

# **FOUNDRY** **SERVICES**

Silicon On Insulator (SOI) CMOS

**Honeywell**

# FOUNDRIY SERVICES

Honeywell's Foundry Service is a complete foundry solution for all your high reliability IC manufacturing needs including analog, mixed signal and unique silicon applications.

We use our proven reliability with innovative technology solutions to offer the value, quality and service you need in a foundry partner. Given our long-standing history as a flexible foundry provider for space and military markets, we are equipped to develop your state-of-the-art ICs using our proven Silicon On Insulator (SOI) CMOS technology, foundry expertise and remarkable service. By partnering with Honeywell, you're teaming up with a world leader in SOI technology with over 30 years of experience in SOI IC design, development and manufacturing. Our ISO 9001 certified, Trusted and QML Qualified foundry uses the latest six sigma based process controls to ensure your products are manufactured with the highest quality.

## FEATURES

- Silicon On Insulator (SOI)
- CMOS Technology
- Four Process Nodes
  - SOI4: 0.8 $\mu$ m, 5V
  - SOI4-HT: 0.8 $\mu$ m, 5V, up to 225°C
  - SOI5: 0.35 $\mu$ m, 3.3V and 2.5V
  - S150: 0.15 $\mu$ m, 1.8V, 2.5V, 3.3V
- Lower cost Multi-Project Wafer runs for SOI4 and S150 process nodes
- ISO- 9001, AS-9100, QML Qualified and a Trusted Foundry
- Space, Military and Industrial applications
- Process Design Kit (PDK), including SPICE models, Design and Layout Rules
- Cadence, Spectre, HSPICE, Calibre Tools
- N-Linear Caps and MIM Caps
- Precision Chrome Silicon (CrSiN) resistor (S150 excluded)
- Temp Range:
  - 55°C to +125°C Standard
  - 55°C to +225°C SOI4-HT
- Low volume engagements
- Wafer process longevity to accommodate your long term production needs and minimize process obsolescence concerns
- ITAR controlled (except for SOI4-HT)

## FOUNDRY OFFERING

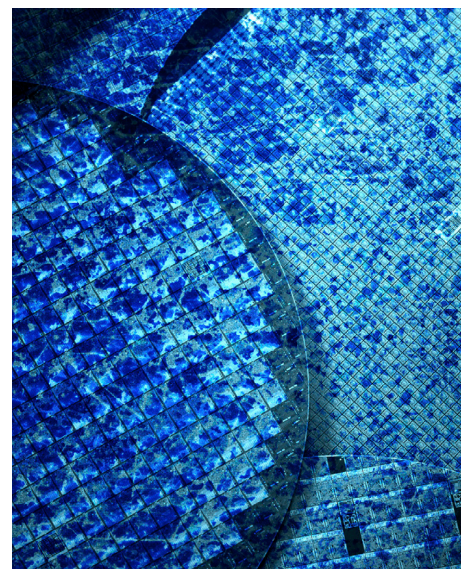
- **SOI4:** 0.8um, 5V
- **SOI5:** 0.35um, 3.3V and 2.5V
- **S150:** 0.15um, 1.8V, 2.5V and 3.3V

PROCESS NAME	DRAWN MIN POLY (UM)	NO. METAL LAYERS	WAFER SIZE (IN)	OPERATING VOLTAGE	METAL 1 PITCH (UM)	LINEAR CAP	CrSiN	N-CH DMOS	P-CH DMOS	BIPOLARS
SOI4	0.8	4	6	5.0v (2)	2.0	Y	Y	Y	Y	Y
SOI4HT	20.8	4	6	5.0v (2)	2.0	Y	Y	Y	Y	Y (1)
SOI5	0.35	4	6	12.5v, 3.3v	1.4	Y	Y	N	N	N
S150	0.15	6	8	1.8v, 2.5v, 3.3v	0.36	Y	N	N	N	N

(1) PNP only supported for high-temperature SOI4HT

(2) Based on the design, DMOS devices may operate at higher voltages.

- Partially depleted Silicon On Insulator (SOI) CMOS technology
- Aluminum and Polysilicon Interconnect:
  - SOI4, SOI4-HT and SOI5: Four levels of metalization and one level of polysilicon
  - S150: Six levels of metalization and one level of polysilicon
  - The single level of polysilicon for self-aligned gates is available with silicide for low series resistance or without silicide for moderate resistance.
- N-Linear capacitor with low variation over temperature
- Precision Chrome Silicon (CrSiN) resistor with low TCR
- MIM capacitor (available in S150 only)
- Long term operating temperature range is -55°C to +125°C.
- Storage from -65°C to +150°C.
- SOI4-HT: A high temperature foundry offering with temperature range of -55°C to +225°C (Storage to 350°C)



## DESIGN ENABLEMENT

PROCESS NAME	DESIGN KIT (PDK)	SIMULATION	DRC	LVS, PEX
SOI4	Cadence IC6.1.x	Spectre, Hspice	Calibre	Calibre
SOI4HT	Cadence IC6.1.x	Spectre, Hspice	Calibre	Calibre
SOI5	Cadence IC6.1.x	Spectre, Hspice	Calibre	Calibre
S150	Cadence IC6.1.x	Spectre, Hspice	Calibre	Calibre

Along with a foundry service agreement that you establish with us, you receive a comprehensive set of design models for 0.8 $\mu$ m, 0.35 $\mu$ m and 0.15 $\mu$ m Silicon On Insulator processes, including:

- A Process Design Kit (PDK), including SPICE models
- A PDK User Manual accompanied by electric rules and layout rules

## BENEFITS OF SILICON ON INSULATOR

We pioneered the production of Silicon-On-Insulator or SOI technology for space applications, which makes it possible for us to help you build superior products. Whatever your product requires, our SOI technology offers advantages for your next-generation designs in analog and mixed signal applications. Here's how:

- Design for radiation tolerance capability (e.g., Total Dose, Single Event Effects, Dose Rate)
- High Isolation provides better performance, reduces substrate coupling, leakage current and cross talk.
- Provides significantly less coupling between analog and digital circuits on a single substrate.
- Integrates analog and high speed digital CMOS to enable complex control functions to perform at low power on a single chip.
- SOI CMOS has inherent benefits for temperature ranges beyond the common -55C to +125C range.

## MULTI-PROJECT WAFER FOUNDRY SERVICES OPTION

Honeywell Multi-Project Wafer (MPW) Foundry services allow companies to share wafer resources to produce designs in lower quantities. Available for SOI4 and S150 process nodes, our MPW services are a low-cost option to access Honeywell's radiation hardened SOI CMOS technology. Honeywell MPWs reduce prototype costs up to 80% and are a good choice in a variety of scenarios:

- Prototyping of next gen chips for radiation prone environments
- Research or early development projects requiring proof of concept
- Design adjustments before making substantial strategic investments

## DESIGN SERVICE OPTION

With Honeywell design services, we offer detailed design support from experienced integrated design team with many years of developing IC solutions.

Our design services enable fast creation of your custom designs tailored for the Honeywell SOI CMOS process technologies. Whatever your needs – co-development, conversion or transfer, design for radiation tolerance – our team of designers are highly experienced with architectures, designs and production of integrated circuits.

### For more information

Contact us today at 1-800-323-8295 to discuss how we can partner together to develop dynamic products for the future or visit us at:

[www.honeywellmicroelectronics.com](http://www.honeywellmicroelectronics.com)

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## ASSEMBLY AND TEST SERVICES OPTION

To consistently ensure our high standard of quality wafers, Honeywell conducts thorough standard testing as well as customized test services, from PM testing of wafers to DC and Functional testing of the design. Assembly (wirebond) of integrated circuits into ceramic packages is a capability offered by Honeywell.

## FOUNDRY CUSTOMER SERVICE

You are assured the support needed from our experienced team of SOI designers, engineers and project managers.

- Contact Honeywell sales representative for quote information
- Contact Honeywell Applications Engineering for additional technical information
- All data transfers via secure portal

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FUTURE  
IS  
WHAT  
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MAKE IT**

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