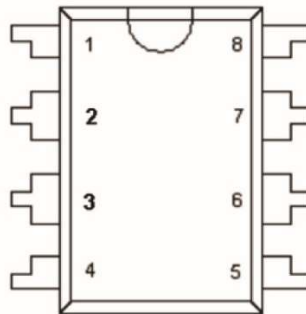# HT3582DA

Overview:

HT3582DA Is an internal reference voltage control chip universal charger, with automatic recognition of the battery polarity, short circuit protection, over-temperature Protection.

Features:

• Internal reference source, the regulator output load, no load voltage adjustment peripheral components

• Normal mode supports three lights and two lamp mode, colorful lights mode

• Maximum charge current: 300mA

• Support for 0V Rechargeable battery (positive battery connection)

• The battery is fully switched to constant voltage charging mode, the battery can be charged more full

• Automatic identification battery polarity

• Short circuit protection

• Over temperature protection

• Highly integrated, low parts

Pin Diagram and Description

HT3582DA FIG Package Pin

No.	Name	Description
1	BTN	Battery Negative
2	L3	Pilot Lamp L3 Pin
3	L2	Pilot Lamp L2 Pin
4	L1	Pilot Lamp L1 Pin
5	SW	Function Selection (pick VDD for 3 Lights and 2 Lamp mode, then GND for the colorful mode)
6	GND	Negative Power Supply (ground)
7	BTP	Battery Cathode
8	VDD	The Positive Power Supply

Table 1 HT3582DA Description of Each Pin

Typical Parameters

(Except in special say Bright in addition, all participants number DC were measured at room temperature and GND end Potential 0 Potential)

| Parameter Name	Parameter Symbol	Test Conditions	Min	Type	Max	Units
Input Voltage	VDD	—	5	—	8	V
No-Load Voltage	V$_O$	VDD=5V～8V	4.15	4.23	4.30	V
Saturation Voltage	V$_S$	VDD=5V～8V	4.17	4.25	4.32	V
Recharging Current	I$_{CHARGE}$	VDD=5V, |VBTP-VBTN|=3.6V	—	300	350 （*）	mA
Short Circuit Detection	V$_{SHORT}$	VDD=5V, |VBTP-VBTN|: 1V→0.2V	—	1	—	V
The Oscillation Frequency	F$_{OSC}$	VDD=5V, |VBTP-VBTN|=3.6V	—	2	4	Hz
Static Protection	ESD	Human Body Model		2000		V

Table 2 HT3582DA Typical Parameters

(*) As the work required to meet current time Press Pd Claim, DIP of Pd Requirements are as follows:

Ta = 25 ° C 1.0W

Thermal Resistance ....100 ° C / W

Application Circuit
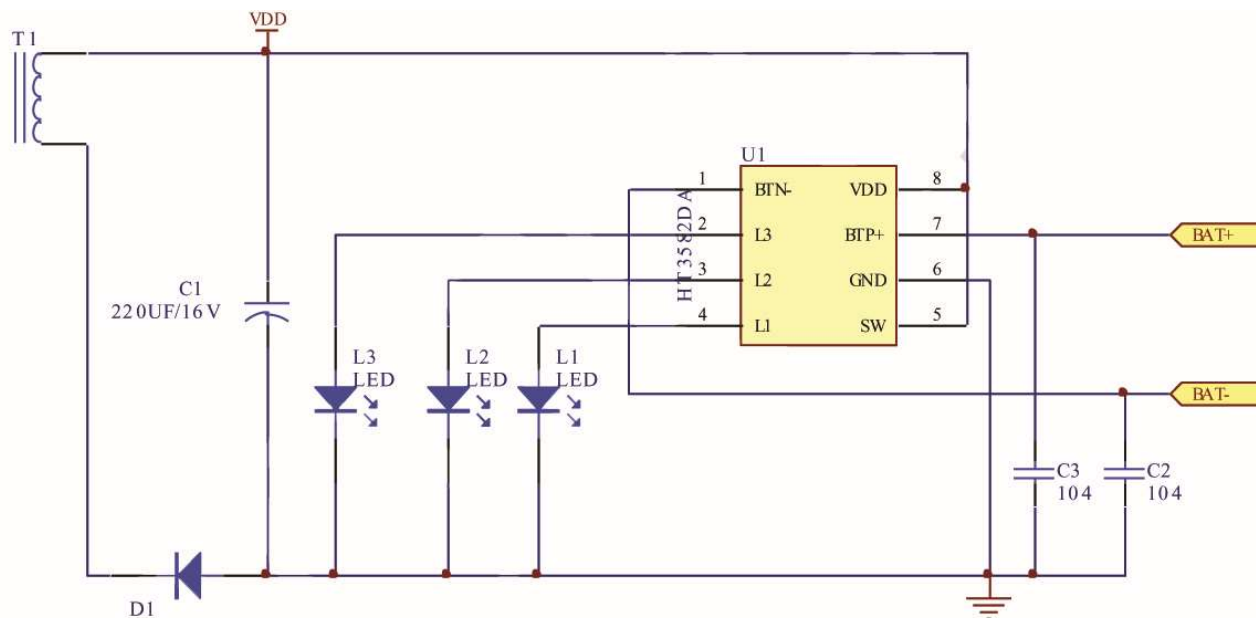
Map 1 HT3582DA ordinary 3 Lamp applications (as will be L3 Removed, for the two normal light mode)

Three Light Mode	Power Status	Battery Status	L1	L2	L3
Battery Testing	Disconnect	Normal Access	Bright	Destroy	Destroy
Battery Load	Access	Disconnect	Bright	Destroy	Bright
Normal Charge	Access	Normal Access	Bright	Flash	Destroy
Saturation Detection	Access	Normal Access	Bright	Destroy	Bright

Two Light Mode A	Power Status	Battery Status	L1	L2	PIN2
Battery Testing	Disconnect	Normal Access	Bright	Destroy	Suspended
Battery Load	Access	Disconnect	Bright	Bright	Suspended
Normal Charge	Access	Normal Access	Bright	Flash	Suspended
Saturation Detection	Access	Normal Access	Bright	Bright	Suspended

Two light mode B	Power Status	Battery Status	L1	L2	PIN2
Battery Testing	Disconnect	Normal Access	Bright	Destroy	Meet GND
Battery Load	Access	Disconnect	Bright	Destroy	Meet GND
Normal Charge	Access	Normal Access	Bright	Flash	Meet GND
Saturation Detection	Access	Normal Access	Bright	Destroy	Meet GND
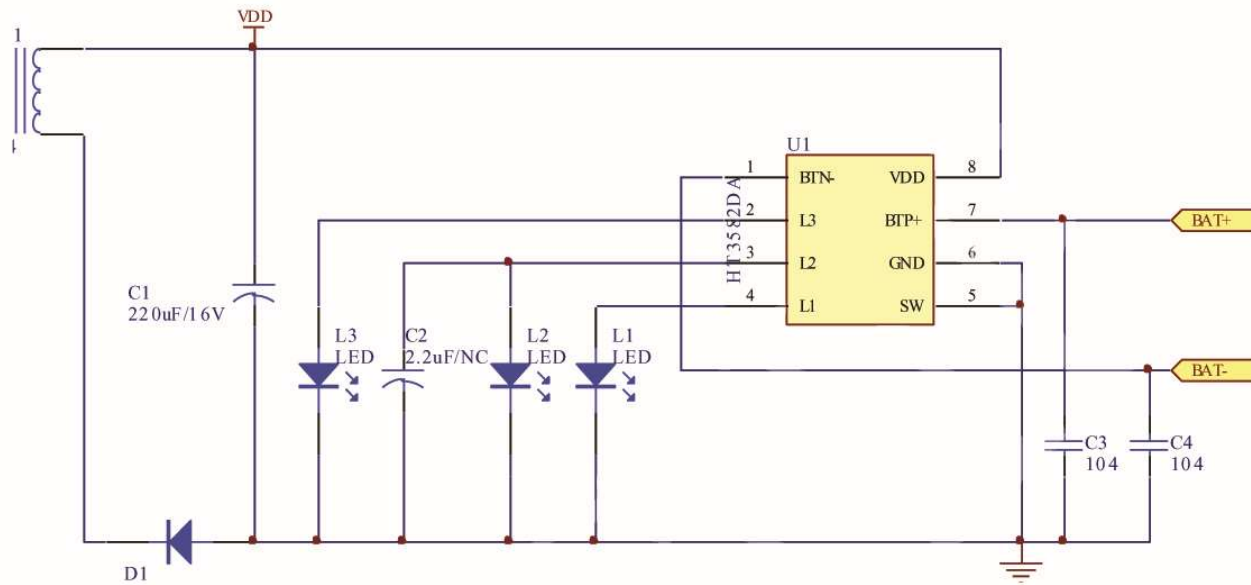
Map 2 HT3582DA Colorful lights applications (if colorful lights better quality, C2 You may choose not to take)

Colorful patterns	Power status	Battery status	L1	L2
Battery Testing	Disconnect	Normal Access	Bright	Destroy
Battery Load	Access	Disconnect	Bright	Destroy
Normal Charge	Access	Normal Access	Bright	Colorful
Saturation Detection	Access	Normal Access	Bright	Destroy

Function and State Description (with reference to three lights application circuit)

Status Description	Power Status	Battery Status	L1	L2	L3	Battery Current	|VBTP-VBTN|
Battery Testing	Disconnect	Normal Access	Bright	Destroy	Destroy	-2mA(*)(**)	<4.10V(**)
			Bright	Destroy	Destroy	-2mA(*)(**)	≥4.10V(**)
Battery Load	Access	Disconnect	Bright	Destroy	Bright	0	4.23V(**)
Normal Charge	Access	Normal Access	Bright	Flash	Destroy	300mA(**)	3.60V(**)
Saturation Detection	Access	Normal Access	Bright	Destroy	Bright	4mA(**)	4.25V(**)

table 3 HT3582DA Three light mode status list

(*) Here a negative value indicates the time the battery discharge circuit (The led powered by)

(**) Table data listed are typical values

Working Principle

Battery Testing

When the battery is plugged in with the power off, the HT3582DA will control the battery through the automatic Polarity Identification system. at this time See Table 3 for the status of L1-L3.

Battery No Load

When the power supply is connected and the battery is not connected, the voltage difference between the BTP and BTN terminals is 4.23V (typ.), and the state of L1-L3.
See the description in Table 3.

Normal Charging and Saturation Detection

The power supply is connected and the battery is not fully charged (battery voltage <4.10V [Typical value]), and the power supply starts to pass the control of the HT3582DA to the battery.

Line charging, charging current is about 300mA (typical), the voltage across the battery rises slowly, when the battery voltage rises to 4.23V (typical)

When the battery is near saturation, it is switched to the constant voltage and small current supplementary charging mode. The status of L1-L3 in this process is described in Table 3. when

The battery voltage is <4.10V (typ.) before recharging the battery.

Short Circuit Protection

If the battery is short-circuited after the power is turned on, the HT3582DA internal "short-circuit protection" system will automatically reduce the charging current.

Up to 25mA (typical). At this time, if the battery is reconnected with the correct polarity, it can still be charged normally.

Over Temperature Protection

If the junction temperature of the chip exceeds TO (150 °C typical) during charging, the internal "overtemperature protection" system will automatically reduce the charging current until

The junction temperature drops to TR (120°C typical) and the IC returns to normal charging.