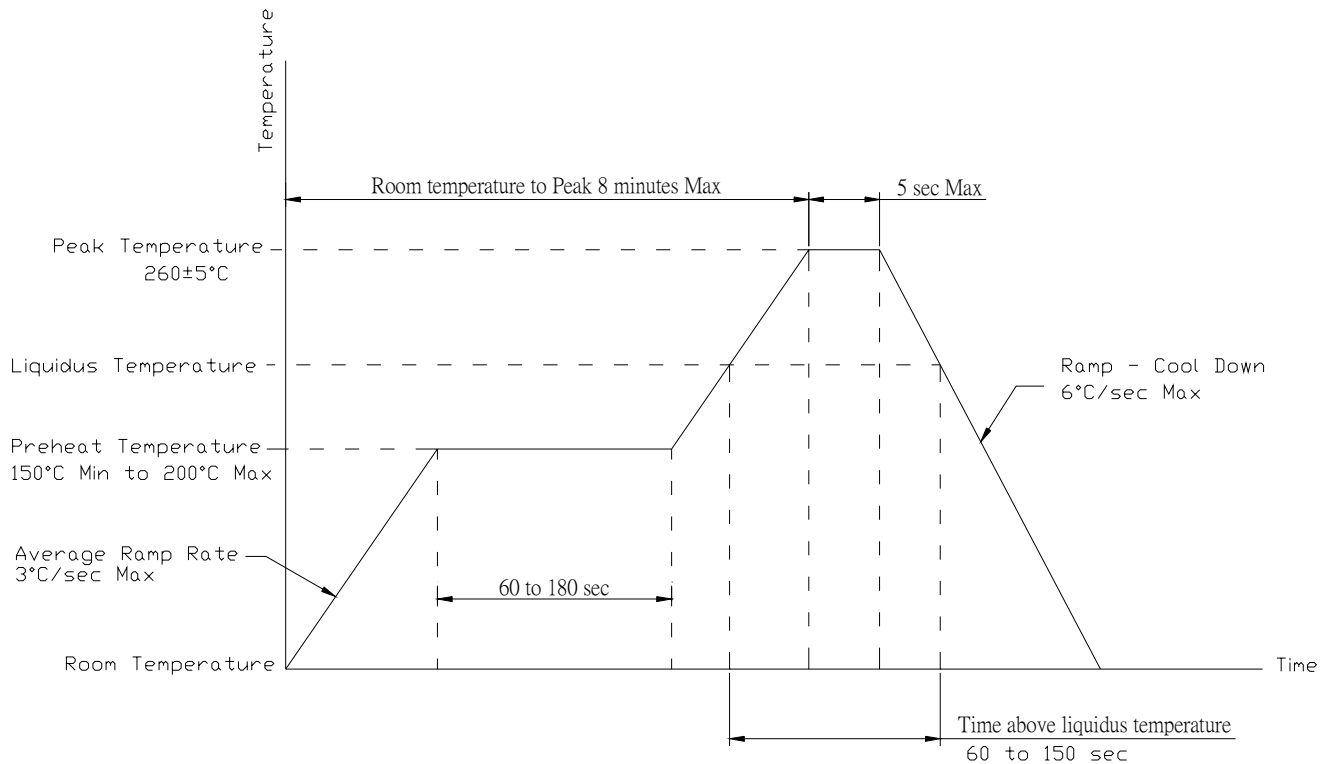
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## 4.3 SOLDER PROFILE



NOTE: Please check the reflow soldering condition by your own devices beforehand.

Because the condition changes by soldering devices, P.C. boards, and so on.