Panasonic

DN8796MS

3 V operation Hall IC Alternating magnetic field operation

Overview

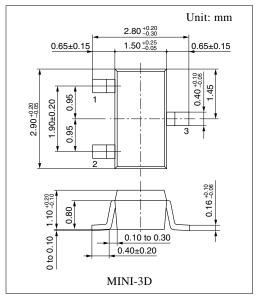
The DN8796MS is a 3 V operation Hall IC which includes a Hall element, amplifier circuit, Schmidt circuit, stabilized power supply and temperature compensation circuit which are integrated on a single chip with a fine patterning technology. The magnetic input signal is outputted by being converted to high or low. We have improved the conventional circuit to realize a stable operation covering from low to high supply voltage and from low to high temperature.

■ Features

- Wide operating supply voltage range (V_{CC} = 2.7 V to 14.4 V)
- Wide operating ambient temperature (-40°C to +85°C)
- Package: Mini type (3-pin type)(1.1 mm thick: Same as a standard transistor)
- Eqipped with an output pull-up resistor (typical 56 k Ω)

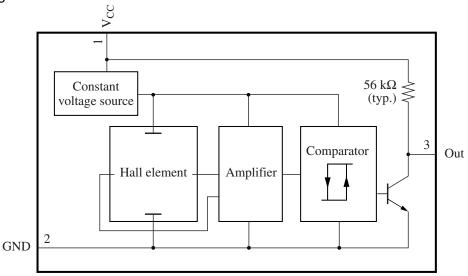
Applications

DC brushless motor, fan motor, rotation sensor, detection of cover open/close (example for a cellular phone), position sensor



Note) The package of this product will be changed to lead-free type (MINI-3DA). See the new package dimensions section later of this datasheet.

■ Block Diagram



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■ Pin Descriptions

Pin No.	Symbol	Description		
1	Out	Output pin		
2	V _{CC}	Supply voltage pin		
3	GND	Ground pin		

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit	
Supply voltage	V _{CC}	18	V	
	V _{OUT}	18		
Supply current	I _{CC}	_	mA	
Power dissipation	P _D	120	mW	
Operating ambient temperature	T _{opr}	-40 to +85	°C	
Storage temperature	T_{stg}	-55 to +125	°C	

Note) 1. Except for the operating ambient temperature and storage temperature, all ratings are for $T_a = 25$ °C.

- 2. The reverse insertion of this IC will cause its breakdown.
- 3. It will operate normally in several tens of ms after power on.
- 4. This IC is not suitable for car electrical equipment.

■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V _{CC}	2.7 to 14.4	V

■ Electrical Characteristics at $T_a = 25$ °C

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Operating magnetic flux density 1	B _{H-L}	$V_{CC} = 3 \text{ V}$	-18	_	_	mT
Operating magnetic flux density 2	B _{L-H}	$V_{CC} = 3 \text{ V}$	_		18	mT
Hysteresis width	BW	$V_{CC} = 3 \text{ V}$	4	8	12	mT
Output voltage 1	V _{OL1}	$V_{CC} = 14.4 \text{ V}, I_O = 5 \text{ mA}, B = -18 \text{ mT}$	_	0.07	0.30	V
Output voltage 2	V _{OL2}	$V_{CC} = 2.7 \text{ V}, I_O = 5 \text{ mA}, B = -18 \text{ mT}$		0.07	0.30	V
Output voltage 3	V _{OH1}	$V_{CC} = 14.4 \text{ V}, I_{O} = -20 \mu\text{A}, B = 18 \text{mT}$	12.8	13.3	13.8	V
Output voltage 4	V _{OH2}	$V_{CC} = 2.7 \text{ V}, I_{O} = -20 \mu\text{A}, B = 18 \text{ mT}$	1.05	1.55	2.05	V
Output short-circuited current	-I _{OS}	$V_{CC} = 14.4 \text{ V}, B = 18 \text{ mT}, V_{O} = 0 \text{ V}$	0.19	0.27	0.39	mA
Supply current 1	I _{CC1}	$V_{CC} = 14.4 \text{ V}, B = 18 \text{ mT}$	1.0	3.4	6.0	mA
Supply current 2	I _{CC2}	$V_{CC} = 2.7 \text{ V}, B = 18 \text{ mT}$	1.0	2.5	6.0	mA

Note) 1. Symbol $B_{H\text{-}L}$ stands for the operating magnetic flux density where its output level varies from high to low.

- 2. Symbol B_{L-H} stands for the operating magnetic flux density where its output level varies from low to high.
- 3. The variation of operating magnetic flux density does not depend on supply voltage due to its built-in stabilized power source. (V_{CC} should be confined to the range of 2.7 V to 14.4 V.)
- 4. A supply current changes by maximum 1 mA when its output level varies from high to low.

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