

DUAL SIM FRAME, 1.37MM HEIGHT, POP OUT

1.0 SCOPE

This Product Specification covers the performance requirements of the SIM Card Connector frame and the SIM Card Connector (Block SIM).
 (This part is a frame only, it must be used together with Molex 0.32mm block SIM 151058 & 151059 for an entire SIM pop out system)

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name

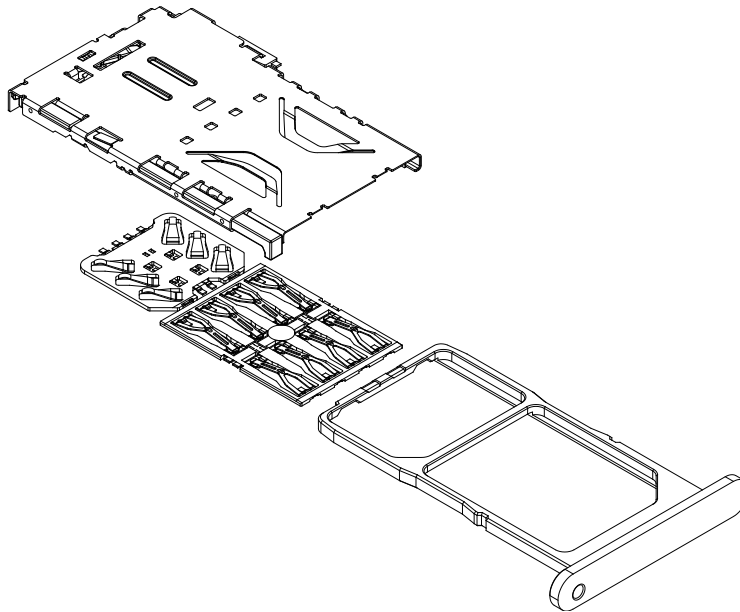
DUAL SIM FRAME, 1.37MM HT., POP OUT
 MICRO BLOCK SIM CONNECTOR
 NANO BLOCK SIM CONNECTOR

Series Number

151050
 151058
 151059

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-151050-0001, SD-151058-0001 and SD-151059-0001 for information on dimensions, materials, platings and markings.



TENTATIVE RELEASE:

THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE. PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECTED TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION.

REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 1 of 9
DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28

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

10 Volt DC Max.

4.3 TEMPERATURE

Operating: - 30°C to + 85°C

5.0 MECHANICAL INTERFACE

5.1 CARD INTERFACE

SIM card interface: GSM 11.11 specification

5.2 PWB INTERFACE

Plating on PWB pads: OSP plated

6.0 PERFORMANCE

6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Low Level Contact Resistance (LLCR)	1. Mate connectors with dry circuit (20 mV, 100mA MAX) on mated connector. (EIA-364-23C) 2. Between detect spring & detect contact on shell.	Contact Resistance: a. Terminal: 100 milliohms Max. b. Detect pin: 100 milliohms Max.
2	Insulation Resistance	Unmated connectors: apply a voltage of 500 VDC between adjacent contact for 1 minutes	100 Megaohms Min
3	Dielectric Withstanding Voltage	Unmated connectors: apply a voltage of 1000 VAC between adjacent contact for 1 minutes (EIA-364-20C)	No voltage breakdown

REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 2 of 9
DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28

4	Temperature Rise	Mated and measure the temperature rise of contact, when rated current is passed. (IEC 60512-5-2)	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 25.4mm/min. The max. working height of contact is measured from surface of housing. Max Working Height: a) 151058 Micro Block SIM: 0.06mm b) 151059 Nano Block SIM: 0.22mm Note: Force to be taken after 5X cycles mate & unmate (Refer to Appendix 2).	0.20N Min. At maximum working height
6	Tray Insertion Force (with SIM card)	Insert tray with SIM card (Virgin Card) at a speed rate of 12.5+/-3mm/min (EIA 364-13D)	Insertion Force: 15N Max.
7	Tray Withdrawal Force (with SIM card)	Withdraw the tray with SIM card (Virgin Card) at a speed rate of 12.5+/-3mm/min (EIA 364-13D)	Withdrawal Force: 3.0N Min.
8	Durability (Machine Insertion)	Mate and unmate connectors to 1500 cycles at a maximum rate of 720cycles/hour. (EIA-364-09C)	Contact Resistance: a. Terminal 100 milliohms Max. b. Detect Spring 100 milliohms Max.
9	Solder Joint Peeling Strength	Apply 50N load to the connector frame parallel to the PWB (X & Y direction) (Refer to Appendix 4)	No mechanical damage

REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 3 of 9
DOCUMENT NUMBER: PS-151050-0001		CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28
		APPROVED BY: VICTOR LIM 2015/05/28	

10	Solderability	Solder paste is deposited on a ceramic plate via stencil. The connectors are steam aged and placed onto the solder paste print. The substrate is processed through a forced hot convection oven. Refer to section 9.0 for temp profile. The connectors are removed from the ceramic and inspected. Steam Aging: 8 hour (ANSI-J-STD 002)	Min. Solder coverage = 95%
11	Vibration (Random)	Random Vibration, Frequency: 20~500Hz, 0.01g ² /Hz; 3 mutually perpendicular plane 20 min per plane.	a) Contact Resistance: Terminal: 100 milliohms Max. Detect pin: 100 milliohms Max. b) Discontinuity < 1 μs
12	Mechanical 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. (EIA 364-27B) – Test condition A	a) Contact Resistance: Terminal: 100 milliohms Max. Detect pin: 100 milliohms Max. b) Discontinuity < 1 μs

6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
13	Low Temperature Exposure	At -40°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-1Ab)	a) No mechanical damage b) Contact Resistance: Terminal: 100 milliohms Max. Detect pin: 100 milliohms Max.
14	High Temperature Exposure	At +85°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-2Bb)	a) No mechanical damage b) Contact Resistance: Terminal: 100 milliohms Max. Detect pin: 100 milliohms Max.

REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 4 of 9
DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28

15	Thermal Shock	25 cycles at Ta = -40°C for 0.5 hours, then change of temp = 25°C MAX 5min, then, Tb = +85°C for 0.5hour, then cool to ambient Recovery: 2hours at ambient atmosphere (IEC60068-2-14 Test Na)	a) No mechanical damage. b) Contact Resistance: Terminal : 100 milliohms Max. Detect pin : 100 milliohms Max.
16	Damp Heat (Cyclic)	Temp 25-55°C and 90-100%RH for 6 cycles of 24 hours Recovery at 25°C and 25~75%RH for 2hours. (Typical cycle in temp 25°C -> 55°C in 3 hours; then maintain at 55°C for 9hours -> 55°C -> 25°C in 3 hours; then maintain at 25°C for 9hours) (IEC60068-2-30Db)	a) Contact Resistance: Terminal : 100 milliohms Max. Detect pin : 100 milliohms Max. b) Insulation Resistance: 100 Megohms Min. c) No mechanical damage
19	Resistance to Soldering Condition	Unmated sample to be passed through reflow over according to temp profiles (shown in section 9.0) See Graph below	No mechanical damage

7.0 PACKAGING

7.1 Frame (151050)

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes. For details, kindly refer to Packaging Specification PK-151050-0001

7.2 Micro Block SIM (151058)

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes. For details, kindly refer to Packaging Specification PK-151058-0001

7.3 Nano Block SIM (151059)

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes. For details, kindly refer to Packaging Specification PK-151059-0001

REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 5 of 9
DOCUMENT NUMBER: PS-151050-0001		CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28
		APPROVED BY: VICTOR LIM 2015/05/28	

8.0 TEST SEQUENCES

Test Group →	Test Group											
	A	B	C	D	E	F	G	H	I	J	K	L
Sample Size	5	5	5	5	5	5	5	5	5	5	5	5
Examination of connector(s)	1 8	1 4	1	1 3	1 8	1 8	1 5	1 8	1 6	1 6	1 6	1 6
Contact Normal Force		3										
Insertion/Withdrawing Force	4 6				4 7	4 7		4 7				
Durability (machine)	5											
Solder Joint Peeling Force			3									
Solderability				2								
Vibration (random)					5							
Mechanical Shock						5						
Contact Resistance	3 7				3 6	3 6		3 6	3 5	3 5	3 5	3 5
Insulation Resistance							3					
Dielectric Withstanding Voltage							4					
Temperature Rise								5				
Low Temperature Exposure									4			
High Temperature Exposure										4		
Thermal Shock											4	
Damp Heat												4
Resistance to Soldering Heat	2	2	2		2	2	2	2	2	2	2	2

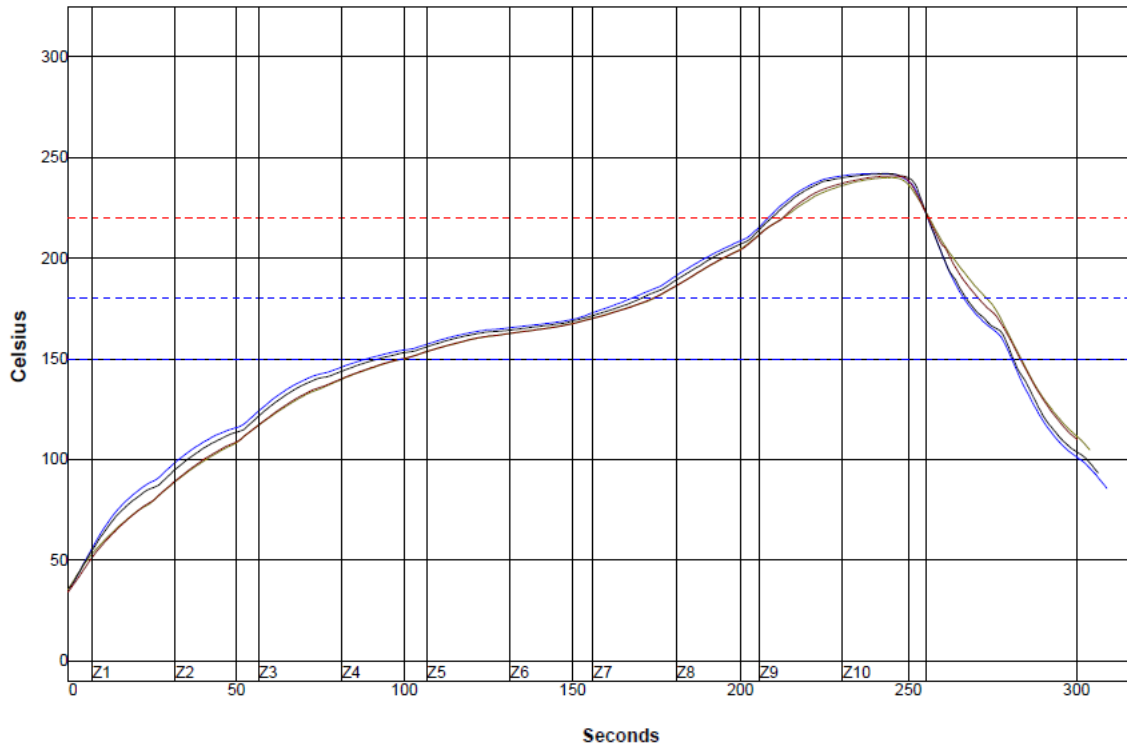
REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 6 of 9
-----------------------	---	--	----------------------------

DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28
---	---	---------------------------------------	--

9.0 SOLDERING PROFILE

Setpoints (Celsius)										
Zone	1	2	3	4	5	6	7	8	9	10
Top	110	120	155	160	170	170	180	215	255	255
Bottom	110	120	155	160	170	170	180	215	255	255

Conveyor Speed (cm/min): 90.0



PWI= 66%	Max Rising Slope	Max Falling Slope	Soak Time 150-180C	Reflow Time /220C	Peak Temp					
<TC3>	1.81	-19%	-3.00	-33%	78.74	-8%	47.60	-24%	242.11	-5%
<TC4>	1.57	-43%	-2.65	-10%	74.63	-36%	43.56	-64%	240.17	-31%
<TC5>	1.73	-27%	-2.99	-33%	78.12	-13%	46.63	-34%	242.17	-4%
<TC6>	1.63	-37%	-2.72	-15%	74.74	-35%	43.38	-66%	240.93	-21%
Delta	0.24		0.35		4.11		4.22		2.00	

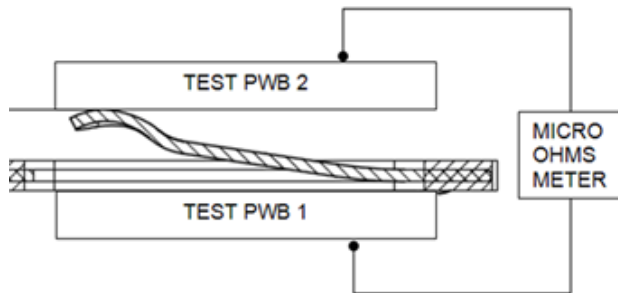
Process Window:

Solder Paste: TongYong-MB-Profile			
Statistic Name	Low Limit	High Limit	Units
Max Rising Slope (Target=2.0) (Calculate Slope over 40 Seconds)	1	3	Degrees/Second
Max Falling Slope (Calculate Slope over 40 Seconds)	-4	-1	Degrees/Second
Soak Time 150-180C	65	95	Seconds
Time Above Reflow - 220C	40	60	Seconds
Peak Temperature	235	250	Degrees Celsius

REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 7 of 9
DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28

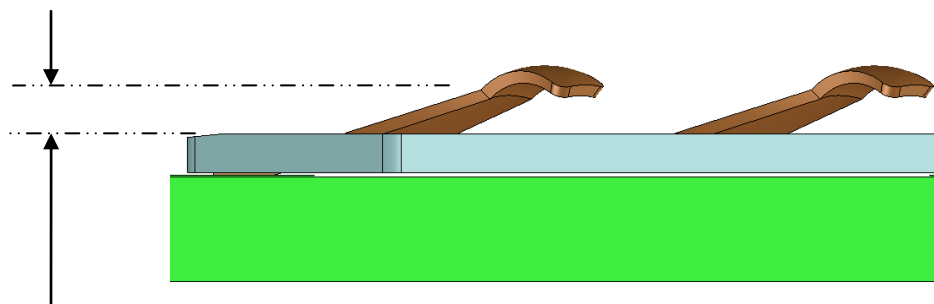
APPENDIX 1:

Contact Resistance Measurement



APPENDIX 2:

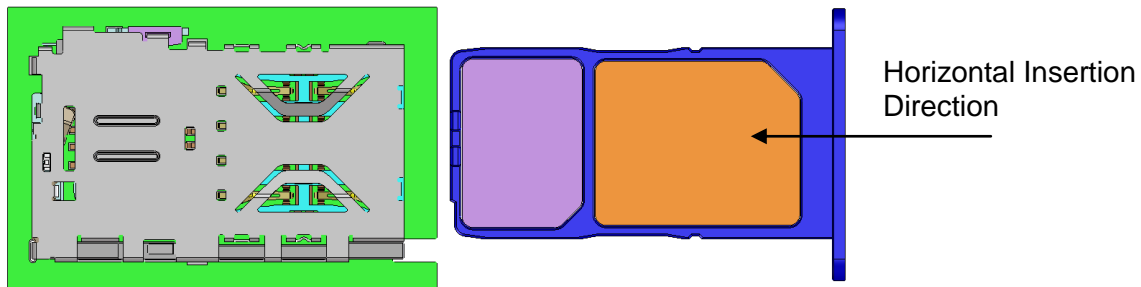
Terminal Working Height



Terminal working height from housing surface

APPENDIX 3:

Card insertion directions in durability

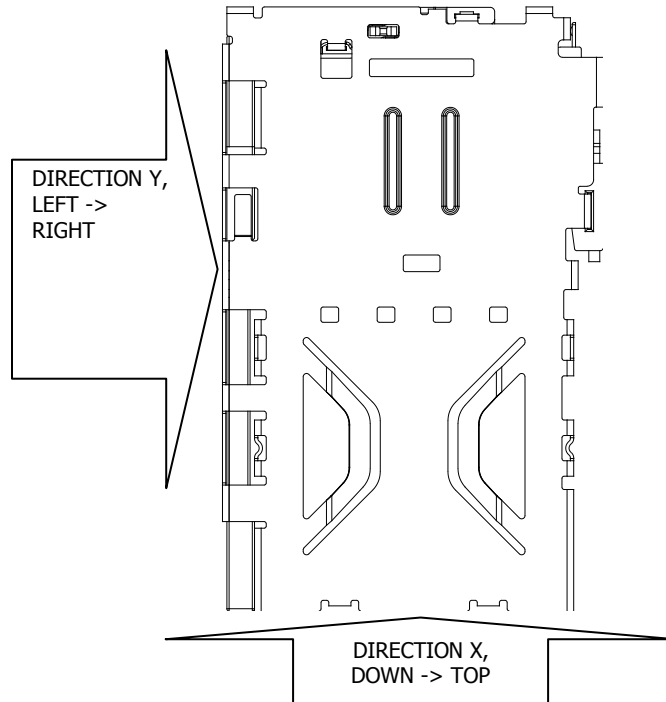


REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 8 of 9
DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28

APPENDIX 4:

Solder Joint Peeling Force

Frame:



REVISION: 1	ECR/ECN INFORMATION: EC No: S2015-1156 DATE: 2015/04/13	TITLE: DUAL SIM FRAME 1.37MM HEIGHT, POP OUT	SHEET No. 9 of 9
DOCUMENT NUMBER: PS-151050-0001	CREATED / REVISED BY: GMENARLY 2015/04/13	CHECKED BY: JTAN 2015/05/28	APPROVED BY: VICTOR LIM 2015/05/28