



**THE DATASHEET OF
P9382A-0AHGI8**



Description

The P9382A is a highly-integrated single-chip wireless medium power transmitter/receiver IC (TRx). The device can be configured to receive or transmit an AC power signal through magnetic induction. When the device is configured as a wireless power transmitter, it uses on-chip full/half-bridge inverter, PWM generator, modulator/demodulator for communication and micro controller to produce an AC power signal to drive external L-C tank. As a receiver, the device receives an AC power signal from a wireless transmitter and converts it into rectified output voltage, which can be used to power devices or supply the charger input in mobile applications. The P9382A integrates a high-efficiency Synchronous Full Bridge Rectifier and control circuitry to modulate the load to send message packets to the Transmitter (Tx) to optimize power delivery.

The P9382A feature Multiple-time programmable (MTP) non-volatile memory to easily update control firmware and device functions.

The device includes over-temperature and voltage protection. Fault conditions associated with power transfer are managed by an industry-leading 32-bit ARM® Cortex®-M0 processor offering high level of programmability while consuming extremely low standby power to minimize power losses and heat generation. The processor can also control GPIOs to indicate operating and fault modes. The P9382A is available in an ultra-small 53-DSBGA package.

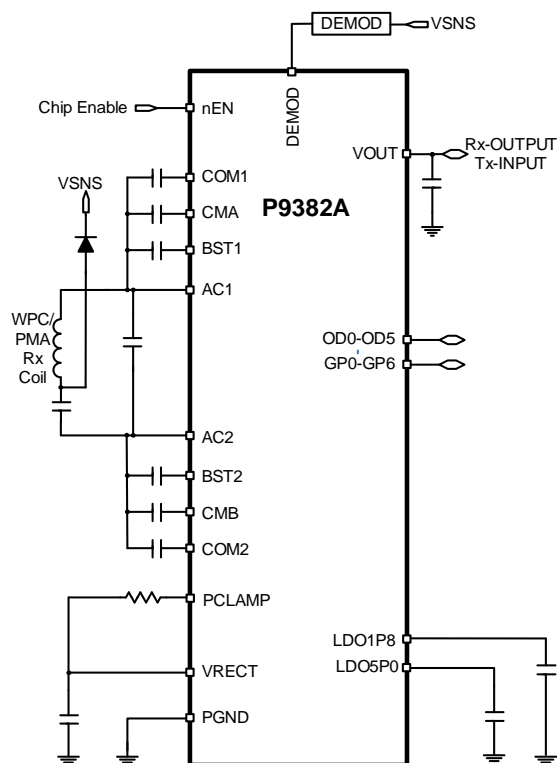
Typical Applications

- Wireless power Rx, Tx, TRx solution for mobile applications
- Mobile phones
- Notebooks and tablets
- Water or dust proof portable devices
- Smart home and IoT devices

Features

- Single-chip medium power wireless solution
- Multiple-time programmable (MTP) non-volatile memory
- WPC 1.2.4 compatible
- Delivers up to 20W as a receiver
- TRx mode with up to 6W Tx capability
- Embedded 32-bit ARM® Cortex®-M0 processor
- Reliable over voltage clamping
- Best in class EMI
- Proprietary Rx-to-Tx modulation/demodulation for two-way communication
- High-performance LDO
- Tx-to-Rx (backchannel) communication
- Supports proprietary mode magnetic induction wireless power solutions
- Supports I2C 400kHz standard interface and GPIOs
- Package:
 - 6 × 9 ball array, 2.80 × 4.0mm, 53-DSBGA package with 0.4mm ball pitch

Typical Applications Diagram

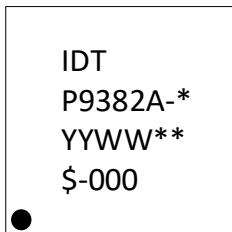


1. Package Outline Drawings

The package outline drawings are appended at the end of this document and are accessible from the link below. The package information is the most current data available.

www.idt.com/document/psc/53-dsbga-package-outline-drawing-2800-x-4010-x-0600-mm-body-040-mm-pitch-ahg53d1

2. Marking Diagram



1. The IDT Company Logo
2. The part number.
3. "YYWW" is the last 2 digits of the year and week that the part was assembled. "***" denotes sequential lot number.
4. "\$" denotes assembly mark code. "000" denotes dash code.

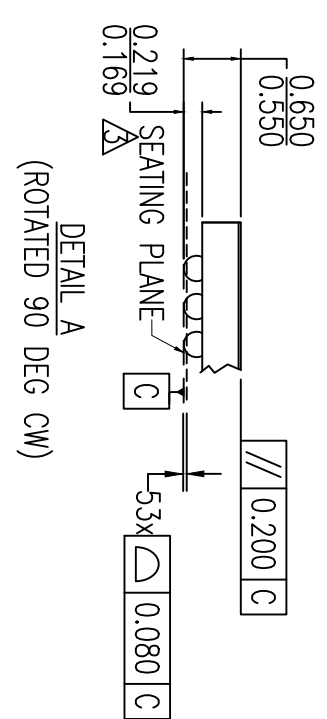
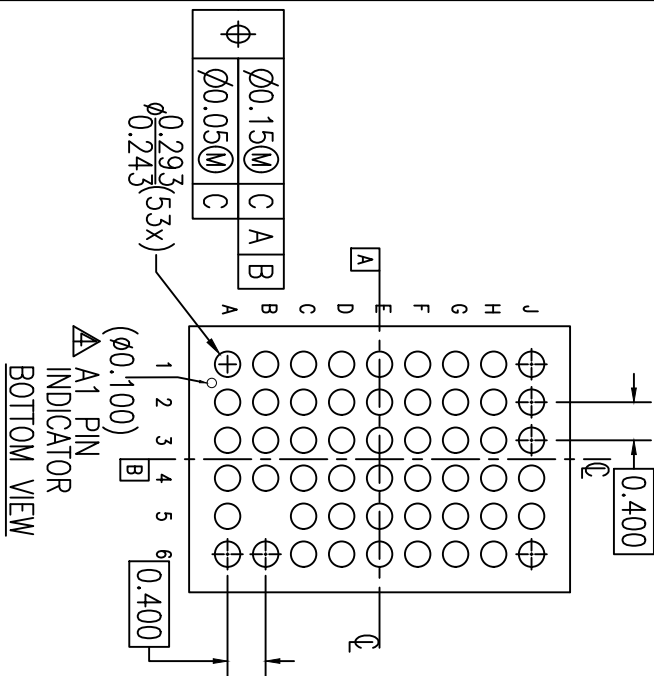
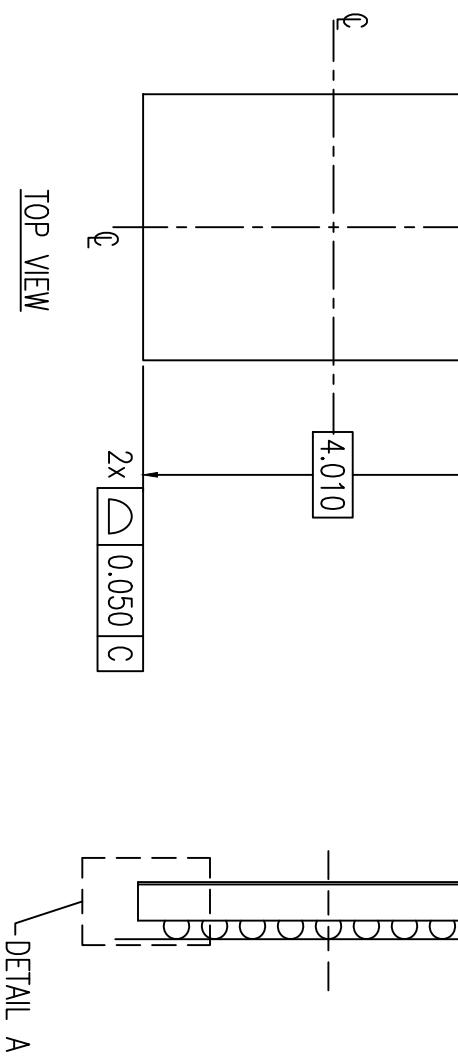
3. Ordering Information

| Orderable Part Number | Package | MSL Rating | Shipping Packaging | Ambient Temperature |
|-----------------------|--------------------------------------|------------|--------------------|---------------------|
| P9382A-0*AHG18 | 2.80 × 4.00 × 0.4 mm pitch, 53-DSBGA | MSL 1 | Tape and Reel | -40° to +85°C |

* Note: This field is a custom value that is specific to each customer application. Please contact your local sales team for your particular value for this field.

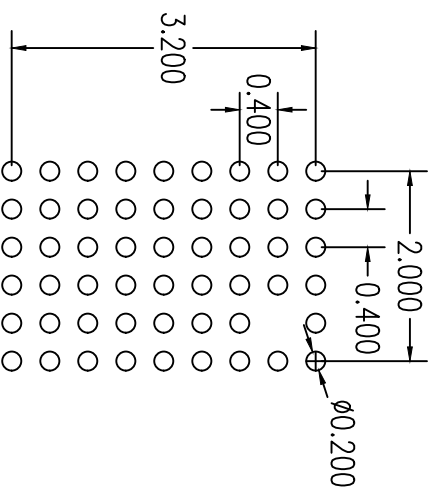
4. Revision History

| Revision Date | Description of Change |
|---------------|-----------------------|
| July 17, 2019 | Initial release. |



NOTES:

1. ALL DIMENSIONS AND TOLERANCES ARE PER ASME Y14.5M-1994.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. SEATING PLANE AND PRIMARY DATUM -C- ARE DEFINED BY THE CONTACT POINTS OF THREE OR MORE SOLDER BALLS THAT SUPPORT THE DEVICE WHEN PLACED ON A TOP OF A PLANAR SURFACE.
4. BOTTOM PIN#1 INDICATOR OPTIONAL.
5. BALL SIZE BEFORE REFLOW IS 0.25mm.



RECOMMENDED LAND PATTERN DIMENSION

NOTE:

1. ALL DIMENSIONS ARE IN MM, ANGLES IN DEGREES.
2. TOP DOWN VIEW, AS VIEW ON PCB.
3. NSMD LAND PATTERN ASSUMED.
4. LAND PATTERN RECOMMENDATION AS PER IPC-7351
GENERIC REQUIREMENT FOR SURFACE MOUNT DESIGN AND LAND PATTERN.

| Package Revision History | | |
|--------------------------|---------|-----------------|
| Date Created | Rev No. | Description |
| Jan 31, 2019 | Rev 00 | Initial Release |

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