

The MP910 is a power management unit (PMU) specifically designed for portable DVD players and other portable devices. The MP910 has built-in a 1A 2-cell lithium battery charger and a 3A buck converter. With the MP910 packaged in a tiny TSSOP16 package, the application can significantly save PCB space.

#### FEATURES

- I Built-in 1A Lithium Battery Charger
- I Constant Current and Constant Voltage Charging with Thermal Regulation
- I Built-in 3A Buck Converter
- I Wide 6V~18V operating Input Range
- I 150mOhm Internal Power MOSFET Switch
- I 60uA Shutdown Mode
- I Battery Low Voltage Detection
- I Tiny Package: TSSOP16PP

#### APPLICATIONS

- I Portable DVD/DVB/CMMB/ATSC Players
- I Video phone/Visual telephone
- I Mobile Internet Device(MID)
- I E-book
- I Notebook
- I Network Movie players
- I HardDisk Players

#### Functional Block Diagram

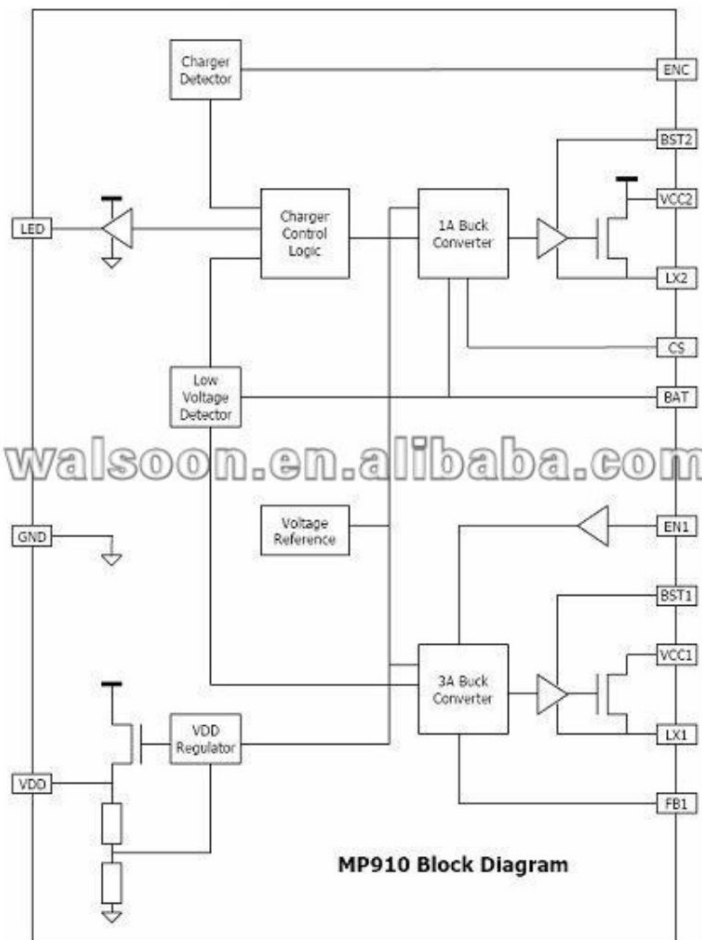


Figure 12: Functional block diagram of the MP910

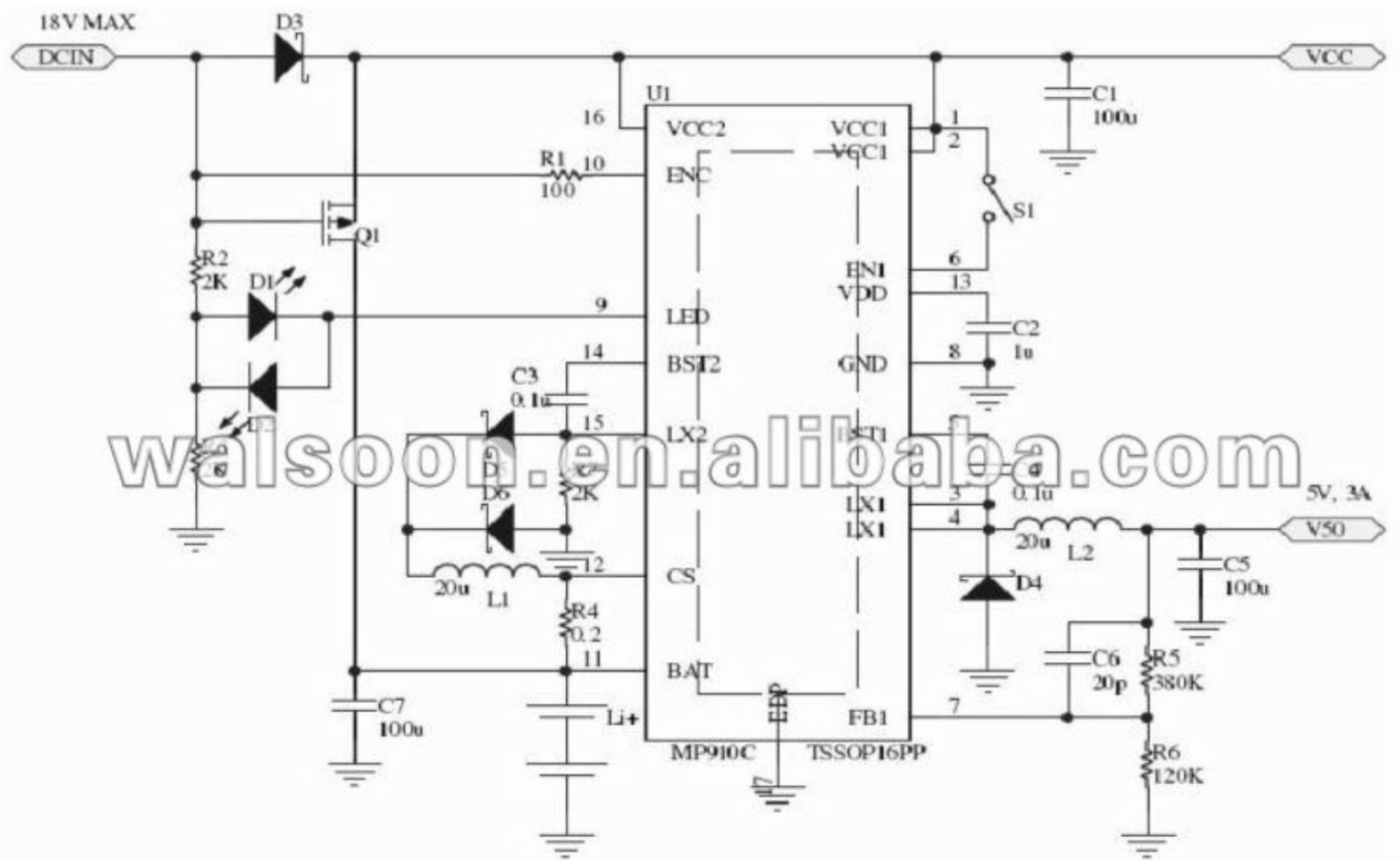
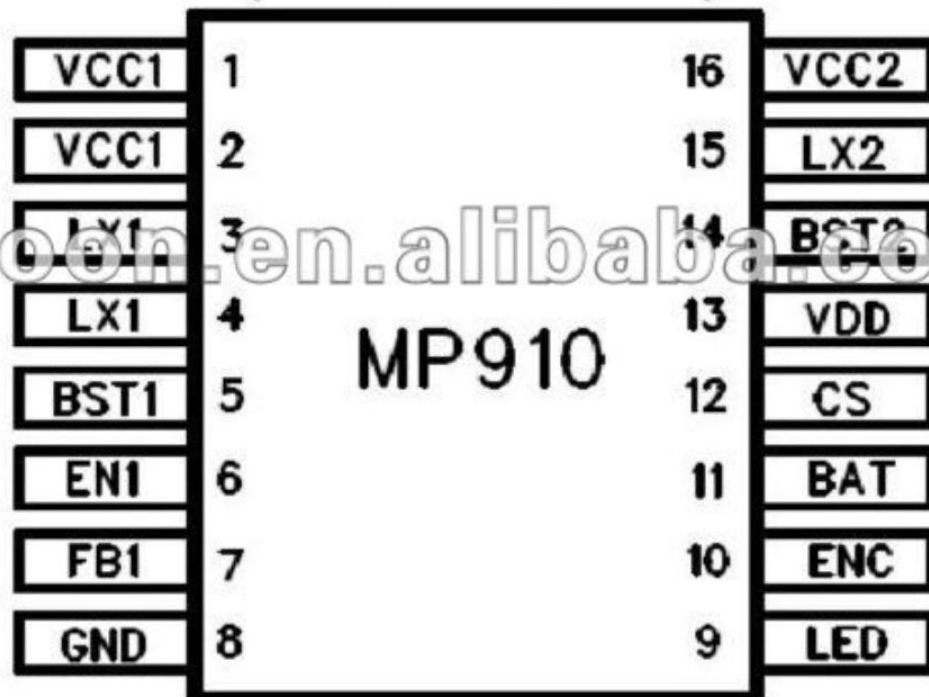


Figure 1: Typical application of the MP910 in portable DVD players.

## PACKAGE REFERENCE

(TOP VIEW)



**PIN FUNCTIONS**

Pin #	Name	Pin Function
1	VCC1	Input power
2	VCC1	Input power
3	LX1	Inductor connection
4	LX1	Inductor connection
5	BST1	Power for gate driver of the buck converter
6	EN1	ON/OFF control of buck converter
7	FB1	Feedback of the buck converter, $V_{out} = (R5/R6+1)*V_{ref}$
8	GND	Ground
9	LED	LED driver output
10	ENC	ON/OFF control of the charger
11	BAT	Battery connection
12	CS	Current sense of the charger, $I_{CHG} = V_{cs} / R_{cs}$ , $R_{cs} = R4$
13	VDD	Power for the logic
14	BST2	Power for gate driver of the charger converter
15	LX2	Inductor connection
16	VCC2	Input power
*17	EDP	Thermal Dissipation

# ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Limit			Units
			MIN	TYP	MAX	
<b>Lithium Battery Charger</b>						
Supply Voltage	$V_{CC}$	–	4.5	–	18	V
Supply Current	$I_{CC}$	Shutdown mode	–	30	50	$\mu$ A
		Quiescent mode	–	–	200	$\mu$ A
		Operating mode	–	–	1.5	mA
ENC Threshold	$V_{ENC}$	–	0.3	–	2.0	V
Logic Voltage	$V_{DD}$	–	5.2	5.4	5.6	V
Trickle Charge Voltage	$V_{TRK}$	–	–	4.8	–	V
Recharge Voltage	$V_{RECHG}$	–	–	7.8	–	V
Preset Voltage	$V_{PRESET}$	–	8.25	8.4	8.45	V
Current Sense Voltage	$V_{CS}$	–	0.18	0.20	0.22	V
DC Undervoltage	$V_{DCLV}$	ENC Voltage	–	8.7V	–	V
Precharge Timer	$t_1$	–	–	15	–	Minute
Charge Timer	$t_2$	–	–	270	–	Minute
Full Time	$t_3$	–	–	28	–	Minute
NTC Threshold	N	–	–	20	–	%
Thermal Shutdown	$T_{SD}$	–	–	150	–	$^{\circ}$ C
Switching Frequency	$f_{SW}$	–	–	400	–	kHz
Output Current	$I_{MAX}$	–	–	–	1.25	A
Current Limit	$I_{LIMIT}$	–	–	1.8	–	A
<b>Buck Converter</b>						
EN1 Threshold	$V_{EN1}$	–	0.3	–	2.0	V
Feedback Voltage	$V_{FB}$	–	1.17	1.20	1.23	V
Undervoltage Lockout	$V_{BATLV}$	–	5.8	5.9	6.0	V
Lockout Hysteresis	$V_{HYS}$	–	–	0.6	–	V
Thermal Shutdown	$T_{SD}$	–	–	150	–	$^{\circ}$ C
Switching Frequency	$f_{SW}$	–	–	400	–	kHz
Output Current	$I_{MAX}$	–	–	–	3.0	A
Current Limit	$I_{LIMIT}$	–	–	4	–	A
High-side MOSFET Resistance	$R_{ONHS}$	$V_L=5.5V$	–	0.14	–	$\Omega$