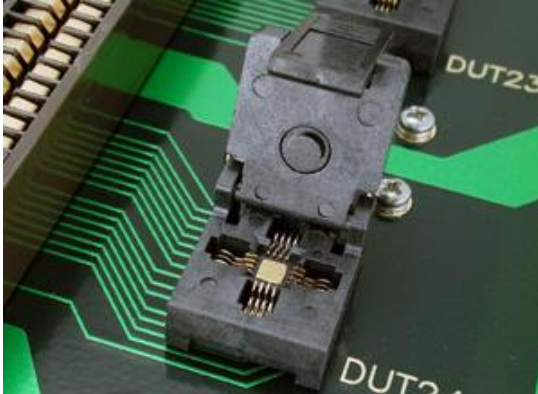


Loranger Product Applications

Thermal Management



QFN Socket with Solid Metal Heat Pipe to Contact Device Center Pad

Thermal Management

Loranger offers socket solutions to manage high wattage packages. Solid metal heat pipes which contact the center device pad can be soldered to a ground plane in the board, or connected to a Loranger finned heat sink mounted to the bottom of the board. Loranger heat sinks can also be mounted on the top of sockets.



QFN Socket with Bottom Mounted Heat Sink; BGA/CSP Socket with Top Mounted Heat Sink

Fine Pitch Sockets



Compression Mount Socket for a QFN Package with 0.30 mm Pitch

Fine Pitch Sockets

Loranger sockets are available in over 120 different standard and custom contact pitches. Typical pitches include 1.27 mm, 1.0 mm, 0.80 mm, 0.50 mm, 0.40 mm, 0.35 mm, 0.30 mm, 0.25 mm and smaller.



Dual Position, Compression Mount Socket for a BGA Package with 0.22 mm and 0.23 mm Pitches

Optical Access To the Package

Optical Access



QFN Style Sockets with Cover Openings for Optical Access to the Package

Loranger offers socket solutions to accommodate your optical and standard packages that require access to the top of the package. Test and Burn-in Sockets can be designed to accommodate digital camera imaging sensors, LEDs, and other optical package styles. Openings in the socket cover allow access to the top of the package during burn-in or test to measure the light being emitted from the package, for directing light onto the package, or for failure analysis procedures such as Emission Microscopy (EMMI).



Test and Burn-in Socket for a Digital Camera Imaging Sensor

Nonmagnetic Sockets

Nonmagnetic Sockets



Test and Burn-in Socket with Nonmagnetic Materials for a QFN Style Package

Loranger sockets are available with optional nonmagnetic materials for test and burn-in of devices that are affected by nearby magnetic materials.



Multi-Position Test and Burn-in Socket with Nonmagnetic Materials

MEMS Sockets



Loranger Test and Burn-in Socket for a MEMS Accelerometer in an LCC Package

MEMS Sockets

Loranger test and burn-in sockets are available for MEMS (microelectro- mechanical systems) devices. Sockets are available with nonmagnetic materials and fine pitch contacts, and can accommodate QFN, LCC, Gull Wing or other package styles.



Loranger Test and Burn-in Socket for a MEMS Sensor in a QFN Package

Crystal Oscillator Sockets



Loranger Open Top Sockets for LCC and Module / Printed Circuit Card Oscillator Packages

Crystal Oscillator Sockets

Loranger sockets can be used for test and burn-in of Crystal Oscillator packages, and are available with plated through hole or surface mount APS contacts. Sockets are available for packages including: printed circuit card modules, LCC, DIP SIP, MEMS and QFN. Loranger sockets can also be used as an alternative to "Bed of Nails" test fixtures.



Loranger Clamshell Sockets for LCC and Module / Printed Circuit Card Oscillator Packages

SmartSockets



Test and Burn-in Socket with Integrated Heat Sink, Heater, Temperature Sensing RTD, and Programmable Controller

SmartSockets

Loranger sockets can be configured with a combination of a Heat Sink, Heater, RTD, and Control Circuitry. The Heater and/or RTD can be connected to a burn-in or test board. Optional Control Circuitry on the socket can be programmed with a computer to a desired set temperature, and can also log temperature readings.



Test and Burn-in Socket with Heat Sink, Heater and RTD

High Current Capability



Socket with Multiple Contacts per Zig Zag Package Lead

High Current

Loranger can add multiple socket contacts to device pads as space allows to accommodate high currents.



Socket for High Current, Surface Mount Package. Socket has Multiple Contacts per Package Pads

Test and Burn-in from - 55 C to 300 C



Sockets for - 55 C to 300 C

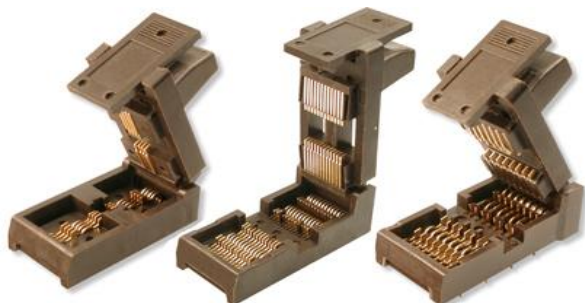
Large Temperature Range

Loranger sockets are designed and built using materials for temperature ranges from - 55 C to: 140 C, 175 C, 200 C, 300 C, or your custom temperature range.



Sockets for - 55 C to 140 C or 175 C

Kelvin Connections



Sockets with Kelvin Connections for Gull Wing Packages

Kelvin Connections

Hundreds of Loranger sockets are available with Kelvin connections. A Kelvin connection is two contact connections to one device pad or lead. When the device pad space is limited, Loranger also offers a "Double Duty Kelvin" contact.



Sockets with Loranger "Double Duty Kelvin" Contacts

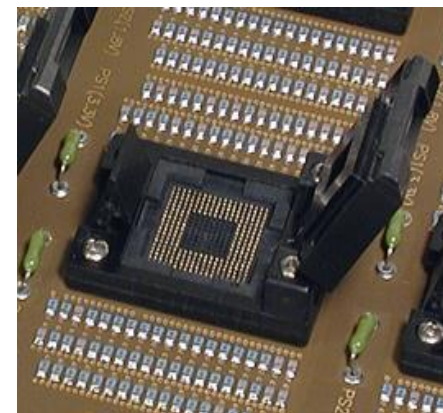
Humidity and HAST Conditions



Loranger 85C / 85% Relative Humidity Chamber with Wiring Feed Through, Internal Rack, Equipment Rack, Controls and Power Supplies

Humidity and HAST

Loranger sockets can be used for 85C / 85% humidity, and 130 C / 85% humidity (HAST) conditions. Loranger also designs and manufactures printed circuit boards and environmental systems for these conditions.



Loranger LGA Socket on Loranger Humidity / HAST Printed Circuit Board

Radiation Hardening



Kelvin Test and Burn-in Socket for Two and Three Lead TO Packages

Radiation Hardening

Loranger sockets can be used in Radiation Hardening test applications. Loranger has sockets for the standard TO, SMD and other package styles.



Sockets for Various Package Types such as QFN, LCC, and SMD

B.C.E. S.r.l.

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