



十速科技股份有限公司
tenx technology inc.

**Advance
Information**

TP6705

Simple Ni-MH battery charger

8 Bit Microcontroller Application Note

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discontinue this product without notice.**

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PRODUCT NAME**TP6705****TITLE****Simple Ni-MH battery charger****APPLICATION NOTE****1. Introduction to hardware functions****1.1 Introduction to the function of a simple Ni-MH battery charger**

The design uses a two battery (in tandem) charger. It uses TM57PE10 as the control chip. TM57PE10 provides an analog voltage comparator with three analog inputs (one Vin+ & Two Vin-). In the comparator provided by TM57PE10, PB1(VIN0-) is used to detect the charge current; PB4(CMPO) is used to control the charging of the batteries; PB3(VIN+)IRV(Internal reference voltage) is used to control the stability of the constant current; PB2(VIN1-) is used to detect Battery voltage; PB4(CMPO) is used to control the charging of batteries; PB6 is used to control the discharging of batteries. When effective batteries are placed into the charger, the LED will turn on and start charging. When the dis_charge switch is pressed and the LED blinks, it indicates that batteries are discharging. When batteries are fully charged, the LED will turn off and the charger will stop charging batteries.

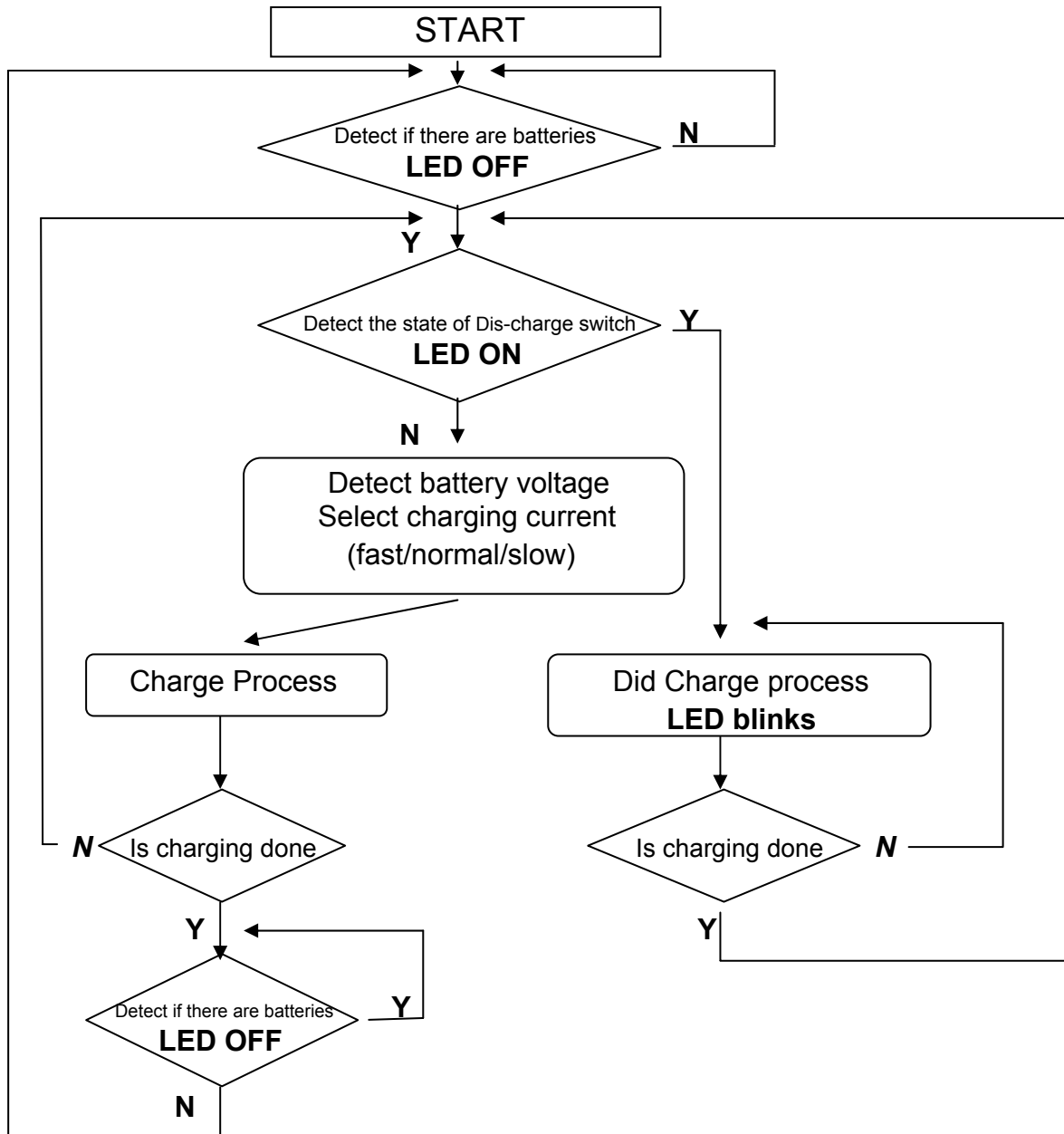
1.2 Introduction to hardware functions

- (1) Use TM57PE10 (a 8 Bit Microcontroller)
- (2) one set of power input 5V
- (3) 1 button (DIS_CHARGE)
- (4) 1 LED to display status

1.3 The characteristics of the charger

- (1) Supports two (in tandem) Ni-MH batteries.
- (2) Use 1 LED to indicate the status of the charger.
- (3) Automatically select the charging current using a constant current method to charge batteries: the current for slow charging mode is about 150mA, the current for normal charging mode is about 320mA, and the current for fast charging mode is about 450mA.
- (4) Support the discharging function to improve the memory effect of the battery and extend its lifetime. The discharging current is about 50mA.
- (5) Automatically detect whether the batteries placed in are effective or not. When effective batteries are placed in the charger, LEDs will turn on.
- (6) When the battery voltage is higher than 3V in the charging mode, it will stop charging batteries.
- (7) Time protection: as soon as the battery charging time reaches 6 hours, it will stop charging batteries automatically.
- (8) When the battery voltage is lower than 1.6V in the discharging mode, it will stop discharging batteries to protect them and automatically revert to charging.

1.4 Flow chart





2. Application Circuit

