

## 2-output LDO series regulator BA33C25FP/HFP

### ● Description

BA33C25FP/HFP is a 2-output LDO series regulator IC. Output current is 1A at maximum and output voltage accuracy is +/-2%. This IC incorporates over-current protection and thermal protection circuits.

### ● Features

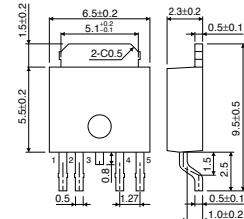
- 1) 3.3V/1A, 2.5V/1A
- 2) Output voltage accuracy: +/-2%
- 3) PNP output and LDO voltage type
- 4) Built-in output current limit circuit protects the IC from destruction by short
- 5) Built-in temperature protection circuit protects the IC from thermal destruction by overload state
- 6) TO252-5 package, HRP-5 package

### ● Applications

DVD-ROM, DVD-RW, HDD

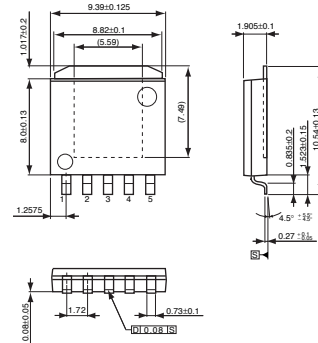
### ● Dimension (Unit : mm)

#### BA33C25FP



TO252-5

#### BA33C25HFP



HRP-5

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

Parameter	Symbol	Limits	Unit
Applied voltage	V <sub>CC</sub>	18	V
Power dissipation	P <sub>d</sub>	2300 <sup>*1</sup>	mW
Operating temperature range	T <sub>opr</sub>	-40 ~ +105	°C
Storage temperature range	T <sub>stg</sub>	-55 ~ +150	°C

\*1 Derating : 18.4mW/°C for operation above Ta ≥ 25°C  
PCB (70mmx70mm, t=1.6mm) glass epoxy mounting. (Thermal via on the board.)  
(Board surface copper foil area: 10.5mmX10.5mm)  
(2 layer board (Back copper foil area: 15mmX15mm))

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Input supply voltage	V <sub>CC</sub>	4.1	-	16.0	V
3.3V output current	I <sub>o1</sub>	-	-	1	A
2.5V output voltage	I <sub>o2</sub>	-	-	1	A

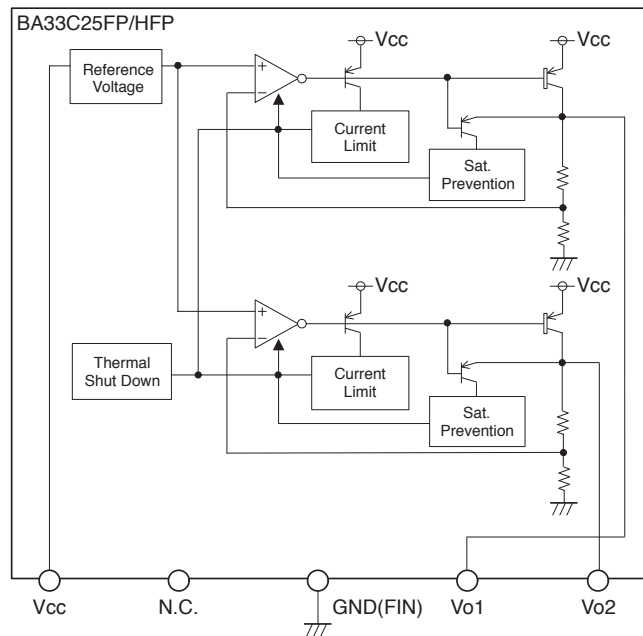
● Electrical characteristics (Unless otherwise noted; Ta=25°C, Vcc=5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Bias current	I <sub>b</sub>	–	0.8	1.5	mA	I <sub>o1</sub> =0mA, I <sub>o2</sub> =0mA
<3.3V output>						
Output voltage 1	V <sub>o1</sub>	3.234	3.3	3.366	V	I <sub>o1</sub> =500mA
Min. I/O voltage difference 1	ΔV <sub>d1</sub>	–	0.25□	0.50	V	I <sub>o1</sub> =500mA, V <sub>cc</sub> =3.135V
Output current capacity 1	I <sub>o1</sub>	1.0	–	–	A	
Ripple rejection 1	R.R. 1	50	58	–	dB	f=120Hz, e <sub>in</sub> =1Vrms, I <sub>o1</sub> =200mA
Input stability 1	Reg.I1	–	5	30	mV	V <sub>cc</sub> =4.1 → 16V, I <sub>o1</sub> =500mA
Load stability 1	Reg.L1	–	30	75	mV	I <sub>o1</sub> =0mA → 1A
Output voltage temperature coefficient 1 *2	T <sub>cv01</sub>	–	±0.01	–	% / °C	I <sub>o1</sub> =5mA, T <sub>j</sub> =0~125°C
Output short current 1	I <sub>os1</sub>	–	300	–	mA	V <sub>cc</sub> =16V
<2.5V output>						
Output voltage 2	V <sub>o2</sub>	2.450	2.5	2.550	V	I <sub>o2</sub> =500mA
Output current capacity 2	I <sub>o2</sub>	1.0	–	–	A	
Ripple rejection 2	R.R. 2	50	58	–	dB	f=120Hz, e <sub>in</sub> =1Vrms, I <sub>o2</sub> =200mA
Input stability 2	Reg.I2	–	5	30	mV	V <sub>cc</sub> =4.1 → 16V, I <sub>o2</sub> =500mA
Load stability 2	Reg.L2	–	30	75	mV	I <sub>o2</sub> =0mA → 1A
Output voltage temperature coefficient 2 *2	T <sub>cv02</sub>	–	±0.01	–	% / °C	I <sub>o1</sub> =5mA, T <sub>j</sub> =0~125°C
Output short current 2	I <sub>os2</sub>	–	270	–	mA	V <sub>cc</sub> =16V

\*This product is not designed for protection against radioactive rays.

\*2 Design guaranteed (All total inspection is not performed.)

● Block Diagram



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