

PyramidPDC50

High-performance DC
parametric Pyramid Probe® card



DATA SHEET

Cascade Microtech has developed its next-generation PDC50 DC parametric Pyramid Probe cards as the higher-performance, lower-cost alternative to existing industry solutions. Designed to enable the accurate monitoring of 65 nm and 45 nm parametric test structures, the PDC50 is compatible with both the Agilent 4070/4080 Series and Keithley S600 Series. Cascade Microtech's innovative Pyramid Plus™ manufacturing process ensures a substantially lower cost of ownership, while delivering superior signal integrity and faster settling time.

FEATURES / BENEFITS

| | |
|------------------------------|--|
| Superior signal performance | <p>Traces guarded to probe tips with lowest leakage.</p> <p>Guarded traces provide excellent measurement fidelity with low leakage (1 fA/V), enabling faster settling times while reducing unwanted crosstalk effects.</p> <p>Consistent low contact resistance and low-inductance probe tips ensure accurate and repeatable high-speed digital and analog measurements.</p> <p>Patented ground and power planes with bypass capacitors provide resonance-free stable power supplies directly to the multi-DUTs.</p> |
| Mechanical robustness | <p>MicroScrub® technology provides consistent low contact resistance and inductance on a variety of pad materials and flip-chip bumps.</p> <p>High-density photolithographically-placed contact probe tips are stable over lifetime of product.</p> <p>Low maintenance and permanent probe tip placement improve test cell uptime, reducing the cost of ownership compared to other probing technologies.</p> |
| Versatile and cost-effective | <p>Lower maintenance overhead with less cleaning and no need for probe tip alignment. Field-replaceable cores feature fully integrated test-vendor identification capabilities.</p> |

PARAMETRIC TESTER SUPPORT

| | |
|-----------------|----------------------------|
| Keithley | S600 Series |
| Agilent | 4070 Series, 4080 Series |
| Instrument Rack | Generic 4.5 in. probe card |

ELECTRICAL

| | |
|---------------------|--|
| Leakage | 5 fA/V (Standard), 1 fA/V (Optional) |
| Contact resistance | 0.1 to 0.2 Ω (Al pads), 0.005 to 0.010 Ω (Au pads) |
| Maximum current/tip | 1 A (Au pads), 200 mA (Al pads and Cu pads) |

SIGNAL LINES

| | |
|-----------|---------|
| Line Type | DC |
| Membrane | Guarded |
| PCB | Guarded |

COMPONENTS ON MEMBRANES

| | |
|--------------|------------------------------------|
| Package type | SMT |
| Sizes | 0201, 0402 (preferred), 0603, 0805 |

MECHANICAL

| | |
|-------------------------------------|---|
| Minimum pad size (standard) | 50 μm x 50 μm |
| Minimum pad size (options) | 40 μm x 40 μm , 30 μm x 30 μm |
| Minimum pitch | 50 μm |
| Dimensional stability for lifetime | 10 μm for single temperature |
| Probe tip size Al, Cu (nominal) | 12 μm |
| Probe tip size Low K/PoAA (nominal) | 18 μm |
| Probe tip size Au (nominal) | 25 μm |
| Probe tip material | Non-oxidizing nickel alloy |
| Temperature range | -50° C to 125° C |
| Pad and bump materials | Al, Cu, Au, TiN, Polysilicon |
| Spring rate | 1.67 g/mil |

DC PARAMETRIC PRODUCTS

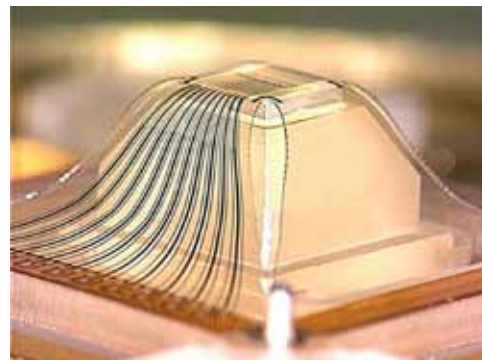
| | | |
|---------------------|----|---|
| PDC50 membrane core | 48 | All test systems |
| RFB-46-LL | 48 | Rack-mounted instrumentation; rectangular probe card holder |
| RFB-S600 | 48 | Keithley S600 Series |
| RFB-9R-LL | 48 | Agilent 4070 Series fixed-channel assignment |
| RFB-4071 | 48 | Agilent 4070 Series, 4080 Series |

SERIAL NUMBER ID OPTIONS

| | |
|--------------------------------|--------------------|
| Customer-specified ID resistor | Agilent 4070, 4080 |
| EEPROM | Keithley S600 |



Pyramid Probe tips feature a 12 μm x 12 μm contact area for probing 30 μm x 30 μm aluminum and copper pads.



Pyramid Probe membrane features guarded traces to the probe tip. The fixed probe tip placement eliminates manual planarity and alignment adjustments.

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Data subject to change without notice

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PDC50

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