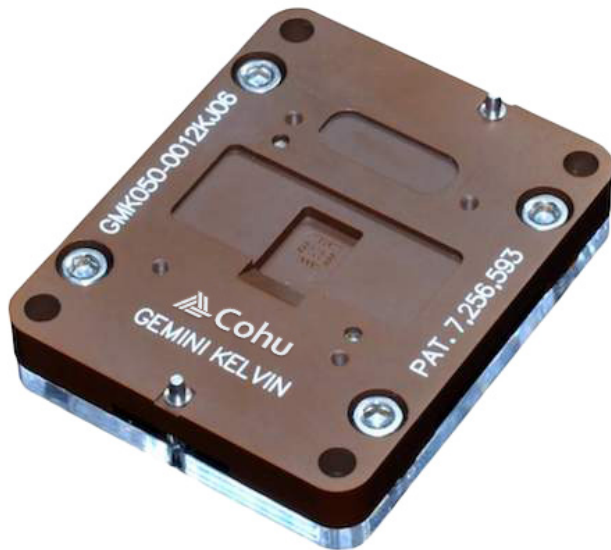


Gemini Kelvin Contactor/Probe Head

For In-Line and Array Packages



Automotive / Power



Mobility



Precision Analog / Sensors



High End Digital



RF

Benefits

- Field-proven long life
- Accurate low resistance measurements
- Accurate voltage measure at high current loading
- Frequency requirements to 21 GHz
- Suitable for low-noise, fast-response devices
- Suitable for power controllers, data converters, amplifiers, and comparators

Key Features

- Excellent targeting stability
- Minimum Kelvin-pair tip spacing 83 μm to land to small targets
- Pitches down to 0.3 mm (in-line) and 0.4 mm (full array)
- In-line and array packages
- Singulated devices, strip test, or wafer-level test
- Electrically-isolated, mechanically independent force and sense probes

- Temperature range 55°C to +155°C
- True Kelvin to eliminate contact resistance
- Life cycle over 2M touchdowns at wafer-level test
- Precision pointing accuracy ensures that probes avoid apex and edges of solder ball

Gemini Kelvin Contactor/Probe Head

For In-Line and Array Packages

Specifications

Packages and Applications

- Grid array packages: BGA, LGA, WLP – full arrays at 0.4 mm pitch and up
- Leaded packages: QFP, SO (0.3 mm pitch or >)
- Leadless packages: QFN, MLF (0.3 mm pitch or >)
- Singulated packages, strip test, in-carrier, and wafer-level test

Environmental

Temperature range: -55°C to +155°C

Reliability*

Typical probe Life: 500,000 to 800,000 cycles

Probe cleaning: 50,000 to 75,000

Electrical

Bandwidth @ -1dB Insertion Loss

- GMK030 single probe: 4 GHz
- GMK030 dual probe: 17 GHz
- GMK040 single probe: 21 GHz
- GMK040 dual probe: 10 GHz
- GMK050 single probe: 16 GHz
- GMK050 dual probe: 10 GHz

Loop Inductance

- GMK030 single probe: 1.8 nH
- GMK030 dual probe: 1 nH
- GMK040 single probe: 1.1 nH
- GMK040 dual probe: 0.72 nH
- GMK050 single probe: 1.48 nH
- GMK050 dual probe: 0.84 nH

Contact Resistance**

- GMK030 single probe: 150 mΩ
- GMK040 single probe: 70 mΩ
- GMK050 single probe: 45 mΩ

Current Carrying Capacity

20° Celsius Temperature Rise

- GMK030: 1.1 A continuous
- GMK040: 1.8 A continuous
- GMK050: 2.3 A continuous

Maximum Current @ 1% Duty Cycle

- GMK030: > 3 A
- GMK040: > 8 A
- GMK050: > 13 A

Mechanical

Contact Pitches Supported

- 0.4 mm and up (full array)
- 0.3 mm and up (in-line)

Contact Force at Test Height

- GMK030: 0.14 N (15 g)
- GMK040: 0.27 N (28 g)
- GMK050: 0.35 N (34 g)

Test Height

- GMK030: 3.46 mm
- GMK040: 3.22 mm
- GMK040: 3.41 mm (BGA)
- GMK050: 3.42 mm

DUT Side Travel

- GMK030: 550 μm
- GMK040: 440 μm
- GMK050: 480 μm

DUT Tip Style

- GMK030: super-sharp
- GMK040: 0.15 mm radius or super-sharp
- GMK050: super-sharp

DUT Tip Spacing

- GMK030: 83 μm
- GMK040: 100 μm
- GMK050: 120 μm

Materials

Housing Material

- Vespel® SP-1
- Others available

Spring Probe Material

- Hard, proprietary alloy

Spring Material

- Stainless steel

Plating Material

- Hard gold

Configurations / Interface Options

Automated Test

- Handler specific design / configuration
- Optional manual actuator
- E-beam probe support
- Custom configurations

* Cleaning frequency and life specifications are estimates based on customer feedback. Actual values are dependent on the application (DUT materials, handler kit, maintenance, etc.)

** Typical resistance measured between Au plated sheets

All specifications are subject to change without notification and are for reference only. Use contactor drawing to design interface hardware. For detailed performance specifications, please contact Cohu.