1.2A Switching Charger and 1.2A Boost in One Sot23-5 with Single Inductor

DESCRIPTION

ETA6193 is a switching Li-Ion battery charger capable of delivering up to 1.2A of charging current to the battery and also capable of delivering up to 5V/1.2A in boost operation, with high efficiency in both charging mode and boost mode. For charging, it uses a proprietary control scheme that eliminates the current sense resistor for conventional constant current control, maximizing efficiency, reducing charging time and reducing costs. It can also output a 5V voltage in the reversed direction by boosting from the battery. It only needs a single inductor to provide power bi-directionally with a proprietary automatic mode detect and switch scheme. ETA6193 is an ideal all-in-one solution for battery charging and discharge applications, such as power banks, smart phones, and tablets with only one USB port that can be used for charging battery function.

ETA6193 is suitable for charging a 4.35V Li-ion battery. And ETA6193 is in SOT23-5 package.

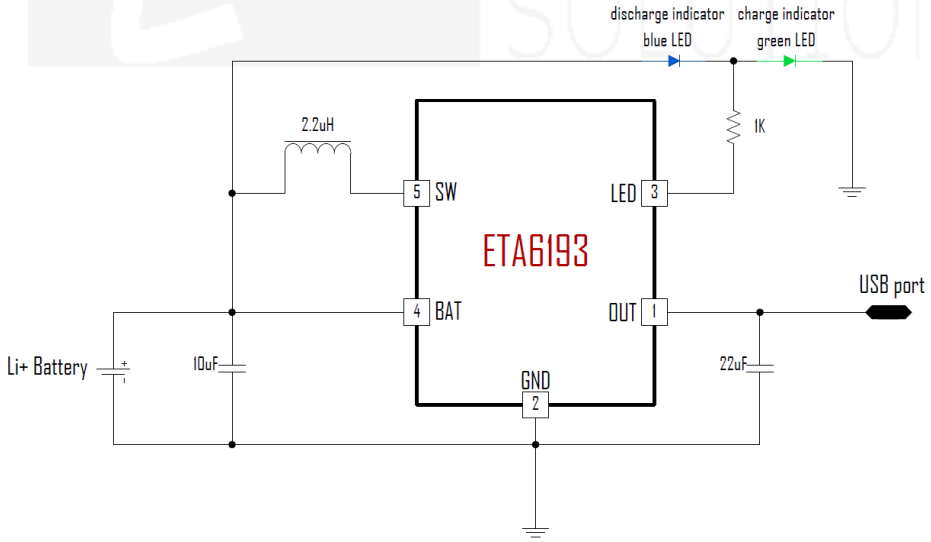
FEATURES

- Bi-Directional Power conversion with Single Inductor
- Automatic Mode Switching
- Switching Charger
- 5V Synchronous Boost
- Up to 95% Efficiency
- Up to 1.2A Max charging current and 1.2A discharging
- No-Battery detection
- No External Sense resistor
- For 4.35V Li-ion battery

APPLICATIONS

- Tablet, MID
- Smart Phone
- Power Bank

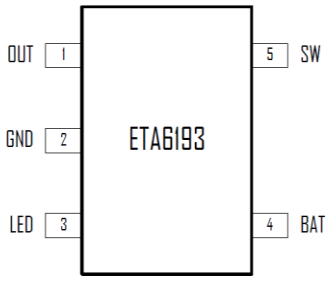
TYPICAL APPLICATION



ORDERING INFORMATION

PART No.	PACKAGE	TOP MARK	Pcs/Reel
ETA6193S2F	SOT23-5	SDYW	3000

PIN CONFIGURATION



SOT23-5

ABSOLUTE MAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

OUT, SW Voltage .....–0.3V to 6V
All Other Pin Voltage .....–0.3V to 6V
SW to ground current.....Internally limited
Operating Temperature Range .....–40°C to 85°C
Storage Temperature Range .....–55°C to 150°C

Thermal Resistance	θ_{JA}	θ_{Jc}	
SOT23-5	190	110	°C/W

Lead Temperature (Soldering, 10sec) .....260°C
ESD HBM (Human Body Mode) 2KV
ESD MM (Machine Mode) 200V

ELECTRICAL CHACRACTERISTICS

(V_{IN} = 5V, unless otherwise specified. Typical values are at TA = 25oC.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
BUCK MODE					
USB Range		4.5		5.5	V
USB UVLO Voltage	Rising, Hys=500mV		4.5		V
USB Operating Current as BUCK	Switcher Enable, Switching		5		mA
	Switcher Enable, No Switching		800		μA
BATTERY CHARGER					
Battery CV Voltage	I_{BAT} =0mA, default	4.32	4.36	4.40	V
Charger Restart Threshold	From DONE to Fast Charge		-160		mV
Battery Pre-Condition Voltage	V_{BAT} Rising Hys=250mV		2.9		V
Pre-Condition Charge Current			200		mA
Fast Charge Current			1.2		A
Charge Termination Current			100		mA
Charge Termination Blanking time			16		S
BOOST MODE					
BATT Ok Threshold	Rising, HYS=0.6 V		3.1		V
Output Voltage Range	Iout=0	5.05	5.1	5.15	V
Quiescent Current At BATT	Vbat=3.6V		80		μA
Switching Frequency	VIN<4.3V	675	900	1125	KHz
Inductor Peak Current Limit			2.4		A
Maximum Duty Cycle			90		%
Highside Pmos Rdson	I_{SW} =500mA		120		mΩ
Lowside Nmos Rdson	I_{SW} =500mA		100		mΩ

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Short Circuit Hiccup Current			1.8		A
Short Circuit Hiccup Timer	On Time		62.5		ms
	Off Time		2000		
Charging Thermal Regulation threshold			85		°C
Thermal Shutdown	Rising, Hys=20°C		150		°C

PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	OUT	Output pin. Bypass with a 22uF or larger ceramic capacitor closely between this pin and GND
2	GND	Ground Pin
3	LED	LED indication pin
4	BAT	Battery pin. Connect a Battery to this pin, and with a bypass capacitor 10uF.
5	SW	Inductor Connection. Connect an inductor Between SW and the regulator output

TYPICAL CHARACTERISTICS

(Vin=5V, T_A=25°C, unless otherwise specified)

