



Ironwood
ELECTRONICS
www.ironwoodelectronics.com



Products, Services & Capabilities

**High Performance
IC Sockets And
Test Adapters**

Overview



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- **Company Overview**

- Over 5,000 products
- High Performance Adapters and Sockets
- Many Custom Designs & Turn-Key Solutions
- Engineering – Electrical and Mechanical
- ISO9001:2008 Registration

- **Capabilities Overview**

- Simulation
 - QFIN for heat sink design
 - Microwave Studio for electrical
- 3D Solid Modeling CAD & CAM
 - ProEngineer
 - Solid Works
 - Gibbs cam
- PCB Technology
 - PADS Layout, PADS Router
 - Controlled Impedance, Embedded Resistors, Laser Micro Vias, Filled Via in Pad, 3/3 traces, Rigid-flex PCBs
- State of the art CNC machines - Tight Tolerance 3D Machining (e.g. $\pm 0.0127\text{mm}$), Swiss screw machine, Print, Pick, Place & Reflow assembly line, High speed PCB drilling, Automated Optical Inspection

Product Overview

- GHz Elastomer Sockets
- Spring Pin Sockets
- Silver Particle Sockets
- Stamped Pin Sockets
- Silver Matrix Sockets
- Giga-snaP BGA Socket Adapters
- SMT Package Emulation
- Package Convertors
- Prototype, Probing & Analysis Adapters
- Electronic Modules

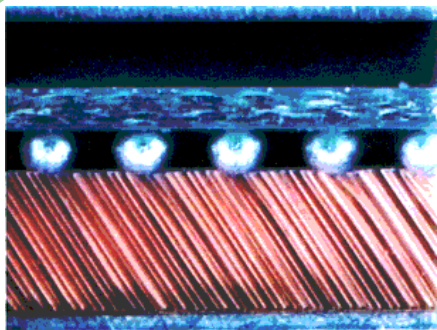
Engineering Sockets

Continuous improvement

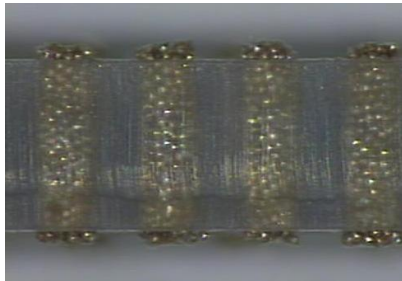
Proven Capability

Development

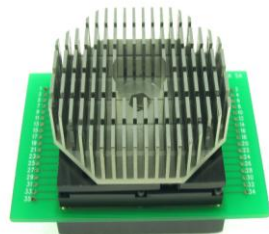
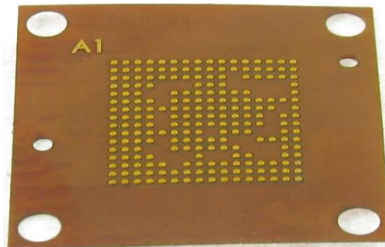
15 Years



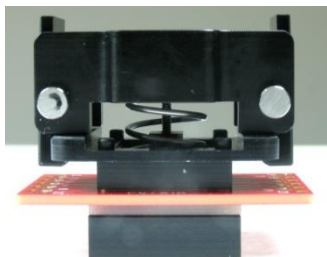
BGA compressed on Elastomer



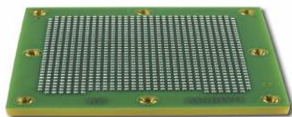
Silver particle
Elastomer



Heat sink lid



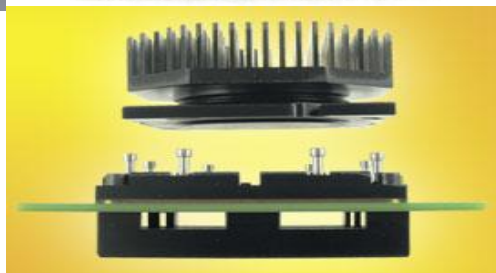
Double latch lid



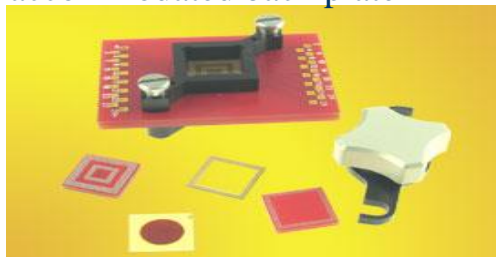
Surface mount adapter

Capabilities

- 0.3mm to 1.27mm pitch
- 2x3mm to 50x50mm device
- BGA, LGA, QFN, QFP, SOIC, WLP
- 4000 pin count
- 40GHz
- Heat sink options
- Easy chip replacement
- Custom support plate options
- Custom mounting options
- Industry's smallest footprint



Swivel lid socket with decaps
accommodated back plate



PoP socket with two elastomers



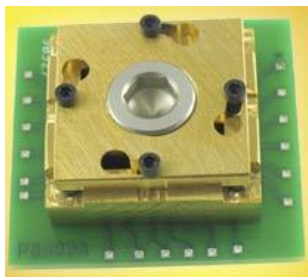
Torque indicator



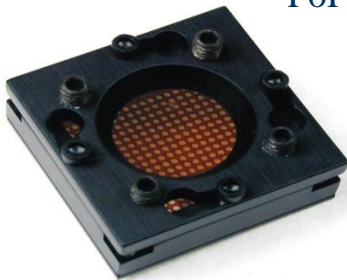
Back-to-back socket



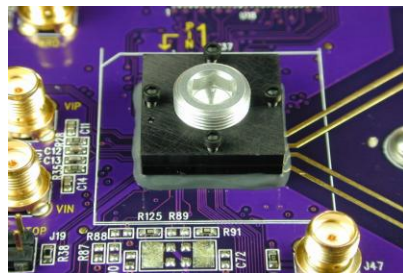
Clamshell lid



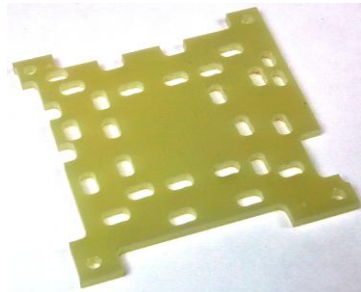
Gold RF socket



Open top lid



No mounting hole socket



Custom insulation plate

Production & Burn-in Sockets

Continuous improvement

Proven Capability

Development

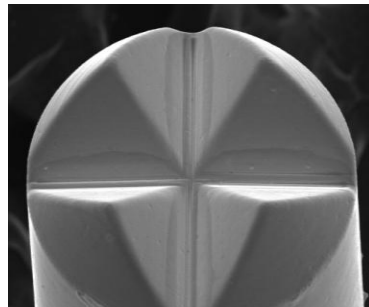
10 Years



Stamped LGA pogo pin



Stamped BGA pogo pin



Self cleaning Pogo pin crown



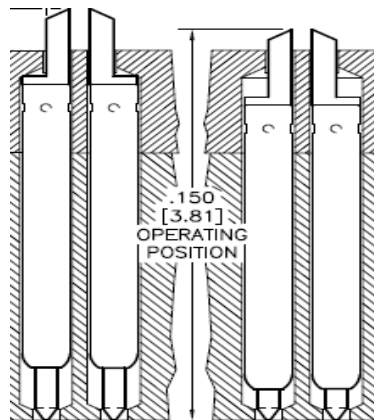
Ceramic QFP socket with center E-pad



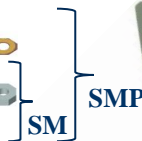
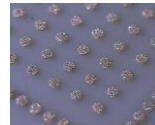
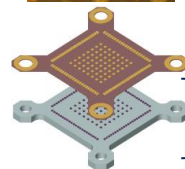
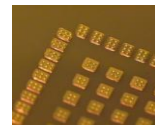
Short 3piece Pogo pin

Capabilities

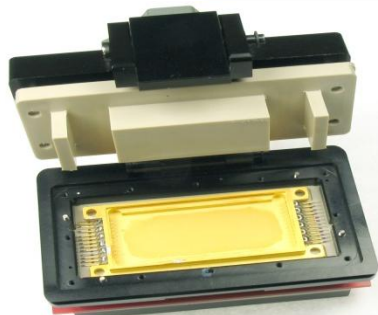
- 0.2mm to 1.27mm pitch
- 2x3mm to 50x50mm device
- BGA, LGA, QFN, QFP, SOIC, WLP
- 4000 pin count
- 40 GHz, 500K cycles
- Consistent contact resistance throughout life
- Low cleaning frequency
- High current & extreme temperature



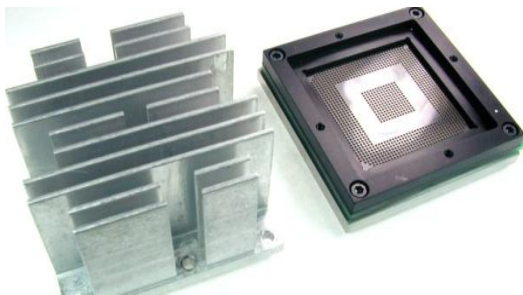
Offset plunger Kelvin pogo pin



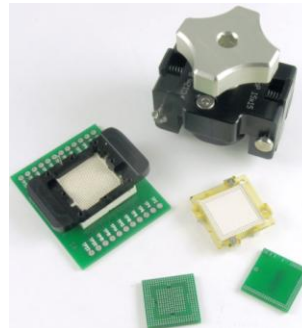
Low profile Burn-in SBT socket



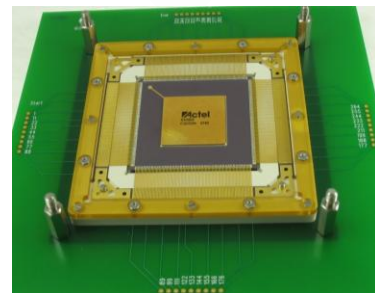
SOIC production socket with Clamshell lid



BGA production socket with heat sink lid



Multi Level SBT socket



Flat lead Ceramic QFP production socket

Contact Technology Summary










<u>Characteristics</u>	<u>Embedded Wire Elastomer (SG)</u>	<u>Stamped spring pins (SBT)</u>	<u>Embedded Silver Ball Elastomer Matrix (SM/SMP)</u>	<u>Silver Button Elastomer (GT/GTL)</u>
Bandwidth, GHz	27 to 80	7 to 31.7	44.8	75
Endurance, Cycles*	2K	500K	5K/500K	1K
Resistance, mΩ	20	15	15	20
Self Inductance, nH	0.11 to 0.28	0.88 to 0.98	0.1	0.04
Max Current, Amp	2	8	7.8	5
Temp Range, °C	-35 to +100	-55 to +180	-55 to +155	-55 to +160
Pitch, mm	0.3 to 1.27	0.3 to 1.27	0.25 to 1.27	0.25 to 1.27
Package Types	BGA, QFN, QFP, SOIC	BGA, LGA, QFN, QFP, SOIC	BGA, LGA, QFN	BGA, LGA, QFN
Lab test	√	√	√	√
Production test		√	√	
Field upgrade	√	√	√	√
Temperature test	√	√	√	√
Kelvin test	√	√	√	√
Burn-in test		√		

*Cycle life shown at room temperature. Reduced cycle life is expected when used at extreme temperatures, thermal cycling, improper force, cleaning and handling.

Pin Datasheet



						
						
Pin Family	SBT	SBT	SBT	SBT	SBT	SBT
Part Number	P-P185A	P-P184A	P-P196A	P-P150A	P-P151A	P-P152A
Minimum Pitch (mm)	0.4	0.4	0.5	0.5	1.0	1.0
Pin Type	BGA	LGA	BGA	LGA	BGA	LGA
Length (mm)	3.81	2.9	3.86	2.95	5.69	4.45
DUT Side Tip Shape	V Shape	Radius Cone	V Shape	Radius Cone	Notched V	Radius Cone
DUT Side Tip Dimension (mm)	0.14	0.12	0.2	0.06	0.54	0.1
PCB Side Tip Shape	Radius Cone	Radius Cone	Radius Cone	Radius Cone	Radius Cone	Radius Cone
PCB Side Tip Dimension (mm)	0.12	0.12	0.04	0.06	0.1	0.1
DUT Side Travel (mm)	0.5	0.3	0.33	0.33	0.6	0.6
PCB Side Travel (mm)	0.1	0.1	0.1	0.1	0.1	0.1
Force (g)	17	14.5	30	30	19	19
Cres (mOhms)	< 50	< 50	< 30	< 30	< 15	< 15
CCC @ ambient (Amps)	1.8	1.8	4.0	6.0	8.0	8.0
Bandwidth (GHz @ -1dB)	20.5 - 31.7	20.5 - 31.7	5.2 - 15.7	5.2 - 15.7	14.1 - 21.9	14.1 - 21.9
Self inductance (nH)	0.98	0.98	0.88	0.88	0.93	0.93
Temperature (deg C)	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C
Insertion Cycles	50K	50K	500K	500K	500K	500K
* 0.4mm/0.5mm pitch SBT pins are used in 0.65mm and 0.8mm pitch applications						

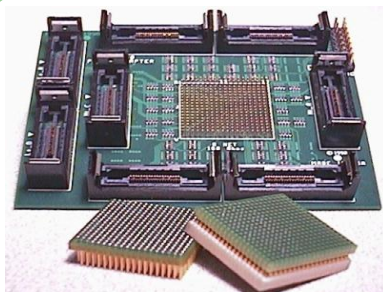
Engineering Adapters

Continuous improvement

Proven Capability

Development

25 Years



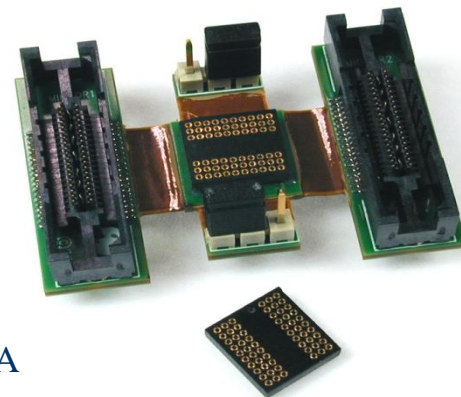
Power PC BGA device interfaced to Logic analyzer and mother board for functional analysis



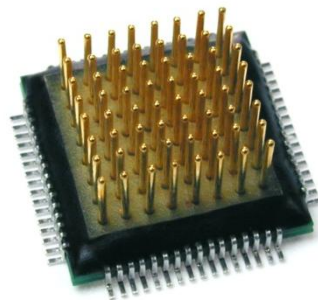
SOIC, PLCC adapter



0.5mm pitch 21x21 array 289 position BGA solder balls to AMP 104068 connectors using rigid flex PCB with socket fixture



60 pin, 0.8mm pitch BGA rigid-flex probing adapter with AMP micro and BGA surface mount foot



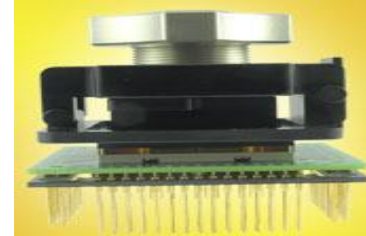
Gull-wing QFP Emulator foot



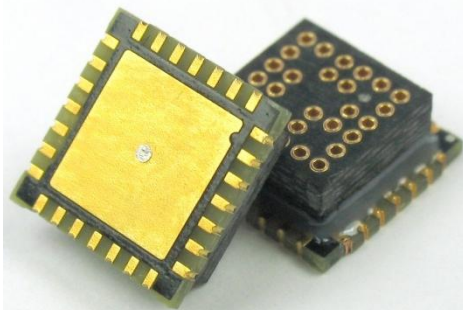
J-led PLCC Emulator foot

Capabilities

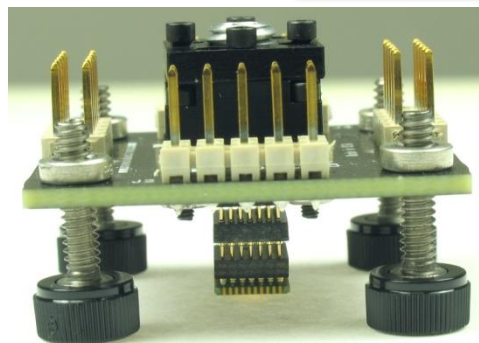
- 0.4mm to 1.27mm pitch
- 2x2mm to 50x50mm device
- BGA, LGA, QFN, SOIC, PLCC, QFP, DIP, PGA, etc
- 2000 pin count
- RoHS compatible
- Agilent, Tektronix compatible
- Rigid & flex options



BGA proto adapter with Clamshell pogo pin socket



Leadless QFN emulator

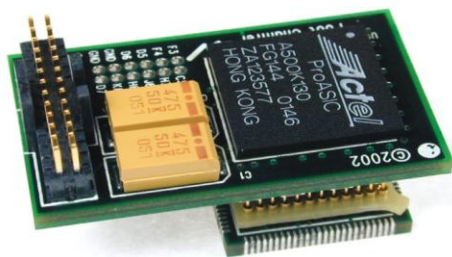


Allows QFN device to be socketed to mother board with signals brought out to test pins

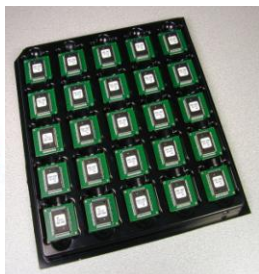


Flex emulator – 125 position AMP Z pack connector to 80 position female interface

Production Adapters



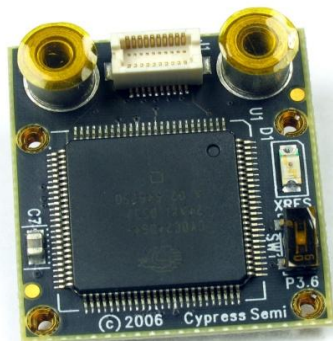
Daughter card module
Interfaced to QFP footprint



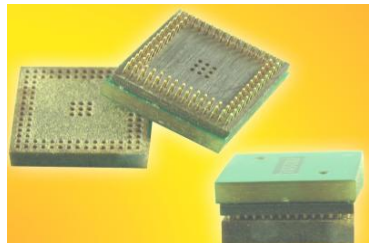
QFP device mounted to PLCC Footprint
on target board with shortest trace length



BGA to BGA conversion with
complex signal swap due to
device enhancement without
additional real estate



SoC module with high
density connector



0.5mm pitch BGA
Pluggable adapter system

- Capabilities
- 0.4mm to 2.54mm pitch
 - 2x2mm to 50x50mm device
 - BGA, LGA, QFN, SOIC, PLCC, QFP, DIP, PGA, etc
 - 3 mil trace/space
 - Laser micro vias
 - Embedded caps & resistors
 - Lead free options
 - Tray, Tape & Reel options
 - Turnkey solutions



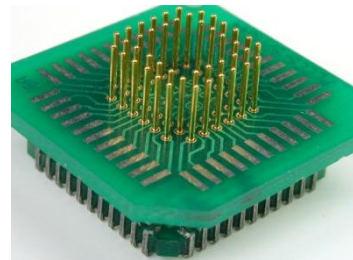
SOIC device mounted
to PLCC footprint
using solder column
technology for high
volume production



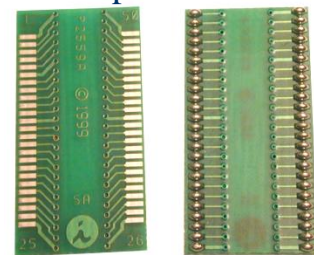
2000 pin count BGA system
plugged together &
shown separately



SOIC to DIP converter
using blind hole technology



PLCC plug connects
Daughter card to socket



SOIC pitch converter

Continuous improvement
25 Years
Proven Capability
Development

Facility Overview

24000 Sq. Ft Building



Production area



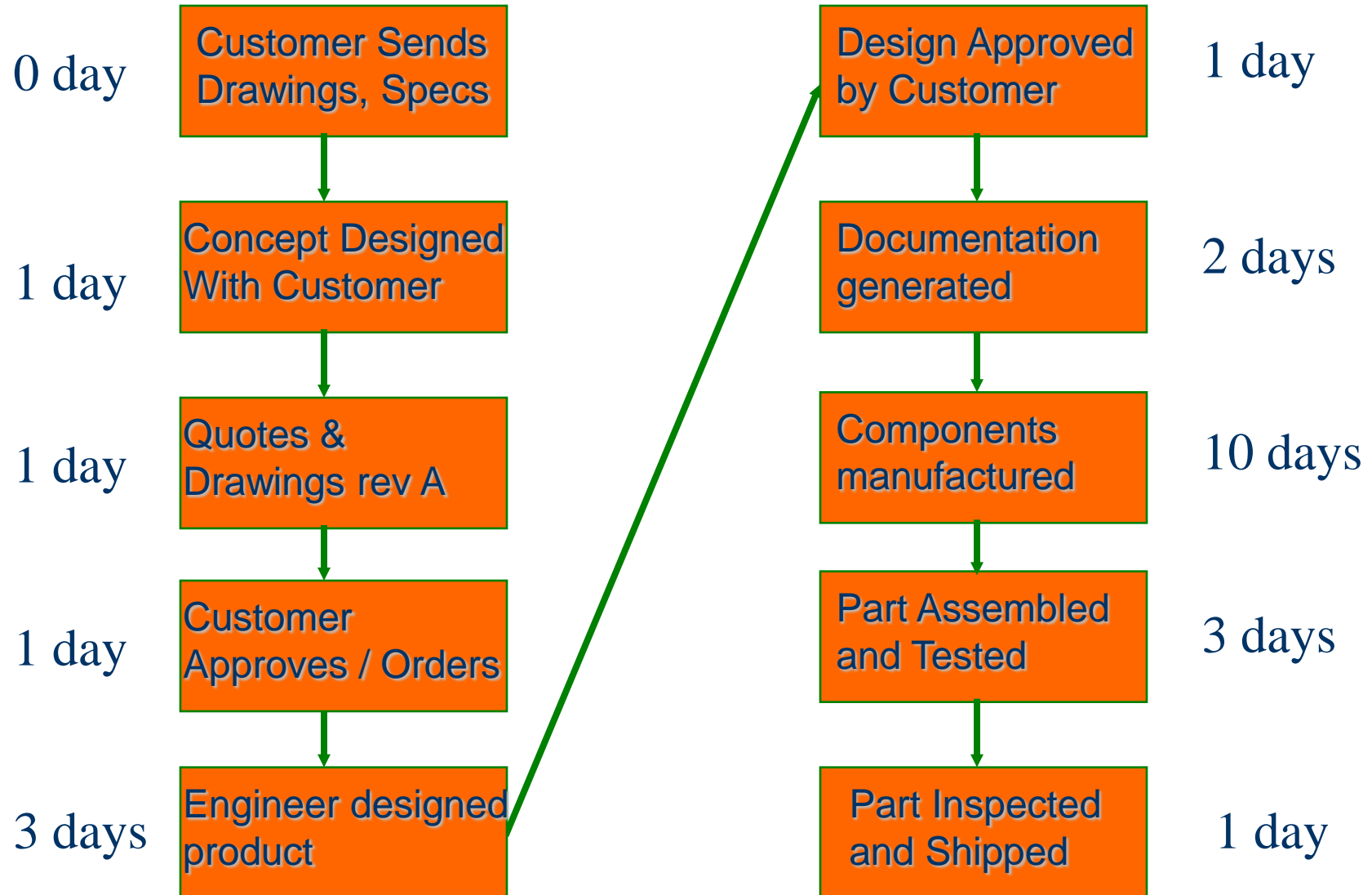
Machining area



ESD Automated Assembly area

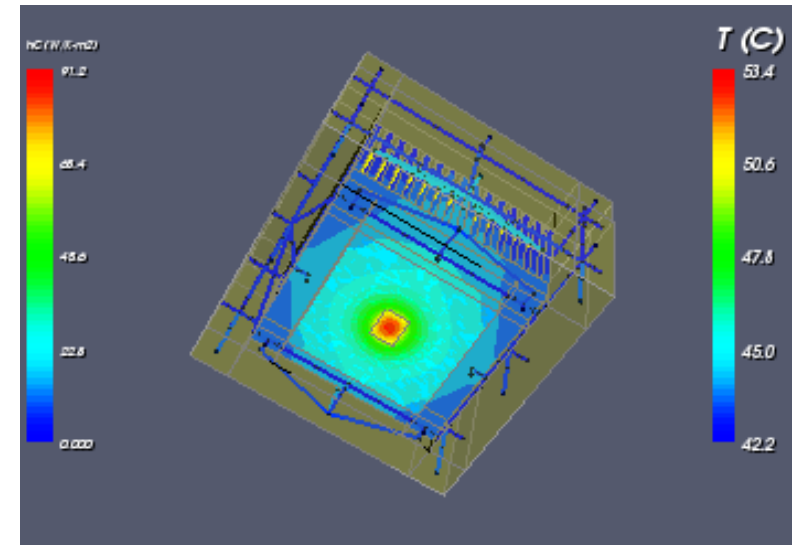
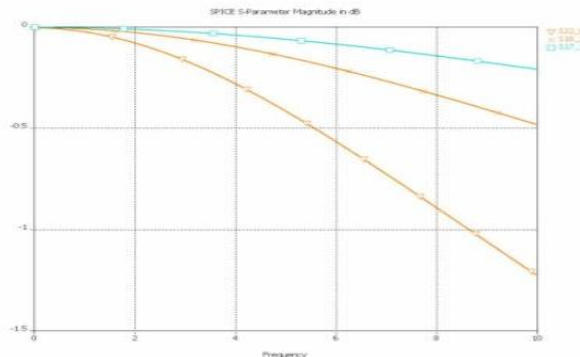
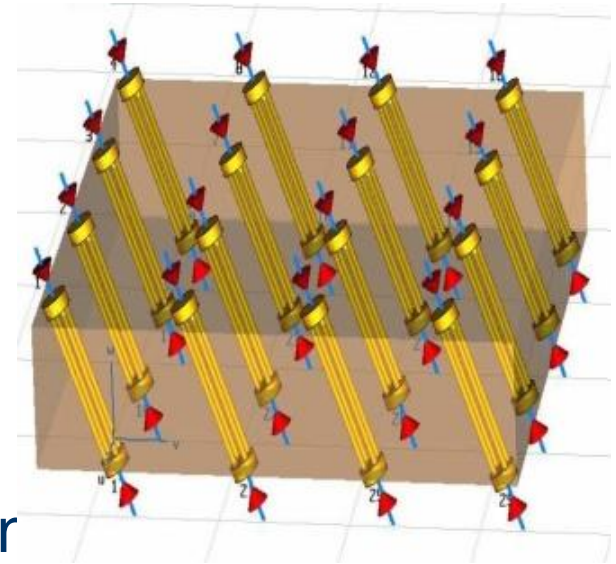


Typical Custom Product Process Flow



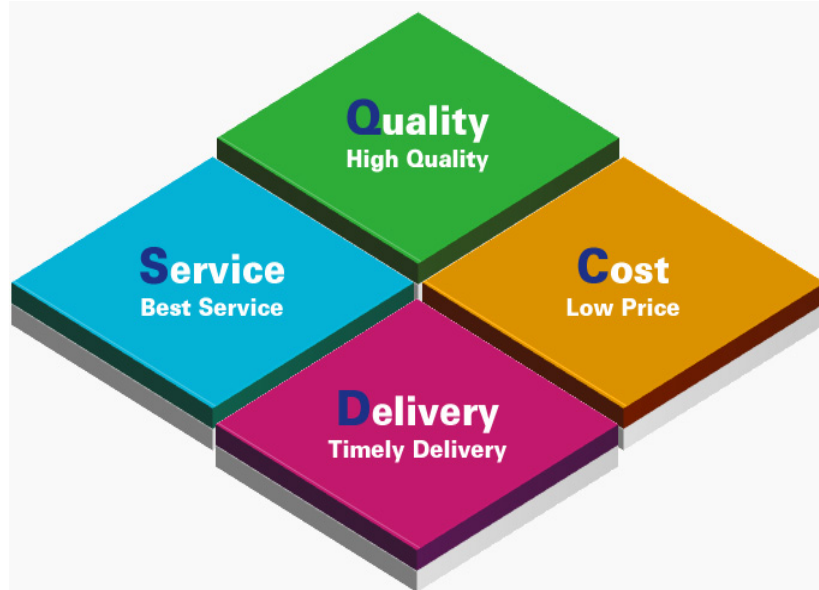
Custom Capabilities

- Custom designs in 2 days
- Match customer's PCB footprint
- Custom manufacturing in 10 days
- Multiple contactor technologies
- Heat sink simulation and design
- Contactor signal integrity simulation
- In-house automated optical inspection
- In-house machining
- Quick turn production





Contact us



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