Best Solution

About Best Solution

Best Solution Technology Inc. was established in 2008, located in Nankang Software Park, Taipei. It is an IC solution company invested by Holtek Semiconductor, a leading professional IC design house in Taiwan. Since its establishment, Best Solution has been focusing on the research and development of touch switch solutions and has accumulated many years of professional technology. It is able to provide customers with low-cost and efficient touch control solutions and help customers solve application problems in a short time. In order to serve more customers, the company has set up technical service locations in Taiwan and Dongguan.

In view of the increasingly widespread use of touch switch applications, Best Solution Technology Inc. products not only include a high level of functional integration, but also have an excellent array of agents and solution companies to provide customers with a huge selection of highly competitive touch switch solutions. These devices are applicable for using in a wide application area such as for communication, household appliances, kitchen appliances, smart buildings, consumer products, computer peripheral products and other professional fields.

In order to implement its business philosophy, Best Solution will continue to develop new products according to the market demand to meet the needs of constant innovation and change in many application areas. Best Solution’s goal is to provide customers with more complete and functional solutions.

Product Introduction

Best Solution provides numerous touch products for a wide range of applications. Users should select the right model according to different application needs to achieve maximum efficiency and benefit. The products are mainly divided into two main types. With the following introduction, users will have a preliminary understanding of **Product Type**, **Model Classification** and **Application Area**, then can use the **Selection Table** to quickly and accurately find suitable products.

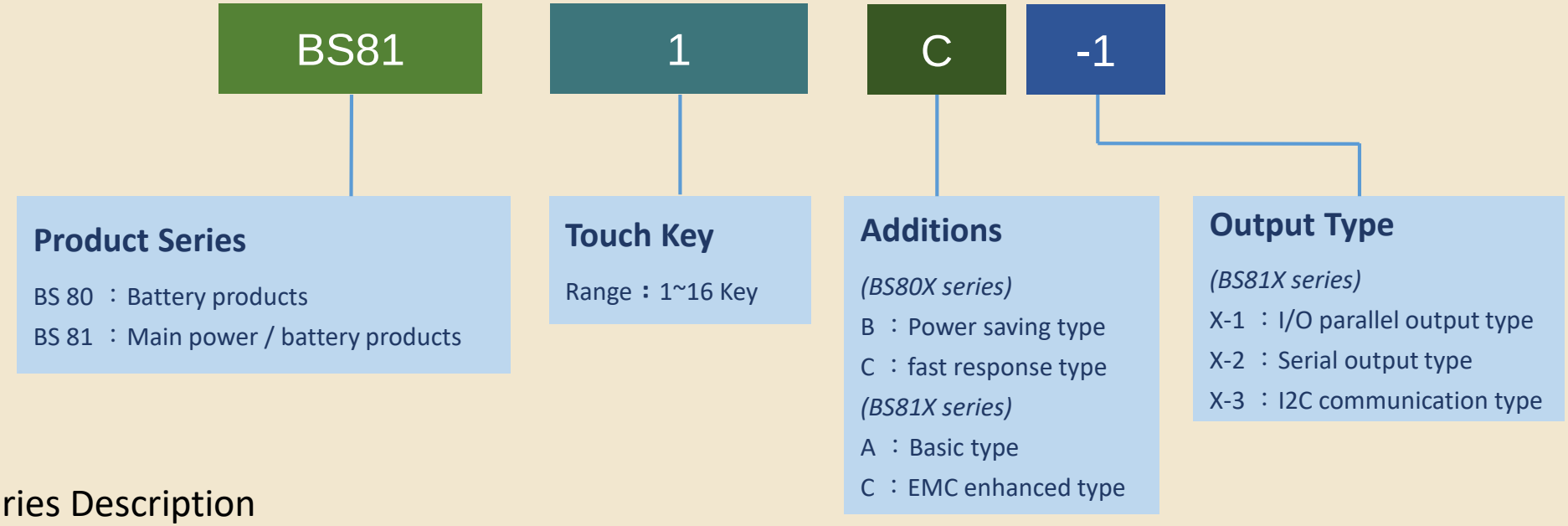
Product Type ：

1. Touch Key IC (Standards)
   - No program development requirement, easy to use.
   - Sensitivity can be adjusted using external capacitor or communication interface.
2. Touch Flash MCU (MCU)
   - With program development requirement, more flexibility and diversity in applications.
   - Sensitivity can be adjusted by the program without requiring external capacitor.
   - Divided into **Standard Type**, **Enhanced Type** and **ASSP Type** according to different application areas.

Product Introduction

Model Classification – Standards

- Coding Explanation



- Series Description

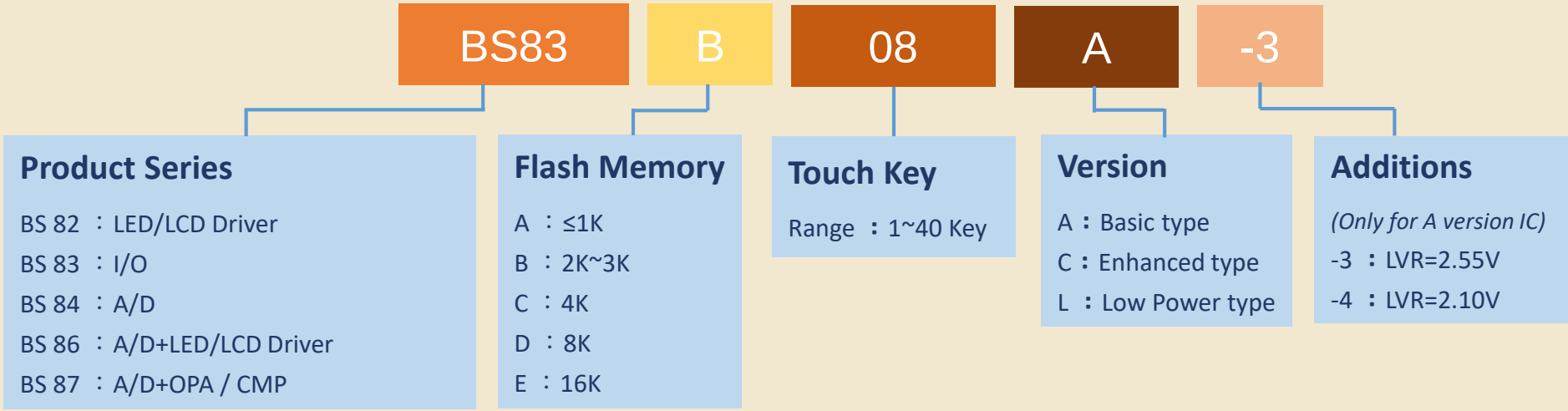
  - BS80X Series
    - Only used for battery powered products
    - Direct output to communicate with the host

  - BS81X Series
    - Used for both mains power and battery powered products
    - Enhanced EMC interference resistance
    - Supports three output modes to communicate with the host

Product Introduction

Model Classification – Standard MCU

- Coding Explanation



- Series Description

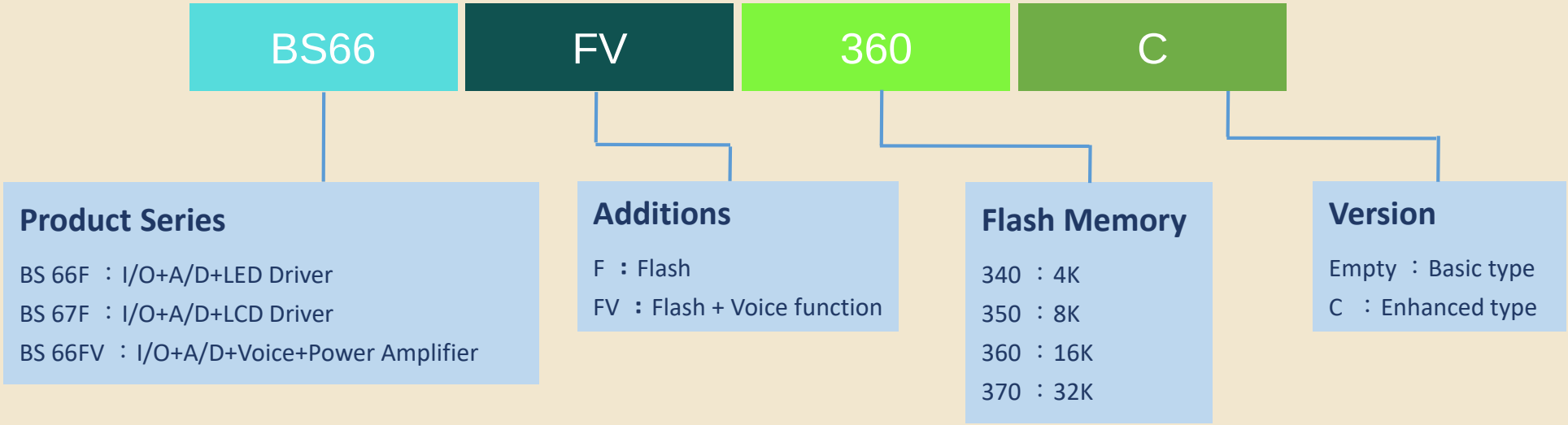
  - Functional Type
    - I/O
    - A/D
    - LED/LCD Driver
    - OPA/Comparator
    - HVIO (High Voltage Driving)

  - Selection Guide
    - Digital signal detect and control - BS83 Series Basic Type、BS83 Series Enhanced Type、BS83 Series Low Power Type
    - Analog signal reading - BS84 Series
    - LED/LCD control - BS82 Series、BS86 Series Basic type、BS86 Series Enhanced type
    - OPA/Comparator - BS87 Series
    - High Voltage Driving - BS86DH12C

Product Introduction

Model Classification – Enhanced MCU

- Coding Explanation

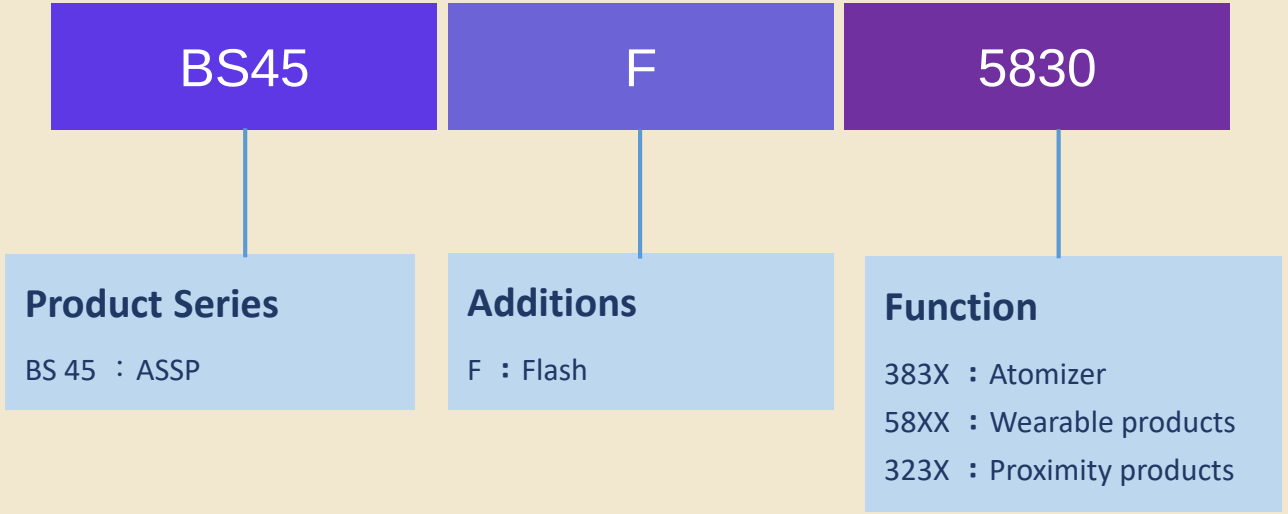


- Series Description

  - Product Difference
    - Enhanced I/O & A/D based on standard MCU
    - Larger memory capacity
    - Diversified Timer/PWM options
  - Functional Type
    - I/O
    - A/D
    - LED/LCD Driver
    - Power Amplifier
  - Selection Guide
    - LED control - BS66F Series
    - LCD control - BS67F Series
    - Voice control - BS66FV Series

Model Classification – ASSP MCU

- Coding Explanation



- Series Description
  - Product Difference
    - ASSP products include portable products, atomizers and proximity applications.
  - Selection Guide
    - Atomizer applications - BS45F383X
    - Wearable applications - BS45F58XX
    - Proximity applications - BS45F323X

Product Advantages

- Excellent anti-interference ability : excellent anti-interference ability for surrounding environment and EMC interference.
- Ultra-low power consumption : provides ultra-low power consumption products with a standby current as low as 120nA, suitable for portable devices.
- Small size package : provides products in DFN and QFN small package types, suitable for small volume size applications.
- Reduced external component requirement : high level of functional integration, reduced external component requirement and production cost.
- Easy for development : more simplified development when combined with software packages, easy to start.

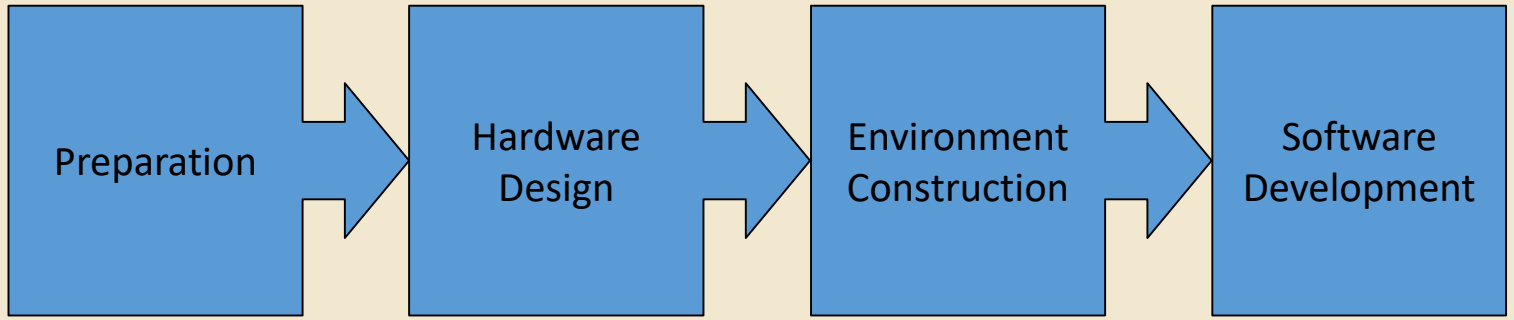
Product Introduction

Application Area

Product Development

To make users more familiar with the development of touch control products, four operating steps including the Preparation before development, Hardware Design emphasis, Environment Construction and Software Development will be described in the following, so that users could quickly establish the basic concept of touch control products.

Operating Steps



Preparation

It is necessary to have effective tools to do good work. Before product development, ensure that the required development tools are obtained to build a complete development environment. These tools include hardware tools, development software and programming software. Refer to the following lists :

Obtain Hardware Tools

- E-Link B：Emulation and testing tool
- BS-eBridge：Signal capture tool
- E-Writer Pro：Programming tool

Install Development Software

- HT-IDE3000： Program development platform
- HXT-Editor： Signal monitoring platform
- HOPE3000： Programming platform

Select Touch Product and Software

- Select a proper Product Model and the corresponding emulation IC according to the product application
- Select a matched Software Package according to the product model

Hardware Design

To successfully develop stable touch functions, Hardware Design is an important target. Wrong designs should be avoided to prevent repeated modification from affecting product stability. In order to design a good touch hardware from the start, pay attention to the key items listed below.

- Circuit Design
  - Stabilize power supply
  - Touch pins not pin-shared
  - Reserve space for adjustment capacitor
- PCB/Layout Design
  - Touch routing should avoid interference source
  - Avoid parallelism for the same touch IPs
  - Sensor pad should be designed as needed
- Panel Material
  - Non-metallic material, acrylic and glass are recommended
  - Select a proper thickness according to applications, the thinner the better the sensitivity
- Panel Installation
  - The panel needs to be attached closely to the PCB
  - If the panel cannot be directly attached to the PCB, use springs for extension

Environment Construction

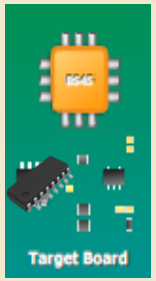
Touch product development environment includes two platforms, which are the program development platform – HT-IDE3000 and the signal monitoring platform – HXT-Editor. The HT-IDE3000 is used to develop program functions. The HXT-Editor is used to monitor touch signals and the results of emulation sensitivity and parameter adjustment, so as to judge the signal stability and functional validity.

- Program Development Platform HT-IDE3000
- Signal Monitoring Platform

HXT-Editor

E-Link B

BS-eBridge



Development/Test Board

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Emulation EV Chip

Product Development

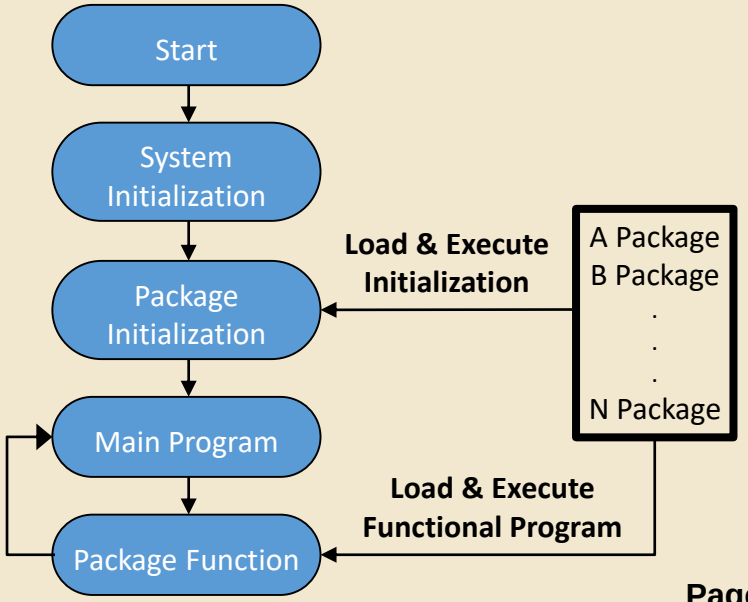
Software Development

Regarding the software development of touch functions, Best Solution provides complete Software Package and User Manual to assist users to develop products independently, so as to reduce the difficulty and time of touch product development. Software packages are set up by modular architecture, which makes it convenient for users to expand other functions and more flexible .

Software Package Features

- Lower threshold and reduced time of touch function development
- Modular architecture, convenient to update and maintain
- Allows users to perform functional expansion
- Functional parameterization produces different functions by parameter adjustment
- General software packages are provided for users to choose
  - LED driving function
  - I^2C/UART communication function
  - EEPROM R/W function
  - Timer function

Software Package Running Process



Technical Support

Best Solution would assist customers in a friendly and efficient way to develop touch products. We have service locations in Taiwan and mainland China. Users can contact the original engineers through agents and official website to obtain required technical support.

- Library Download
- Documentation
- FAQ

Technical Support

Locations / Technical Windows

- Taiwan
  - Company address : 4F-2, No. 3-2, YuanQu St., Nankang Software Park, Taipei 115, Taiwan
    (Block H, Nankang Software Park / Best Solution Technology Inc.)
  - Tel：02-2655-8797
  - Fax：02-2655-8796
  - Web：http://www.bestsolution.com.tw/EN/index.aspx
  - Email：bsi@bestsolution.com.tw
- Mainland China
  - Company address : 407/408 Room Building No.9, Xinzhu Court, 4 Xinzhu Road, Songshan Lake, Dongguan, China
    (Best Solution(Dongguan) Inc.)
  - Tel：86-769-8923-0099

Appendix

Product Sales Information

- Sales General Situation
- Product Application Statistics
- Examples

Application Document Links

- Product Design Guide
- Product Test Document
- Software Package Application Document

EMC Document Links

- EMC Interference Countermeasure Document
- EMC Inspection Certificate

END