

12.8V, 10A 高效升压转换器

12.8V, 10A Boost Converter

■ FEATURES

- Input voltage range: 2.7V to 12V
- Output voltage range: up to 12.8V
- Internal Fixed PWM frequency: 500kHz
- Programmable switch peak current limit: up to 10A
- High Efficiency
- 94% (VIN = 7.2V, VOUT=9.3V, IOU =1.5A)
- 90% (VIN = 7.2V, VOUT=9.3V, IOU =6A)
- 93% (VIN = 7.2V, VOUT=12V, IOU =1.5A)
- 89% (VIN = 7.2V, VOUT=12V, IOU =4.5A)
- 89% (VIN = 3.6V, VOUT=12V, IOU =1A)
- 82% (VIN = 3.6V, VOUT=12V, IOU =2A)
- 1.0 μ A current consumption during shutdown
- Two modes with different tr/tf for EMI solution
- Programmable soft start
- Output overvoltage protection (at 13V), thermal shutdown protection
- Pb-free Packages, ESOP8, DFN3 \times 3-10L

- 输入电压范围: 2.7V-12V
- 输出电压范围: 最高12.8V
- 固定开关频率: 500kHz
- 可编程峰值电流: 10A
- 高转换效率:
- 94% (VIN = 7.2V, VOUT=9.3V, IOU =1.5A)
- 90% (VIN = 7.2V, VOUT=9.3V, IOU =6A)
- 93% (VIN = 7.2V, VOUT=12V, IOU =1.5A)
- 89% (VIN = 7.2V, VOUT=12V, IOU =4.5A)
- 89% (VIN = 3.6V, VOUT=12V, IOU =1A)
- 82% (VIN = 3.6V, VOUT=12V, IOU =2A)
- 低关断功耗, 关断电流1 μ A
- 支持两种tr/tf模式, 应对EMI挑战
- 可编程软启动
- 输出过压 (13V)、热关断等保护
- ESOP8, DFN3 \times 3-10L无铅封装

■ APPLICATIONS

- | | | | |
|---|-----------------------|-------------------|----------|
| · Wireless/ Speakers | · Portable Speakers | · 无线音箱 | · 便携式音箱 |
| · Power Bank | · Chargers | · 移动电源 | · 充电设备 |
| · Power Interface (USB Type-C, Thunderbolt) | | · USB TYPE-C 电源传输 | · 拉杆音箱 |
| · POS Terminal | · Tablet PC/Note Book | · 平板电脑, 笔记本电脑 | · POS机终端 |

DESCRIPTION

The HT7180 is a high-power density, asynchronous boost converter with a 22mΩ power switch to provide a high efficiency and small size solution in portable systems. The HT7180 has wide input voltage range from 2.7 V to 12 V to support applications with single cell and two cell Lithium batteries. The device has 10A switch current capability and can provide an output voltage up to 12.8V.

The HT7180 also implements a programmable soft-start function and an adjustable switching peak current limit function. HT7180 integrates two modes with different tr/ff to balance different requirements of EMI and efficiency.

In addition, the device provides 13V output overvoltage protection, and thermal shutdown protection.

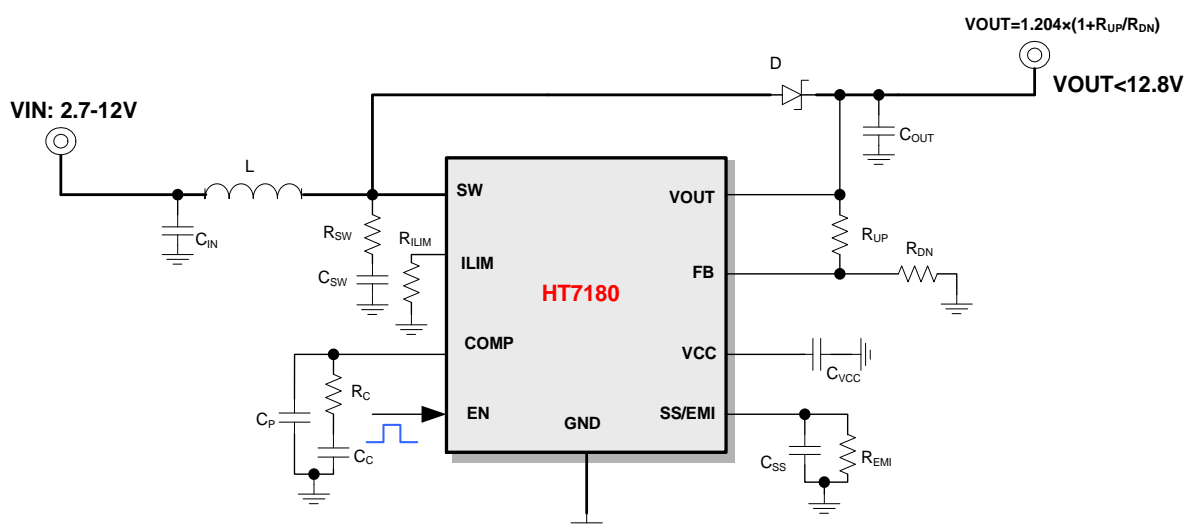
HT7180是一款高功率异步升压转换器，集成22mΩ功率开关管，为便携式系统提供高效的小尺寸解决方案。

HT7180具有2.7V至12V宽输入电压范围，可为采用单节或两节锂电池的应用提供支持。该器件具备10A开关电流能力，并且能够提供高达12.8V的输出电压。

HT7180还支持可编程的软启动，以及可调节的开关峰值电流限制。HT7180还支持两种不同的tr/ff，以适应不同的EMI和效率需求。

此外，该器件还提供有13V输出过压保护、和热关断保护。

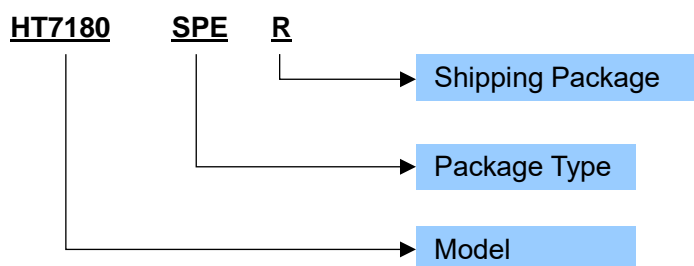
TYPICAL APPLICATION



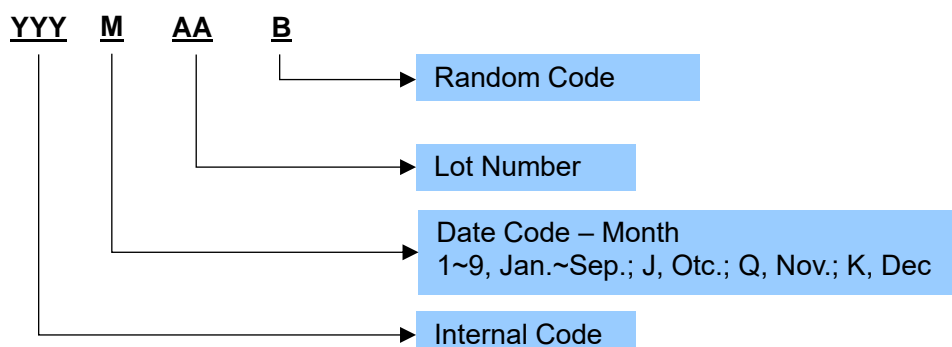
ORDERING INFORMATION

Part Number	Package Type	Marking	Operating Temperature Range	Shipping Package / MOQ
HT7180SPER	ESOP8 (SPE)	HT7180 YYYMAAB ¹	-40℃~85℃	Tape and Reel (R)/ 2500pcs
HT7180SPET	ESOP8 (SPE)	HT7180 YYYMAAB	-40℃~85℃	Tube (T) / 100pcs
HT7180DNER	DFN3x3-10L (DNE)	HT7180 YYYMAAB	-40℃~85℃	Tape and Reel (R)/ 5000pcs

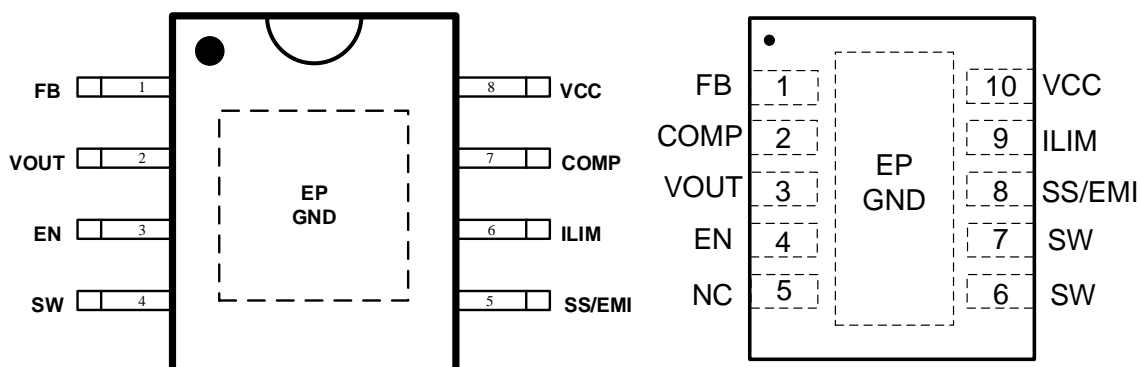
Part Number



Production Tracking Code



¹ YYYMAAB is production tracking code

■ TERMINAL CONFIGURATION

SPE (ESOP8) Top View
DNE (DFN3×3-10L) Top View
■ TERMINAL FUNCTION

Terminal No.		Name	I/O ¹	Description
SPE	DNE			
1	1	FB	I	Voltage feedback. 电压反馈
2	3	VOUT	P	Power supply. 电源供电
3	4	EN	I	Enable logic input. Logic high level enables the device. Logic low level disables the device and turns it into shutdown mode. 使能输入，高电平芯片工作；低电平芯片进入关断状态
4	6,7	SW	P	The switching node pin of the converter. 开关转换端
5	8	SS/EMI	O	Soft-start programming pin. An external capacitor C _{ss} connected to ground sets the ramp rate of the internal error amplifier's reference voltage during soft-start, 100nF is usually recommended. 软启动时间设置，接电容C _{ss} 到地，一般建议用100nF Also used as mode setting for different tr/ff, an external resistor connected to ground sets a flatter tr/ff. 同时作为tr/ff设置脚，当同时外接1个330k电阻到地时，选择较缓的tr/ff
6	9	ILIM	I	Adjustable switch peak current limit. An external resistor should be connected between this pin and the GND pin. 峰值电流设置端，接电阻到地
7	2	COMP	O	Output of the internal error amplifier, the loop compensation network should be connected between this pin and the GND pin. 环路补偿端
8	10	VCC	O	Output of the internal regulator. A ceramic capacitor of 1uF is required between this pin and ground. 内部整流输出，外接1uF电容到地
/	5	NC	/	No connection, connect to GND. 无电气连接，可连接至地。
EP	EP	GND	G	Provides both electrical and thermal connection from the device to the board. A matching ground pad must be provided on the PCB and the device connected to it via solder. For proper electrical operation, this ground pad must be connected to the system ground. 既是地，又是散热PAD

¹ I: Input; O: Output; G: Ground; P: Power; BST: BOOT Strap; OD: Open drain

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