

# 5W Qi V1.2.4-Compliant Wireless Power Receiver and Power Supply

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## 1. Features

- Integrated Wireless Power Supply Receiver Solution
  - High Efficiency Full Synchronous Rectifier
  - Output Voltage Conditioning
  - WPC Qi V1.2.4 Compliant communication Control
  - Single IC Required Between RX Coil and Output
- WPC Qi V1.2.4 FOD Function
- Dynamic Rectifier VRECT
  - Improve the Load Transient Response
- Optimize the dynamic efficiency for full load
- Rectifier Overvoltage Clamp ( $V_{OVP}=15V$ )
- Support 20 V Maximum Input
- Over Temperature, Over Voltage and Over Current Protection
- Open Drain LED Output Indication
- Multifunction NTC and Temperature Monitoring, Charge Complete and Fault Host Control
- Compatible with Adapter and USB Input Application
- QFN 4mm\*4mm 24Pin Pack

## 2. Applications

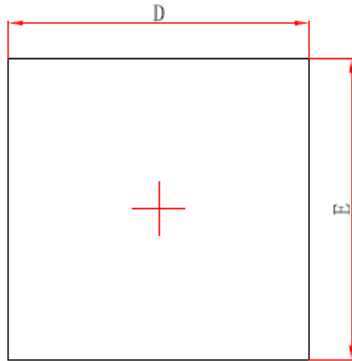
- Wearable product
- Cell Phone, Smart Phone
- Hand-held Device
- Portable Products (Audio, Media, Headsets)

## 3. Description

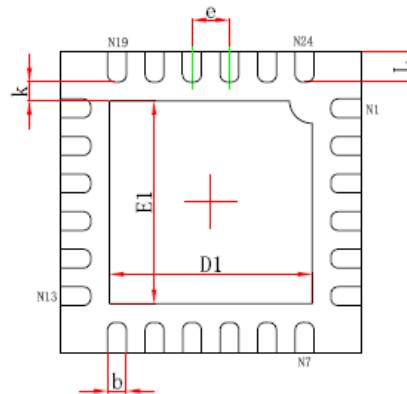
- CP2031 is a single-chip, advanced, flexible, secondary-side device for wireless power transfer in portable applications capable of providing up to 5W. It has high integration, high efficiency, low power consumption.
- CP2031 receiver is the power that uses the near field electromagnetic induction principle, the power transfer is through coupling between the transmitter coil (primary) and receiver coil (secondary), global feedback is established from the secondary to the primary to control the power transfer process using the WPC Qi V1.2.4 protocol.
- CP2031 integrated a low resistance synchronous rectifier (AC to DC), low-dropout regulator (LDO), digital control, and accurate voltage and current loops to improve the high efficiency and decrease the power dissipation.
- CP2031 also integrated a digital controller that comply with the WPC V1.2.4 standard, it can calculate the amount of power received by the mobile device, the controller then communicates this information to the transmitter to allow the transmitter to determine if a foreign object is present within the magnetic interface and introduces a higher level of safety within magnetic field. This foreign object detection (FOD) method is part of requirement under the WPC V1.2.4 specification.
- CP2031 Output stage is LDO, the input voltage is adjusted dynamically according to the output current to achieve the best transient and efficiency.

## 8. Package Information

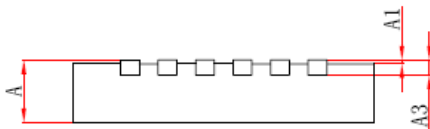
### QFNWB4x4-24L(P0.50T0.75/0.85) Package Outline Dimensions



Top View



Bottom View



Side View

| Symbol | Dimensions In Millimeters |             | Dimensions In Inches |             |
|--------|---------------------------|-------------|----------------------|-------------|
|        | Min.                      | Max.        | Min.                 | Max.        |
| A      | 0.700/0.800               | 0.800/0.900 | 0.028/0.031          | 0.031/0.035 |
| A1     | 0.000                     | 0.050       | 0.000                | 0.002       |
| A3     | 0.203REF.                 |             | 0.008REF.            |             |
| D      | 3.924                     | 4.076       | 0.154                | 0.160       |
| E      | 3.924                     | 4.076       | 0.154                | 0.160       |
| D1     | 2.600                     | 2.800       | 0.102                | 0.110       |
| E1     | 2.600                     | 2.800       | 0.102                | 0.110       |
| k      | 0.200MIN.                 |             | 0.008MIN.            |             |
| b      | 0.200                     | 0.300       | 0.008                | 0.012       |
| e      | 0.500TYP.                 |             | 0.020TYP.            |             |
| L      | 0.324                     | 0.476       | 0.013                | 0.019       |