

SO1000

Tube-to-Tube Gravity Handler



Automotive



Mobility



IoT/IoV & Optoelectronics



Computing & Network



Industrial & Medical



Consumer

Productivity

- Throughput up to 14,400 UPH
- Up to x4 test site parallelism
- Best in class total cost of ownership

Flexibility

- QFN 3 mm to 12 mm
- MSOP118 to SO430 mil
- Single, dual, quad configuration
- Large variety of contactors

- Full tri-temp range -60°C to +175°C
- Highest reliability

- Multiple MEMS applications available
- Largest gravity handler installed base

SO1000

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Specifications

Platform

Performance Characteristics

- Throughput Standard Kits¹: up to 14,400 UPH
- Index Time (Belly Bar)²: down to 500 ms
- Index Time (Real Plunge-To-Board)³: 800 ms
- Bent Leads (±): 0.001 inch
- MTBF⁴: 500 h
- MTTR: 0.5 h
- MTBA⁵: 30 min
- Uptime: 95%

Jam Rates

- Down to 1:10,000 (under controlled conditions)

Temperature Characteristics

- Range: -60°C to +160°C
- Extended Version Range (optional): -60°C to +175°C
- Soak Track Accuracy: ±2°C
- Test Site Accuracy⁶: ±2°C
- Resolution: 0.1°C
- Stabilization Time⁷: 30 min
- Guard Band: down to ±0.1°C
- Soak Capacity (standard kits): 2 x 555 mm

Device Specifications

- Body width (SO types): 118 mil to 450 mil
- Body width (QFN types): 3 mm to 12 mm
- Body length: 3 mm to 18 mm
- Body height: 0.7 mm to 3 mm
- Length/width ratio: 0.8 (min.)

Input / Output Characteristics

- Input tube stack height¹⁰: 270 mm (max.)
- Output tube stack height: 270 mm (max.)
- Input tube stack capacity (MSOP): 34 tubes
- Input capacity tube loader¹¹: 2720 devices
- Output capacity tube unloader¹¹: 2720 devices

1 Quad asynchronous mode, e.g. 118 mil, depends on soak time and device dimensions
2 Single mode, e.g. 150 mil/8 ld; 1.5 mm stroke
3 Single mode, e.g. QFN 5;
4 Includes any required scheduled maintenance
5 Depends on tube capacity, test modes and test time
6 Test site temperature accuracy can only be guaranteed with Rasco approved sockets
7 Ambient (25°C) to set point
8 For eSIP devices on request
9 Data for SO and QFN devices, for eSIP, PDIP, and CDIP devices upon request

Tube Characteristics

- Width of tube: 4.5 mm to 18 mm
- Length of tube: 170 mm to 540¹² mm
- Height of tube: 2 mm to 7.2 mm

Facility Requirements

- Nominal supply voltage¹³: 208 - 230 VAC
- Air pressure^{14,15}: 5 bar (72 psi) to 9 bar (130 psi)
- Air consumption¹⁶: 300 l/min (max.)
- LN₂ pressure: 1.1 bar (16 psi) to 6 bar (86 psi)
- LN₂ consumption: 10 l/hour

ESD Protection

- Field strength at device: 100 Volt (max)
- Ground strap jack: 2 x 1 M-Ohm to ground
- Device path: Conductive and grounded

Physical Dimensions

- Height: 1960 mm
- Width 800 mm
- Depth: 650 mm
- Weight: 210 kg

Electrical Interface

TTL parallel standard, RS 232 standard, IEEE 488 optional, network standard, USB at OPI standard

Change Kit

Device Types

- SO118 mil (min.); SO450 mil (max.)
- QFN 3 x 3 mm (min.); 12 x 12 mm (max.)
- QFN thin down to 0.7 mm
- PDIP 300 mil, 400 mil, 600 mil¹⁷
- CDIP on request
- Conversion kits for other packages upon request

Kit Changeover

- 6h typical

Contactors

- Smart power, analog, RF, mixed signal

10 45° stack
11 for MSO 8 pin (80 devices/tube, 3 x 3 mm body)
12 510 mm if rotary kits are used
13 1 x 16A, 50 - 60 Hz
14 Kit dependent
15 Minimum air pressure for rotary kits and devices ≥ 209 mil: 6 bar/68 psi
16 Maximum consumption at hot and cold operation, if handler de-icing and heater pressure is adjusted according to the manual
17 Device length 40 mm (max.)

Specifications subject to change without notice.
For detailed performance specifications, please contact Cohu.