

# Pyrana™ and Katana™-RF

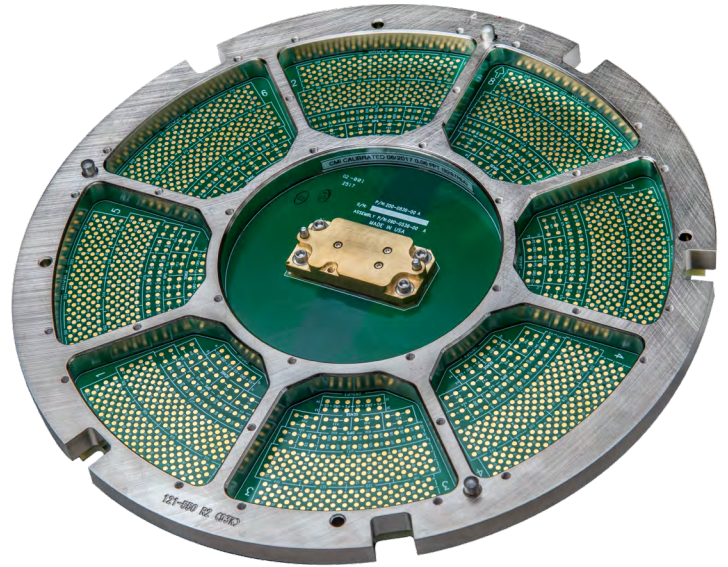
## RF-MEMS Probe Cards and Custom Probe Heads

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### ➤ Overview

For RF devices up to 10 GHz and inductance-sensitive applications, Pyrana and Katana-RF probe cards provide excellent signal integrity, low ground inductance, long lifetime, and individually compliant contacts. Pyrana probe cards combine the best features of two types of probe cards – Pyramid Probe® cards and Katana-RF probe cards. The Pyrana probe cards integrate robust Katana MEMS probe technology with Pyramid Probe's thin-film technology, delivering a previously unavailable combination. Each contact is individually replaceable for ease of repair.

Pyrana and Katana-RF series series probe cards enable reduced cost through long lifetime, ease of repair, and repeatable measurements. Additionally, Katana-RF probe cards offer a high degree of available customization, and Pyrana probe cards offer the possibility of generic, reusable printed circuit boards (PCBs).



### ➤ Features / Benefits

<b>Measurement accuracy</b>	<ul style="list-style-type: none"><li>• Excellent signal integrity</li><li>• Minimum contact resistance</li><li>• Repeatable results</li></ul>
<b>High test efficiency</b>	<ul style="list-style-type: none"><li>• Straightforward cleaning and maintenance</li><li>• Minimum pad damage</li><li>• Minimum contact force</li><li>• Easily replaceable probes</li></ul>
<b>Low cost of test</b>	<ul style="list-style-type: none"><li>• Long probe card lifetime</li><li>• Individually replaceable probes</li></ul>
<b>Versatility</b>	<ul style="list-style-type: none"><li>• Pyrana offers potential of generic PCBs to support families of similar devices</li><li>• Katana-RF accommodates large die, unique die layouts, etc.</li></ul>

## ➤ Size Options and Naming – Probe Heads

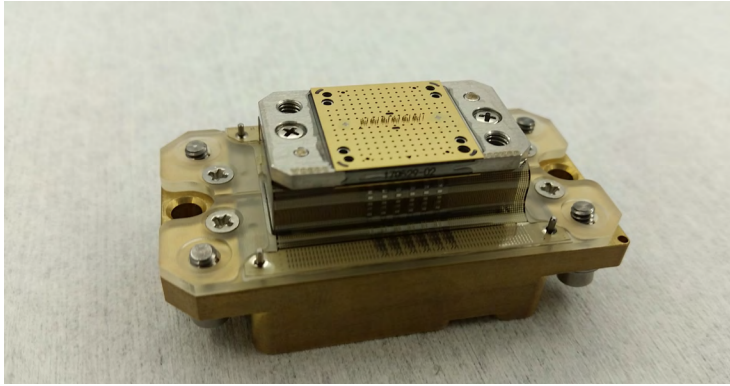
Size	PV6 <sup>1</sup>	PV10 <sup>1</sup>	PV35 <sup>2</sup>	PV75 <sup>3</sup>	Katana-RF (Custom)
Available probe area (mm)	6x6	10x10	35x10	75x12	4
Max IO	400	560	1400	2800	4

1. PV6 and PV10 probe heads available as of October 2017.

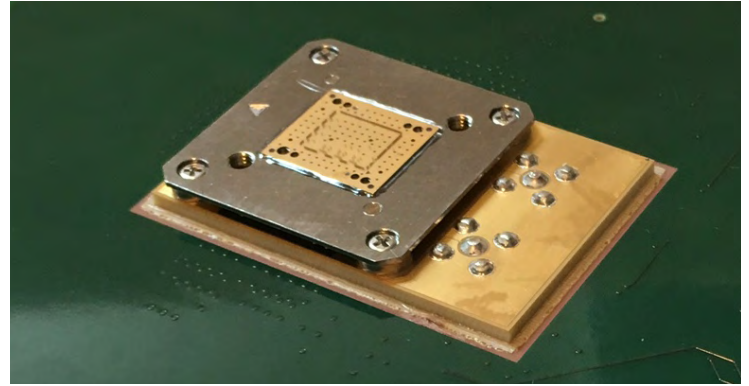
2. PV35 probe head size available for beta testing as of October 2017.

3. PV75 probe head size in development as of October 2017.

4. Design dependent.



Pyrana probe core



Katana-RF probe core

## ➤ Size Options and Naming – MEMS Probes

Probe type	K400 <sup>1</sup> (7-leaf)	K150 <sup>1</sup> (4-leaf)	K80 <sup>2</sup> (3-leaf)
Probe technology	Vertical MEMS	Vertical MEMS	Vertical MEMS
Available probe tip shape	Flat	Flat, Pointed	Flat, Pointed

1. K150 and K400 probes available as of October 2017.

2. K80 probe available as of January 2017.

## ➤ Mechanical Performance

Minimum pitch, single row	112 (→87 <sup>1</sup> ) μm (K80)
Minimum pitch, array	130 (→116 <sup>1</sup> ) μm (K80)
Probe tip shapes	Flat (for bump applications) or pointed (for pad applications)
Probe tip size (flat)	50x60 μm (K80), 50x75 μm (K150), 80x200 μm (K400)
Probe tip size (pointed)	16x16 μm
Probe tip material	ProbAlloy
Temperature range	-40°C to 160°C
Pad and bump materials	Al, Cu, Au, all types of solder balls
Probe force	2.2 g at 100 μm overtravel (K150)
Probe length	2.79 mm (K80), 2.79 mm (K150), 2.95/3.75 mm (K400)
Max overtravel	125 μm (K80), 175 μm (K150), 350 μm (K400)
Probe to probe compliance	± -100 μm
Individually replaceable probes	Yes

1. Minimum pitch improvements implemented as of January 2018.

## > Electrical Performance

Leakage	<50 nA
Contact resistance	8 mOhm (typical)
Maximum current / probe	800 mA (K80)
Maximum power 50 $\Omega$ microstrip	+33 dBm CW, +36 dBm pulsed

## > Power Supply Performance

Power trace impedance	10 $\Omega$
Maximum current (standard power trace)	1 A
Maximum current per power supply	10 A

## > Signal Trace Performance

### Standard

Bandwidth	DC to 9+ GHz
Signal line impedance	50 $\Omega$ nominal
Return loss (S11)	>10 dB @ specified bandwidth
Insertion loss (S21)	<3 dB @ specified bandwidth

### Optional

Range of trace impedances	2 $\Omega$ to 120 $\Omega$ $\pm$ 20%
Differential impedance	50 $\Omega$ , 100 $\Omega$ and 200 $\Omega$

## > Signal Trace Length Matching

Typical pogo pad	No match
Custom line match	$\pm$ 3 ps (6 ps window)

## > Warranty

Warranty*	One year
Service contracts	Single- and multi-year programs available to suit your needs

\* See FormFactor's Terms and Conditions of Sale for more details.

## > Ordering Information

Consult factory for more detailed specifications, additional options, suitability of configuration for intended usage, part numbers, pricing and delivery.

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