

# Low Voltage Variable Output LDO Regulator

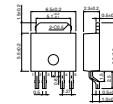
## BA00BC0WFP/WT

### ● Description

BA00BC0WFP/WT is a PNP output LDO regulator IC with the output current of 1A and a voltage accuracy of  $\pm 2\%$ . Output voltage can be set (1.5V to 12V) by external resistor. Over-current protection circuit and thermal protection circuit are incorporated to prevent IC from being damaged by short and thermal break down.

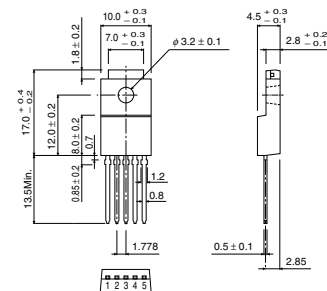
●Dimension (Units : mm)

BA00BC0WFP



**TO252-5**

BA00BC0WT



**TO220FP-5**

## ● Features

- 1) Maximum output current : 1A
- 2) Output voltage setting by external resistor
- 3) Low drop-out voltage(1.5V to 12V) type with PNP output
- 4) Built-in over-current protection circuit to prevent IC from being damaged by short
- 5) Built-in thermal protection circuit for protecting thermal break down
- 6) Built-in ON/OFF switch to realize the shutdown current 0uA
- 7) TO252-5, TO220FP-5 package
- 8) C pin output voltage accuracy :  $\pm 2\%$

## ● Applications

Printer, TV, DVD and Storage etc.

## ● Absolute Maximum Ratings (Ta=25°C)

| Parameter                   | Symbol            | Limits                                                         | Unit |
|-----------------------------|-------------------|----------------------------------------------------------------|------|
| Supply voltage              | V <sub>CC</sub>   | 18 <sup>*1</sup>                                               | V    |
| Power dissipation           | P <sub>d</sub>    | 1300 <sup>*2</sup> (TO252-5)    2000 <sup>*3</sup> (TO220FP-5) | mW   |
| Operating temperature range | T <sub>opr</sub>  | -40 ~ +105                                                     | °C   |
| Storage temperature range   | T <sub>stg</sub>  | -55 ~ +150                                                     | °C   |
| Junction temperature        | T <sub>jmax</sub> | 150                                                            | °C   |

\*1 Do not however exceed P<sub>d</sub>.

\*2 Mounted on 70mm x 70mm x 1.6mm glass-epoxy PCB Derating in done at 10.4mW/°C for operating above Ta=25°C

\*3 Derating in done at 16mW/°C for operating above Ta=25°C

## ● Recommended Operating Conditions (Ta=25°C)

| Parameter                    | Symbol           | Min. | Typ. | Max. | Unit |
|------------------------------|------------------|------|------|------|------|
| Input voltage                | V <sub>CC</sub>  | 3.0  | –    | 16.0 | V    |
| Output current <sup>*4</sup> | I <sub>o</sub>   | –    | –    | 1    | A    |
| Output voltage               | V <sub>OUT</sub> | 1.5  | –    | 12.0 | V    |

\*4 Do not however, V<sub>CC</sub> ≥ 3.3V

## ● Electrical Characteristics (Unless otherwise specified, Ta=25°C, V<sub>CC</sub>=3.3V, I<sub>o</sub>=200mA, R<sub>1</sub>=30kΩ, R<sub>2</sub>=30kΩ)

| Parameter                                              | Symbol           | Min.  | Typ.   | Max.  | Unit   | Conditions                                              |
|--------------------------------------------------------|------------------|-------|--------|-------|--------|---------------------------------------------------------|
| Shut down current                                      | I <sub>SD</sub>  | –     | 0      | 10    | μA     | V <sub>ctl</sub> =0V                                    |
| V <sub>c</sub> pin voltage                             | V <sub>c</sub>   | 1.225 | 1.250  | 1.275 | V      | I <sub>o</sub> =50mA                                    |
| Output voltage                                         | V <sub>o</sub>   | –     | 2.50   | –     | V      | I <sub>o</sub> =200mA                                   |
| Dropout voltage                                        | ΔV <sub>d</sub>  | –     | 0.3    | 0.5   | V      | V <sub>CC</sub> =3.0V                                   |
| Peak output current                                    | I <sub>o</sub>   | 1.0   | –      | –     | A      |                                                         |
| Ripple rejection                                       | R.R.             | 44    | 55     | –     | dB     | f=120Hz, e <sub>in</sub> =–20dBV, I <sub>o</sub> =100mA |
| Line regulation                                        | Reg.I            | –     | 15     | 30    | mV     | V <sub>CC</sub> =4.5V → 16V                             |
| Load regulation                                        | Reg.L            | –     | 35     | 75    | mV     | I <sub>o</sub> =0mA → 1A                                |
| Temperature coefficient of output voltage <sup>*</sup> | T <sub>cvo</sub> | –     | ±0.015 | –     | % / °C | I <sub>o</sub> =5mA, T <sub>j</sub> =0~125°C            |
| Bias current                                           | I <sub>b</sub>   | –     | 0.5    | 0.9   | mA     | I <sub>o</sub> =0mA                                     |
| Short circuit output current                           | I <sub>os</sub>  | –     | 0.4    | –     | A      | V <sub>CC</sub> =16V                                    |
| Stand-by ON level                                      | V <sub>th1</sub> | 2.0   | –      | 16    | V      | ACTIVE MODE, I <sub>o</sub> =0mA                        |
| Stand-by OFF level                                     | V <sub>th2</sub> | –     | –      | 0.8   | V      | OFF MODE, I <sub>o</sub> =0mA                           |
| Input high current                                     | I <sub>in</sub>  | 40    | 80     | 130   | μA     | V <sub>ctl</sub> =3V, I <sub>o</sub> =0mA               |

• This product is not designed for protection against radioactive rays.

\* Designed Guarantee.(Outgoing inspection is not done all products.)

Measurement is done at Ta=T<sub>j</sub>, and variations in the parameter of all measurement(except Temperature Coefficient of Output Voltage)caused by temperature change are not considered.

## ● Application Circuit

