

## Features :

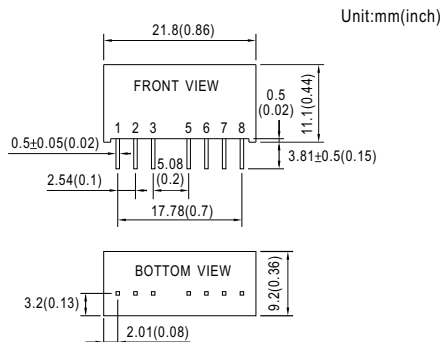
- 2:1 wide input range
- 1000VDC I/O isolation
- Built-in remote ON/OFF control
- Built-in EMI filter
- Protections: Short circuit / Overload
- Cooling by free air convection
- Single in line package
- 100% full load burn-in test
- Low cost / High reliability
- Modified models available: output 3.3V/9V
- 2 years warranty



## SPECIFICATION

| ORDER NO.               |                                             | SPB03E-05                                                                                                                        | SPB03A-05                                        | SPB03B-05 | SPB03C-05 | SPB03E-12 | SPB03A-12  | SPB03B-12 | SPB03C-12 | SPB03E-15 | SPB03A-15  | SPB03B-15 | SPB03C-15 |  |  |
|-------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|------------|-----------|-----------|--|--|
| OUTPUT                  | DC VOLTAGE                                  | 5V                                                                                                                               |                                                  |           |           |           | 12V        |           |           |           | 15V        |           |           |  |  |
|                         | CURRENT RANGE                               | 60 ~ 600mA                                                                                                                       |                                                  |           |           |           | 25 ~ 250mA |           |           |           | 20 ~ 200mA |           |           |  |  |
|                         | RATED POWER                                 | 3W                                                                                                                               |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | RIPPLE & NOISE (max.) <small>Note.2</small> | 50mVp-p                                                                                                                          |                                                  |           |           |           | 60mVp-p    |           |           |           | 60mVp-p    |           |           |  |  |
|                         | LINE REGULATION <small>Note.3</small>       | ±0.5%                                                                                                                            |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | LOAD REGULATION <small>Note.4</small>       | ±0.5%                                                                                                                            |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | VOLTAGE ACCURACY                            | ±2.0%                                                                                                                            |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | SWITCHING FREQUENCY                         | 100KHz min.                                                                                                                      |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
| INPUT                   | VOLTAGE RANGE                               | E: 4.5 ~ 9VDC   A: 9 ~ 18VDC   B: 18 ~ 36VDC   C: 36 ~ 72VDC                                                                     |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | EFFICIENCY (Typ.)                           | 74%                                                                                                                              | 73%                                              | 77%       | 78%       | 76%       | 80%        | 80%       | 79%       | 75%       | 80%        | 80%       | 82%       |  |  |
|                         | DC CURRENT                                  | Full load                                                                                                                        | E: 810mA                                         | A: 340mA  | B: 165mA  | C: 85mA   |            |           |           |           |            |           |           |  |  |
|                         |                                             | No load                                                                                                                          | E: 110mA                                         | A: 40mA   | B: 20mA   | C: 10mA   |            |           |           |           |            |           |           |  |  |
|                         | FILTER                                      | Pi network                                                                                                                       |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | PROTECTION                                  | Fuse recommended                                                                                                                 |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
| PROTECTION<br>(Note. 5) | OVERLOAD                                    | 150 ~ 250% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed          |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | SHORT CIRCUIT                               | All output equipped with short circuit<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | ENVIRONMENT                                 | WORKING TEMP.                                                                                                                    | -40 ~ +85℃ (Refer to output load derating curve) |           |           |           |            |           |           |           |            |           |           |  |  |
|                         |                                             | WORKING HUMIDITY                                                                                                                 | 20% ~ 90% RH non-condensing                      |           |           |           |            |           |           |           |            |           |           |  |  |
| STORAGE TEMP., HUMIDITY |                                             | -25 ~ +105℃, 10 ~ 95% RH                                                                                                         |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
| TEMP. COEFFICIENT       |                                             | ±0.05% / ℃ (0 ~ 50℃)                                                                                                             |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
| VIBRATION               |                                             | 10 ~ 500Hz, 2G 10min./1 cycle, period for 60min. each along X, Y, Z axes                                                         |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
| SAFETY                  | WITHSTAND VOLTAGE                           | I/P-O/P:1KVDC                                                                                                                    |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | ISOLATION RESISTANCE                        | I/P-O/P: 100M Ohms / 500VDC / 25℃/ 70% RH                                                                                        |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | ISOLATION CAPACITANCE                       | 80pF max.                                                                                                                        |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | EMI CONDUCTION & RADIATION                  | Compliance to EN55022 Class B, FCC part 15 Class B                                                                               |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | EMS IMMUNITY                                | Compliance to EN61000-4-2,3,4,5,6,8 light industry level, criteria A                                                             |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
| OTHERS                  | REMOTE CONTROL                              | Power ON : R.C. ~ +Vin < 1VDC or open ; Power OFF : R.C. ~ +Vin > 4VDC or short                                                  |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | MTBF                                        | 600Khrs min. MIL-HDBK-217F(25℃)                                                                                                  |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | DIMENSION                                   | 21.8*9.2*11.1mm or 0.86**0.36**0.44" inch (L*W*H)                                                                                |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |
|                         | WEIGHT                                      | 4.8g                                                                                                                             |                                                  |           |           |           |            |           |           |           |            |           |           |  |  |

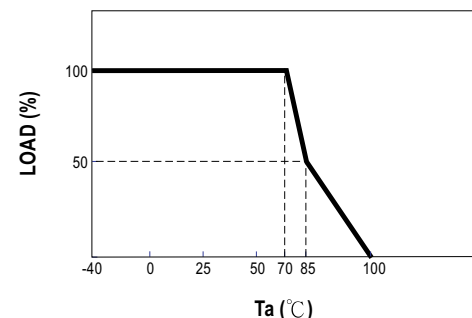
## Mechanical Specification



## Pin Configuration

| Pin No. | Output |
|---------|--------|
| 1       | -Vin   |
| 2       | +Vin   |
| 3       | R.C.   |
| 5       | N.C.   |
| 6       | +Vout  |
| 7       | -Vout  |
| 8       | N.C.   |

## Derating Curve



## NOTE

- 1.All parameters are specified at normal input, rated load, 25°C 70% RH ambient.
- 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf & 47uf capacitor.
- 3.Line regulation is measured from low line to high line at rated load.
- 4.Load regulation is measured from 10% to 100% rated load.
- 5.Please prevent the converter from operating in overload or short circuit condition for more than 30 seconds.