


NUMBER GS-12-1142	TYPE PRODUCT SPECIFICATION		
TITLE M.2 connector		PAGE 1 of 5	REVISION C
		AUTHORIZED BY Fu Beer	DATE 2014/9/3
CLASSIFICATION UNRESTRICTED			

1. SCOPE

1.1. Contents

This Product Specification covers the 0.5 mm pitch M.2 connector series, with selective gold and Ni plating.

1.2. Qualification

When tests are performed on the subject product line, the procedures specified specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. Applicable Document

FCI DRAWING: 10125101

3. Requirements

3.1 DESIGN AND CONSTRUCTION

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing 10125101.

3.2 MATERIALS


- 1.Housing: Thermoplastic
- 2.Contact: Copper alloy
- 3.Nail: Copper alloy

3.3 RATINGS

Current: 0.5A
Voltage: 50V AC
Temperature: - 40 °C to +80 °C
Humidity Range: 10%~ 80% RH

3.4 Performance Requirements and Test description

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests shall be performed at ambient environmental conditions.

NUMBER GS-12-1142	TYPE PRODUCT SPECIFICATION		
TITLE M.2 connector		PAGE 2 of 5	REVISION C
		AUTHORIZED BY Fu Beer	DATE 2014/9/3
		CLASSIFICATION UNRESTRICTED	

3.5 Test Requirements and Procedures Summary


ITEM	Test Item (Frequency)	Requirements	Procedure
1	Appearance	Connector shall have no evidence of physical defects or otherwise unfit for testing	Visual inspection in compliance with appliance specification and document are performed, the test samples shall be free from defects such as damage, creep, deformation, blister and burrs that are detrimental to the function and appearance of test samples. (EIA-364-18)

A Electrical Requirement

ITEM	Test Item (Frequency)	Requirements	Procedure
2	Low Level Contact Resistance	<input type="checkbox"/> 55mΩ MAX.per contact (Initial) · ΔR=20mΩ Max.(Final)	Mate connectors: apply a current of 10mA(max) at open circuit voltage of 20mV (max) EIA-364-23
3	Insulation resistance	<input type="checkbox"/> 500MΩ MIN	<input type="checkbox"/> Applying 500VDC between adjacent contacts of unmated and unmount connectors EIA-364-21
4	Dielectric withstanding voltage	<input type="checkbox"/> No breakdown or flash <input type="checkbox"/> Current leakage:1mA	Measured by applying 300VAC for one minute between adjacent contacts of unmated connector assemblies. EIA-364-20

B Mechanical Requirement


ITEM	Test Item (Frequency)	Requirements	Procedure
5	Mating and Unmating force	2.3 Kgf MAX	<input type="checkbox"/> Insert the card at the specified angle Rotate the card into position Reverse the installation sequence to unmating EIA-364-13
6	Mechanical shock	<input type="checkbox"/> No electrical discontinuity greater than 1 microsecond <input type="checkbox"/> ΔR=20mΩ Max.(Final) <input type="checkbox"/> No physical damage	<input type="checkbox"/> Subject mated connector to 50Gs, half-sine shock pulses of 11 millisecond duration, 3drops in each direction applied along the 3 mutually perpendicular planes total 18 shock. EIA-364-27 test condition A
7	Vibration test (Random)	<input type="checkbox"/> No electrical discontinuity greater than 1 microsecond <input type="checkbox"/> ΔR=20mΩ Max.(Final) <input type="checkbox"/> No physical damage	The electrical load condition 100mA maxium for all contacts. Acceleration 3.10G rms min. Power spectral density 0.02 g2/Hz. Duration 15minutes in each three perpendicular directions. EIA-364-28D. Condition VII, letter D.

NUMBER GS-12-1142	TYPE PRODUCT SPECIFICATION		
TITLE M.2 connector		PAGE 3 of 5	REVISION C
		AUTHORIZED BY Fu Beer	DATE 2014/9/3
CLASSIFICATION UNRESTRICTED			

8	Durability (repeated mate/un-mate)	<ul style="list-style-type: none"> • $\Delta R=20m\Omega$ Max.(Final) 	<input type="checkbox"/> Repeat insertion the card to the connector and extraction card from the connector. 60 cycles for 15u" & 30u" Au plating; 25 cycles for gold flash and other Au thickness. EIA-364-09
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C Environmental Requirement

ITEM	Test Item (Frequency)	Requirements	Procedure
9	Humidity (steady state)	<ul style="list-style-type: none"> • $\Delta R=20m\Omega$ Max.(Final) <input type="checkbox"/> Insulation resistance:500MΩMin. <input type="checkbox"/> No physical damage. 	<input type="checkbox"/> Expose the mates connectors to 40±2%, relative humidity 90~95% RH for 96 hours.EIA-364-31
10	Thermal shock	<ul style="list-style-type: none"> • $\Delta R=20m\Omega$ Max.(Final) <input type="checkbox"/> No physical damage. 	<input type="checkbox"/> Expose the connectors to -55°/30min. and 85°/30min.(Repeat 10 cycles)---EIA-364-32 condition <input type="checkbox"/>
11	Solder ability	More than 95% dipped area is covered with solder	Dip in applicable flux for 5~10s and in solder SnAgCu at 245±5°C for3~5sec. (MIL-STD-202 Method 20B)
12	Salt spray	<input type="checkbox"/> $\Delta R=20m\Omega$ Max .(Final)	<input type="checkbox"/> Subject the connector to 5% salt-solution concentration at 35° for 24 hours. EIA-364-26
13	Resistance to soldering heat	<input type="checkbox"/> Show no Physical damage	<input type="checkbox"/> EIA -364-56 <input type="checkbox"/> Max. peak temperature of 260°(infrared reflow soldering) 300° within 5 second (soldering iron)
14	Temperature life	<input type="checkbox"/> Contact resistance: $\Delta R=20m\Omega$ Max.(Final)	Mate PCB module and subject to 85±3° for 96 hours EIA-364-17 condition A

NUMBER GS-12-1142	TYPE PRODUCT SPECIFICATION		
TITLE M.2 connector		PAGE 4 of 5	REVISION C
		AUTHORIZED BY Fu Beer	DATE 2014/9/3
CLASSIFICATION UNRESTRICTED			

3.6 TEST SEQUENCE

Test group		A	B	C	D	E	F	G	H
1	Appearance	1,5	1,9	1,5	1,7	1,3	1,5	1,5	1,3
2	Contact Resistance	2,4	2,6	2,4			2,4	2,4	
3	Insulation Resistance				2,5				
4	Dielectric Strength				3,6				
5	Vibration	3							
6	Durability		5						
7	Insertion Force		3,7						
8	Withdrawal Force		4,8						
9	Solder ability					2			
10	Humidity				4				
11	Thermal Shock						3		
12	Mechanical shock			3					
13	Thermal Aging							3	
14	Salt Spray								2

NUMBER GS-12-1142	TYPE PRODUCT SPECIFICATION		
TITLE M.2 connector		PAGE 5 of 5	REVISION C
		AUTHORIZED BY Fu Beer	DATE 2014/9/3
CLASSIFICATION UNRESTRICTED			

REVISION RECORD

Rev	Page	Description	EC#	Date
1	1~5	Initial Draft	Preliminary	2013-05-05
A	All	release	-	2013-06-03
B	All	Change title from NGFF connector to M.2 connector	-	2014-01-04
C	ALL	Change durability cycles	ELX-T-18734	2014-09-03

Mouser Electronics

Authorized Distributor

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