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Deat Nexel				
Part Number:	<u>0786463001</u>			
Status:	Active		100	A
Overview:	SD and SIM Memory Card Se	<u>DCKets</u>		
Description:	micro-SIM Card Socket witho	ut Detect Switch, 1.45mm Height, Push-Pull Eject,		-
	Surface Mount, 6 Circuits, Lo	w-Halogen, Lead-Free		an of the second
			-	
Documents:			100	
3D Model		Product Specification PS-78646-001-001 (PDF)		
Drawing (PDF)		RoHS Certificate of Compliance (PDF)		-
3D Model (PDF)				
			Series image	- Reference only
				Neterence only
General				
Product Family		Memory Card Sockets	<u>EU ELV</u>	
Series		<u>78646</u>	Not Relevant	
Overview		SD and SIM Memory Card Sockets		
Product Name		micro-SIM	EU ROHS	China RoHS
Style		Push-Pull	Compliant	
UPC		884982798830	REACH SVHC	
			Not Contained Per -	
Physical			D(2020)9139-DC (19	
Card Detection Switch		No	Jan 2021)	
Card Entry Location		Front	Halogen-Free	
Circuits (Loaded)		6	Status	
Circuits (maximum)		6	Low-Halogen	
Durability (mating cycle	es max)	1500	Eor more information	please visit Contact US
Fiector Button Side		N/A		
Material - Contact		Copper Alloy	China ROHS	Green Image
Material Plating Matir		Cold	FLV	Not Relevant
Material Shall	ig	Stainlage Steel	RoHS Phthalates	Not Contained
Material - Shell				Not Contained
Net weight		0.243/g		
PCB Locator		NO		
PCB Retention		Yes	Search Parts in th	is Series
Packaging Type		Embossed Tape on Reel	78646 Series	
Pitch - Mating Interface	9	1.27mm		
Temperature Range -	Operating	-30° to +85°C	Matos With	
Termination Interface:	Style	Surface Mount	micro SIM Cord	
Electrical		0.54		
Current - Maximum pe	er Contact	0.5A		
Voltage - Maximum		15V DC		
Solder Process Data				
Duration at Max Brook	ass Tomporature (seconds)	010		
Lood froeDroopen Con				
Leau-filee Flocess Cap				
Max. Cycles at Max. P	rocess remperature	003		
Process Temperature	max. C	260		
Material Info				
Reference - Drawing	Numbers			
Electrical Model Doour	ment	EE-78646-001-001		
	nent	DC 79646 001 001		
Sales Drawing		50-18646-001-001		

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MICRO SIM CARD CONNECTOR, 1.45mm HEIGHT, PUSH-PULL

1.0 SCOPE

This Product Specification covers the performance requirements of the Micro SIM CardConnector

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name

Part Number

MICRO SIM CARD CONNECTOR, 1.45MM HEIGHT, PUSH-PULL

78646

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-78646-001 for information on dimensions, materials, platings and markings.



PS-78646-001

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3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents form a part of this specification to the extended specified herewith. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence.

4.0 RATINGS

4.1 CURRENT RATING

0.5Amps Max. per contact

4.2 VOLTAGE RATING

15 Volt DC Max.

4.3 TEMPERATURE

Operating: - 30°C to + 85°C Storage (with packaging): - 5°C to + 85°C

5.0 MECHANICAL INTERFACE

5.1CARD INTERFACE

SIM card interface: GSM 11.11 specification

5.2 PWB INTERFACE

Plating on PWB pads: OSP plated copper

6.0 PERFORMANCE

6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Low Level Contact Resistance (LLCR)	Mate connectors with dry circuit (20 mV, 100mA MAX) at 0.60mm away from housing top surface (see appendix 1) (IEC 60512-2-1)	100 milliohm [MAXIMUM] [initial] Value includes bulk resistance of terminal
2	Insulation Resistance	Unmated connectors: apply a voltage of 500 VDC between adjacent contact for 1 minutes (IEC 60512-3-1)	1000 Megohms [MINIMUM]

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3	Dielectric Withstanding Voltage	Unmated connectors: apply a voltage of 500 VAC between adjacent contact for 1 minutes (IEC 60512-3-1)	No voltage breakdown
4	Temperature Rise	Mated and measure the temperature rise of contact, when rated current is passed. (IEC 60512-5-1)	Temperature Rise +30°C [MAXIMUM]

6.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Contact Normal Force	Apply a perpendicular force to the contact at the rate of 12.5mm/min. The min. deflection of contact is 0.27mm from surface of housing. (Refer to Appendix 2). Note : a) All forces to be measured at returned curve. b) Force to be taken after 3X reflow.	0.20N min at minimum deflection
6	Durability (Life Cycle)	Mate connectors 2.54cm/min to 1500 cycles. Horizontal insertion for max deflection case.	Contact resistance 100 milliohms [MAXIMUM] No mechanical damage
7	Card Insertion Force	Insert the card in mating direction at a Max. rate of 12.5 mm/min	6N [MAXIMUM]
8	Card Withdrawal Force	Withdraw the card in un-mating direction at a rate of 12.5 mm/min	0.50N [MINIMUM]
9	Solder Joint Peeling Strength	Apply a load to the connector parallel to the PWB (refer to Appendix 1 on X & Y direction)	50 N [MINIMUM]

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10	Resistance to Soldering Heat	Unmated sample to be passed through reflow over according to temp profiles (shown in section 9.0) three times (Sequences: above PWB – under PWB – under PWB)	No damage to connector appearance No connector drop off from PWB
11	Solderability	Solder paste is deposited on a ceramic plate via stencil. The connector are steam aged & placed on a solder paste print. The substrate is processed through a forced hot convention oven. The connector are removed from the ceramic plate & inspected. Steam Aging : 8 hour (ANSI-J-STD 002)	No bridging & Good coverage

6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
12	Dry cold (steady state)	At -40°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-1Ab)	No mechanical damage Contact resistance 100 milliohms [MAXIMUM]
13	Dry heat (steady state)	At +85°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-2Bb)	No mechanical damage Contact resistance 100 milliohms [MAXIMUM]
14	Thermal Shock	25 cycles at Ta = -55°C for 0.5 hours, then change of temp = 25°C MAX 5min, then, T_b = +85°C for 0.5hour, then cool to ambient Recovery: 2hours at ambient atmosphere (IEC60068-2-14 Test Na)	No mechanical damage Contact resistance 100 milliohms [MAXIMUM]

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15	Vibration (Random)	Frequency: 10~100 Hz, 0.0132 g2/Hz; Frequency: 100~500Hz, -3dB/Oct Applied for 1 hours in X, Y and Z axis in minimum deflection position.	No mechanical damage Contact resistance 100 milliohms [MAXIMUM] Discontinuity < 1 μs
16	Damp Heat (Cyclic)	Temp 25-55°C and 95-100%RH for 18 cycles of 24hours. Recovery at 25°C and 75%RH for 2hours. (Typical cycle in temp 25°C \rightarrow 55°C in 3 hours; then maintain at 55°C for 9hours; temp 55°C \rightarrow 25°C in 3 hours; then maintain at 25°C for 9hours) (IEC60068-2-30Db)	No mechanical damage Contact resistance 100 ohms [MAXIMUM] Insulation resistance 1000 milliohms [MINIMUM]
17	Shock (specified pulse)	Pulse shape = half sine Peak acceleration = 490m/s ² (50G) Duration of pulse = 11ms Apply 3 successive shocks in each direction along the 3 mutually perpendicular axes. (IE-C60068-2-27Ea)	No mechanical damage Contact resistance 100 milliohms [MAXIMUM] Discontinuity < 1 μs

7.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes.

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8.0 TEST SEQUENCES

Test Group →	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Test or Examination $oldsymbol{\Psi}$							
Sample size	5	5	5	5	5	5	5
Examination of connector(s)	1	1	1	1	1	1	1
Contact Resistance	2,4,6,8			2,5	2,4,6		
Insulation Resistance		3,6					
Dielectric Withstanding Voltage		2,7					
Temperature Rise			2				
Contact Normal Force							
Durability (Life Cycle)	3						
Solder Joint Peeling Strength (X & Y axis)						3	
Dry Cold					3		
Dry Heat					5		
Thermal Shock	5	4					
Damp Heat (cyclic)	7	5					
Vibration				3			
Shock				4			
Solderability							2
Resistance to Soldering Heat						2	

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molex[®] PRODUCT SPECIFICATION

Screen Test Group →	Group 1	Group 2	Group 3	Group 4
Test or Examination $oldsymbol{ u}$				
Sample size	5	5	5	5
Appearance	1	1	1	1
Resistance to Soldering Conditions	2	2		
Contact Resistance	3,8			
Insulation Resistance		3,6		
Dielectric Withstanding Voltage		4,7		
Contact Normal Force	4,9			
Durability (Life Cycle)	7	5		
Solder Joint Peeling Strength				2
Solderability			2	
Card Insertion Force	5,10			
Card Withdrawal Force	6,11			

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9.0 SOLDERING PROFILE

Pb-free reflow profile requirement for solderability testing

The reflow profile defined in this section describes expected minimum reflow profile. Temperature measured on solderable termination or on top of component.



Figure 1. Reflow profile for solderability testing.

Pb-free reflow profile requirements for solderability testing							
Parameter	Reference	Specification					
Preheat minimum temperature	T ₁	150°C					
Preheat maximum temperature	T ₂	180°C					
Preheat time	t ₁	60120 s					
Time above 217°C	t ₂	Max 30 sec					
Peak temperature in reflow	T ₄	230°C (-0/+5°C)					
Time at peak temperature	t ₃	10 s					
Temperature gradient in cooling		Max –5°C/s					

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Reflow soldering profile for soldering heat resistance testing

The reflow profile specified in this section describes expected maximum heat exposure of components during the reflow process .



Figure 2. Reflow profile for soldering heat resistance testing.

Pb-free reflow profile requirements for soldering heat resistance					
Parameter	Reference	Specification			
Preheat minimum temperature	T ₁	150°C			
Preheat maximum temperature	T ₂	180°C			
Preheat time	t ₁	120180 s			
Time above 217°C (T ₃)	t ₂	Min 65 s			
Time above 250°C (T ₄)	t ₃	Min10 s			
Peak temperature in reflow	T _{peak}	255°C (–0/+5°C)			
Temperature gradient in cooling		Max -5°C/s			
Time from 40°C to 220°C		Min. 200 s			

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