

**Aumictech**

Test & measurement • bought, sold, repaired, calibrated

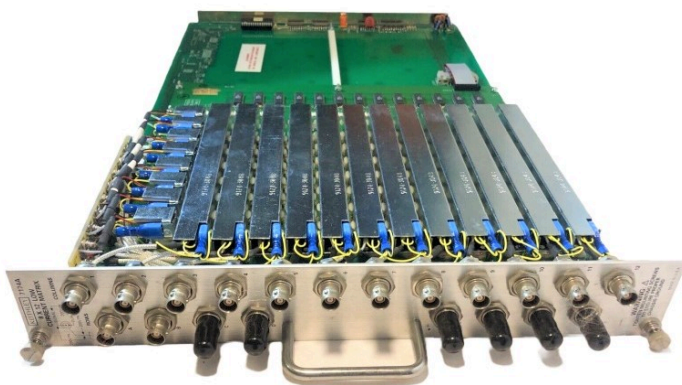
Data Sheet

August 13, 2026

KEITHLEY

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

Keithley 7174A 8×12 High Speed Low Current Matrix Card The Keithley 7174A is an 8-row by 12-column high-speed, low-current matrix card for semiconductor I-V and C-V characterization. Each crosspoint switches signal and guard (2-pole Form A) with 3-lug triax connectors. Offset current is less than 100 fA maximum (about 10 fA typical) with path isolation greater than $2e14$ ohm. Compatible with Keithley 707/707A/707B and 708/708A/708B switching matrix mainframes; columns can be expanded by jumpering rows between cards. The Keithley 7174A is an 8-row by 12-column high-speed, low-current matrix card for semiconductor I-V and C-V characterization. Each crosspoint switches signal and guard (2-pole Form A) with 3-lug triax connectors. Offset current is less than 100 fA maximum (about 10 fA typical) with path isolation greater than $2e14$ ohm. Compatible with Keithley 707/707A/707B and 708/708A/708B switching matrix mainframes; columns can be expanded by jumpering rows between cards. Semiconductor parametric I-V switching; C-V characterization paths; low-level SMU routing with Models 236/237/238, 2635/2636, 4200-SCS, and Agilent/Keysight B1500 class systems; guarded low-current matrix expansion.



MODEL

Keithley 7174A

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

7174A

LISTING

<https://aumictechlabs.com/products/7174a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Keithley 7174A is an 8×12 high-speed, low-current matrix switch card designed for precision automated testing and measurement of low-level signals in semiconductor characterization. The card features a 2-pole Form A (Signal Guard) crosspoint configuration with 200 V maximum signal level and 2 A carry current. Its exceptional leakage performance - maximum 100 fA offset current (typical 10 fA) and pin-to-ground leakage of 0.01 pA/V - makes it ideal for I-V and C-V signal characterization in research, development, and production environments.

Technical Specifications

Matrix Configuration: 8 rows × 12 columns per card Expandable to 8×72 or 12×60 configuration with up to six cards in a Model 707A mainframe Internal column expansion via coax jumpers

Electrical Performance: Maximum signal level: 200 V (pin-to-pin or pin-to-chassis) Carry current: 2 A Offset current: Maximum 100 fA, typical 10 fA Leakage: 0.01 pA/V (pin to ground); 0.005 pA/V (pin to pin) Insulation resistance: Minimum $6.7 \times 10^{13} \Omega$ Settling time: <2.5 μ s to 400 fA across all pathways after 10 V applied (typical) RF Characteristics: 3 dB bandwidth: 30 MHz typical (50 Ω load, 50 Ω source); 40 MHz typical (1 M Ω load, 50 Ω source) Crosstalk: $\leftarrow$ 70 dB at 1 MHz (50 Ω load) Insertion loss: $\leftarrow$ 0.2 dB typical at 1 MHz (50 Ω load) Guard-driven capacitance: <10 pF to ground; 1 pF typical path-to-path Relay Characteristics: Contact life: 10^8 closures (cold switching) Relay settling time: <1 ms

Key Features 3-lug triax connectors (Signal, Guard, Chassis) Operating temperature range: 0° to 50 °C (up to 35 °C at 70% R.H.) Storage temperature: -25° to +65 °C Compliant with EU Directive 89/336/EEC (EMC) and 73/23/EEC (Safety, EN61010-1/IEC 1010)

Typical Applications Semiconductor parameter analysis, device characterization, automated production testing, and research requiring exceptional low-current measurement accuracy and signal isolation.

Compatibility & Integration Compatible with Keithley Models 707A, 707B, 708A, and 708B switching mainframes. Integrates with Keithley Model 4200-SCS, SourceMeter Instruments (Models 2635A/2636A, 236, 237, 238), and Agilent B1500 semiconductor parameter analyzers.

7174A Characteristics / Specifications

PARAMETER	VALUE
Model	7174A
Manufacturer	Keithley / Tektronix
Instrument Type	8×12 high-speed low-current matrix card
Matrix Configuration	Single 8 rows x 12 columns
Crosspoint Configuration	2-pole Form A (Signal Guard)
Connector Type	3-lug triax (Signal, Guard, Chassis)
Maximum Signal Level	200 V pin-to-pin or pin-to-chassis; 2 A carry
Contact Life Cold Switching	1e8 closures
Offset Current	100 fA max; 10 fA typical (0 V applied)
Settling Time	less than 2.5 s to 400 fA (all pathways) after 10 V (typical)
Crosstalk 1 MHz 50 ohm	less than -70 dB
Insertion Loss 1 MHz 50 ohm	less than -0.2 dB typical 3 dB Bandwidth: about 30 MHz typical (50 ohm load, datasheet class)
Relay Drive Current per Crosspoint	17 mA
Maximum Leakage Pin to Ground	0.01 pA/V
Maximum Leakage Pin to Pin	0.005 pA/V
Insulation Resistance	6.7e13 ohm minimum
Capacitance Path to Ground (guard driven)	less than 10 pF
Operating Temperature	0 to 50 C (up to 35 C at 70% RH)
Storage Temperature	-25 to +65 C
Offset Spec Conditions	23 C, less than 60% RH
Compatible Mainframes	707, 707A, 707B, 708, 708A, 708B Notes Specs from Keithley 7174A datasheet and instruction manual. Confirm mainframe firmware compatibility (707 vs 707B) and jumper expansion before multi-card builds.
Bandwidth	about 30 MHz typical (50 ohm load, datasheet class)

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Storage temperature	25 to +65 C
Operating temperature	0 to 50 C (up to 35 C at 70% RH)
Operating Temperature	0 to 50 C (up to 35 C at 70% RH)
Offset Spec Conditions	23 C, less than 60% RH
Compatible Mainframes	707, 707A, 707B, 708, 708A, 708B Notes Specs from Keithley 7174A datasheet and instruction manual. Confirm mainframe firmware compatibility (707 vs 707B) and jumper expansion before multi-card builds.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Model	7174A
Manufacturer	Keithley / Tektronix
Instrument Type	8x12 high-speed low-current matrix card
Specifications	
PARAMETER	VALUE
Matrix Configuration	Single 8 rows x 12 columns
Crosspoint Configuration	2-pole Form A (Signal Guard)
Connector Type	3-lug triax (Signal, Guard, Chassis)
Specifications	
PARAMETER	VALUE
Maximum Signal Level	200 V pin-to-pin or pin-to-chassis; 2 A carry
Contact Life Cold Switching	1e8 closures
Offset Current	100 fA max; 10 fA typical (0 V applied)
Path Isolation Signal-to-Signal: greater than 2e14 ohm, about 1 pF	
Common Isolation Signal-to-Chassis: greater than 1e14 ohm, less than 10 pF	
Specifications	
PARAMETER	VALUE
Settling Time	less than 2.5 s to 400 fA (all pathways) after 10 V (typical)
Crosstalk 1 MHz 50 ohm	less than -70 dB
Insertion Loss 1 MHz 50 ohm	less than -0.2 dB typical
3 dB Bandwidth: about 30 MHz typical (50 ohm load, datasheet class)	
Specifications	
PARAMETER	VALUE
Relay Drive Current per Crosspoint	17 mA

PARAMETER	VALUE
Maximum Leakage Pin to Ground	0.01 pA/V
Maximum Leakage Pin to Pin	0.005 pA/V

Specifications

PARAMETER	VALUE
Insulation Resistance	6.7e13 ohm minimum
Capacitance Path to Ground (guard driven)	less than 10 pF
Operating Temperature	0 to 50 C (up to 35 C at 70% RH)

Specifications

PARAMETER	VALUE
Storage Temperature	-25 to +65 C
Offset Spec Conditions	23 C, less than 60% RH
Compatible Mainframes	707, 707A, 707B, 708, 708A, 708B

Notes

Specs from Keithley 7174A datasheet and instruction manual. Confirm mainframe firmware compatibility (707 vs 707B) and jumper expansion before multi-card builds.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
Generated August 13, 2026

Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.