

## High Efficiency Receiver Controller for Wireless Power Systems

### DESCRIPTION

The TS81000 is a power receiver communications and control unit for wireless charging applications. The TS81000 can support systems up to 40W+, and supports Qi® compliant and proprietary applications.

The TS81000 performs the necessary coding of packets to send commands to the transmitter to adjust the power level accordingly.

### APPLICATIONS

- Qi® compliant and non-compliant wireless chargers for:
  - Cell Phones and Smartphones
  - GPS Devices
  - Digital Cameras
  - Tablets and eReaders
  - Portable Lighting
  - Toys

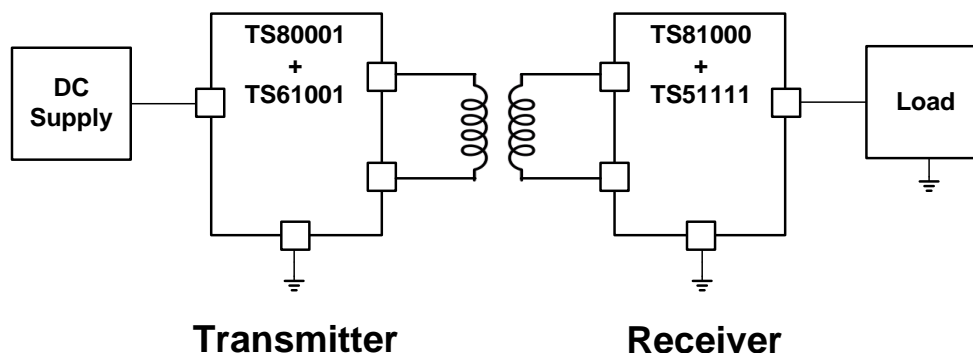
### FEATURES

- Supports Qi® and proprietary charging applications
- Wireless power systems up to 40W+
- Support for fixed frequency, variable frequency and variable duty cycle architectures
- Supports indirect (fixed voltage) and multi-cell battery charging applications (>3.15V)
- Integrated controller and FLASH for communications and control
- High precision data converters
- Low external component count
- Available in 20 pin 3x3 QFN

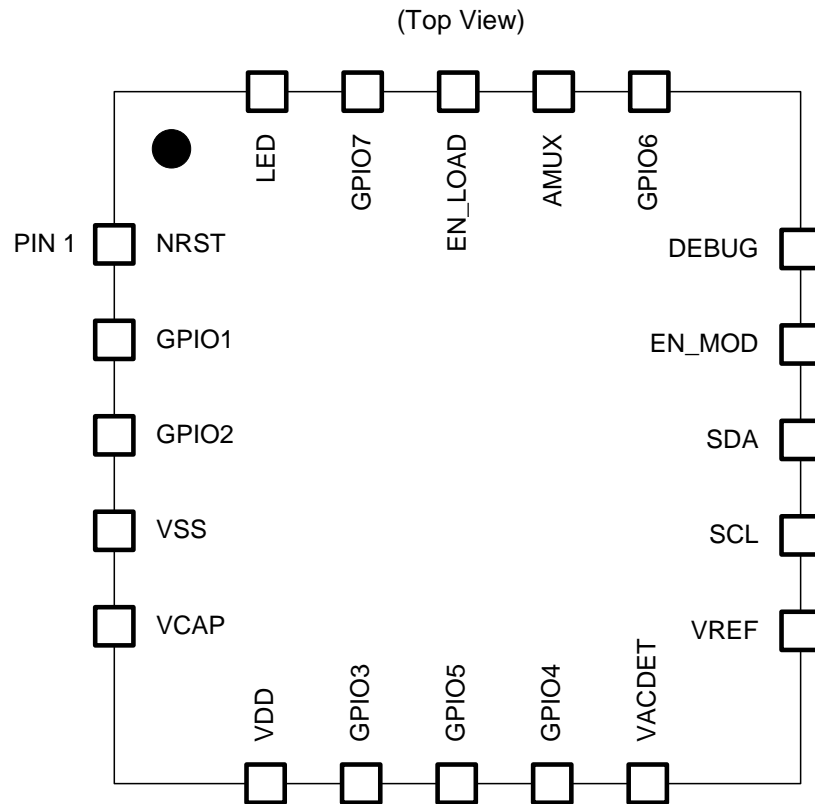
### SPECIFICATIONS

- 8-bit CPU Core, 16 MHz
- 8kBytes Flash, 1kByte SRAM
- 10-bit, A/D converter (5 channels)
- Two 16-bit timers, advanced control and general purpose
- 8-bit timer
- Auto-wakeup and watchdog timers
- 8 configurable analog general purpose IOs
- Charging LED output
- I2C interface
- SPI interface
- 2.95 to 5.5 V operating voltage

### TYPICAL APPLICATION



## PINOUT



## PIN DESCRIPTION

QFN Pin #	Pin Symbol	Function	Description
1	NRST	Reset	Reset input
2	GPIO1	Analog GPIO	Analog GPIO 1
3	GPIO2	Analog GPIO	Analog GPIO 2
4	VSS	Power GND	Power GND
5	VCAP	Filter	Filter capacitor
6	VDD	Input power	Input power supply
7	GPIO3	Analog GPIO	Analog GPIO 3
8	GPIO5	Open-Drain GPIO	True Open-Drain GPIO 5
9	GPIO4	Open-Drain GPIO	True Open-Drain GPIO 4
10	VACDET	Analog GPIO	VACDET input from TS51111
11	VREF	Analog GPIO	VREF input from TS51111
12	SCL	I2C Serial Clock	I2C Serial Clock
13	SDA	I2C Serial Data	I2C Serial Data
14	EN_MOD	Analog GPIO	EN_MOD output to TS51111
15	DEBUG	Program	Programming input
16	GPIO6	Analog GPIO	Analog GPIO 6
17	AMUX	Analog GPIO	AMUX input from TS51111
18	EN_LOAD	Enable Load	Enable an optional load switch
19	GPIO7	Analog GPIO	Analog GPIO 7
20	LED	Charging LED	Charging LED output

# APPLICATION SCHEMATIC

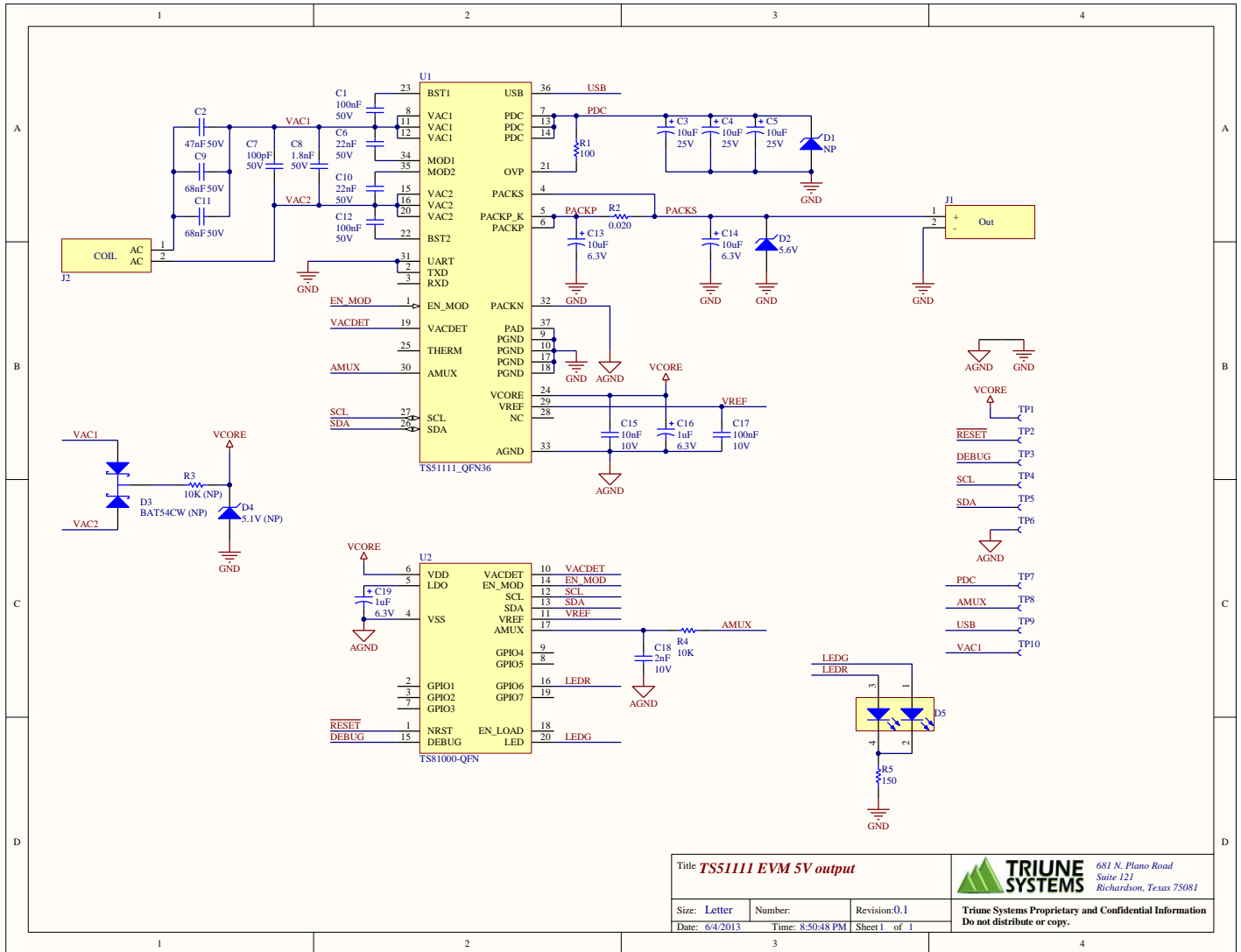
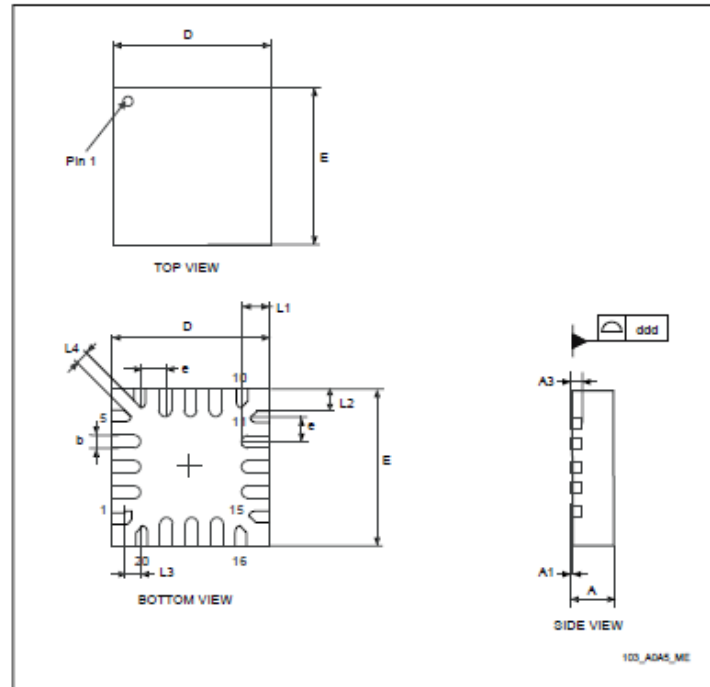


Figure 1: TS81000 Application Schematic

## PACKAGE DIMENSIONS

20-lead ultra thin fine pitch quad flat no-lead package outline (3x3)



1. Drawing is not to scale.

20-lead ultra thin fine pitch quad flat no-lead package (3x3) mechanical data

Dim.	mm			inches <sup>(1)</sup>		
	Min	Typ	Max	Min	Typ	Max
D		3.000			0.1181	
E		3.000			0.1181	
A	0.500	0.550	0.600	0.0197	0.0217	0.0236
A1	0.000	0.020	0.050	0.0000	0.0008	0.0020
A3		0.152			0.0060	
e		0.500			0.0197	
L1	0.500	0.550	0.600	0.0197	0.0217	0.0236
L2	0.300	0.350	0.400	0.0118	0.0138	0.0157
L3		0.150			0.0059	
L4		0.200			0.0079	
b	0.180	0.250	0.300	0.0071	0.0098	0.0118

## QFN PACKAGE TOP MARKING

S	0	3	3
S	S	L	L
D	W	W	Y
o			

Legend:		
<b>Line 1 Marking:</b>	<b>S033</b>	Internal part code
<b>Line 2 Marking:</b>	<b>SS</b>	Assembly site identifier
	<b>LL</b>	Lot trace code
<b>Line 3 Marking:</b>	<b>D</b>	Assembly year
	<b>WW</b>	Assembly week
	<b>Y</b>	Additional marking
	<b>o</b>	Pin 1 Identifier

## ORDERING INFORMATION

Device Part Number	Description
TS81000-5YA0010QFN	5W indirect charge Rx (5V @ 1A)
TS81000-2Y00060QFN	10W 12V indirect charge Rx (12V/800mA)
TS81000-8Y00060QFN	10W 8V indirect charge Rx (8V/625mA)
TS81000-2YB0020QFN	10W indirect charge Rx (5V/2A with buck)
TS81000-9PA0030QFN	20W 19V indirect charge Rx (IR)

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- Hydrobromofluorocarbons (HBFCs)
- Hydrochlorofluorocarbons (HCFCs)
- Lead (Pb)
- Mercury (Hg)
- Perfluorocarbons (PFCs)
- Polybrominated biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDEs)

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