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Optimize space savings with highly compact and reliable hinged and push-pull style micro-SIM card sockets for ultra-slim mobile devices

Molex has added a 1.40mm height, hinged socket (series 78800) to its array of push-pull style micro-SIM card interconnects (series 78723, 78727, 78646). This low-profile socket is ideal for ultraslim smartphones with limited vertical space between SIM socket and the phone battery-cover. Maximizing space savings and facilitating easy, top-loading of SIM card, the socket is the designer's choice for mid-board layouts that preclude the use of front- or side-entry style sockets. Measuring only 16.96 (L) by 13.69 (W) by 1.40mm (H), the socket is more compact than competing equivalents.

The socket's U-shaped metal hinge provides high pulling force between lid and shell to ensure robust card retention, electrical contact and reliability. A uniquely designed locking mechanism allows a partial tilt of the lid into lock position; or full opening at 180-degrees to the horizontal, for easy removal and placement of SIM card.

Molex's push-pull style micro-SIM card sockets come with anti-shortening, card polarization and other features for high user- and electrical reliability. Integral solder tabs on the socket shells provide robust PCB hold-down during soldering. Insert-molded LCP housings maintain design and dimension precisions while sustaining high-temperature operations.

The socket terminals of this family have rounded profiles to facilitate smooth card insertion and withdrawal. Aligned in reverse direction, the terminals prevent contact stubbing and allow gradual 'lead-in' of the SIM card when inserted. This unique terminal geometry ensures high contact integrity and connectivity when mated.

Molex's hinged and push-pull style sockets come in standard 6-circuit configuration. Customers can request for 8-circuit push-pull style sockets if needed. Parts are shipped in tape-on-reel packaging. All Molex micro-SIM sockets featured in this release are halogen-free, ELV- and RoHS-compliant for environmental sustainability.

For more information, visit our website at: www.molex.com/link/micro-sim.html

Features and Benefits

Ultra-low-profile height of 1.35mm (78723), 1.40mm (78727 and 78800)	Ideal for ultra-slim smart phone applications
Card polarization features (all series)	Ensure correct card orientation when used with socket
Top-loading style socket allowing 180-degree opening of lid (78800)	Eliminates any possibility of terminal crush as the SIM card is mounted top-down
Anti-short feature using raised housing walls of the socket (78723, 78727) and kinked shell design (78646)	Prevents shorting of any exposed edge of (improperly pared) SIM card contact pads with the surrounding metal shell
Integral metal-shell spring tab (78723)	Ensures high normal force (0.30N) and good electrical contact with inserted micro-SIM card
Detect Switch with First-Mate-Last-Break capability (78727)	Enables detection of micro-SIM card when inserted

micro-SIM Card Sockets, 6-Circuit, Halogen-free, Lead-free 1.40mm Hinged and 1.35, 1.40 and 1.45mm Height Push-Pull Styles

Hinged style

78800 1.40mm Height, without detect switch

Push-pull style

78723 1.35mm Height, without detect switch

78727 1.40mm Height, with detect switch

78646 1.45mm Height, without detect switch



Hinged and Push-Pull Style Micro-SIM Card Sockets, Halogen-free, Lead-free



Specifications

Reference Information

Packaging: Embossed Tape on Reel
Use With: micro-SIM card
Designed In: mm
RoHS: Yes
Halogen Free: Yes
Glow Wire Compliant: No

Electrical

Voltage (max.):
5V DC (78723, 78800), 10V DC
(78727), 15V DC (78646)
Current (max.): 0.5A per contact
Low Level Contact Resistance (max.):
100 milliohms
Dielectric Withstanding Voltage:
500 VAC
Insulation Resistance (min.):
1000 megohms

Mechanical

Contact Normal Force (min.):
0.30N (78723 and 78727)
0.20N at min. deflection (78646)
0.20N at 0.32mm working height
(78800)
Lock/Unlock Force
(with and without card):
15N max./0.5N min. respectively

Contact Normal Force :
0.20N(min.); 1.30N(max.) (78800)
Card Insertion Force (max.):
8N (78723), 10N (78727)
Card Withdrawal Force (min.):
0.7N (78723), 0.5N (78727)
Durability (max.):
500 cycles at 100 milliohms
(78723 and 78727)
1500 cycles at 100 milliohms
(78646)
5,000 cycles at 100 milliohms
LLCR and 0.20N Contact Normal
Force (78800)
500 cycles at 100 milliohms LLCR
with 15N (max.) Locking Force
and 0.50N (min.) Unlocking
Force (78800)

Physical

Housing:
LCP (glass-filled), UL94V-0, Black
Contact:
Phosphor Bronze (78800)
Copper Alloy (others)
Metal Shell:
Stainless Steel
(no plating for Series 78800)

micro-SIM Card Sockets, 6-Circuit, Halogen-free, Lead-free 1.40mm Hinged and 1.35, 1.40 and 1.45mm Height Push-Pull Styles

Plating:

Contact Area —
0.38 μ m (15 μ ") Gold (Au)
Solder Tail —
1.27 μ m (50 μ ") Matte Tin (Sn)
Underplating —
1.27 μ m (50 μ ") Nickel (Ni)

Shell Solder Tab:

1.27 μ m (50 μ ") Matte Tin (Sn)
over 1.27 μ m (50 μ ") Nickel (Ni)
underplate

Detect Contact:

0.127 μ m (5 μ ") Gold (Au) over
1.27 μ m (50 μ ") Nickel (Ni)
underplate (78727)

Detect Spring:

0.127 μ m (5 μ ") Gold (Au) over
1.27 μ m (50 μ ") Nickel (Ni)
underplate (78727)

Operating Temperature:

-40 to +85°C (78723 and 78727)
-30 to +85°C (78646 and 78800)

Product Family



1.40mm height push-pull style
micro-SIM card socket with detect switch
(Series 78727)



1.40mm height, hinged style
micro-SIM card socket
(Series 78800)



1.45mm height push-pull style
micro-SIM card socket
(Series 78646)



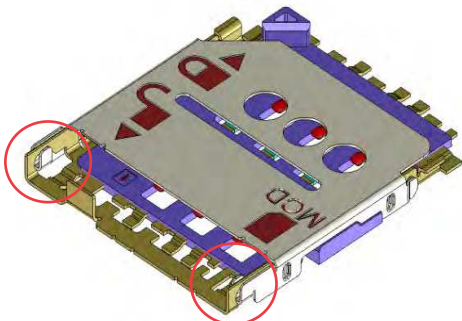
1.35mm height, push-pull style
micro-SIM card socket
(Series 78723)



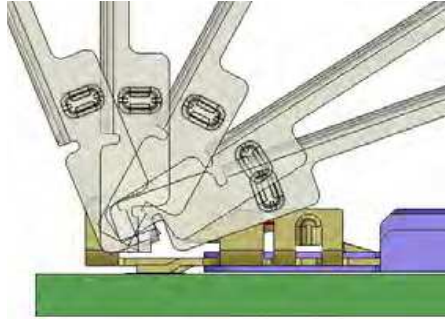
Product Features – Hinge Style Locking

A “U” shape metal hinge provides high pulling force between the lid and shell body, preventing the lid from being pulled out accidentally

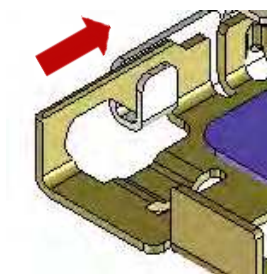
**micro-SIM Card Sockets, 6-Circuit, Halogen-free, Lead-free
1.40mm Hinged and 1.35, 1.40 and 1.45mm Height Push-Pull Styles**



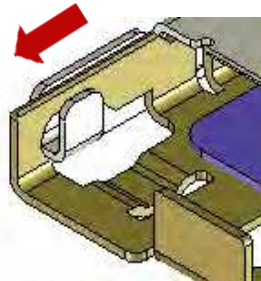
Socket hinges (highlight)



Backward rotation of socket hinge at housing frame keyhole enabling full 180-degree lid tilt

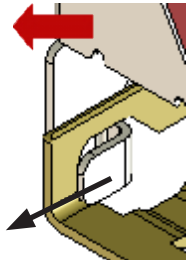


Hinge is locked



Hinge is unlocked

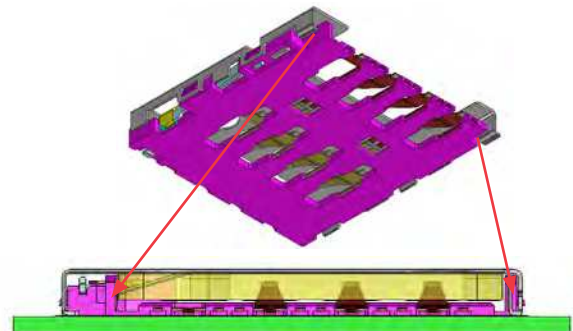
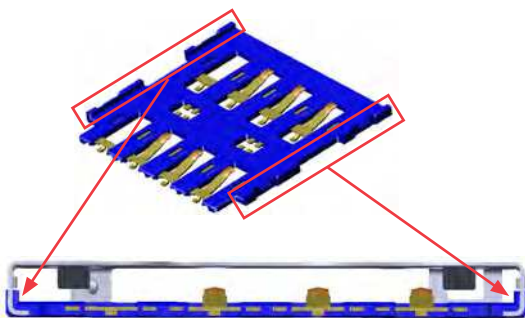
The tip of the hinge now faces outwards to allow lid to open partially or fully (Remark: Product photo on datasheet cover page shows partially opened lid in 'lock' position)



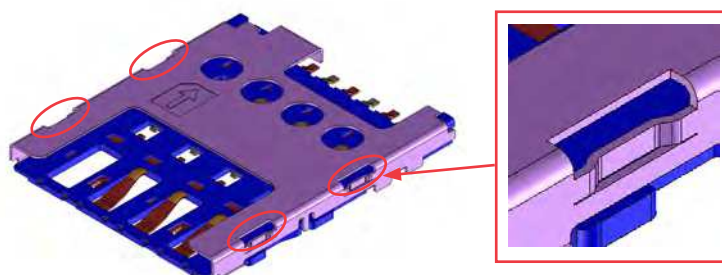
Hinge rotates backwards to open lid

Hinge features of Series 78800 micro-SIM card socket

Anti-Shorting Features of Series 78723, 78727, 78646 Push-Pull Style Micro-SIM Sockets



Series 78723 (left) and 78727 (right) micro-SIM card socket use raised housing-wall as anti-short feature

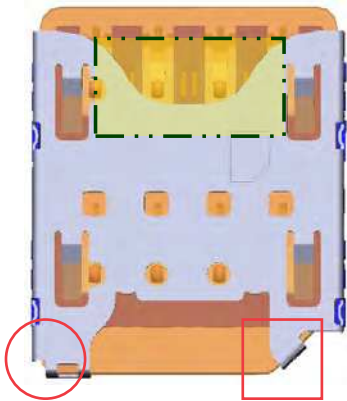


Series 78646 socket uses a kinked metal shell design as anti-short feature



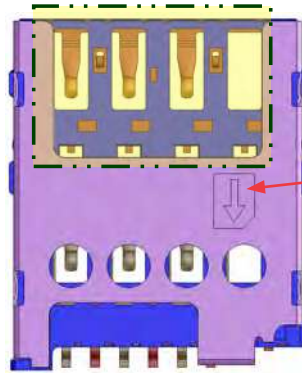
Wide Finger Area (Yellow Boxes) and Card Polarization Features of Series 78723, 78727 and 78646 Push-Pull Micro-SIM Card Socket

**micro-SIM Card Sockets, 6-Circuit, Halogen-free, Lead-free
1.40mm Hinged and 1.35, 1.40 and 1.45mm Height Push-Pull Styles**



Two angled-shell card-polarization features act as stoppers to ensure correct fit of micro-SIM card to socket

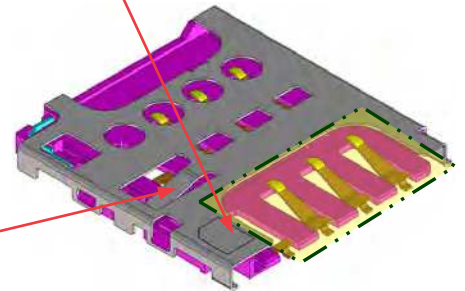
Series 78723 micro-SIM card socket



Series 78646 micro-SIM card socket

Series 78727 socket uses a card-orientation-spring to block a wrongly oriented (and inserted) micro-SIM card mid-way to prevent damage to socket

Chamfered edge icon to guide user in correct micro-SIM card insertion



Series 78727 micro-SIM card socket

Other Product Features of 78723 and 78727 Micro-SIM Card Socket

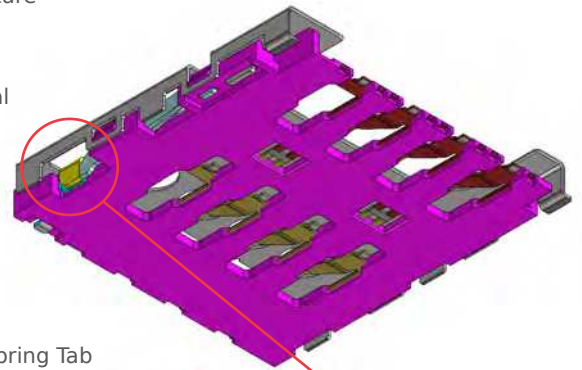


Spring tab feature

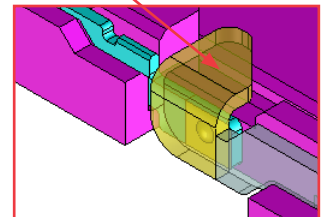
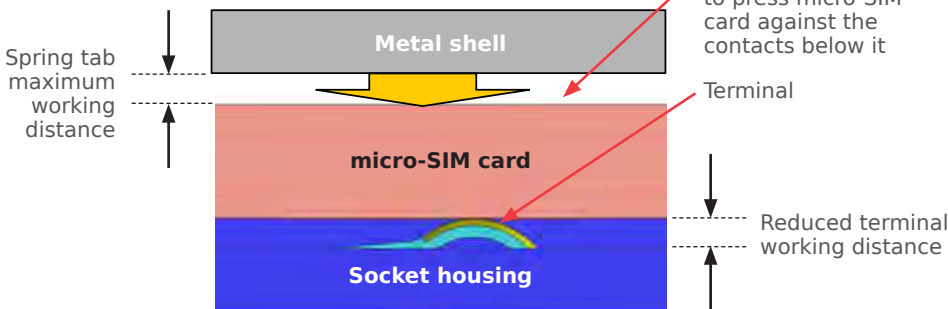
Metal shell of socket

Socket terminal

Socket housing



With Spring Tab



Series 78727 detect switch for First-Mate-Last-Break capability

By incorporating spring tabs, terminals of Series 78723 socket can achieve a 0.30N minimum normal force for improved card-to-socket (electrical) contact

**micro-SIM Card
Sockets, 6-Circuit,
Halogen-free,
Lead-free
1.40mm Hinged
and 1.35, 1.40 and
1.45mm Height
Push-Pull Styles**

Markets and Applications

Consumer

- Mobile phones
- Ultra-slim smart phones
- Tablet PCs
- Mobile *Wi-Fi devices
- **GSM/UMTS modems
- PC cards
- Wireless LAN cards



GSM / UMTS modems



Tablet PCs, mobile and smart phones



Mobile Wi-Fi devices

Ordering Information

Order No.	Profile Height	Detect Switch	Circuits
78646-3001	1.45mm	Without	6 (Please contact Global Product Manager for 8-circuit version enquiries)
78723-1001	1.35mm		
78727-0001	1.40mm	With	
78800-0001		Without	

*Wi-Fi is a registered trademark of the Wi-Fi Alliance

**GSM/UMTS - Global System for Mobile Communications / Universal Mobile Telecommunications System

www.molex.com/link/micro-sim.html