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	SPECIFICATION	N
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PEC. NO.: <u>PS-30706-</u>	FAX: +886-3-463-1800	VISION: A
PEC. NO.: <u>PS-30706-</u> PRODUCT NAME: <u>3</u>	FAX: +886-3-463-1800 XXXXX-XXX RE 30 DC POWER CONN	VISION: <u>A</u>
PEC. NO.: <u>PS-30706-</u> PRODUCT NAME: <u>3</u> PRODUCT NO: <u>3</u>	FAX: +886-3-463-1800 XXXXX-XXX RE 3Ø DC POWER CONN 80706 / 30738 SERIES	VISION: <u>A</u>
PEC. NO.: <u>PS-30706-</u> PRODUCT NAME: <u>3</u> 	FAX: +886-3-463-1800 XXXXX-XXX RE 30 DC POWER CONN 30706 / 30738 SERIES	VISION: <u>A</u>
PEC. NO.: <u>PS-30706-</u> PRODUCT NAME: <u>3</u> PRODUCT NO: <u>3</u> PREPARED:	FAX: +886-3-463-1800 XXXXX-XXX RE 30 DC POWER CONN 30706 / 30738 SERIES CHECKED:	VISION: <u>A</u>
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TITLE: 3Ø DC Power Ja	ck.		
RELEASE DATE: 2019-04-02	REVISION: A	ECN No: ECN-1904040	PAGE: 2 OF 10
 REVISION HISTOF SCOPE APPLICABLE DOC REQUIREMENTS. PERFORMANCE INFRARED REFLC PRODUCT QUALIF 	Y UMENTS W CONDITION CATION AND TES	T SEQUENCE	

		Aces P/N: 30706 series	
TITLE: 3Ø DC Power J	ack.		
RELEASE DATE: 2019-04-02	REVISION: A	ECN No: ECN-1904040	PAGE: 3 OF 10
4 5			

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
0	ECN-1708369	RELEASE SPEC	BRUCE	17'/08/22
Α	ECN-1904040	ADD P/N 30738	BRUCE	19'/04/02

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2 SCOPE

This specification covers the requirements for product performance, test methods and quality assurance provisions of 3Ø DC Power Connector.

3 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence. EIAJ RC 5320A

EIA-364 : The Test Sequence and Test Procedures for Electrical Connectors and Sockets.

4 **REQUIREMENTS**

4.1 Design and Construction

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

4.2 Materials and Finish

- 4.2.1 Housing : Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.2 Spring : Copper Alloy
 - Finish: Refer to the drawing.
- 4.2.3 Pin: Copper Alloy Finish: Refer to the drawing.
- 4.2.4 Signal: Copper Alloy
- Finish: Refer to the drawing. 4.2.5 Shell: Stainless Steel
 - Finish: Refer to the drawing.
- 4.2.6 Mylar: Polyimide

4.3 Ratings

- 4.3.1 Voltage : 20 V
- 4.3.2 Current : 5 A
- 4.3.3 Operating Temperature : -40 $^\circ\!\mathrm{C}$ to +85 $^\circ\!\mathrm{C}$

Connectors		Aces P/N: 3	0706 series		
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5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard				
Examination of Product	Visual and dimensional inspection per product drawing	Meet requirement of product drawing				
	ELECTRICAL					
Item	Requirement	Standard				
Low Level Contact Resistance	 (1) Before test or initial: 20mΩ max. (2) After test: 30mΩ Max. 	The object of this test procedure is to detail a standard method to measure the electrical resistance across a pair of mated contacts such that the insulating films, if present, will not be broken or asperity melting will not occur. Subject mated contacts assembled in housing to closed circuit current of 100 mA maximum at open circuit at 20 mV maximum. (EIA 364- 23)				
Insulation Resistance	 (1) Before test : 100MΩ Min. (2) After life test: 50MΩ Min. 	The object of this test procedure is to detail a standard method to assess the insulation resistance of connectors. This test procedure is used to determine the resistance offered by the insulation materials and the various seals of a connector to a DC potential tending to produce a leakage of current through or on the surface of these members. Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector assemblies.				
Dielectric Withstanding Voltage	 (1) No flashover, No sparkover, No excess leakage, No breakdown. (2) Current leakage : < 0.5 mA 	The object of this test procedure is to detail a test method to prove that a connector can operate safely at its rated voltage and withstand momentary over potentials due to switching, surges and/or other similar phenomena. Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector assemblies. Test Potential : 500 V AC at sea level Test Duration : 60 seconds (EIA-364-20)				

Aces P/N: 30706 series ACES TITLE: 30 DC Power Jack. RELEASE DATE: 2019-04-02 **REVISION: A** ECN No: ECN-1904040 PAGE: 6 OF 10 The object of this procedure is to detail a standard method to assess the current carrying capacity of mated The Temp rise shall not exceed connector contacts. Temperature Rise +30°C at any point in the connector vs Current Rating Measure temperature rise vs under test. current at 5A when measured at an ambient temperature of 23±3°C. (EIA 364-70 Method B) **MECHANICAL** The object of this test is to detail a (1) Initial: standard method for determining the Insertion force:1.2~2.7kgf. mechanical forces required for Withdrawal force: 1.0~2.7kgf. inserting connector. Mating and Subject connector to mate and Unmating force (2) Final: unmate to measure the mechanical forces required to engage and Insertion force & disengage at a rate of 12.5mm per Withdrawal force: 1.0~2.7kgf. (EIA-364-13) The object of this test procedure is to detail a standard method to assess the ability of a connector to withstand specified severity of mechanical shock. (1) No discontinuities of 1µs or longer Subject mated connectors should be tested according to the condition duration. **Physical Shock** (2) No evidence of damage. listed below : (3) The electrical performances should Wave form : Half-sine meet the spec. specified. Peak acceleration : 30 G's Duration : 11 ms Times : 3 shocks in each direction applied along three mutually perpendicular planes, total 18 shocks (EIA-364-27 Condition H). The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting a connector to the (1) 5000 insertion /extraction cycles at conditioning action of insertion and A maximum rate of 20-30 cycles extraction simulating the expected per minutes. Durability life of the connectors. (2) No evidence of damage. Durability cycling with a gauge is (3) The electrical performances should intended only to produce mechanical meet the spec. specified. stress. Durability performed with mating components is intended to produce both mechanical and wear stress. (EIA-364-09)

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	ENVIRONMENTAL							
Item	Requirement	Standard						
Humidity (Temperature Cycling)	 (1) No evidence of damage. (2) The electrical performances should meet the spec. specified. 	The object of this test procedure is to detail a standard test method for the evaluation of the properties of materials used in connectors as they are influenced by the effects of high humidity and heat. Subject mated and unmated connectors should be tested according to the condition listed below : Temperature :38~42°C Humidity : 90 ~ 95% (R.H) Duration : 96 hours (EIA 364-31 Method III Test Condition A)						
Vibration (Random)	 No discontinuities of 1µs or longer duration. No evidence of damage. The electrical performances should meet the spec. specified. 	This test procedure is applicable to connectors that may, in service, be subjected to conditions involving vibration. Whether a connector has to function during vibration or merely to survive conditions of vibration should be clearly stated by the detailed product specification. In either case, the relevant specification should always prescribe the acceptable performance tolerances. Subject mated connectors should be tested according to the condition listed below : Test condition : Random Frequency : 50 ~ 2000 Hz PSD value : 5.35 Grms minimum Duration : 15 minutes/axis Times : Each of three mutually perpendicular planes. (EIA 364-28 Condition V Test letter A)						
Temperature Life	 No discontinuities of 1µs or longer duration. No evidence of damage. The electrical performances should meet the spec. specified. 	The object of this test is to detail a standard test method to assess the ability of a connector to withstand elevated temperatures with or without electrical loading. Subject mated connectors should be tested according to the condition listed below : Temperature :85±2°C Duration : 96 hours						

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	Thermal Shock	 (1) No evidence of damage. (2) The electrical performances should meet the spec. specified. 	The object of this test is to determine the resistance of a connector to exposure at extremes of high and low temperatures and to the shock of alternate exposures to these extremes, simulating the worst case conditions for storage, transportation and application. Subject mated and unmated connectors should be tested according to the condition listed below : Temperature : -40 ~ 85°C Cycles : 5 cycles Exposure time at temp. extremes : 30 minutes (EIA-364-32)				
	Salt Spray	 (1) No evidence of Physical damage. (2) The electrical performances should meet the spec. specified. 	The object of this test procedure is to detail a standard test method to assess the effects of a controlled salt laden atmosphere on connector components, finishes and mechanisms. Subject mated and unmated connectors should be tested according to the condition listed below : Temperature : $35\pm1.1^{\circ}$ C Humidity : $95 \sim 98\%$ (R.H.) Connectors to 5% salt-solution Duration : 48 hours (EIA 364-26 Test Condition A)				
	Cold test	 (1) No evidence of damage. (2) The electrical performances should meet the spec. specified. 	Temperature : -40°C Duration :96hours (EIA-364-59)				



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7 PRODUCT QUALIFICA) TES	T SEC	QUEN	ICE					
		Test Group									
Test or Examination	1	2	3	4	5	6	7	8			
					Test	t Seque	nce				
Appearance	1,3	1,7	1,10	1,10	1,9	1,9	1,3	1.9			
Low Level Contact Resistance		2,6	2,9	2,7	2,6	2,6		2,6			
Insulation Resistance			3,7	3,8	3,7	3,7		3,7			
Dielectric Withstanding			4,8	4,9	4,8	4,8		4,8			
Temperature Rise vs Current Rating	2										
Mating and Unmating force		3,5			 						
Physical Shock			6								
Durability		4									
Humidity(Temperature Cycling)				5							
Vibration (Random)			5								
Temperature Life					5						
Thermal Shock				6							
Salt Spray						5					
Cold test								5			
Solder ability							2				
Sample Size	2	5	5	5	5	5	5	5			
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