立威科技股份有限公司 Attend Technology Inc.
新北市汐止區新台五路一段81號10樓之六
10F-6, No.81, Sec.1, Xintai 5th Rd., Xizhi-Dist., New Taipei City 221, Taiwan, R.O.C.
TEL 886 2 2698 7028 FAX 886 2 2698 7078 WEBSITE www.attend.com.tw

SPECIFICATION AND PERFORMANCE

Series	123A-XXXX2	File	123A-XXXX2_SPEC_1	Date	2024/09/10

Scope:

This specification covers the requirements for product performance, test methods and quality assurance provisions of below

P/N	Description
123A-42B02	M.2 Gen5 Socket, H4.2 B Key 0.5 Pitch G/F, Black, Reel
123A-42E02	M.2 Gen5 Socket, H4.2 E Key 0.5 Pitch G/F, Black, Reel
123A-42M02	M.2 Gen5 Socket, H4.2 M Key 0.5 Pitch G/F, Black, Reel
123A-85B02	M.2 Gen5 Socket, H8.5 B Key 0.5 Pitch G/F, Black, Reel
123A-85E02	M.2 Gen5 Socket, H8.5 E Key 0.5 Pitch G/F, Black, Reel
123A-85M02	M.2 Gen5 Socket, H8.5 M Key 0.5 Pitch G/F, Black, Reel

Performance and Descriptions:

The product is designed to meet the electrical, mechanical and environmental performance requirements specification. Unless otherwise specified, all tests are performed at ambient environmental conditions.

RoHS:

All material in according with the RoHS environment related substances list controlled.

MATERIALS		
NO.	**PART NAME**	**DESCRIPTION**
1	Housing	PA9T, UL94V-0, Black
2	Contact	Copper Alloy C7025, 1~3u" gold plating on contact & solder area, 50u" min. nickel under-plating over all
3	Hold down	Brass C2680, 50u"min. matte tin plating under 50u" min. nickel plating
4	Shield	Brass C2680, 50u"min. nickel plating over all
5	Cap (NOTE 1)	PA9T, UL94V-0, Black
Note 1: Not all P/N have this part, please refer to the drawing for details.		

RATING	
Rated Voltage	50 Volt AC (RMS)
Rated Current	1.0 Amperes power contact
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Durability	60 Cycles

立威科技股份有限公司 Attend Technology Inc.
新北市汐止區新台五路一段81號10樓之六
10F-6, No.81, Sec.1, Xintai 5th Rd., Xizhi-Dist., New Taipei City 221, Taiwan, R.O.C.
TEL 886 2 2698 7028 FAX 886 2 2698 7078 WEBSITE www.attend.com.tw

ELECTRICAL		
Item	**Requirement**	**Test Condition**
Low Level Contact Resistance	55mΩ max.(initial), Δ20mΩ (finish)	Subject mated contacts assembled in housing to closed circuit current of 100mA (max) at open circuit voltage of 20mV voltage (max.) EIA 364-23
Insulation Resistance	500MΩ min.	Measure by applying 500VDC for 2 minutes between adjacent contacts of unmated connector. EIA-364-21
Withstanding Voltage	No Breakdown	Apply 300VAC for 1 minute between adjacent contacts of unmated connector. EIA-364-20
Contact Current Rating	The temperature rises above ambient must not exceed 30°C The ambient condition is still air at 25°C	1.0A/power contact (continuous) 1.2A/power contact (less than 100us duration) (M.2-1A) EIA-364-70
Differential Insertion Loss (DDIL)	[-0.034375*Freq(GHz)-0.2] for Freq ≦ 16 [-0.15625*Freq(GHz) + 1.75] for 16 < Freq ≦ 24	Mated connector and module including solder pad and gold finger. The result shall be referenced to 85Ω differential impedance EIA-364-101
Differential Return Loss (DDRL)	[0.625*Freq(GHz) - 20] for Freq ≦ 16 GHz [0.875*Freq(GHz) - 24] for 16 < Freq ≦ 24 GHz	Mated connector and module including solder pad and gold finger. The result shall be referenced to 85Ω differential impedance EIA-364-108
Differential Near End Crosstalk (DDNEXT)	[0.3125*Freq(GHz) - 45] for Freq ≦ 16 [0.625*Freq(GHz) - 50] for 16 < Freq ≦ 24 $ccICN_{NEXT}$ ≦ 1200μV for fmax = 24 GHz	Mated connector and module including solder pad and gold finger. The result shall be referenced to 85Ω differential impedance The crosstalk shall be pair-to-pair between any two differential pairs. EIA-364-90
Differential Far End Crosstalk (DDFEXT)	[0.833*Freq(GHz) - 60] for Freq ≦ 24 GHz $ccIC_{FEXT}$ ≦ 60 μV for fmax = 24 GHz	Mated connector and module including solder pad and gold finger. The result shall be referenced to 85Ω differential impedance The crosstalk shall be pair-to-pair between any two differential pairs. EIA-364-90

立威科技股份有限公司 Attend Technology Inc.
新北市汐止區新台五路一段81號10樓之六
10F-6, No.81, Sec.1, Xintai 5th Rd., Xizhi-Dist., New Taipei City 221, Taiwan, R.O.C.
TEL 886 2 2698 7028 FAX 886 2 2698 7078 WEBSITE www.attend.com.tw

MECHANICAL		
Item	**Requirement**	**Test Condition**
Module Insertion / Withdrawal Force	2.55Kgf (25N) Max.	Measure the force required to mate/un-mate connector, operation Speed: 25.4mm/min. EIA-364-13
Durability	No evidence of physical damage Contact resistance Δ20mΩ max.	Connector shall be subjected to 60 cycles of insertion and withdrawal. Manual insertion/ withdrawal speed rate: 250cycles/hours EIA-364-09
Vibration	Appearance: no damage Discontinuity: 1μsec Max.	Subject mated connectors, 15 Minutes in each of 3 mutually perpendicular directions. both mating halves should be rigidly fixed so as not to contribute to the relative motion of one contact against another. EIA-364-28 Test condition VII test condition letter D
Physical Shock	Appearance: no damage Discontinuity: 1μsec Max.	The connectors shall be soldered on the PCB, Acceleration: 285G Time: 2ms (half sine wave) Cycles: 3 drops each to normal and reversed directions of X,Y,Z axes, total 18 drops. (EIA-364-27)
Reseating	Appearance no physical damage	The connector pair needs to undergo 3 manual plug/unplug cycles. No lubrication to be used during cycling.

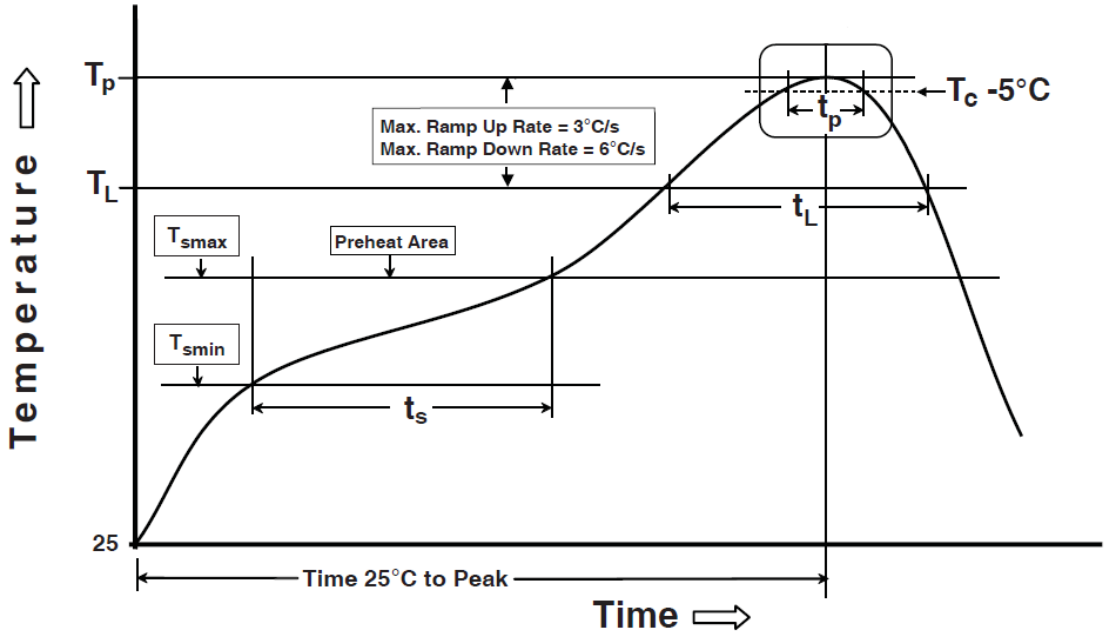
ENVIRONMENTAL		
Item	**Requirement**	**Test Condition**
Solder ability	95% min. of solder area 10x the magnifying glass of view	Soldering time : 4~5 second Solder Temperature: 245±5°C (EIA-364-52)
Thermal Shock	Contact resistance Δ20mΩ max.	Mated Connectors Temperature: -55℃-> +85℃ Temp. time: 30->30 minute 10 cycles (EIA-364-32 condition I)

立威科技股份有限公司 Attend Technology Inc.
新北市汐止區新台五路一段81號10樓之六
10F-6, No.81, Sec.1, Xintai 5th Rd., Xizhi-Dist., New Taipei City 221, Taiwan, R.O.C.
TEL 886 2 2698 7028 FAX 886 2 2698 7078 WEBSITE www.attend.com.tw

Temperature Life	Contact resistance Δ20mΩ max.	Mated Connectors, temp. 105℃, 96 hours, (EIA-364-17 test condition IV.)
Humidity-Temperature Cycling	Contact resistance Δ20mΩ max.	Cycle the connector or socket between 25 °C ± 3 °C at 80 % ± 3% RH and 65 °C ± 3 °C at 50 % ± 3% RH. Ramp times should be 0.5 hour and dwell times should be 1.0 hour. Dwell times start when the temperature and humidity have stabilized within the specified levels. Perform 24 such cycles. EIA-364-31
Thermal Cycling	Contact Resistance △R=20 mΩMax.(Final)	Cycle the connector or socket between 15 °C ± 3 °C and 85 °C ± 3 °C, as measured on the part. Ramps should be a minimum of 2 °C per minute, and dwell times should insure that the contacts reach the temperature extremes (a minimum of 5 minutes). Humidity is not controlled. Perform 500 such cycles.
Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed	Subject mated connectors to 35+/-2℃ and 5+/-1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. (EIA-364-26)
Mixed flowing gas	Contact Resistance △R=20 mΩMax.(Final)	Mated connectors, Duration: 120 hours (EIA-364-65, class IIA)
Thermal Disturbance	Contact Resistance △R=20 mΩMax.(Final)	Cycle the connector or socket between 15 °C ± 3 °C and 85 °C ± 3 °C, as measured on the part. Ramps should be a minimum of 2 °C per minute, and dwell times should insure that the contacts reach the temperature extremes (a minimum of 5 minutes). Humidity is not controlled. Perform 10 such cycles.

立威科技股份有限公司 Attend Technology Inc.
新北市汐止區新台五路一段81號10樓之六
10F-6, No.81, Sec.1, Xintai 5th Rd., Xizhi-Dist., New Taipei City 221, Taiwan, R.O.C.
TEL 886 2 2698 7028 FAX 886 2 2698 7078 WEBSITE www.attend.com.tw

Resistance to Reflow Soldering Heat	No physical damage shall occur. Test Initial and final, collinearity of product shall meet requirements of applicable product drawing and specification.	Test connector on PCB Pre-heat:150~200°C, 60~120 sec. Heat: up 217°C, 60~150 sec. Ramp up rate 3°C/ sec. max. Ramp down rate 6°C/ sec. max. Peak temp: 260°C max. IPC/ JEDEC J-STD-020D.1



ATTEND
Connect to Your Success

立威科技股份有限公司 Attend Technology Inc.
新北市汐止區新台五路一段81號10樓之六
10F-6, No.81, Sec.1, Xintai 5th Rd., Xizhi-Dist., New Taipei City 221, Taiwan, R.O.C.
TEL 886 2 2698 7028 FAX 886 2 2698 7078 WEBSITE www.attend.com.tw

Product Qualification and Test Sequence:

Test of Examination	Test Group & Sequence										
	A	B	C	D	E	F	G	H	I	J	K
Examination or product	1,9	1,6	1,8	1,10	1,10	1,10	1,12	1,3	1,3	1,5	1,3
Low Level Contact Resistance	2,8		2,7	2,5 7,9	2,5 7,9	2,5 7,9	2,5,7 9,11			2,4	
Insulation Resistance	3,6										
Contact Current Rating											2
Withstanding Voltage	4,7										
Differential Insertion Loss		2									
Differential Return Loss		3									
Differential Near End Crosstalk		4									
Differential Far End Crosstalk		5									
Module Insertion / Withdrawal Force			3,6								
Durability			4	3	3	3	3				
Vibration						8					
Physical Shock						6					
Reseating			5	8	8		10				
Solder ability									2		
Thermal Shock					4						
Temperature Life				4		4	4				
Humidity-Temperature Cycling	5				6						
Thermal Cycling				6							
Salt Spray										3	
Mixed Flowing Gas							6				
Thermal Disturbance							8				
Resistance to Reflow Soldering Heat								2			