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Find the *Keithley 7174A* at our website: *Click HERE*

Use with Model 707A and 708A switching matrix mainframes

SWITCHING AND CONTROL

7174A

High Speed, Low Leakage Current Matrix

8×12



- **Fast time to measurement**
- **Low leakage (<100fA offset on all signal paths)**
- **2-pole switching, signal, and guard**
- **200V, 2A signal levels**
- **Compatible with Model 707A and 708A Switching Matrix Mainframes**
- **Designed for use with Keithley Model 4200-SCS, SMUs, and HP 4155, 4156**

Ordering Information

7174A **8×12 High Speed, Low Current Matrix**

Accessories Supplied

Eight row interconnect cables for card to card matrix expansion

The Model 7174A Low Current Matrix Card is designed for semiconductor research, development, and production applications requiring high quality, high performance switching of I-V and C-V signals. The Model 7174A is ideal for use with Keithley Models 236, 237, and 238 Source-Measure Units, Model 4200-SCS, and the HP Models 4155 and 4156. The card's configuration is 8 rows×12 columns, with signal and guard switched at each crosspoint. Offset current has been reduced dramatically to <100fA on all pathways. Significant reductions in the level of parasitic capacitances in the Model 7174A help speed the process of making low level measurements.

The Model 7174A provides an optimum solution to switching the lower level signals common to today's semiconductor characterization tests. The card's low leakage and minimal dielectric absorption ensure that key device measurements can be performed many times faster than with current switching technologies.

The Model 7174A is fully compatible with the earlier Model 7174, except that it does not contain (or require) the built-in self test. Connections are 3-lug triax with the outer shell connected to chassis for safety and noise shielding. The center conductor is fully surrounded by the inner conducting shield allowing fully guarded measurements to be made with higher isolation and improved speed and accuracy.

For applications that require making connections to a large number of devices or test points, the Model 7174A matrix can be expanded with additional cards. On-card connectors are provided to connect the rows (column expansion) between other 7174A cards in adjacent slots of the Model 707A switching mainframe. Eight female-to-female cables are provided with each 7174A to simplify expansion. Up to six 7174A cards can be connected in a single 707A switching mainframe to form an 8×72 or 12×60 matrix.

MATRIX CONFIGURATION: Single 8 rows×12 columns. Expanding the columns can be done internally by connecting the rows of multiple 7174A cards together with coax jumpers.

CROSSPOINT CONFIGURATION: 2-pole Form A (Signal Guard).

CONNECTOR TYPE: 3-lug triax (Signal, Guard, Chassis).

MAXIMUM SIGNAL LEVEL:
Pin-to-Pin or Pin-to-Chassis: 200V. 2A carry current.

CONTACT LIFE: Cold Switching: 10^8 closures.

OFFSET CURRENT: 100fA max., 10fA typical (with 0V applied to inputs and outputs).

ISOLATION: Path (Signal to Signal): $>2\times10^{14}\Omega$, 1pF.
Common (Signal to Chassis): $>10^{14}\Omega$, <10pF.

SETTLING TIME: <2.5s to 400fA (all pathways) after 10V applied (typical).

CROSSTALK (1MHz, 50Ω Load): <–70dB.

INSERTION LOSS (1MHz, 50Ω Load): <–0.2dB typical.

3dB BANDWIDTH:
(50Ω Load, 50Ω Source): 30MHz typical.
(1MΩ Load, 50Ω Source): 40MHz typical.

RELAY DRIVE CURRENT (per crosspoint): 17mA.

RELAY SETTLING TIME: <1ms.

EMC: Conforms to European Union Directive 89/336/EEC.

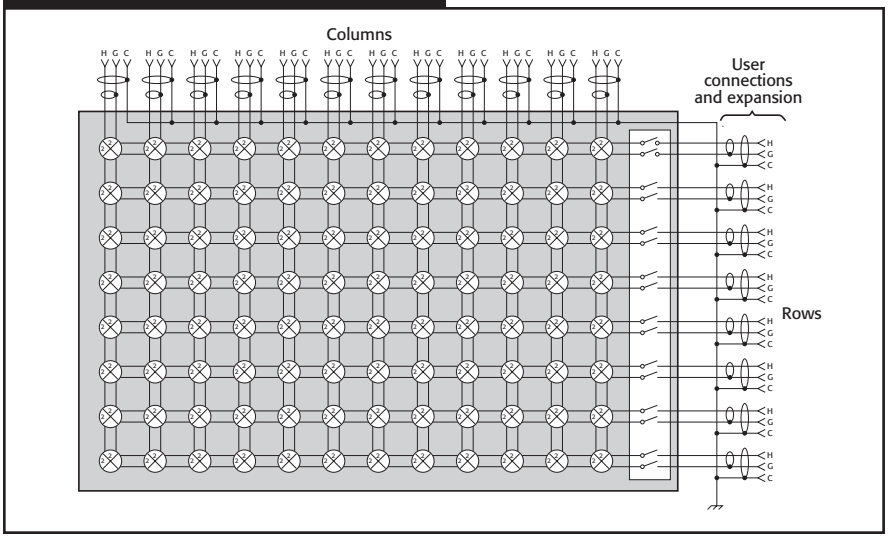
SAFETY: Conforms to European Union Directive 73/23/EEC (meets EN61010-1/IEC 1010).

ENVIRONMENT:
Offset Current and Path Isolation Specifications: 23°C, <60% R.H.
Operating: 0° to 50°C, up to 35°C at 70% R.H.
Storage: –25° to +65°C.

MAXIMUM LEAKAGE:
Pin to Ground: 0.01pA/V. **Pin to Pin:** 0.005pA/V.

INSULATION RESISTANCE: $6.7\times10^{13}\Omega$ minimum.

CAPACITANCE: (Guard Driven): Path to Ground: <10pF.
Path to Path: 1pF typical.



ACCESSORIES AVAILABLE

237-TRX-T	3-Lug Triax Tee Adapter
7078-TRX-TBC	3-Lug Triax to BNC Adapter
7078-TRX-3	3-Lug Triax Cable, 0.9m (3 ft.)
7078-TRX-10	3-Lug Triax Cable, 3m (10 ft.)
7078-TBC	3-Lug Female Triax Bulkhead Connector with Cap

SERVICES AVAILABLE

7174A-3Y-EW	1-year factory warranty extended to 3 years from date of shipment

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