Siemax® Series 1.0/2.3 2 poles - 3 poles

Surface Mount Multi Coax

CONTENTS

1 GENERAL

1.1 Application

This specification describes a subminiature coaxial connector series 1.0/2.3(75Ohm) in surface mount technology. All dimensions, materials and plating which are not mentioned in this specification have to meet the requirements specified in the standard IEC 61169-29 and CECC 22230.

1.2 Documents

- 6-1393696-2: 2-Way Siemax 1.0/2.3 Customer Drawing, MID technology
- 6-1393696-7: 3-Way Siemax 1.0/2.3 Customer Drawing, MID technology
- 619400-1: 2-Way Siemax 1.0/2.3 Customer Drawing, ZDC technology
- 619401-1: 3-Way Siemax 1.0/2.3 Customer Drawing, ZDC technology
- Qualification test report, MID connector: 845.410.1.001, 22.2.1999
- Qualification test report, die cast connector: 501-19146, Jan 2010

2 TECHNICAL CHARACTERISTICS

2.1 Materials

Molded **I**nterconnect **D**evice technology	**Z**inc **D**ie **C**ast technology
2.1.1 Outer conductor Material: Brass Plating: min. 1µm Au in contact area over min. 1µm Ni or alternative Features: Mating face suitable for snap lock connection	**2.1.1 Outer conductor** Material: Brass Plating: min. 0.1µm Au over min. 2µm NiP Features: Mating face suitable for snap lock connection
2.1.2 Dielectric Material: PCT GF 30 Color: black (RAL 9005) UL rating: 94 V-0	**2.1.2 Dielectric** Material: PCT GF 30 Color: black (RAL 9005) UL rating: 94 V-0
2.1.3 Center conductor Material: Copper-tin alloy (equal to Phosphor bronze) Plating: Contact area: min. 1µm Au over min. 1 µm Ni Solder area: min. 3µm Sn Matt over min. 1 µm Ni Features: Gull-wing leads	**2.1.3 Center conductor** Material: Copper-tin alloy (equal to Phosphor bronze) Plating: Contact area: min. 1µm Au over min. 1 µm Ni or alternative Solder area: min. 3µm Sn Matt over min. 1 µm Ni Features: Gull-wing leads
2.1.4 Termination block Material: LCP GF30 or equivalent suitable for reflow soldering Color: natural Plating: flash Au over min 2 µm Ni and Cu suitable for reflow soldering.	**2.1.4 Termination block** Material: ZnAL4 Plating: Min. 2µm Sn

2.2 Mechanical characteristics connector

2.2.1 Contact captivation

According to IEC 61169-1/item 15.2.4
Min. force: 10N

2.2.2 Engagement and separation forces

According to IEC 61169-1/item 15.3
Engagement: 25N max.
Separation of snap lock plug: 25N max.

2.2.3 Coupling mechanism

According to IEC 61169-1/item 15.5
Tensile strength: - Withdrawal direction: 150 N min.
- Mating direction: 80N min.

2.2.4 Vibration

According IEC 61169-1/item 15.2.2
Severity: 10Hz to 2000Hz and 10g

2.2.5 Mechanical operation

According to IEC 61169-1/item 17
Operations: min. 250

2.2.6 Coaxiality conductors

Spring contact opening of center conductor: Ø0.25 max. coaxial to inner diameter outer conductor.

2.3 Electrical characteristics connector

2.3.1 Characteristic impedance

75 Ohm

2.3.2 Reflection factor r

According to IEC 61169-1/item 14.1 and IEC 61169-1-1
$r \leq 0.1$ up to 1 GHz
$r \leq 0.17$ up to 5 GHz

2.3.3 Center conductor resistance

According to CECC 22000/item 4.4.2
Connecting point: end of gull-wing leads
≤ 20 mΩ initial; ≤ 30 mΩ after conditioning

2.3.4 Voltage proof

According to IEC 61169-1/item 14.6
Standard atmospheric conditions
Mated connectors
Proof voltage: 750 V r.m.s.
Working voltage: 200V r.m.s.

2.3.5 Insulation resistance

According to IEC 61169-1/item 14.5
Test voltage: 100V±15V d.c.
Min. value: 1 GΩ initial
200 MΩ after conditioning

2.3.6 Outer conductor continuity

According to CECC 22000/item 4.4.3
Max. value: 30 mΩ initial
40 mΩ after conditioning

2.4 Environmental characteristics connector

2.4.1 Temperature range:

-40°C to 85°C

2.4.2 Damp heat, steady state

According to IEC 61169-1/item 16.3
Temperature: 40°C
Rel. humidity: 90%
Duration: 21 days

2.4.3 Dry heat

According to IEC 61169-1/item 18
85°C

3 PROCESSING CONNECTOR

3.1 Automatic placement

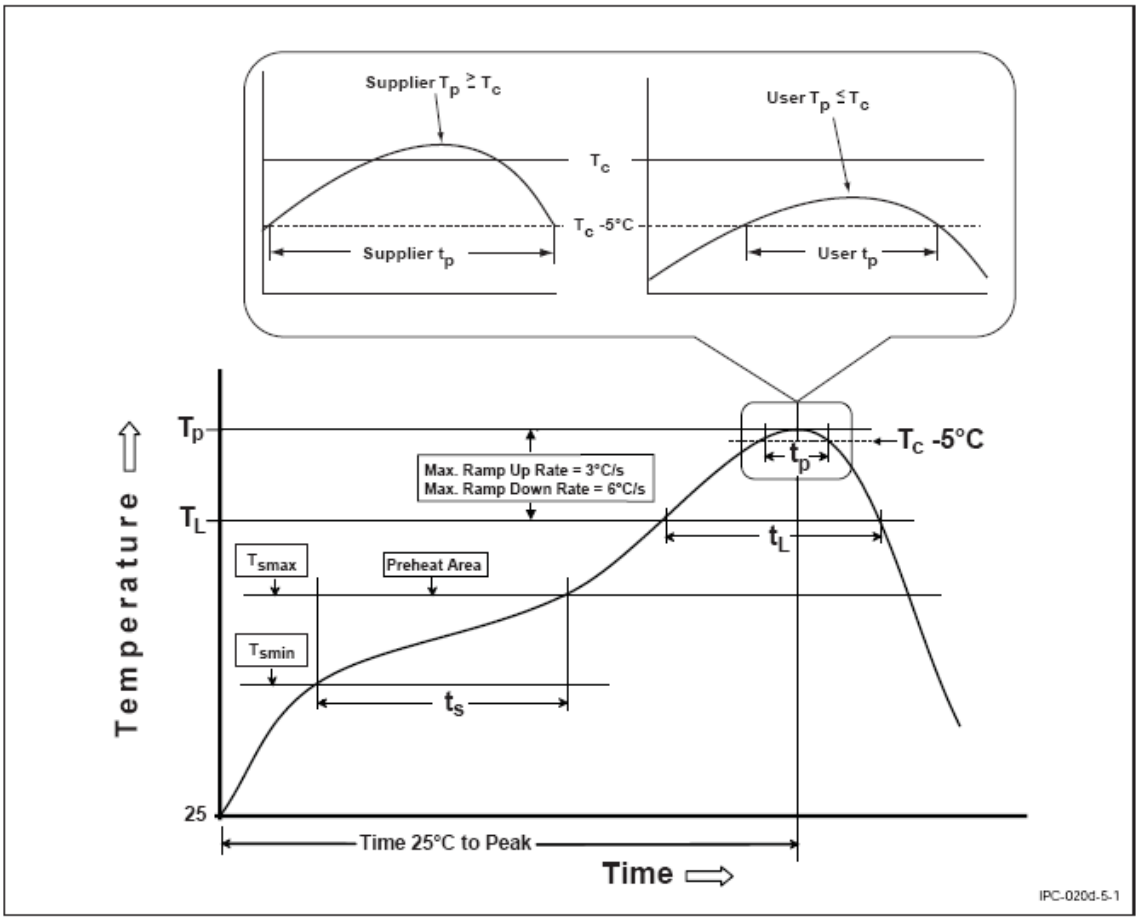
The connector has a plain surface for automatic placement with suction pipette.

	MID and ZDC	MID	ZDC
	max. pipette Ø	max. component weight	
Siemax 2 poles	5.5 mm	3.5 gr.	6.5 gr.
Siemax 3 poles	7 mm	6 gr.	11.4 gr.

3.2 Solder process

These connectors are suitable for reflow soldering onto a PCB within the limits of the following typical oven temperature profile (for two cycles max) in conjunction with lead free solder paste.

Temperature profile:



The process parameters are described by the Standard Spec. JEDEC J-STD-020 (Pb-Free Process, Tc = 240°C) and Tyco Spec. TEC-109-201 (Condition A).

3.3 Resistance to mechanical forces

Shear test: according CECC 00 802 test 7.3.3
Force: 150N, applied at center of connector mating face, withdrawal direction.

3.4 Additional fixing

3.4.1 Siemax 2 poles

Suitable for screwing with screw M2.5

3.4.2 Siemax 3 poles

Suitable for riveting with 2 rivets Ø2.4mm
e.g. Avdel code 1833-0314 with tool code 7177-3003

3.4.3 Gluing

Suitable for gluing between bottom side connector and PCB

4 RE-QUALIFICATION - DIE CAST VERSION

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing and customer drawing	IEC 61169-1 Clause 9.1.2, 9.1.3 Visual and dimensional inspection shall comply with product and customer drawing
Final examination of product	Meets visual requirements.	IEC 61169-1 Clause 9.1.2, IEC 60512-1-1, Test 1a
Outer contact resistance	30 mΩ initial 40 mΩ after conditioning	IEC 60512-2-1: Test 2 a
Outer contact retention force in body	Withdrawal direction: 150 N min. Mating direction: 80N min.	According to IEC 61169-1/item 15.5
Mechanical operations	Mating & unmating: 2 x 250 cycles at a rate of 600 cycles/h	IEC60512-9-1: Test 9a
MFG and mating cycles, 2 x 250	Mated and unmated	Bellcore controlled environment: Temperature: 25°c Relative humidity: 75% H2S concentration: 10ppb NO2 concentration: 200ppb Cl2 concentration: 10ppb SO2 concentration: 100ppb Duration: 10days
Rapid change of temperature	Half mated, half unmated, 30min / temperature, 50 cycles, recovery time 2h	IEC 61169-1, 16.4, -40°C, +85°C
Solderability	No dewetting spots > 5%, total dewetting < 10% of the soldering area	IEC 6068-2-20, Test Ta, meth. 1
Resistance to solder temperature	Including ageing	Tyco Electronics TEC-109-201 (Condition A).
Shear force test	200N, 10±1s	F applied at center of connector body. Mating & withdrawal direction

Test or Examination	Test groups			
	1	2	3	4
	Test sequence *			
Initial examination of product	1	1	1	1
Coupling mechanism outer contact Min: 150N & 80N (after soldering)	2	4		
Shear force test	3			
Rapid change of temperature		2		
Outer contact resistance		3	2, 4, 6, 8, 10	
Mating cycles, 250x			3, 9	
Flowing mixed gas, unmated, 10 days			5	
Flowing mixed gas, mated, 10 days			7	
Solderability test after ageing				3
Resistance to solder temperature				2
Final examination of product	4	5	11	4

NOTES: * Numbers indicate sequence in which tests are performed.

Test Group	Number of samples – mating letter*		
	619400-1	619401-1	619223-1 **
	2 Way Jack PCB	3 Way Jack PCB	Cable Plug
1 Mechanical***	7	-	-
2 Rapid change of temperature▲	7	-	-
3 MFG + mating cycles▲	7a	-	14a
4 Resistance to solder temperature & solderability▲	7	10	-
QTY single piece▲	21	10	-
QTY on PCB***	7	-	-
QTY with cable	-	-	14
QTY PCB	2 (8 x 2 way)	1 (14 x 3 way)	-

NOTES:

* The samples with the same letter must be mated together during the test. The samples without letter must be tested alone

** Plugs with modified plating of outer contact spring:

Original 619223-1 outer contact spring plating	619223-1** outer contact spring plating for qualification purpose
Contact point: 1µm Au over 1µm Ni	Contact point: 0.2µm Au over 0.3µm PdNi over 1.2µm Ni

*** Connector soldered on PCB

▲ Single piece connector

5 PRODUCT MARKING

Manufacturing date according DIN IEC 62 Pt5.1 stamped on the connector

6 PACKAGING AND LABELLING

6.1 Packaging connector

2 reels pro cardboard box
reel material: PS
inside dimensions cardboard box: 335x335x105
max. weight pro reel: 2 kg
Storage temp.:max. 70°C