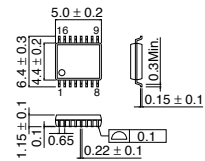


# Shock Sensor Signal Processing IC BD3893FV

## ● Description

The BD3893FV is a shock sensor signal processing IC for HDD, CD/DVD drive that detects a shock by signal from sensor by connecting an external shock sensor. It is available for shock sensors of voltage sensitivity type and electric charge sensitivity type. This IC incorporates high-resistance (50M $\Omega$ ) to compose a charge amplifier.

## ● Dimension (Unit : mm)



## ● Features

- 1) Available for shock sensor of voltage sensitivity type and electric charge sensitivity type
- 2) Built-in 50M $\Omega$  of resistance for pre-amplifier
- 3) Available for applications of flag detection type and analog signal output type
- 4) Built-in secondary LPF
- 5) Cut-off frequency of LPF can be changed to 2k, 4k, 8k and 12k
- 6) Internal reference voltage selectable  
(Resistance split voltage, band gap voltage)

**SSOP-B16**

## ● Applications

HDD, CD, DVD drive

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

Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>DD</sub>	-0.3 ~ +6.0	V
Terminal voltage	V <sub>IN</sub>	-0.3 ~ V <sub>DD</sub> +0.3	V
Storage temperature range	T <sub>stg</sub>	-55 ~ +125	°C
Power dissipation	P <sub>d</sub>	400 *	mW
Operating temperature range	T <sub>opr</sub>	-25 ~ +75	°C

\*Derating : 4.0mW/°C for operation above Ta=25°C

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

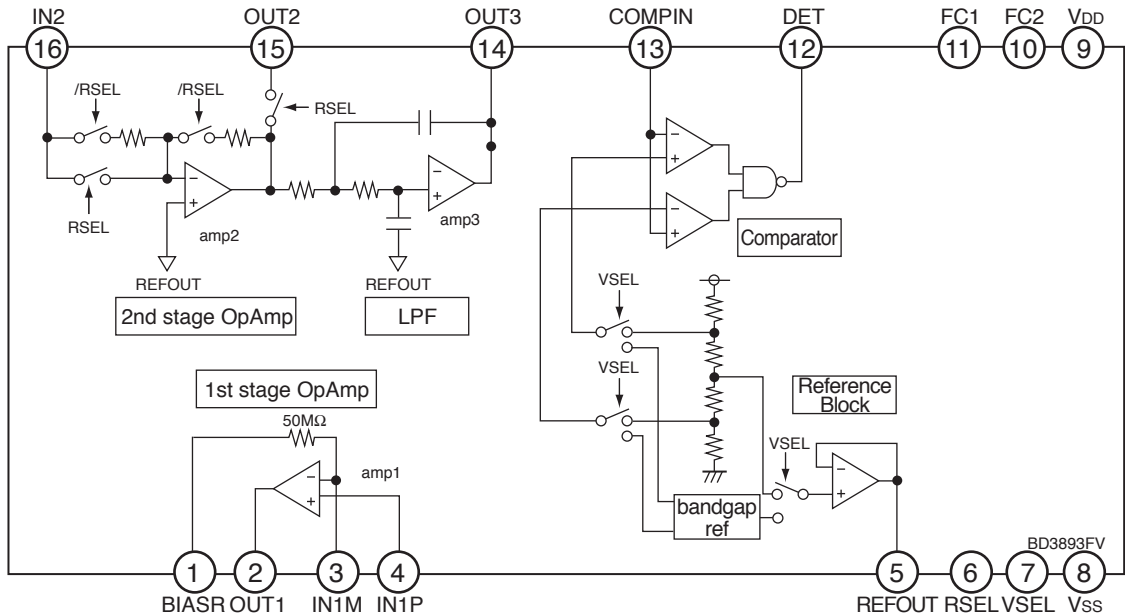
## ● Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V <sub>DD</sub>	3.0	-	5.5	V

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Current consumption	IDD	–	2	4	mA	
<Reference voltage>						
Reference voltage 1	VREF1	2.42	2.5	2.58	V	VDD=5V, VSEL=Low
Reference voltage 2	VREF2	1.59	1.65	1.71	V	VDD=3.3V, VSEL=Low
Reference voltage 3	VREF3	1.12	1.2	1.28	V	VDD=3.3V, VSEL=High
<Pre-Op. Amp.>						
Internal resistor	RBIAS	30	50	–	MΩ	
<2nd step Op. Amp.>						
Gain	Gv	28	30	32	dB	RSEL=Low
<Low pass filter>						
Cut-off frequency 1	FCLP1	1	2	3.6	kHz	FC1=Low, FC2=Low, –3dB
Cut-off frequency 2	FCLP2	2	4	7.2	kHz	FC1=Low, FC2=High, –3dB
Cut-off frequency 3	FCLP3	4	8	14.4	kHz	FC1=High, FC2=Low, –3dB
Cut-off frequency 4	FCLP4	6	12	21.6	kHz	FC1=High, FC2=High, –3dB
<Window comparator>						
Trip voltage 1	VTRIP1H	2.9	3	3.1	V	VDD=5V, VSEL=Low
	VTRIP1L	1.91	2	2.09	V	
Trip voltage 2	VTRIP2H	1.9	1.98	2.06	V	VDD=3.3V, VSEL=Low
	VTRIP2L	1.24	1.32	1.4	V	
Trip voltage 3	VTRIP3H	1.38	1.5	1.62	V	VDD=3.3V, VSEL=High
	VTRIP3L	0.8	0.9	1.0	V	

● Block Diagram



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