108 - 5528 Product Specification

High Current Drawer Connector

1. Scope:

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of High Current Drawer Connector.

Applicable product description and part numbers are as shown in Appendix 1.

2. Applicable Documents:

The following documents form a part of this specification to the extent specified herein. 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.

2.1 AMP Specifications:

A. 109-5000

Test Specification, General Requirements for Test Methods

B. 501-5228

Test Report:

2.2 Commercial Standards and Specifications:

A. MIL-STD-202 Military Specification: on: Test Methods for Electronic and Electric Parts

						DR. 30 Jul'96 Y. Watanabe CHK. 30 Jul'96	SHEET 1 OF			AMP (Japan), Ltd. Kawasaki, Japan	
H						T.Yamada	7	roc	LOC	108-5528	REV A
DIST.	Α	Revised(FJ00-1083-97)	Y.W	7e.7	12 160	APP. 30 Jul'96	NAME	·			
PRINT	0	Release (FJ00-4531-96)	Y.W	T.Y	30ປ໌ຟ '96	T.Yamada	High Current Drawer Connector				
£	LTR	REVISION RECORD	DR	СНК	DATE	1.1ama0a					

3. Requirements:

3.1 Design and Construction:

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

3.2 Materials:

A. Contact: Signal Line Contact Copper Alloy, Gold plate over Nickel plate.

Power Line Contact Receptacle: Copper, Gold plate over Nickel plate

Pin : Copper, Gold plate over Nickel plate

B. Housing: Thermoplastic, UL 94 V-0

C. Other : Bush Copper Alloy, Zinc plate

3.3 Ratings:

A. Voltage Rating:

250 VAC

B. Current Rating:

Refer to Fig. 1 for maximum allowable current to be applied.

(However, at temperatures 60 °C Max.)

C. Temperature Rating:

-20 °C to 120 °C

(However, this includes a temperature rise and shall be set as low as

possible in actual use.)

3.4 Performance Requirements and Test Descriptions:

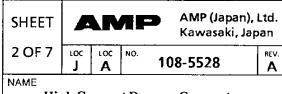
The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 2. All tests shall be performed in the room temperature, unless otherwise specified.

Wire Size (AWG)	Signal	Power
AWG #24	4 A Max.	
AWG #22	5 A Max.	1
AWG #20	7 A Max.] -
AWG#18	8 A Max.	
AWG #16	9 A Max.	12 A Max.
AWG #14		17 A Max.
AWG #12	_	20 A Max.

Fig. 1

Note: The power circuit is defined as one of two poles per side (four poles in total).

The signal circuit is defined as one other than the signal circuit.

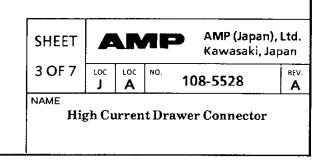


High Current Drawer Connector

3.5	Test Requirements and Procedures Summary:

	Para.	Test Items	Requirements	Procedures						
	3.5.1	Examination of Product	Meets requirements of product drawing and AMP Specification	Visual inspection No physical damage						
	Electrical Requirements									
Release	3.5.2	Termination Resistance (Specified Current)	Signal : Initial $10 \text{ m}\Omega$ Max. Final $20 \text{ m}\Omega$ Max. Power : Initial $2 \text{ m}\Omega$ Max. Final $4 \text{ m}\Omega$ Max.	Subject mated contacts in assembled connectors to 5 V (DC) open circuit at 1 A (DC) closed circuit. Measure potential drop of the contact and remove potential drop due to the 75 mm equivalent wire length (150 mm in total) from all readings. Calculate resistance. AMP Spec. 109-5311-2						
	3.5.3	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur.	2 kVAC for 1 minute. Test between adjacent circuits of mated connectors. AMP Spec. 109-5301						
	3.5.4	Insulation Resistance	5000 MΩ Min. (Initial) 2000 MΩ Min. (Final)	Impressed voltage 500 V DC. Test between adjacent circuits of mated connectors. AMP Spec. 109-5302						
	3.5.5	Temperature Rising	Signal: 60 °C Max. Power: 30 °C Max.	Measure temperature rising by energized current. Fig. 1 AMP Spec. 109-5310						

Fig. 2 (CONT)



_∞	Para.	Test Items	<u></u>	Requir	rements	Procedures			
5528				Mechanica	al Requirements				
-80	3.5.6	Crimp Tensile Strength		Wire Size (AWG)	Strength	Apply an axial pull-off load to crimped			
				0.2 mm ² (#24)	29.4 N (3 kgf) Min.	wire of contact secured on the tester,			
			Ŀ	0.3 mm ² (#22)	49 N (5 kgf) Min.	Operation Speed: 100 mm/min.			
			lu a	0.5 mm ² (#20)	78.4 N (8 kgf) Min.	AMP Spec. 109-5205			
ایتا	i		. g	0.75 mm ² (#18)	117.6 N (12 kgf) Min.				
NUMBER			,	1.25 mm ² (#16)	186.2 N (19 kgf) Min.				
ž				2.0 mm ² (#14)	225.4 N (23 kgf) Min.]			
	i		_	1.25 mm ² (#16)	196 N (20 kgf) Min.				
			Powe	2.0 mm ² (#14)	313.6 N (32 kgf) Min.				
- a			Pc	3.3 mm ² (#12)	470.4 N (48 kgf) Min.				
tomer ease	3.5.7	Contact Retention	Si	gnal 49 N (51	kgf) Min.	Apply an axial pull-off load to crimped wire. However, for wire sizes smaller than 0.3 mm ² (AWG #22), use 0.5 mm ² or			
- S	0.51.	Force		ower 196 N (20	-				
°C P o		1 0100			, 19-, 1				
					I				
<u></u>						larger wire to make sample, because			
					!	the size of wire is smaller than its			
E₹					I				
SECURITY CLASSIFICATION:					I	crimp in strength.			
20.0					ľ	Operation Speed: 100 mm/min. AMP Spec. 109-5205			
			<u> </u>						
	3.5.8	Connector Mating Force	4-	10 Pos. : 240.1	N (24.5 kgf) Max.	Operation Speed: 100 mm/min.			
	0.0.0	Connection Manager 5-55	4-10 FOS 240.1 IV (24.5 Kg1) Wax.			Measure the force required to mate			
					1	connectors.			
					1	AMP Spec. 109-5206			
			igapha			AMP Spec. 103-5200			
	3.5.9	Connector Unmating	4-	10 Pos. : 17.15 J	N (1.75 kgf) Min.	Operation Speed: 100 mm/min.			
		Force			ļ	Measure the force required to unmate			
						connectors.			
					,	AMP Spec. 109-5206			
		D 1:31	<u></u>	1 . 00 O M	(Tit = 1)	-			
	3.5.10	Durability		gnal: $20 \text{ m}\Omega$ M	1	Operation Speed: 50 cm/sec.			
	[(ower: 4 mΩ Ma	ax. (Final)	No. of Cycles : 2000 cycles			
		Unmating)				AMP Spec. 109-5213			
1		*1							

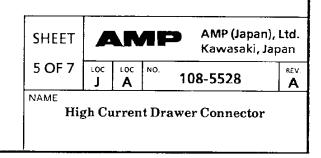
Fig. 2 (CONT)

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NAME Hig	gh Cu	ırren	t Drav	ver Connector	

^{*1} No evaluation of contact surface condition after durability test.

	Para. Test Items		Requirements	Procedures					
	3.5.11	Vibration	No electrical discontinuity	Subject mated connectors to 10-55-10					
		(Low Frequency)	greater than 0.1 µsec. shall	Hz traversed in 1 minute at 1.52 mm					
			occur.	amplitude 2 hours each of 3 mutually					
			Signal: 20 mΩ Max. (Final)	perpendicular planes.					
			Power: 4 mΩ Max. (Final)	100 mA applied.					
	•			AMP Spec. 109-5201					
	<u> </u>			Fix a half of connectors					
+	Environmental Requirements								
	3.5.12	Humidity, Steady State	Insulation resistance (Final)	Mated connector,					
ease			2000 MΩ Min.	90~95 % R. H. 40 °C					
å			Signal: 20 mΩ Max. (Final)	96 hours					
ا ارة			Power: 4 mΩ Max. (Final)	AMP Spec. 109-5105					
∠	3.5.13	Salt Spray	Signal: 20 mΩ Max. (Final)	Subject mated connectors to 5 % salt					
			Power: 4 mΩ Max. (Final)	concentration for 96 hours:					
				AMP Spec. 109-5101					
	3.5.14	Temperature Life	Signal: 20 mΩ Max. (Final)	Mated connector					
	,	(Heat Aging)	Power: 4 mΩ Max. (Final)	100 °C, Duration: 4 days					
٦ı		1		AMP Spec. 109-5104					

Fig. 2 (End)



3.6 Product Qualification Test Sequence

		Test Group								
Test of Examination	1	2	3	4	5	6 (b)	7	8	9	
-				Test S	Sequer	nce (a)				
Examination of Product	1,5,8	1, 3	1,3	1,3	1,8	1,4	1,4	1,4	1,4	
Termination Resistance (Rated Current)					3,9	2,5	2,5	2,5	2, 5	
Dielectric withstanding Voltage	3, 7									
Insulation Resistance	2, 6									
Temperature Rising		2								
Vibration (Low Frequency)						3				
Connector Mating Force					2,6					
Connector Unmating Force					4,7					
Contact Retention Force				2						
Crimp Tensile Strength			2							
Durability (Repeated Mate/Unmating)					5					
Humidity (Steady State)	4						3			
Salt Spray								3		
Temperature Life (Heat Aging)									3	

- (a) Numbers indicate sequence in which tests are performed.
- (b) Discontinuities shall not take place in this test group, during tests.

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NAME
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