10W Fast Charging + Qi BPP Compliant Wireless Power Receiver and Power Supply

---

Features

- Single-chip 10W Fast-charging Wireless Power Supply Receiver Solution
  - High Rectifier Efficiency up to 97%
  - Full Synchronous Rectifier
  - Output Voltage Adjustment
  - WPC Qi V1.2.4 Compliant communication
  - Control
  - Only IC Required Between RX Coil and Output
- Support 5W baseline power profile (BPP)
- WPC Qi V1.2.4 FOD Function
  - Highly Accurate Sense
  - Easy to debug for certification by Resistance
- Integrated Programmable Linear Regulator
  - Programmable output voltage: 4~15V
  - Output Current up to 2A
- Supports I^2C Interface
- Bi-directional channel communication
  - ASK modulation for PRx to PTx
  - FSK demodulation for PTx to PRx
- Support external protocol IC(PD/QC/SCP/FCP)
- Multiple General-purpose Input/Output(GPIO)
- Embedded MCU and MTP
- Programmable current limit by Resistance
- Dynamic Rectifier V_{RECT}
  - Improve the Load Transient Response
  - Optimize the dynamic efficiency for full load output
- Over Temperature, Over Voltage and Over Current Protection
- Two LED Indication interface
- Programmable Temperature Control
- Dedicated interface for Adapter or USB Input Application
- QFN 5mm*5mm 40Pin Pack
- WLCSP 3.3mm3.1mm 56 ball

Applications

- WPC compliant receivers
- Fast charging cellphone
- Power bank
- Accessories
- Portable Media players

Description

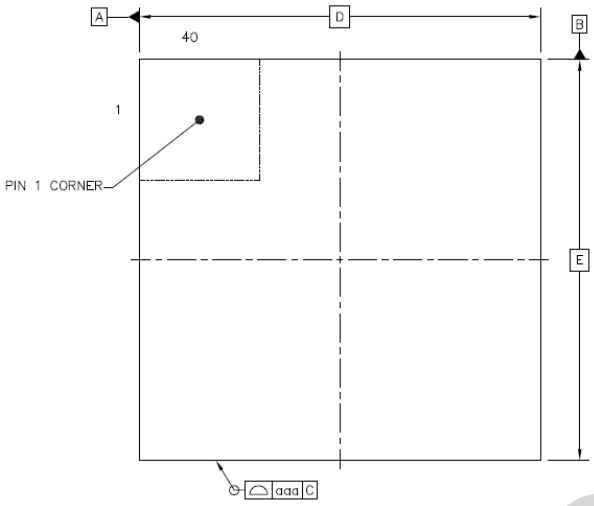
- The CP2101 is a high efficiency single-chip, advanced, flexible, Qi-compliant wireless power receiver targeted for application up to 10W. It has high integration, low power consumption. The CP2101 receiver the power that uses the near field electromagnetic induction principle, the power transfer is 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 Qi V1.2.4 protocol.
- The CP2101 integrated a low resistance synchronous rectifier (AC to DC), low-dropout regulator (LDO), accurate voltage and current loops to improve the high efficiency and decrease the power dissipation. The CP2101 also integrated a MCU as controller which comply with the Qi 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 Qi specification.

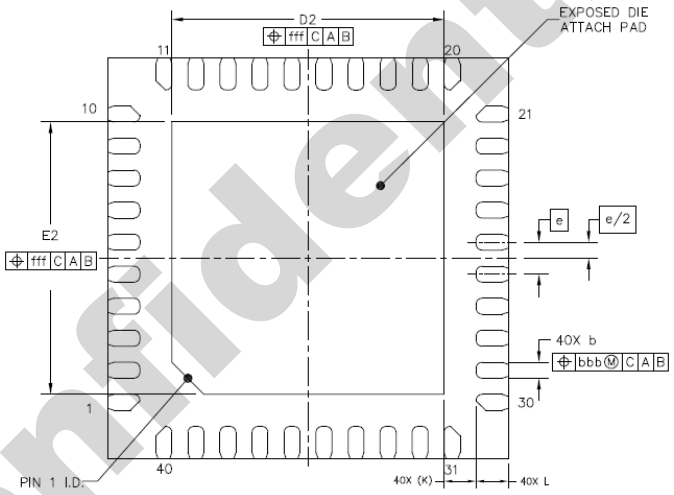
- CP2101 Output stage is LDO with programmable out voltage from 4V to 15V with 100mV step. The output voltage is adjusted dynamically according to the output current to achieve the best transient and efficiency. The CP2101 supports I²C interface, the host can use the I²C interface to control the IC's behavior and get required information from the CP2101 to implement the specific application.

Package Information

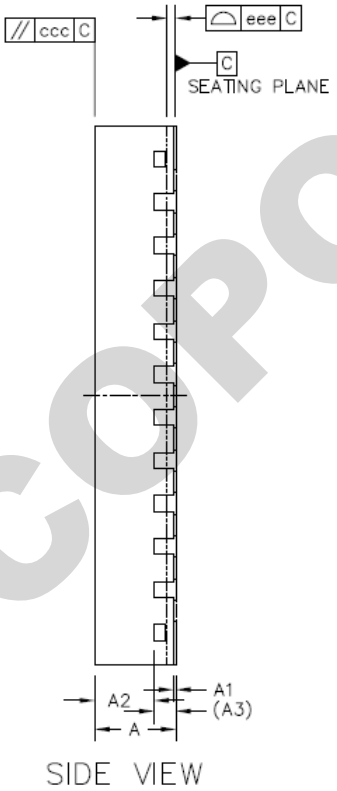
QFNWB5x5-40L(P0.40T0.75) Package Outline Dimensions



TOP VIEW



BOTTOM VIEW



SIDE VIEW

		SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS		A	0.7	0.75	0.8
STAND OFF		A1	0	0.02	0.05
MOLD THICKNESS		A2	---	0.55	---
L/F THICKNESS		A3		0.203 REF	
LEAD WIDTH		b	0.15	0.2	0.25
BODY SIZE	X	D		5 BSC	
	Y	E		5 BSC	
LEAD PITCH		e		0.4 BSC	
EP SIZE	X	D2	3.3	3.4	3.5
	Y	E2	3.3	3.4	3.5
LEAD LENGTH		L	0.3	0.4	0.5
LEAD TIP TO EXPOSED PAD EDGE		K		0.4 REF	
PACKAGE EDGE TOLERANCE		aaa		0.1	
MOLD FLATNESS		ccc		0.1	
COPLANARITY		eee		0.08	
LEAD OFFSET		bbb		0.07	
EXPOSED PAD OFFSET		fff		0.1	