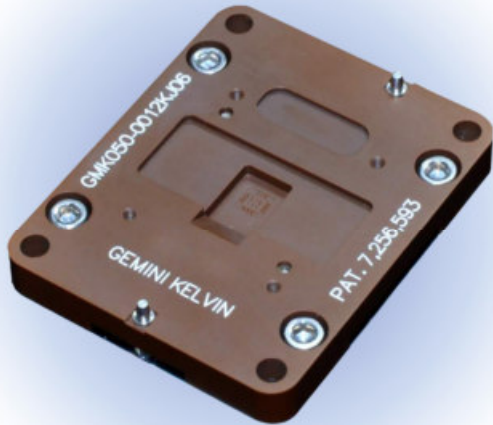


GEMINI™ KELVIN CONTACTOR



Contactor for In-Line and Array Packages



RF



High End Digital



Automotive / Power



Precision Analog /
Sensors



Mobility

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

GEMINI™ KELVIN CONTACTOR

1. Packages and Application

1.1 Packages

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

2. Environmental

2.1 Temperature Range

- -55 °C +155 °C

3. Reliability*

3.1 Typical Probe Life

- 500 k to 800 k cycles
- Probe cleaning 50 k to 75 k

4. Electrical

4.1 Bandwidth @ -1 dB 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

4.2 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

4.3 Typical Contact Resistance**

- GMK030 single probe: 150 mΩ
- GMK030 dual probe: 80 mΩ
- GMK040 single probe: 70 mΩ
- GMK040 dual probe: 40 mΩ
- GMK050 single probe: 45 mΩ
- GMK050 dual probe: 29 mΩ

4.4 Current Carrying Capacity

- 20 °C Temperature Rise
GMK030: 1.1 A continuous
GMK040: 1.8 A continuous
GMK050: 2.3 A continuous
- Maximum @ 1 % duty cycle
GMK030: > 3 A
GMK040: > 8 A
GMK050: > 13 A

5. Mechanical

5.1 Contact Pitches Supported

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

5.2 Contact Force at Test Height

- GMK030: 0.15 N (15 g)
- GMK040: 0.28 N (28 g)
- GMK050: 0.34 N (34 g)

5.3 Test Height

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

5.4 Pin Travel at Test Height

- GMK030: 310 μm
- GMK040: 440 μm
- GMK050: 480 μm

5.5 DUT Tip Style: Offset, Sharp Edge

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

5.6 Minimum DUT Tip Spacing

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

5.7 PCB Tip Style

- GMK030: 0.1 mm radius
- GMK040: 0.125 mm radius
- GMK050: 0.48 mm radius

5.8 PCB Tip Spacing

- GMK030: 0.283 mm (@ 83 μm DUT tip spacing)
- GMK040: 0.4 mm (@ 100 μm DUT tip spacing)
- GMK050: 0.5 mm (@ 120 μm DUT tip spacing)

6. Materials

6.1 Housing Material

- Vespel SP-1
- Others available

6.2 Spring Probe Material

- Hard, proprietary alloy

6.3 Spring Material

- Stainless steel

6.4 Plating Material

- Hard gold

7. Configurations / Interface Options

7.1 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

Specifications are subject to change without notification and are for reference only. Use contactor drawing to design interface hardware.

All performance figures such as MTBF, MTBA, Uptime, Yield, Jam Rate, Life Span, Cleaning Cycles etc. can vary with specific package type, test program and / or specific application environment. They assume that only original Cohu spare and consumable parts are used, recommended maintenance intervals and procedures are respected, operators/maintenance technicians have successfully participated in formal equipment training by Cohu to the appropriate level, and only Cohu approved software is used on the systems. Cohu assumes no warranty or liability if any of these requirements is not met. All listed data are for information only. For binding specification please contact your sales person.

