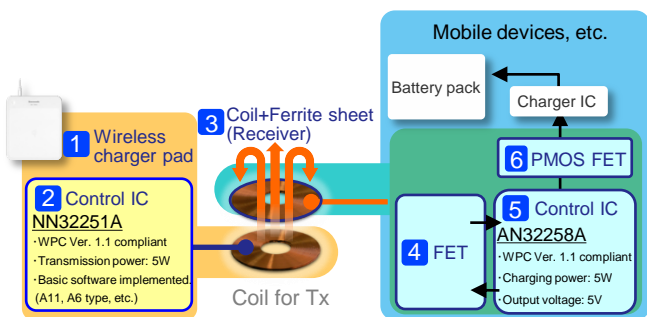


● Panasonic Total Solution

- Provides a variety of devices as "Total Solution."
- Offers coil and circuit (IC + external components) required for wireless power system, reducing your design man-hour.



- Panasonic Products
- 1 Wireless charger pad
 - 2 Control IC (transmitter)
 - 3 Coil (receiver)+ Ferrite sheet (receiver)
 - 4 FET for synchronous rectifier
 - 5 Control IC (receiver)
 - 6 PMOS FET for regulator

【Contact information】

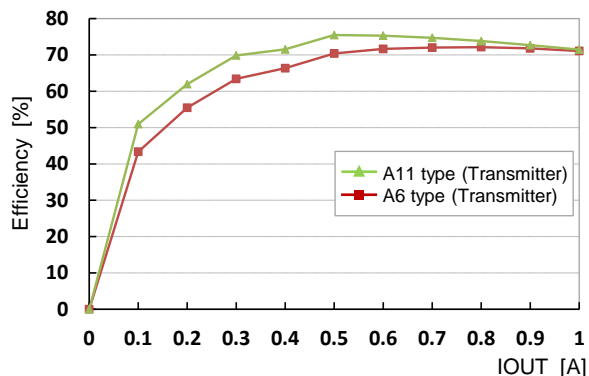
Please visit the URL below to learn more about resistor, capacitor, or other external parts.

http://industrial.panasonic.com/ww/index_e.html

● Typical Characteristics

Power Efficiency

(when both NN32251A and AN32258A are used.)



● List of Wireless Power ICs

	Transmitter	Receiver
	NN32251A	AN32258A
Standard	Qi Ver. 1.1 (WPC)	
Output power	5W	
Output voltage	-	5V
Power supply voltage	4.6 to 19.5V	-
Package	Type	HQFP64
	Size	12x12mm
	Pitch	0.5mm
Application	Charger, audio equipment, lighting equipment, etc.	Smartphone, mobile phone, DSC, mobile audio, etc.
	Product delivery	Under MP

For the evaluation board, please contact our sales representative or make inquiries on our website.

www.semicon.panasonic.co.jp/en/products/analog/wirelesscharging/

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- (5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. Otherwise, we will not be liable for any defect which may arise later in your equipment. Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.
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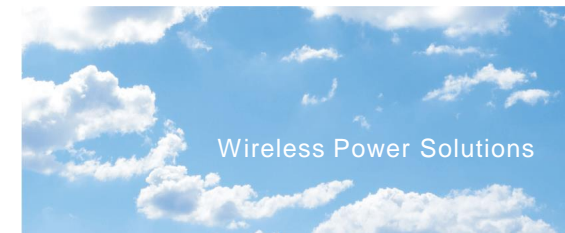
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Date of Issue: May 2014

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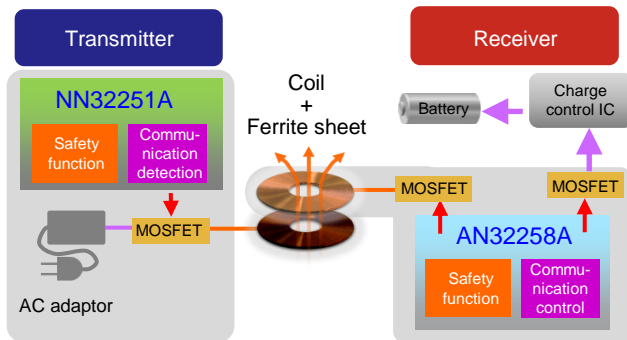


●Panasonic Wireless Power Solution

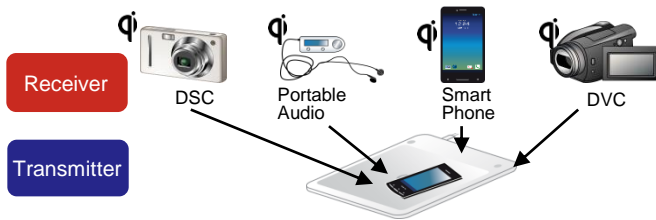
Panasonic's wireless power ICs support all equipments (DSC, DVC, portable audio, cellphone, smartphone, etc.) conforming to WPC 1.1 (Qi standard) developed by the Wireless Power Consortium (WPC).

Panasonic's wireless power solution uses a transmitter IC (NN32251A) for power transmission (battery charger) and a receiver IC (AN32258A) for power reception (equipment), controlling the end-to-end power transmission.

(Note) "Qi" is the standard for Wireless Charging.
"Qi" is developed by the Wireless Power Consortium (WPC).



●Application



[Features of Wireless Charging]

- No charging cables required
- Non-electrical contact allows charging even around water without deterioration
- Only one charger compatible with various products

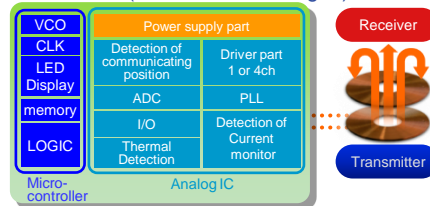
●Wireless Power IC

● Tx : NN32251A (Transmitter IC)

[Features]

- (1) WPC Ver.1.1 (A6/A11) compliant
- (2) Integrates microcontroller and analog IC into a single package, reducing both parts count and footprint.
 - A11 type : BOM 36pcs (competitor's product : more than 50pcs)
 - A6 type : BOM 42pcs (competitor's product : more than 100pcs)
- (3) Control firmware pre-programmed (A11, A6 type, etc.).
- (4) Built-in safety features
Under Voltage Lock Out, Thermal Shutdown Detection, Over Current Protection, etc.

NN32251A (MCM:MCU+Analygue)



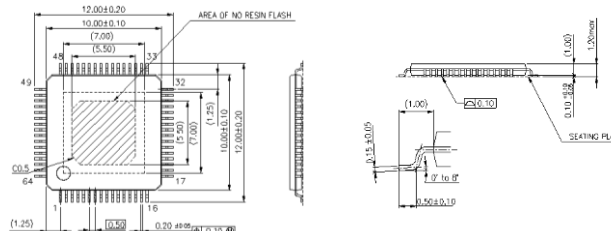
Evaluation board



60.0mm x 60.0mm

[Package]

Package code : HQFP064-P-1010C



●Evaluation Board

◆Qi Certification acquired (February 13, 2014)

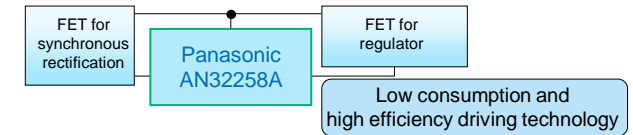
The NN32251A evaluation board (for 5W) with technical support is available.

QI CERTIFICATE
 Certificate No. 100001971-02
 Date of Issue February 13, 2014
 Compliant Test Report No. 000000017
 Compliance Test Report No. 000000017

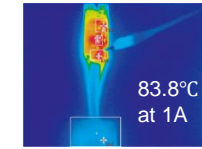
● Rx : AN32258A (Receiver IC)

[Features]

- (1) Fast charging with low heat generation
Controls the external low-resistance FET highly efficiently, reducing power consumption and heat generation.

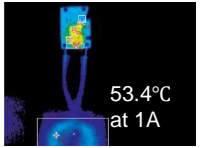


Conventional product



Incapable of 5W power supply due to high heat generation

New AN32258A



Capable of 5W power supply

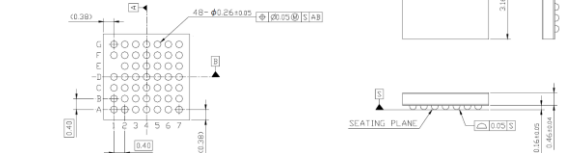


Evaluation board
 • External parts count: 25pcs (minimum)
 • Board area: 40mm x 17mm
 • Footprint: 100mm²
 (based on actual implementation)

- (2) Foreign object detection adjustment with an external resistor
- (3) No software is needed

[Package]

Package code : XBGA048-W-3232AML



◆Qi Certification acquired (October 23, 2013)

The AN32258A evaluation board (for 5W) with technical support is available.

QI CERTIFICATE
 Certificate No. 100001971-02
 Date of Issue October 23, 2013
 Compliant Test Report No. 000000017
 Compliance Test Report No. 000000017