

Torex...Powerfully Small!

Push Button Smart Load Switch
XC6193/XC6194 Series
Product Overview

October 2025
TOREX Semiconductor Ltd.
Rev. 1.2

Load Switch with built-in shutdown function / Ship Mode, Main Power Switch, and Preventing System Freezes

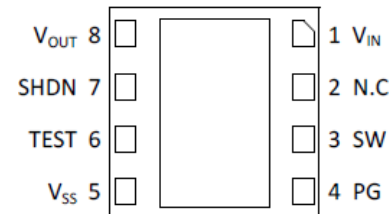
Features

Input Voltage	: 1.8V ~ 6.0V (Absolute Max.:6.6V)
Stand-by Current	: 1nA
Supply Current	: 0.13μA
Output Current	: 1A ($V_{IN}=2.0V$)
Turn-On Delay Time	: 0.2s, 1.0s, 3.0s, 5.0s
Turn-Off Method	: Type A • By inputting "H" to SHDN pin. • By inputting "L" during the t_{OFFD} to SW pin. Type B • By inputting "H" to SHDN pin.
Turn-Off Delay Time	: 3s, 5s, 10s, 15s
Function	: Power Good (PG pin) Shutdown (SHDN pin) C_L Discharge, UVLO Inrush Current Prevention
Protection	: Short Protection, Thermal shutdown
Package	: USP-8B06
Operating Ambient Temp.	: -40°C ~ 85°C

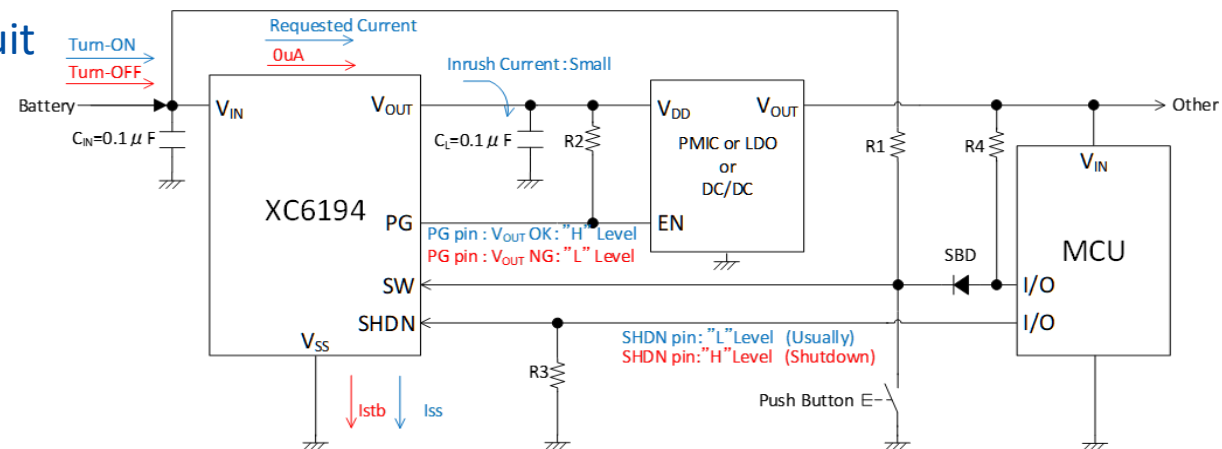
Package

USP-8B06
(2.0x2.0x0.33mm)

TOREX Longevity
Program (TLP)



Typical Application Circuit



Load Switch with built-in shutdown function / Ship Mode, Main Power Switch, and Preventing System Freezes

Features

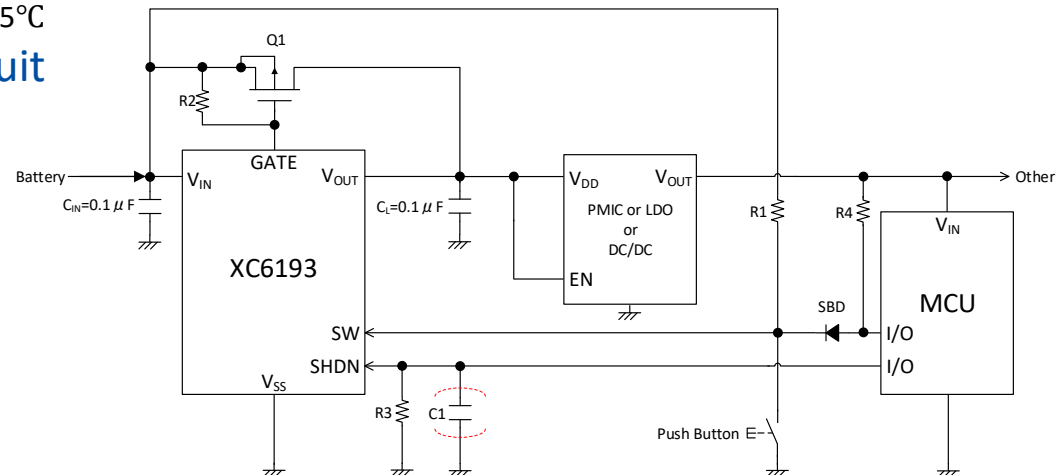
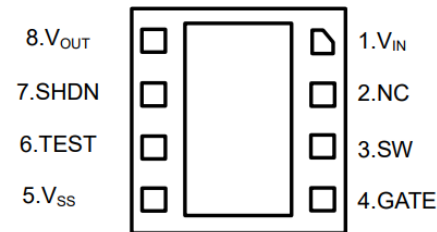
Input Voltage	: 1.8V ~ 6.0V (Absolute Max.:6.6V)
Stand-by Current	: 1nA
Supply Current	: 0.13μA
Output Current	: Internal FET only - 1A ($V_{IN}=2.0V$) With External FET - Depend on FET
Turn-On Delay Time	: 0.2s, 1.0s, 3.0s, 5.0s
Turn-Off Method	: Type A • By inputting "H" to SHDN pin. • By inputting "L" during the t_{OFFD} to SW pin. Type B • By inputting "H" to SHDN pin.
Turn-Off Delay Time	: 3s, 5s, 10s, 15s
Function	: External Pch FET Control (GATE pin) Shutdown (SHDN pin) C_L Discharge, UVLO Inrush Current Prevention
Protection	: Short Protection, Thermal shutdown
Package	: USP-8B06
Operating Ambient Temp.	: -40°C ~ 85°C

Typical Application Circuit

Package

USP-8B06
(2.0x2.0x0.33mm)

TOREX Longevity
Program (TLP)



- Essential for long battery life. Built-in shutdown function supports battery life and power saving.

Shutdown function
for Various
applications

**Built-in shutdown function
Push button Load SW ICs**
XC6194 : 1A
XC6193 : 1A + Ext FET



System Main SW
for
Startup/shutdown

① Shutdown function for a variety of applications

- ✓ Ship Mode / Storage Mode
Reduces battery consumption to 1nA preventing discharge during ship and storage. Supports embedded batteries (replaces plastic tabs).
- ✓ Safe System Shutdown
Enables data backup and safe system shutdown by shutting down with the SHDN signal from the MCU after the MCU completes its termination process.
- ✓ Freeze Prevention
Can be forcibly turned off by pressing and holding the push button from outside.
Effective for preventing freezing. (Long press time: 10s, 15s etc. @ Type A)

② Replaces mechanical power switches

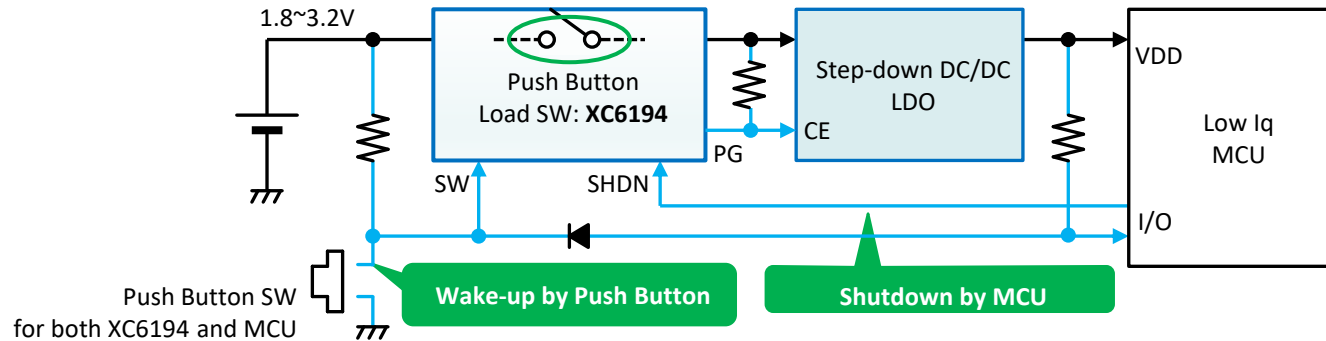
- ✓ ON/OFF control with a push button or reed switch.
- ✓ Compared to mechanical switches, chattering prevention, high reliability, improved moisture resistance/waterproofing.

③ No additional parts required / Various long press times

- ✓ Push button switch can be used in combination with MCU control.
- ✓ Selectable ON/OFF button long press time
Furthermore, the MCU can determine the push button signal and system status to cut off the power supply.

● Load Switch : Start-up method

Load Switch is turned on by holding down the push button for a certain period of time (0.2s/1s/3s/5s).
Can be controlled by physical button, so it can be activated by end-user.

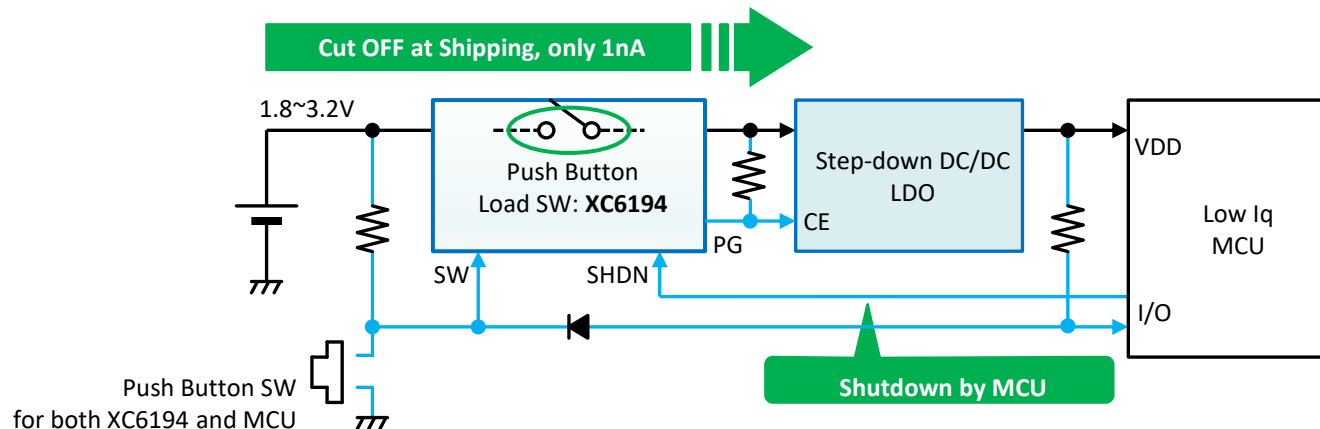


● Load Switch : Shutdown method

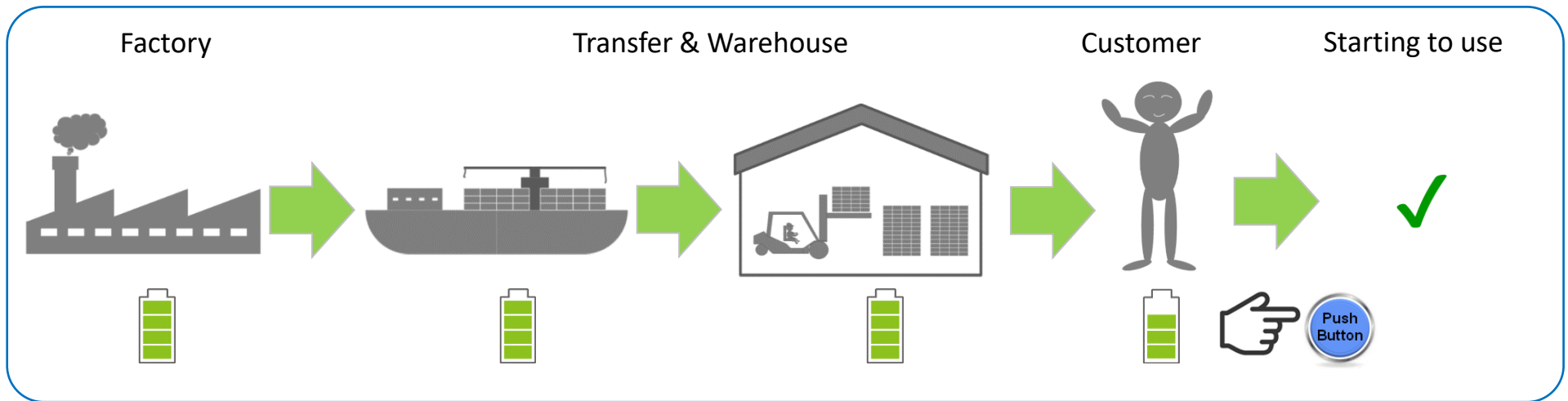
Load Switch can be turned off in two ways: current consumption is 1nA when off.

Method 1 : Input SHDN="H" (MCU signal or factory default etc.)

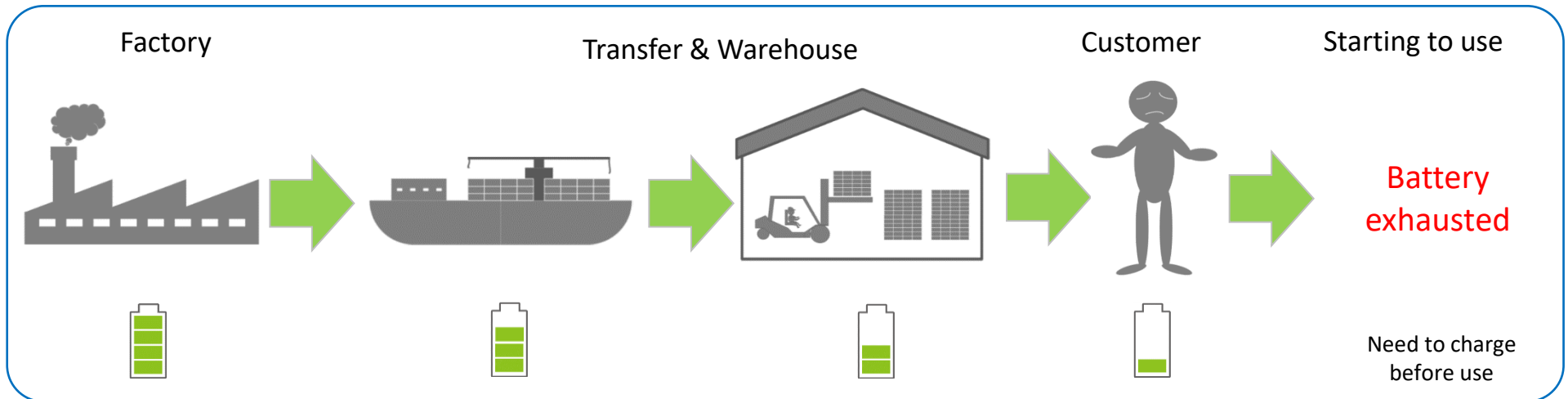
Method 2 : Hold down the push button for a certain period of time (Type A: hold down time 3s/5s/10s/15s)



➤ Ship Mode



➤ Normal



Users may return devices with dead batteries, mistaking them for defects.

■ Ship Mode Operation

Ship Mode is a function that suppresses the current consumption from the battery so that the remaining battery charge does not decrease after the product is shipped.

It can be easily implemented by using the shutdown function of the push-button load SW.

● Factory setting : Shutdown method

Load Switch can be turned off in two ways: current consumption is 1nA when off.

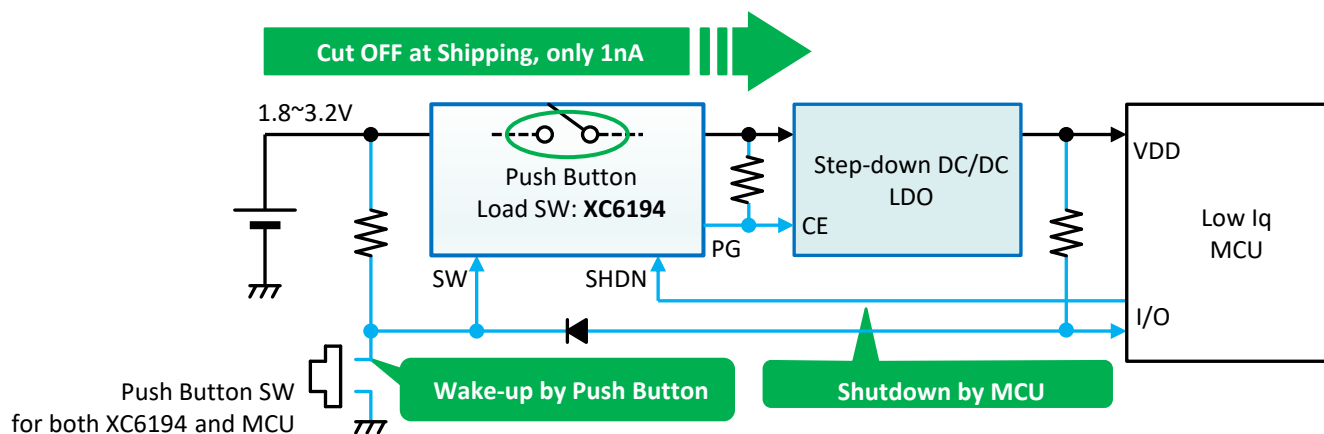
Method 1 : Input SHDN="H" (MCU signal or factory default etc.)

Method 2 : Hold down the push button for a certain period of time (Type A: hold down time 3s/5s/10s/15s)

● Load Switch : Start-up method

Load Switch is turned on by holding down the push button for a certain period of time (0.2s/1s/3s/5s).

Can be controlled by physical button, thus enabling start-up by end-user.



■ System shutdown/freeze preventions

When the system is stopped/standby for a long period of time, the shutdown function reduces the current consumption from the battery to 1nA.

When the system starts up, the user presses a physical SW to start up the system.

Type A allows for forced shutdown by long-pressing the push button for 3s, 5s, 10s, or 15s. It is suitable for forced shutdown during freezing.

● Shutdown Methods

Load Switch can be turned off in two ways, with a current consumption of 1nA at the time of OFF, which is ideal for shutdown.

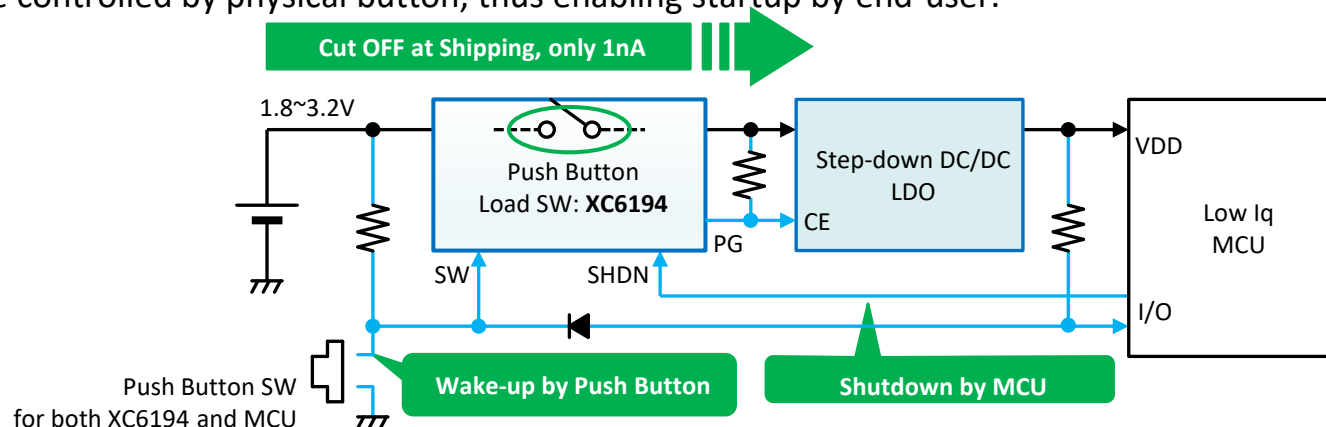
Method 1 : Input SHDN="H" (MCU signal or factory default etc.)

Method 2 : Hold down the push button for a certain period of time (Type A: hold down time 3s/5s/10s/15s)

● Start-up Method

Load Switch is turned on by holding down the push button for a certain period of time (0.2s/1s/3s/5s).

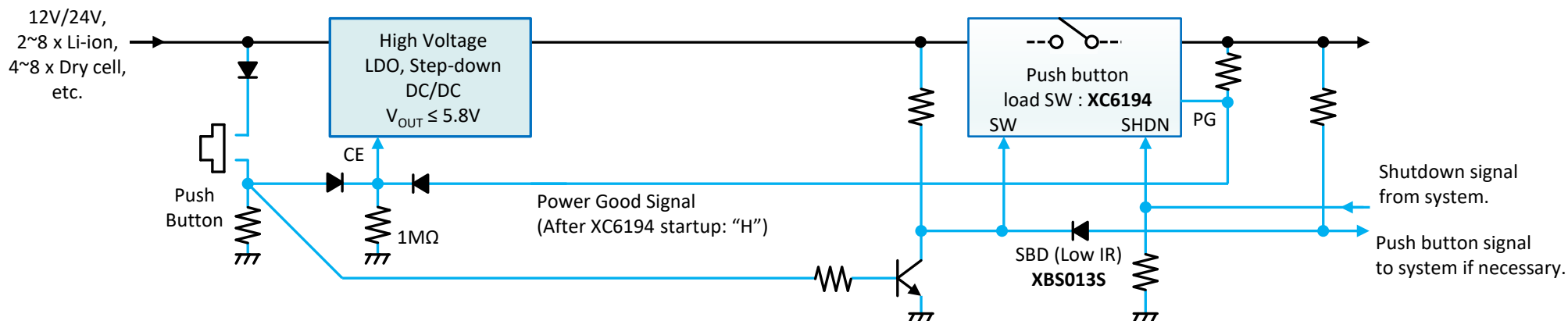
Can be controlled by physical button, thus enabling startup by end-user.



■ High-voltage line shutdown circuit 2

By using high voltage LDOs and DC/DCs, a shutdown circuit can be added to medium/high voltage lines.

● High-voltage line shutdown circuit



● High-voltage line shutdown circuit with USB OR circuit

