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	230 Series	File	230 Series_Spec_1	Date	2025/07/04

Scope:

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

Part Name	Description
230A-PSX00	Mini FAKRA Plug, Type A, Vertical Type, Code X, H=14.9mm, Reel
230A-PXX00	Mini FAKRA Plug, Type A, Right Angle, XX o'clock, Code X, Reel
230B-PSX00	Mini FAKRA Plug 1X2 Port, Type A, Vertical Type, Code X, H=14.9mm, Reel
230B-PXX00	Mini FAKRA Plug 1X2 Port, Type A, Right Angle, XX o'clock, Code X, Reel
230B-PXX01	Mini FAKRA Plug 1X2 Port, Type B, Right Angle, XX o'clock, Code X Reel
230D-PSX00	Mini FAKRA Plug 2X2 Port, Type A, Vertical Type, Code X, H=14.9mm, Reel
230D-PXX00	Mini FAKRA Plug 2X2 Port, Type A, Right Angle, XX o'clock, Code X, Reel
230D-PXX01	Mini FAKRA Plug 2X2 Port, Type B, Right Angle, XX o'clock, Code X, 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	Nylon, PA4T or equal
2	CONTACT	Copper alloy, 6u" gold plating on contact area, tin plating on solder area, under plating nickel.
3	OUTER SHELL	Zinc alloy, tin plating over nickel
4	INSULATOR	Thermoplastic, black
5	OUTER CONTACT	Metal, tin plating over nickel

RATING	
Rated Current	1 A
Rated Voltage	60V
Operating Temperature	-40°C ~105°C
Storage Temperature	-40°C ~105°C
Durability	25 Min.

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Signal Integrity

Item	Requirement	Test Condition
Impedance	50Ω	DIN EN 60512-25-7
Frequency	9 GHz	DIN EN 60512-25-2
Insertion Loss	$\leq 0.1 \times \sqrt{f(GHz)}dB$	DIN EN 60512-25-2
Return Loss	≧25dB DC< f ≦ 3 GHz ≧20dB 3 GHz < f ≦ 6 GHz ≧12dB 6 GHz < f ≦ 9 GHz	DIN EN 60512-25-5
Cross Talk	≧60dB 0.08GHz < f ≦ 4 GHz ≧50dB 4 GHz < f ≦ 9 GHz	DIN EN 60512-25-1

ELECTRICAL

Item	Requirement	Test Condition
Contact Resistance	Before exposure Max. 15mΩ for signal Max. 7.5mΩ for outer contact After exposure Max. 40mΩ for signal and ground contacts	DIN EN 60512-2-1
Insulation Resistance	1000 MΩ Min.	USCAR-17, 4.4.1.2
Current Capability	1.0A/ RG174 Cable 3.0A/ RTK 031 Cable	DIN EN 60512-5-1
Withstanding Voltage	800 VAC	DIN EN 60512-3-1
Current Rating	1.0A Max./ RG17 Cable 3.0A Max./ RTK031 Cable	DIN EN 60512-5-1
Voltage Rating	335 Vrms	SAE/USCAR-2, 5.5.1.3

MECHANICAL

Item	Requirement					Test Condition
Visual Inspection	Noting in detail any obvious manufacturing					SAE/USCAR-2, 5.1.8.3
Mating Cycles	25 cycles					SAE/USCAR-2, 5.1.7.5
Header Pin Retention Force	10N Min.					SAE/USCAR-2, 5.7.1.4
Connector Engagement Force		Mini FAKRA			Mini FAKRA+MQS	DIN EN 60512-13-1
	Load Max.(N)	1x1	1x2	2x2	1x1+2P	
		15	30	45	25	
Connector Disengagement Force with Lock Disabled		Mini FAKRA			Mini FAKRA+MQS	DIN EN 60512-13-2
	Load Max.(N)	1x1	1x2	2x2	1x1+2P	
		2	5	5	5	
Connector Disengagement Force with Lock Enabled	110N Min.					DIN EN 60512-13-1
Coding Efficiency	150N Max. with no center contact continuity					DIN EN 60512-13-5
Mechanical Pull Test 50N Axial	No physical damage, no less of continuity, 50N Min.					DIN EN 60512-13-1

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<table>
<tr><td>Board Mount Mechanical Pull Test 75N Off-Angel</td><td>No physical damage, no less of continuity, 75N Min.</td><td>SAE/USCAR-17, 4.2.1.2</td></tr>
<tr><td>Mechanical Shock</td><td>10 half-sine wave impulses (10 milliseconds duration at 35Gs force)</td><td>DIN IEC 60068-2-27 Class 1</td></tr>
<tr><td>Vibration</td><td>(a) Random vibration
(b) 5~1000Hz frequency
(c) 8 hours in each of X,Y,Z axis
(d) PSD
<table>
<tr><th>Frequency (Hz)</th><th>Power Spectral Density (g^2/Hz)</th></tr>
<tr><td>5.0</td><td>0.00200</td></tr>
<tr><td>12.5</td><td>0.24800</td></tr>
<tr><td>77.5</td><td>0.00320</td></tr>
<tr><td>145.0</td><td>0.00200</td></tr>
<tr><td>200.0</td><td>0.01180</td></tr>
<tr><td>230.0</td><td>0.00032</td></tr>
<tr><td>1000.0</td><td>0.00002</td></tr>
</table>
Grms=1.81</td><td>DIN IEC 60068-2-64 Class 1</td></tr>
<tr><td>Coding Housing Retention Force</td><td>110N Min.</td><td></td></tr>
</table>

<table>
<tr><th colspan="3">ENVIRONMENTAL</th></tr>
<tr><th>Item</th><th>Requirement</th><th>Test Condition</th></tr>
<tr><td>Thermal Shock</td><td>Temperature: -40~105°C
Duration: exposure time at temperature extreme 30 minutes, 1000 cycles</td><td>SAE/USCAR-2,5.6.1.3</td></tr>
<tr><td>Temperature-Humidity Cycles</td><td>a. 0.5 hours @ -40±3°C
b. 4.5 hours @ 80~100 percent relative humidity at +80 to 90°C
This is the only step where humidity is controlled. Humidity not controlled
c. 2 hours @ +85±3°C (105°C if applicable)
d. 1 hours @ +23±3°C
e. This constitutes one complete temperature/ humidity cycles (8 hours)
f. Max. transfer time of samples from one environment to the next during the defined temperature/ humidity cycles is 1 hours.
g. All time periods listed in the defined cycles have a tolerance of ±5 minutes
h. 40 cycles (320 hours) of the environmental exposure described above constitutes a complete temperature/ humidity cycling test</td><td>SAE/USCAR-2,5.6.2.3</td></tr>
<tr><td>High Temperature Exposure</td><td>Temperature: 105°C
Duration: 1008 hours</td><td>SAE/USCAR-2,5.6.3.3</td></tr>
</table>

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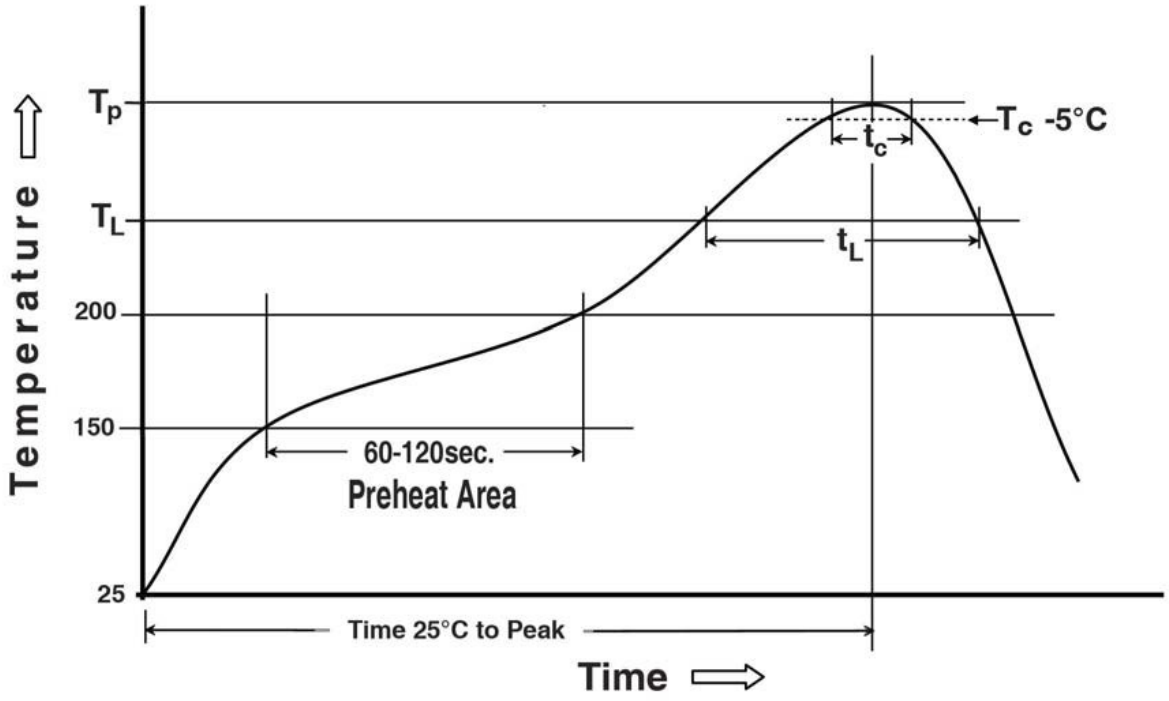
SOLDER ABILITY		
Item	**Requirement**	**Test Condition**
Solder Ability, DIP test	Solder area shall have a min. of 95% solder coverage	IEC 60068-2
Resistance to soldering heat	No melting, cracks or functional damage allowed	Preheating temperature: 150 ~ 200°C, 60~120 seconds Liquidus temperature (TL): 217°C, 60~150 seconds Peak temperature: 260°C Time within 5 °C of peak temperature (Tc): 255°C, 30seconds

Reflow Profile



Preheating temperature: 150 ~ 200°C, 60~120 seconds
Liquidus temperature (TL): 217°C, 60~150 seconds
Peak temperature: 260°C
Time within 5 °C of peak temperature (Tc): 255°C, 30seconds