

# DDR-SDRAM Termination Regulator BD3531F

## ●Description

BD3531F is a regulator developed as termination power supply of standard DDR-SDRAM that is used for PC.

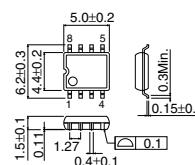
Industry's highest speed of transient response characteristic is realized. The built-in FET can sink and source load current of 1.5A(max.)

Waveform quality when data is transferred at high speed can't be deteriorated.

BD3531F meets the bus line standards SSTL-2 of DDR-SDRAM.

High-reliability can be realized for any applications using DDR-SDRAM.

## ●Dimension (Unit : mm)



## SOP8

## ●Features

- 1) Built-in push-pull regulator for termination(VTT)
- 2) Built-in reference voltage circuit(VREF)
- 3) Built-in enable function
- 4) Built-in under voltage lock out circuit
- 5) Package SOP8
- 6) Built-in thermal shut down circuit

## ●Applications

Note personal computer, Desktop personal computer

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

Parameter	Symbol	Limits	Unit
Input voltage	VCC	7 *1	V
Termination input voltage	VTT_IN	7 *1	V
VDDQ reference voltage	VDDQ	7 *1	V
Power dissipation 1	Pd1	560 *2	mW
Power dissipation 2	Pd2	690 *3	mW
Operating temperature range	Topr	-10 ~ +100	°C
Storage temperature range	Tstg	-55 ~ +150	°C

\* 1 Should not exceed Pd.

\* 2 Reduced by 4.48mW for each increase in Ta of 1°C over 25°C(With no heat sink).

\* 3 Reduced by 5.52mW for each increase in Ta of 1°C over 25°C(PCB(70mm×70mm×1.6mm)glass epoxy mounting.)

● Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Input voltage	VCC	4.5	—	5.5	V
Termination input voltage	VTT_IN	1.7	—	2.6	V

\*This product is designed for protection against radioactive rays.

● Electrical characteristics (Unless otherwise noted, Ta=25°C, VCC=5V, VEN=3V, VDDQ=2.5V, VTT\_IN=2.5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Standby current	IST	—	0.8	1.6	mA	VEN=0V
Bias current	ICC	—	2	4	mA	
<Termination>						
Termination voltage	VTT	VREF-30mV	VREF	VREF+30mV	V	I <sub>o</sub> =-3A to 3A, Ta=0°C to 100°C *
Source current	ITT+	1.5	—	—	A	
Sink current	ITT-	—	—	-1.5	A	
Upper side ON resistance	HRON	—	0.4	0.8	Ω	
Lower side ON resistance	LRON	—	0.4	0.8	Ω	
<Reference voltage>						
Output voltage	VREF	1/2 × VDDQ-50mV	1/2 × VDDQ	1/2 × VDDQ+50mV	V	IREF=-10mA to 10mA Ta=0°C to 100°C *
Source current	IREF+	10	20	—	mA	
Sink current	IREF-	—	-20	-10	mA	
<UVLO>						
UVLO OFF voltage	VUVLO	4.2	4.35	4.5	V	VCC : Sweep up
Hysteresis voltage	Δ VUVLO	100	160	220	mV	VCC : Sweep down

\* Design Guarantee

● Application Circuit

