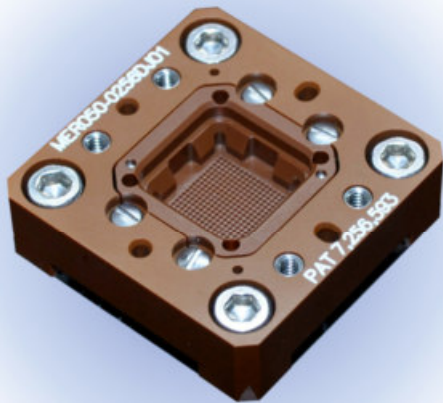


# MERCURY™ CONTACTOR



Contactor for Cost-Efficient,  
High Performance Test



RF



High End Digital



Automotive / Power



Precision Analog /  
Sensors



Mobility

## Benefits:

- Excellent resistance stability and longer usable life
- Superior reliability based on materials and design
- Suitable for WLCSP, BGA, LGA, QFN, Matrix
- Suitable for high-frequency requirements
- Suitable for Pb-free applications

## Key Features:

- Revolutionary architecture features barrel-less probe design with dual-fork redundant bias
- Low loop inductance and high bandwidth
- Pitches down to 0.3 mm
- Large compliance window to accommodate stack height tolerances for improved yields

# MERCURY™ CONTACTOR

## 1. Packages and Application

### 1.1 Packages

- Grid array packages: BGA, LGA, WLP and others – 0.3 mm pitch and up
- Allows use of floating alignment plate (FAP)
- Leaded packages: QFP, TSOP, others – 0.5 mm pitch and up
- Leadless packages: QFN, MLF, others – 0.3 mm pitch and up
- Singulated packages, strip test, InCarrier, and wafer-level test

## 2. Environmental

### 2.1 Temperature Range

- -55 °C +155 °C

## 3. Reliability\*

### 3.1 Typical Probe Life

- 500 k cycles

## 4. Electrical

### 4.1 Bandwidth @ -1 dB Insertion Loss

- MER030 @ 0.3 mm pitch: 25 GHz
- MER040 @ 0.4 mm pitch: 18 GHz
- MER050 @ 0.5 mm pitch: 20 GHz
- MER080 @ 0.8 mm pitch: 18 GHz
- MER080 @ 1 mm pitch: 18 GHz

### 4.2 Loop Inductance

- MER030 @ 0.3 mm pitch: 1.40 nH
- MER040 @ 0.4 mm pitch: 1.13 nH
- MER050 @ 0.5 mm pitch: 1.16 nH
- MER080 @ 0.8 mm pitch: 1.43 nH
- MER080 @ 1 mm pitch: 1.69 nH

### 4.3 Typical Contact Resistance\*\*

- MER030: 160 mΩ
- MER040: 70 mΩ
- MER050: 40 mΩ
- MER080: 32 mΩ

### 4.4 Current Carrying Capacity

- 20 °C Temperature Rise  
MER030: 1 A continuous  
MER040: 1.8 A continuous  
MER050: 2.5 A continuous  
MER080: 3.1 A continuous
- Maximum @ 1 % duty cycle  
MER030: > 3.5 A  
MER040: > 9 A  
MER050: > 16 A  
MER080: > 20 A

\*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.

## 5. Mechanical

### 5.1 Contact Pitches Supported

- 0.3 mm and up

### 5.2 Contact Force at Test Height

- MER030: 14 g (0.14 N)
- MER040: 25 g (0.25 N)
- MER050: 27 g (0.27 N)
- MER080: 33 g (0.33 N)

### 5.3 Test Height

- MER030: 3.46 mm (0.136 in)
- MER040: 3.33 mm (0.131 in)
- MER050: 3.29 mm (0.129 in)
- MER080: 3.84 mm (0.151 in)

### 5.4 Pin Travel at Test Height

- MER030: 310 μm (0.012 in)
- MER040: 430 μm (0.017 in)
- MER050: 480 μm (0.019 in)
- MER080: 570 μm (0.022 in)

### 5.5 DUT Tip Style

- MER030: dual edge, 44 μm apart
- MER040: single edge; dual edge, 80 μm apart; triple edge
- MER050: single edge; dual edge, 130 μm apart; triple edge
- MER080: single edge; dual edge, 130 μm apart

### 5.6 PCB Tip Style

- MER030: 0.1 mm radius
- MER040: 0.16 mm radius
- MER050: 0.15 mm radius
- MER080: 0.5 mm radius

## 6. Materials

### 6.1 Housing Material

- Vespel SP-1
- MDS 100
- Photoveel Ceramic
- 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

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.

