



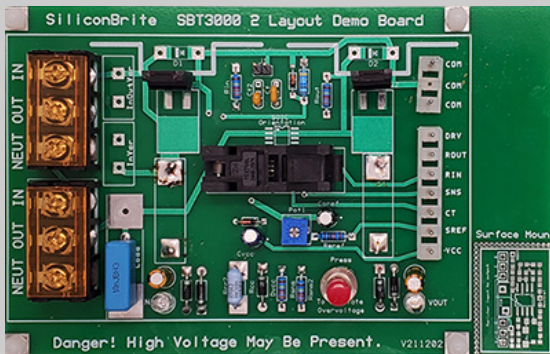
# SBT3000 Autonomous Power Line Smart AC Switch Controller

**SBT3000**

## Industry's First Autonomous Power Line Smart AC Switch Controller Solutions

- Automatic Smart AC Switch
- Cost Effective & High Value Solution
- 90% Space Savings (vs. discrete solution)
- In-Cycle Over Voltage Load Isolation
- Low Power, High Efficiency, Small Footprint

### SBT3000 Power Line Smart AC Switch Controller Evaluation Module



The SBT3000 Evaluation Module (EVB), is an engineering circuit board designed for testing the operation of the SBT3000 integrated circuit. The SBT3000 EVB contains an SO8 IC socket and all the necessary support components to be able to apply an input voltage and a moderate load in order to evaluate the overvoltage protection features of the device.

Various application notes and User's Guide are also available.

SiliconBrite has created the portfolio of World's First Smart Autonomous Protection IC Solutions. Varistors and capacitors have served for a long time but can not handle frequent or continuous surges; these traditional components eventually degrade, dry out, and blow up. The SBT3000 is superior solid-state based solution that can control IGBTs, MOSFETs, or a relay by directly monitoring AC line voltages to overcome these inevitable failures.

**The SBT3000 eliminates 23 different ICs in a single IC**



The robust solid-state solution features a unique architecture that automatically detects AC line over and under-voltage conditions and safely isolates the power line from the load until the AC input voltage is within its normal range. The SBT3000 can also be used in conjunction with a varistor to provide superior and unmatched line voltage protection.



## Cleanest AC power?

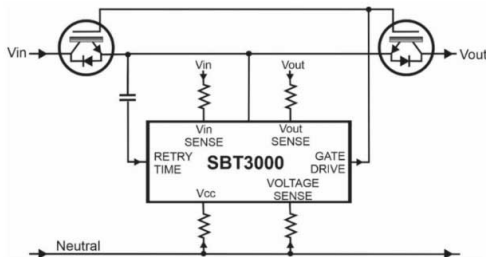
Power utilities around the world attempt to provide the cleanest AC power to their customers, but how common is a voltage swell, where the line voltage is above the normal for more than a few milliseconds that can be just enough to destroy sensitive electronics in end-applications? In the USA, there is an organization called the Information Technology Industry Council (ITIC). Amongst other functions, this organization gives recommendations to power utility companies on how long a “normal” voltage swell can last.

Although 166 $\mu$ s is likely within the protection domain of a varistor, 1ms and 3ms are likely not able to be fully protected by a varistor because the energy in these swells exceeds the long-term power dissipation capability of a varistor. Also note that a large difference between the short time and continuous power handling capability of a varistor that even a large 20mm varistor can only dissipate 1 watt continuously. Therefore long-term overvoltage conditions will likely damage a varistor, eventually causing a costly sometimes an unrepairable destruction to customers’ end products. SiliconBrite has created the SBT3000 family of products which will ensure robust and uninterrupted long-term reliable operation in broad applications.

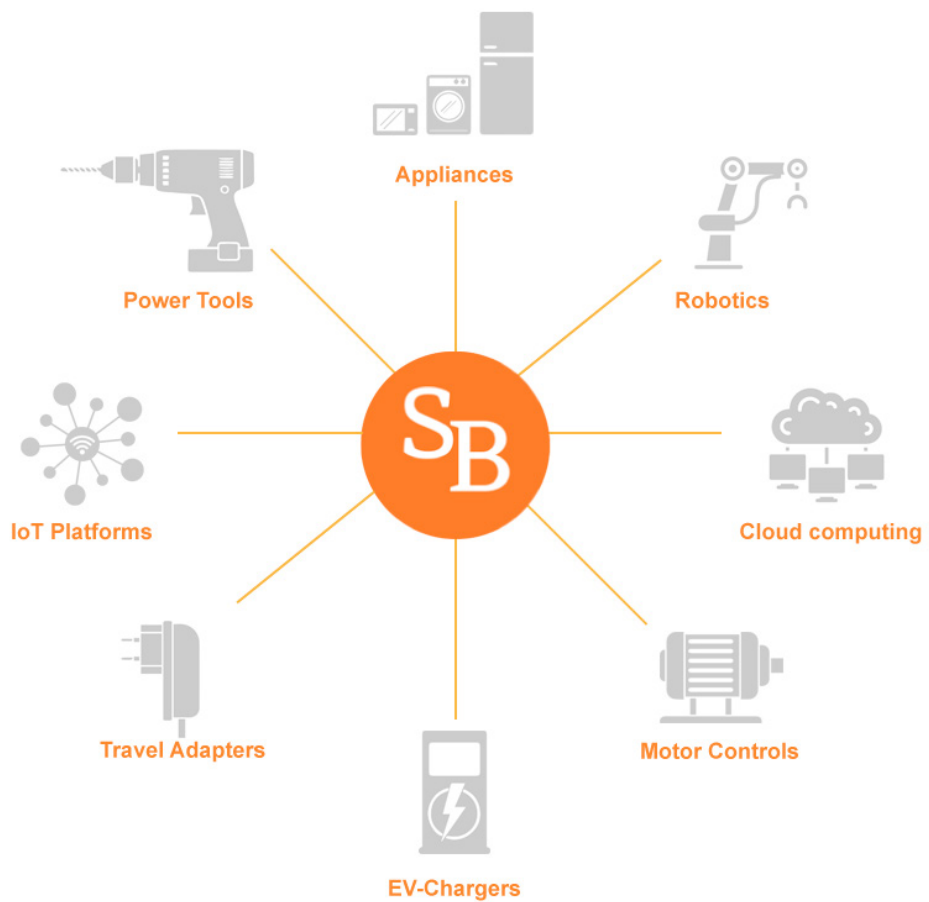
### Did you Know ?

One issue that can seriously affect an end-product reliability is AC line voltage surges, or longer-term line voltage swells. Surges are normal shorter duration kilovolt type high voltage spikes, in the order of microseconds. Voltage swells are normally hundreds of volts and can range in duration from milliseconds, to continuous.

Varistors are often used to protect electronic circuits against short duration line voltage surges because they can absorb large amounts of current for a short time. However, the internal damage created by pulse energy absorption in a varistor is cumulative, and each pulse that a varistor absorbs, can shorten its life. Generally, the more energy a varistor absorbs, the shorter its life becomes.



## SBT3000 Applications



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