

### ■ Features

#### 1. Conforms to the SSFDC Forum proposal of "smartMedia" miniature storage media

Product development using postage stamp sized miniature memory cards for such items as digital cameras and PDA is now a regular practice.

The MCR102 Series of miniature, thin connectors conforms to the SSFDC Forum proposal of "SmartMedia" miniature storage media.

#### 2. Miniature Low-Profile SMT

Board occupation area was taken into account in the design of these miniature, thin connectors, the dimensions of which are 40 mm wide, 38.5 mm long, and 3.0 mm high (excluding the card insertion slot). The covers are designed to make connection with the ground of the printed circuit board.

#### 3. Connectors are available in three types: a 3.3-V card type, a 5-V card type, and a combined type for both 3.3-V and 5-V cards.

#### 4. Prevention of Incorrect Card Insertion

An incorrect insertion prevention mechanism serves to prevent the insertion of a different type of voltage card. The combined type can use 3.3-V and 5-V cards.

#### 5. Original Card Detection Switch Mechanism (Patents Pending)

© The contact portion separates when the card has been firmly inserted all the way. (Normally closed type)

© The switch contact portion is of the two-point contact type which improves contact stability. The contact timing of the signal contacts and switch contacts is as follows. After the signal contacts make contact, there is a 1.2 mm distance until the switch contact operates and this permits reliable card detection.

© The 3.3 V/5 V combined card, which is currently being standardized (with a provisional name of dual voltage card), is also designed with a structure that permits card detection.

#### 6. Equipped with write protect (WP) contact for erroneous data deletion protection

#### 7. Equipped with a board positioning boss. The boss position prevents incorrect insertion to the board.

#### 8. Suited to Automatic Mounting

A placement area of 8.2 mm x 30 mm has been maintained to correspond with the placement nozzle of the automatic mounter.

#### 9. Solder Repairability

The SMT arrangement of the 2 rows of 22 signal pins into a single row on one side improves the level of solder repairability.

### ■ Applications

Digital cameras, PDA, voice recorders, and other equipment that uses SmartMedia.

## ■ Product Specifications

Rating	Current rating	0.5A	Operating temperature	-20°C to +60°C	Storage temperature	-40°C to +70°C
	Voltage rating	125V AC	Operating humidity	95% R.H. or less (without condensation)	Storage humidity	95% R.H. or less (without condensation)

Item	Specification	Conditions
1. Insulation resistance	1000 M ohms min.(Initial value)	500 VDC
2. Withstanding voltage	No flashover or insulation breakdown. Leakage current of 1 mA max.	500 V AC / 1 minute
3. Contact resistance	100 m ohms max.(Initial value)	20 mV AC max.,measured at 1 mA
4. Vibration	No electrical discontinuity of 100ns or more No damage, cracks, or parts looseness	Frequency: 10 to 2000 Hz, full amplitude of 1.52 mm or acceleration of 147 m/s <sup>2</sup> (peak),4 hours in each of the 3 directions.
5. Shock	No electrical discontinuity of 100ns or more No damage, cracks, or parts looseness.	Acceleration of 490 m/s <sup>2</sup> , 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis
6. Humidity(Steady state)	Contact resistance: Amount of change from the onset is 40 m ohms max. Insulation resistance: 100 M ohms min. No damage, cracks, or parts looseness.	96 hours at temperature of 40°C and humidity of 90% to 95%
7. Temperature cycle	Contact resistance: Amount of change from the onset is 40 m ohms max. Insulation resistance: 100 M ohms min. No damage, cracks, or parts looseness.	Temperature: -55°C → 5 to 35 → 85 → 5 to 35°C Time: 30 → Max. 5 → 30 → Max. 5 minutes Left coupled for 5 cycles under aforementioned conditions
8.Durability (mating/unmating)	Contact resistance: Amount of change from the onset is 40 m ohms max. No damage, cracks, or parts looseness.	10000 cycles at 400 to 600 cycles per hour
9.Resistance to soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile Manual soldering: 300°C for 3 seconds

Note :the aforementioned standards are representative of this series.  
Please refer to the Specifications for individual, formal exchanges.

## ■ Materials

Part	Material	Finish	Remarks
Insulator	Synthetic resin	Color:Black	UL94V-0
Signal contacts	Phosphor bronze	Contact portion: gold plating Lead portion: Solder plating	_____
Switch contacts	Beryllium copper Brass	Contact portion: gold plating Lead portion: Solder plating	_____
Cover	Stainless	_____	_____

## ■ Ordering Information

**MCR 102A – 22 RL – 1.27 SF**

①
②
③
④
⑤

①	Series name: MCR 102 A
②	Number of contacts: 22
③	Power supply voltage type RL: 3.3 V type RH: 5 V type R: Combined (3.3 V/5 V) type
④	Contact pitch: 1.27 mm
⑤	Terminal type : SF: SMT type

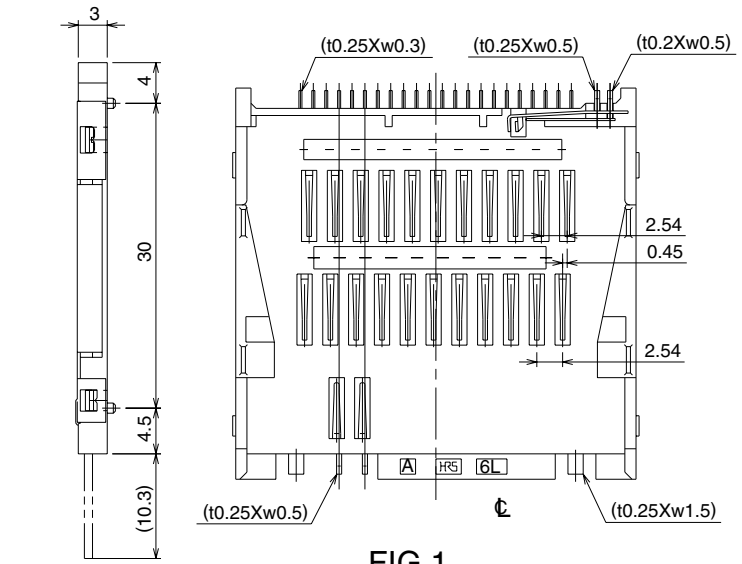
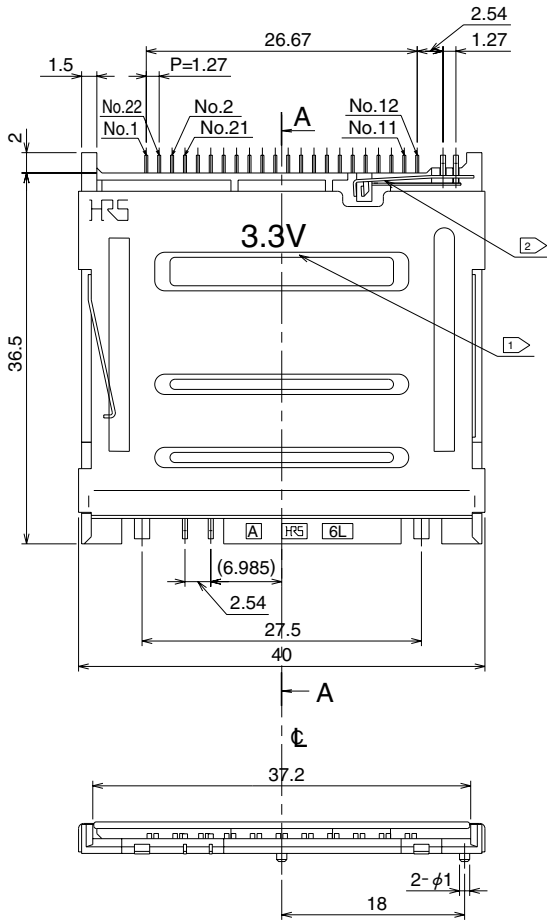
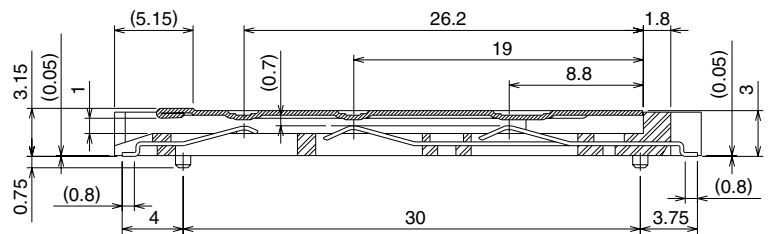


FIG.1

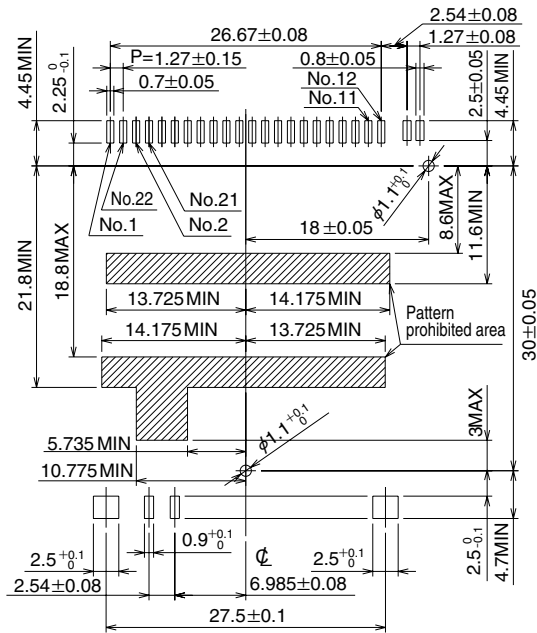


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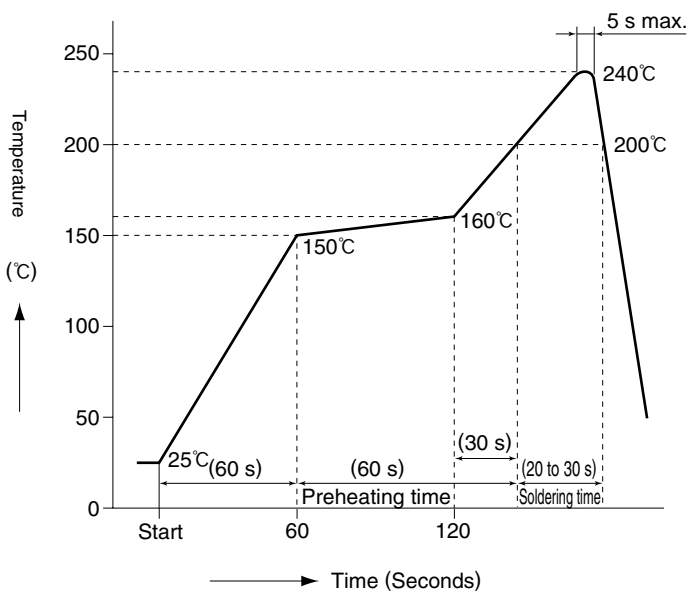
- NOTE : ① This product is marked with "3.3 V" when it is designed for use with a 3.3 V card, "5 V" when designed for a 5 V card, and "W" when designed for both 3.3 V and 5 V cards.
- ② The switch contacts are constructed to separate when the card is inserted.
- 3 ⌀ indicates the 37.2 center line.
- 4 The co-planarity at the SMT lead edge portion is 0.1 maximum.
- 5 Fig. 1 illustrates the connector before the cover is attached.
- 6 The cover is designed to short-circuit to the PCB via a strengthened fitting as an EMI countermeasure.
- 7 Please understand that molding sink countermeasures may be added for the purpose of product improvement, etc.

CL No.	Part Number	Power Supply Voltage Type	Delivery Form
548-0210-4	MCR102A-22R-1.27SF	Combined (3.3 V/5 V) type	Tray
548-0211-7	MCR102A-22RL-1.27SF	3.3 V type	
548-0212-0	MCR102A-22RH-1.27SF	5 V type	

## PCB mounting pattern



## Temperature Profile



### Applicable Conditions

Reflow system :IR reflow

Solder: Paste type 63 Sn/37 Pb

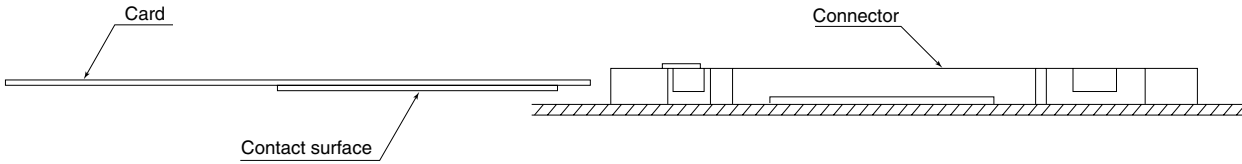
(Flux content 9 wt%)

Test board Glass epoxy 60mm x 60mm x 1.6 mm

Metal mask thickness: 0.15 mm

## ■ For Use Precautions

1. The orientation of the card should have the contact surface inserted face-down as illustrated in the diagram below.



2. At the time of card insertion, check the card voltage type. This product is furnished with an incorrect insertion prevention mechanism, but forced insertion of a different type of voltage card may result in damage to the card.
3. The card should be firmly inserted all the way to the back. The switch mechanism requires that the card be firmly inserted all the way so that the contact portion separates; failing to firmly insert the card may result in the mechanism not operating.
4. After the card has been inserted, be sure not to apply excessive force to the card portion that protrudes from the insertion slot. The application of force may damage the card.
5. The packaging form used for this product is soft tray (polystyrene) packaging. Depending on the type of mounter, adjustment may be required for automatic mounting. In view of this, we recommend that a check be made with the article in question. For more detailed information, please contact your Hirose account representative.

## ■ Washing Conditions

This product is a no-wash item, but in the case of washing, please observe the following conditions.

### Organic Solvent Washing

Solvent	Normal temperature washing	Heated washing
IPA(isopropyl alcohol)	Yes	Yes
HCFC(Hydrochlorofluorocarbon)	Yes	Yes

### Water Type Washing

When using water type cleaning agents (e.g., terpene, and alkali saponifiers), select the cleaning agent based on the documentation issued by the various manufacturers of cleaning agents which describes the effects on metals and resins. Be careful that parts are not left with moisture remaining on them.

### Washing Precautions

Residual flux or cleaning agent on the contacts when washing with organic solvents or water type cleaners can give rise to the deterioration of electrical performance. In this regard it is important to check whether a thorough washing has been performed.