

cRacer Contactor/Probe Head

Lowest COT for next-generation 5G mmWave FR2 up to 54+ GHz



Automotive / Power



Mobility



Precision Analog / Sensors

Benefits

- Excellent resistance stability and prolonged usable life
- Optimal contact for all package types
- High signal integrity and power delivery for RF devices
- Suitable for singulated packages, strip or wafer-level test
- Excellent contact choice for all device types

Key Features

- Variety of contact materials available to optimize for DUT interconnect
- WLCSP, BGA, LGA, QFN, QFP
- Low loop inductance and high bandwidth
- Pitches down to 150 μm
- Optional floating alignment plate
- Large compliance window
- Excellent current carrying capacity



High End Digital



RF

- Bandwidth up to 54+ GHz @ -1 dB
- Temperature range -55°C to +155°C
- 1M cycles for WLCSP Test
- Pitches down to 150 μm

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Specifications

Packages and Applications

- Grid Array packages: BGA, LGA, WLCSP, others – 150 µm pitch and up
- Singulated packages, strip test and wafer-level test – 150 µm pitch and up
- Leaded packages: QFP, SO, others – 0.3 mm pitch and up
- Leadless packages: QFN, others – 0.3 mm pitch and up

Environmental

- Temperature Range: -55°C to +155°C

Reliability*

- 500k cycles for packaged device
- 1M cycles for WLCSP Test
- Probe cleaning 50k to 100k

Electrical

- Bandwidth IL @ -1 dB, RL @ -10 dB
 - cRacer015: 51 GHz, 53 GHz
 - cRacer030: > 55 GHz, >55 GHz
 - cRacer040: 43 GHz, 47 GHz
 - cRacer050: 50 GHz, 41 GHz
- Loop Inductance
 - cRacer015: down to 1.15 nH
 - cRacer030: 1.07 – 1.9 nH
 - cRacer040: 0.63 – 0.75 nH
 - cRacer050: 0.89 – 1.94 nH
- Contact Resistance**
 - cRacer015: 280 mΩ
 - cRacer030: 100 – 140 mΩ
 - cRacer040: 35 – 65 mΩ
 - cRacer050: 35 – 125 mΩ
- Current Carrying Capacity 20°Celsius Temperature Rise
 - cRacer015: 0.83 A (ISMI) (footnote***)
 - cRacer030: 1.2 – 1.3 A
 - cRacer040: 1.5 – 1.8 A
 - cRacer050: 1.8 – 3.1 A
- Maximum @ 1% Duty Cycle
 - cRacer030: > 5 – > 10 A
 - cRacer040: > 11 – > 26 A
 - cRacer050: > 12 – > 26 A

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.

Mechanical

Contact Pitches Supported: 0.15 mm and up

- Contact Force at Test Height
 - cRacer015: 0.06 N (5.9 gf)
 - cRacer030: 0.1 – 0.17 N (9.8 – 17 gf)
 - cRacer040: 0.18 – 0.31 N (18 – 31 gf)
 - cRacer050: 0.20 – 0.37 N (20 – 37 gf)
- Test Height
 - cRacer015: 4.3 mm
 - cRacer030: 3.3 – 4.5 mm
 - cRacer040: 2.85 – 6.45 mm
 - cRacer050: 2.8 – 6.96 mm
- DUT Side Compliance
 - cRacer015: 250 µm
 - cRacer030: 150 – 250 µm
 - cRacer040: 265 – 480 µm
 - cRacer050: 250 – 370 µm
- DUT Tip Style
 - cRacer015: L (four-point crown)
 - cRacer030: B (single point), L (four-point crown)
 - cRacer040: B, L, U (reduced three-point crown)
 - cRacer050: B, L, U
- PCB Tip Style: J (radius)

Materials

Housing Material

- Vespel SP-1, Plavis N, MDS-100, Photoveel
- Other materials available upon request
- Spring Probe DUT Tip Plating
 - Homogenous alloy
 - No1
 - Gold
- Spring Material
 - cRacer015: proprietary high-temperature alloy
 - cRacer030, cRacer040 and cRacer050: Stainless steel

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 is measured between Au plated sheets

*** ISMI rating is not a current carrying capacity and it is used for comparison purposes.