

ASSEM TECHNOLOGY 岱煒科技股份有限公司

岱煒科技股份有限公司
ASSEM TECHNOLOGY CO.,LTD.
SPECIFICATION FOR APPROVAL

PROJECT NAME: AH2 BTB

AH20S Series (Socket)

PART NO.: AH20H Series (Header)

Prepared by	Checked by	Approved by
Wayne Lien	Steven Chang	Taylor Chang

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

REV: A

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Change List

Date	Version	Change List	Maker
2023/12/20	A	NEW VERSION RELEASE	Wayne

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SPECIFICATION OF PRODUCT

1. Scope:

This specification covers the requirements of product performance, and test methods provisions of 0.35mm pitch mating height 0.6mm with power pin Board-to-Board connector.

2. Applicable documents:

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the specification applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence.

3. Requirements:

3.1. Materials:

Signal Terminal (Socket /Header): Copper Alloy.

The plating description is based on product drawing

Power Terminal (Socket /Header): Copper Alloy.

The plating description is based on product drawing

Housing: Heat Resistance Plastic (UL 94V-0), Black.

3.2. Rating

3.2.1. Operating Conditions

Rated current: Signal terminal 0.3A per pin /Power terminal 3A Max. per pin

Rated voltage: 30V AC/DC

Operating temperature: -40°C ~ 85°C

Operating humidity: 85%R.H max.

3.2.2. Storage Conditions

Storage temperature: -25°C ~ 60°C

Storage Humidity: 85%R.H max. (No freezing or condensation)

4. Manufacture Place :

No.17, Minquan ST., Tucheng Dist., New Taipei City 23679, TAIWAN

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5. Electrical Performance:

No.	Items	Requirements	Test Procedures
5.1	Breakdown Voltage	150V AC for 1minute (Initial stage)	In accordance with EIA 364-20 a) Test voltage, 150V AC (rms) b) Duration, 60 seconds c) Measurement, neighboring contacts and contact to shell.
5.2	Insulation Resistance	1000MΩ Min.(initial) After test : 500MΩ Min.	In accordance with EIA 364-21 a) Test voltage, 100V DC b) Measurement, neighboring contacts and contact to shell.
		For Humidity(Steady State) Test For Humidity (Cycling) Test 1000MΩ Min. Initial 100MΩ Min. after test :	
5.3	Contact Resistance	Signal circuit: 70mΩ Max. initial 100mΩ Max. after test. Power/GND circuit: 20mΩ Max. initial 50mΩ Max. after test.	In accordance with EIA-364-23. a) 20mV max. DC for the open circuit voltage b) 10mA DC for the closed circuit voltage
5.4	Temperature Rising	Over ambient $\Delta T 30^{\circ}\text{C}$ Max.	The temperature rise above ambient shall not exceed 30°C at any point when power up (see below) a) Signal circuit 0.3 A max. per contact. Power/GND circuit 3.0 A max. per contact. b) Ambient conditions, still air at $25 \pm 5^{\circ}\text{C}$. c) Header and Socket connectors shall be soldered to boards. When the connectors are mated, the board traces shall serially interconnect all the signal and ground contacts. d) Thermocouple shall be located near the interface of the center contact

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6. Environmental Performance:

No.	Items	Requirements	Test Procedures
6.1	Thermal Shock	5 cycles Appearance : No abnormality.	The mated connectors are tested in accordance with EIA 364-32 and the following details shall apply: a) Temperature range between -55 to +85°C b) Temperature transfer rate, less than 1 minute. c) Temperature dwell, 30 minutes at each temperature extreme. d) Duration, 5 cycles.
6.2	High Temperature Life	Appearance : No abnormality	The mated connectors are tested in accordance with EIA 364-17 a) Temperature, 85±2°C b) Duration, 250 hours.
6.3	Humidity (Steady State)	After Test Appearance : No abnormality.	The mated connectors are tested in accordance with EIA 364-31 and the following details shall apply: a) Appearance : No abnormality b) Temperature, 40±2°C c) Humidity, 90 to 95RH%. d) Duration, 240 hours.
6.4	Humidity (Cycling)	After Test Appearance : No abnormality.	The mated connectors are tested in accordance with EIA 364-31, method III. a) Temperature, 25 to 65°C b) Humidity, 90 to 98RH%. c) Duration, 10 cycles / 240 hours.
6.5	Salt Spray	Appearance : No abnormality	The mated connectors are tested in accordance with MIL-STD-202G method 101E Condition B and the following details shall apply: a) Chamber temperature, 35 ± 2°C b) Salt water density, 5 ± 1% by weight. c) Duration, 48 hours.

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7. Mechanical Performance:

No.	Items	Requirements	Test Procedures
7.1	Mating Force	Connector Mating Force: 2P : 8.8N Max 6P : 13.3N Max 8P : 15.5N Max. 10P : 17.7N Max. 12P : 20N Max. 16P : 24.4N Max.	In accordance with EIA 364-13 and the following details shall apply: a) Cross head speed, 25+/-3 mm/min.
7.2	Un-mating Force	Connector Un-mating Force: 2P : 1.2N Min. 6P : 1.8N Min. 8P : 2.1N Min. 10P : 2.4N Min. 12P : 2.7N Min. 16P : 3.3N Min.	
7.3	Vibration	Appearance no damage, loose part nor crack. Discontinuity : 1 μ s MAX. Appearance : No abnormality	In accordance with EIA 364-28 and the following details shall apply: a) Discontinuity: 100mA DC, no discontinuity greater than 1 μ s shall occur. b) Appearance : No abnormality. c) Frequency: 10-55-10Hz / approx., 1 minute. d) Direction: 3 mutually perpendicular directions. e) Total amplitude: 1.52mm. f) Sweep duration: 2 hours for each direction, 6 hours totally.

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7.4	Shock	<p>Appearance no damage, loose part nor crack.</p> <p>After test: Discontinuity : 1μs MAX. Appearance : No abnormality</p>	<p>The mated connectors are tested in accordance with EIA 364-27 and the following details shall apply:</p> <p>a) Discontinuity: 100mA DC, no discontinuity greater than 1μs shall occur.</p> <p>b) Without physical damage.</p> <p>c) Type: 50G, 11 ms pulse duration, 1/2 Sine.</p> <p>d) Direction: 6 mutually perpendicular directions.</p> <p>e) Duration: 3 cycles each direction.</p>
7.5	Durability	10 cycles	<p>In accordance with EIA 364-09 and the following details shall apply</p> <p>a) Appearance : No abnormality</p> <p>b) Automatic equipment Mating/Un-Mating: 500 \pm 50 cycle/hour.</p>

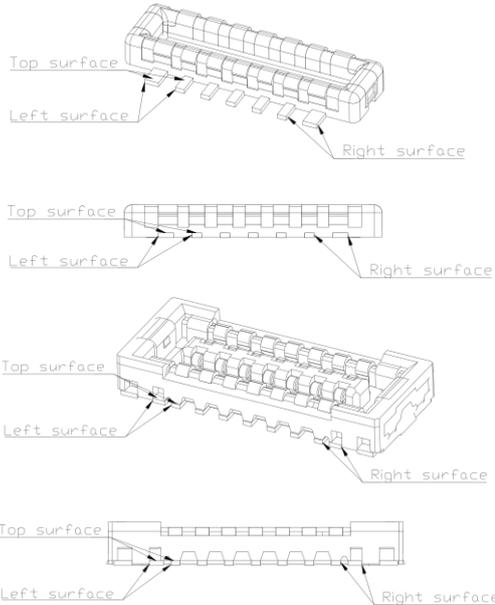
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8. Other Performance:

No.	Items	Requirements	Test Procedures
8.1	Solder Ability	<p>The dipped PIN shall be evenly wet.</p> <p>Top surface : More than 50%</p> <p>Left surface : More than 95%</p> <p>Right surface : More than 95%</p> 	<p>Test Condition:</p> <p>a) Solder bath temperature, 245±5°C</p> <p>b) Immersion duration, 5 ± 0.5 seconds.</p> <p>c) R-type flux with 5 to 10 seconds immersion.</p>
8.2	Soldering Resistance Heat	<p>Header:</p> <p>Metal mask thickness : 0.08mm</p> <p>Opening ratio : 80%</p> <p>Appearance : No abnormality</p> <p>Socket:</p> <p>Metal mask thickness : 0.1mm</p> <p>Opening ratio : 100%</p> <p>Appearance : No abnormality</p>	<p>In accordance with EIA 364-56</p> <p>a) Without physical damage, 2 cycles.</p> <p>b) Peak Temperature, 250 to 265°C</p> <p>c) Pre-heating, 140 to 180°C with 60 to 120 seconds.</p> <p>d) Reflow profile refer to section #9.0</p>
8.3	Soldering Iron Resistance	<p>Appearance : No abnormality</p>	<p>a) Iron temperature, 350 ± 10°C</p> <p>b) Duration, 5 ± 1 seconds with 3 times.</p>

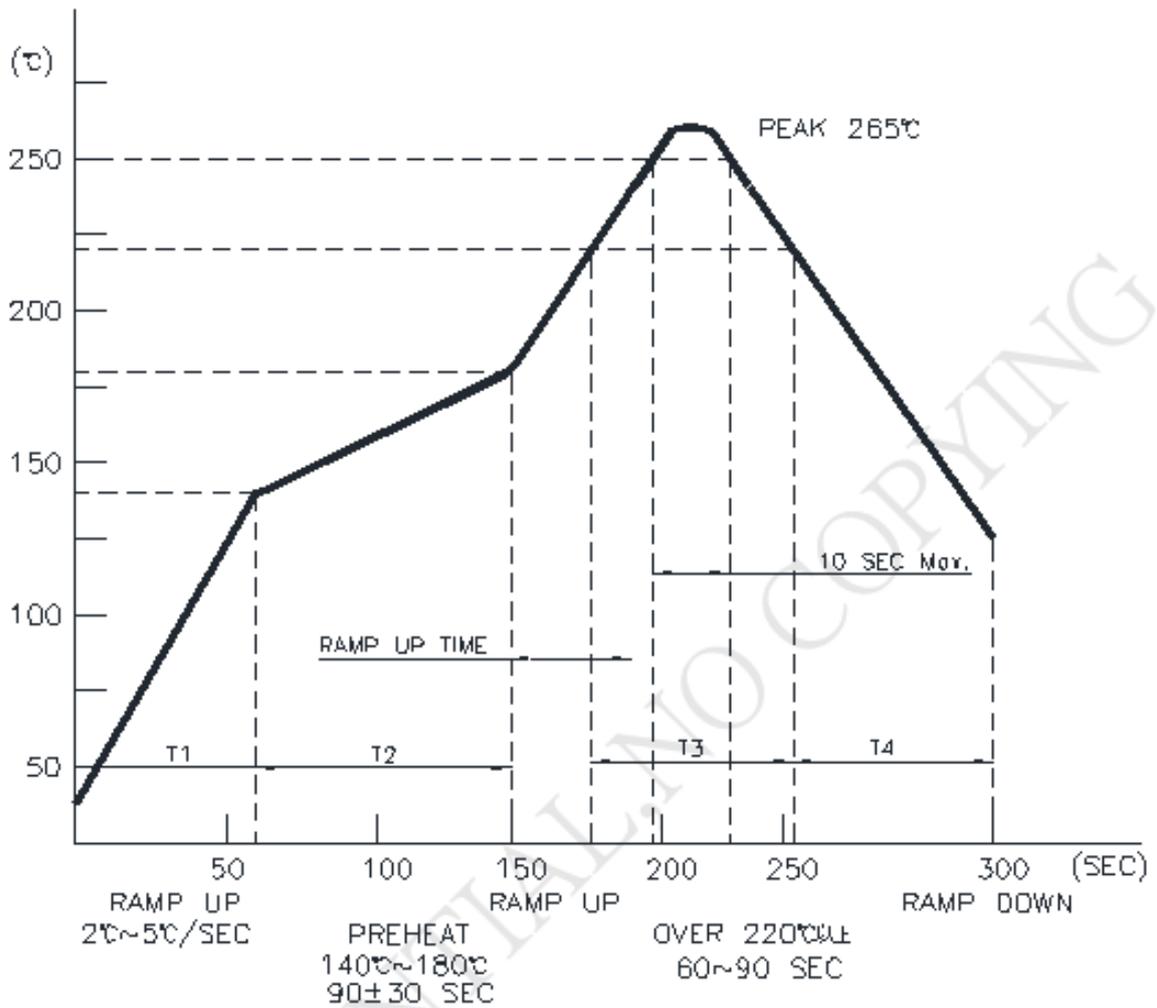
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9. Recommended Reflow Profile



T1:	Temperature Ramp Up Rate	2°C~5°C/SEC
T2:	Preheat: 140°C~180°C	90±30 SEC
T3:	Time Over 220°C	60~90 SEC
T4:	Ramp Down Rate During Cooling	4°C~7°C/SEC
	Peak Temperature	265°C Max. 10 SEC Max.

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10. Test sequence

Test / Examination	Test Group										
	A	B	C	D	E	F	G	H	J	K	L
Contact Resistance		1,5	1,3,5	1,5	1,3	1,5	1,5	1,3			
Insulation Resistance				2,6		2,6	2,6				
Breakdown Voltage				3,7		3,7	3,7				
Temperature Rising	1										
Mating Force		2									
Un-mating Force		3									
Durability		4									
Vibration			2								
Shock			4								
Thermal Shock				4							
High Temperature Life					2						
Humidity (Steady State)						4					
Humidity (Cycling)							4				
Salt Spray								2			
Solder-ability									1		
Soldering Resistance Heat										1	
Soldering Iron Resistance											1
Sample Size	5	5	5	5	5	5	5	5	10	10	10

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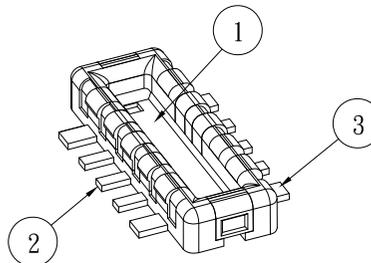
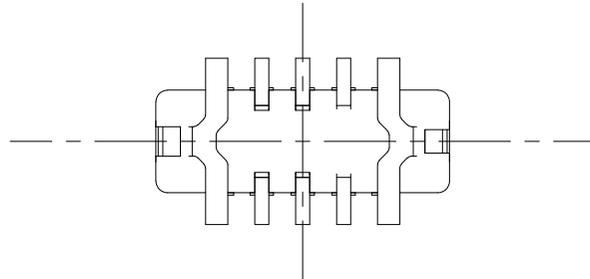
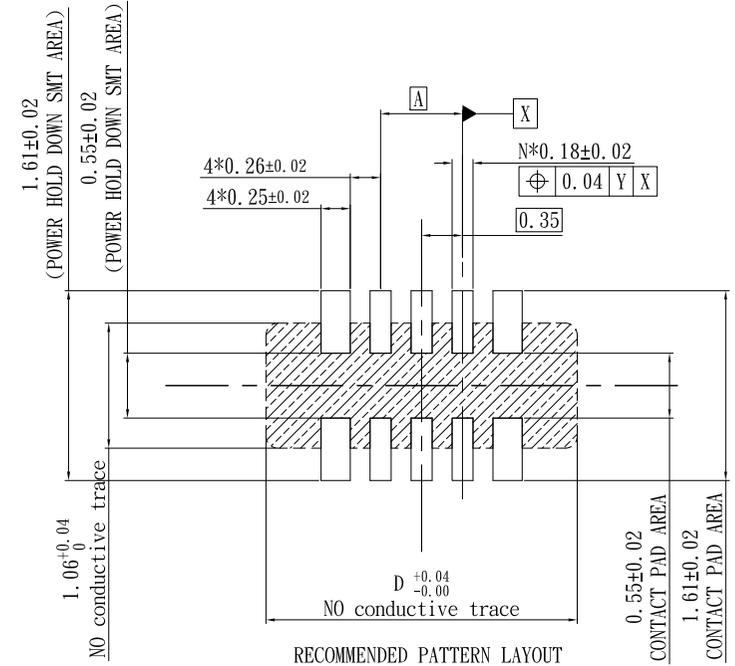
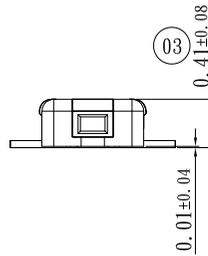
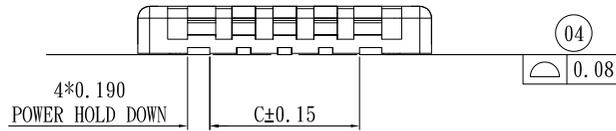
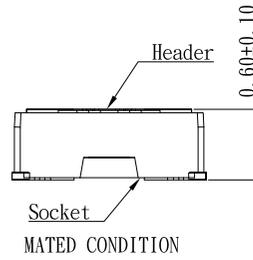
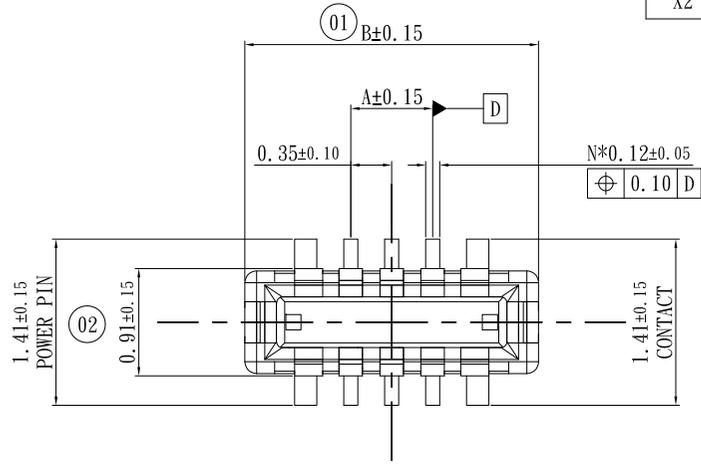
Parts Name	General Name	Model No.	Heat Resistance Level
Housing	Heat Resistance Plastic	LCP	UL94V-0
Socket Terminal	Croson Alloy	Copper Alloy	—
Header Terminal	Croson Alloy	Copper Alloy	---
Socket Power Terminal	Croson Alloy	Copper Alloy	—
Header Power Terminal	Croson Alloy	Copper Alloy	---

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Customer

REV.	ECN NO.	DESCRIPTION	DATE	PREP.	CHK	APPR.
X1	DW002119	NEW RELEASE	2022. 12. 29	Wayne	Steven	Taylor
X2	DW002256	PRODUCT UPDATE	2023. 5. 15	Wayne	Steven	Taylor

NUMBER OF CONTACT	A	B	C	D
2	0	1.81	0.58	1.96
6	0.70	2.51	1.28	2.66
8	1.05	2.86	1.63	3.01
10	1.40	3.21	1.98	3.36
12	1.75	3.56	2.33	3.71
16	2.45	4.26	3.03	4.41



- NOTES :
- MARK "XX" IS MAJOR DIMENSION.
 - COPLANARITY : 0.08 MAX.
 - RoHS Compliant
 - Part No. : 20-AH20H-XXB00-001

No. OF SERIES

H : HEADER

Contacts No.

ITEM	DESCRIPTIONS	QTY.	MATERIAL	FINISH	REMARKS
①	HOUSING	1	HIGH TEMP.PLASTIC	BLACK	UL94-V0
②	CONTACT	-	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-
③	POWER PIN	2	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-

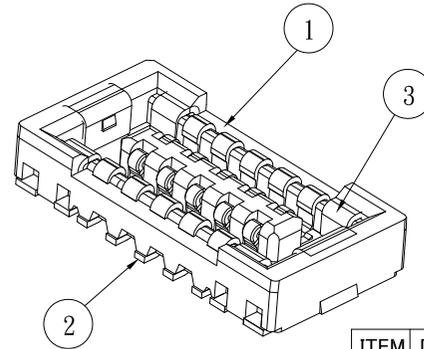
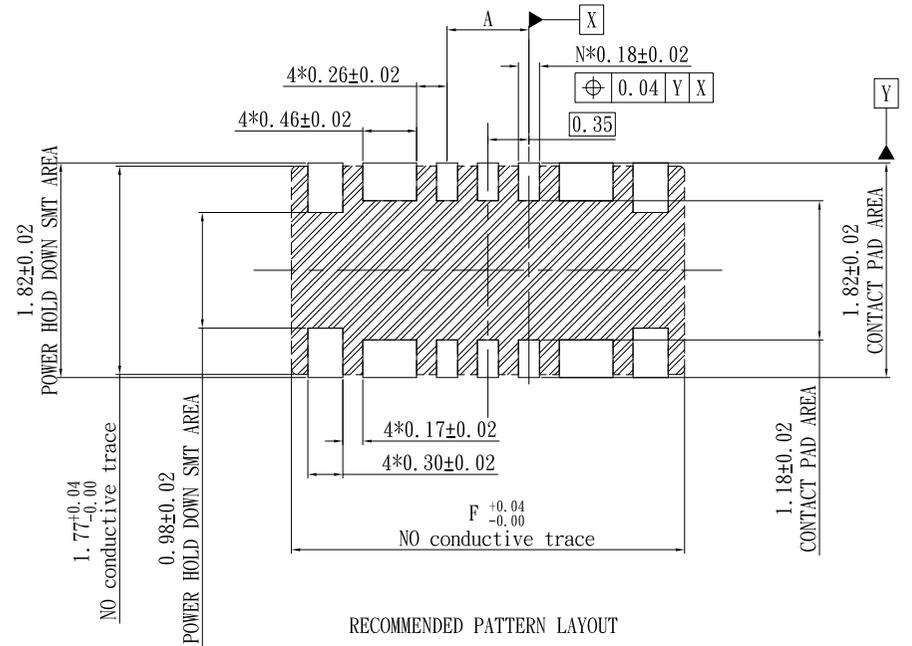
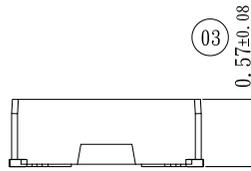
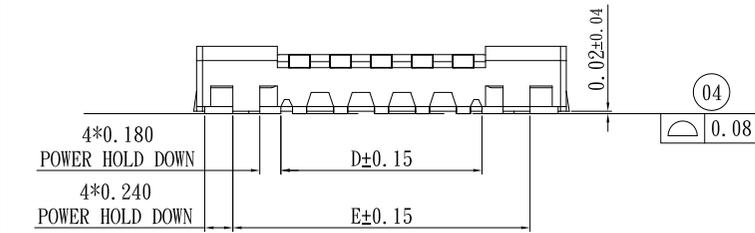
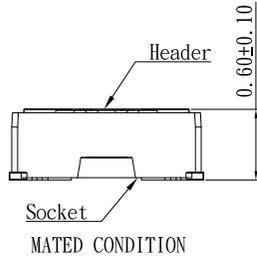
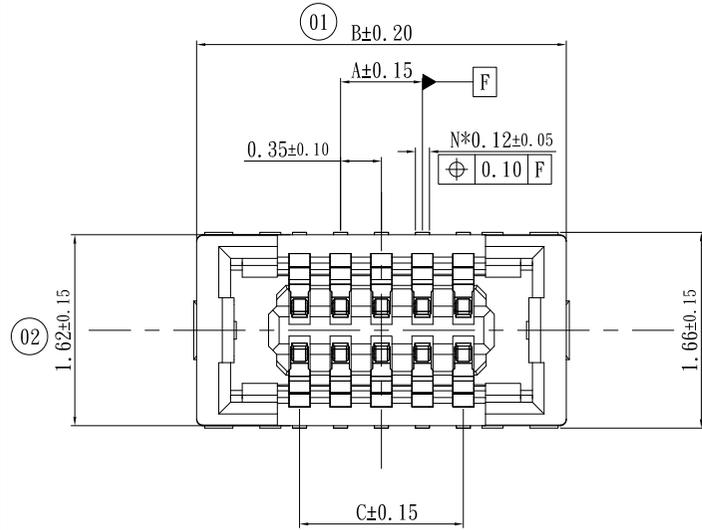
General tolerance		P / N		TITLE	
DIMENSION	ANGLES	20-AH20H-XXB00-001		0.35 Pitch AH2 Board to Board Mating height 0.6mm Header Approval	
.X ±0.30	X. ° ±2°	PREP.	Wayne	Original Date	2022. 12. 29
.XX ±0.20	X.X' ±1°	CHK.	Steven	SCALE	UNIT
.XXX ±0.15	X.XX' ±0.5°	APPD.	Taylor	16:1	mm
				REV.	SHEET
				X2	1 / 1

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Customer

REV.	ECN NO.	DESCRIPTION	DATE	PREP.	CHK	APPR.
X1	DW002119	NEW RELEASE	2022. 12. 28	Wayne	Steven	Taylor

NUMBER OF CONTACT	A	B	C	D	E	F
2	0	2.46	0.7	1.02	1.84	2.66
6	0.70	3.16	1.40	1.72	2.54	3.36
8	1.05	3.51	1.75	2.07	2.89	3.71
10	1.40	3.86	2.10	2.42	3.24	4.06
12	1.75	4.21	2.45	2.77	3.59	4.41
16	2.45	4.91	3.15	3.47	4.29	5.11



- NOTES :
- MARK "XX" IS MAJOR DIMENSION.
 - COPLANARITY : 0.08 MAX.
 - RoHS Compliant
 - Part No. : 20-AH20S-XXB00-001

No. OF SERIES _____

S : SOCKET _____ Contacts No. _____

ITEM	DESCRIPTIONS	QTY.	MATERIAL	FINISH	REMARKS
①	HOUSING	1	HIGH TEMP.PLASTIC	BLACK	UL94-V0
②	CONTACT	-	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-
③	POWER PIN	2	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-

General tolerance		P / N		TITLE	
DIMENSION	ANGLES	20-AH20S-XXB00-001		0.35 Pitch AH2 Board to Board Mating height 0.6mm Socket Approval	
.X ±0.30	X. ° ±2°	PREP.	Wayne	Original Date	2022. 12. 28
.XX ±0.20	X.X ° ±1°	CHK.	Steven	SCALE	UNIT
.XXX ±0.15	X.XX ° ±0.5°	APPD.	Taylor	16:1	mm
				REV.	SHEET
				X1	1 / 1
				ATC ASSEM TECHNOLOGY CO., LTD.	