Pyramid PDC50

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

CascadeMicrotech®

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

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.

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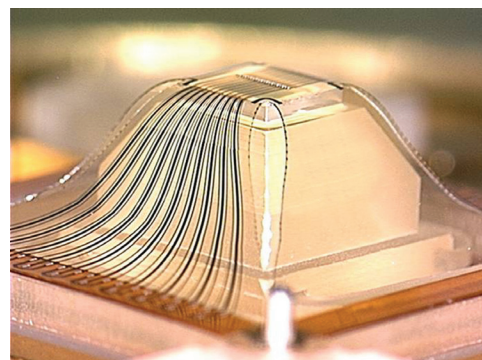
PDC50 membrane core	48	All test systems
RFB-46-LL	48	Rack-mounted instrumentation; rectangular probe card holder
RFB-S600	48	Keithley S600 Series
RFB-9R-LL	48	Agilent 4070 Series fixed-channel assignment
RFB-4071	48	Agilent 4070 Series, 4080 Series

SERIAL NUMBER ID OPTIONS

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

PDC50

PDC50-DS-0212

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