

# DC/DC converter for CD/DVD-ROM slim

## BH6559FV

BH6559FV is an IC that incorporates 1 channel variable DC/DC converter and reset function. Variable DC/DC converter can set high-precision voltage ( $\pm 2\%$  precision) by trimming reference voltage.

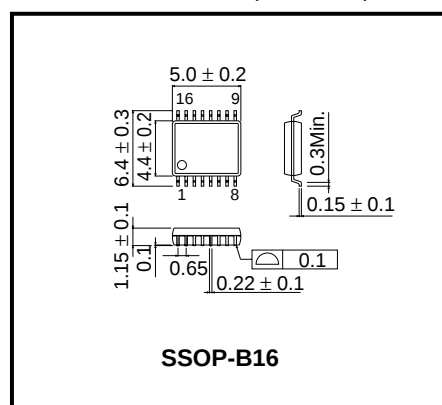
### ●Applications

CD/DVD-ROM slim

### ●Features

- 1) Low current consumption by adopting synchronous rectifier type.
- 2) Few external components reduced by the built-in power MOS transistor.
- 3) Adjustable by external resistor of DC/DC converter output.
- 4) Built-in reset for supply voltage and ATAPI (output pin is common).
- 5) Built-in delay time setting function for supply voltage reset.

### ●External dimensions (Units : mm)



### ●Absolute maximum ratings (Ta=25°C)

| Parameter                      | Symbol              | Limits      | Unit |
|--------------------------------|---------------------|-------------|------|
| Supply voltage 1 (PRE block)   | PREV <sub>CC1</sub> | 7           | V    |
| Supply voltage 2 (PRE block)   | PREV <sub>CC2</sub> | 7           | V    |
| Supply voltage (PRE block)     | POWV <sub>CC</sub>  | 7           | V    |
| Pin output current (DSW block) | Iswomax             | 1 *1        | A    |
| Power dissipation              | Pd                  | 0.56 *2     | W    |
| Operating temperature range    | Topr                | -30 to +85  | °C   |
| Storage temperature range      | Tstg                | -55 to +150 | °C   |

\*1 Intermittent current at maximum applied time of 5msec, 1/10 duty (Max.)

\*2 Derating : 4.5mW/°C for operation above Ta=25°C. On less than 3% (percentage occupied by copper foil), 70mm×70mm, t=1.6mm, glass epoxy mounting.

## Optical discs

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

| Parameter                                 | Symbol              | Min. | Typ. | Max.               | Unit |
|-------------------------------------------|---------------------|------|------|--------------------|------|
| Supply voltage 1 (PRE block)              | PREV <sub>CC1</sub> | 4.5  | 5.0  | 5.5                | V    |
| Supply voltage 2 (PRE block)              | PREV <sub>CC2</sub> | 4.5  | 5.0  | 5.5                | V    |
| Supply voltage (Pow block)                | POWV <sub>CC</sub>  | 4.5  | 5.0  | 5.5                | V    |
| Ambient temperature                       | Ta                  | -10  | 25   | 70                 | °C   |
| Vatiable DC/DC converter output current * | I <sub>o</sub>      | —    | 300  | 500                | mA   |
| Vatiable DC/DC converter output voltage   | V <sub>DD</sub>     | 1.7  | —    | V <sub>CC</sub> -1 | V    |

\* When L=47μH, C=47μF is used

●Electrical characteristics (Ta=25°C, PREV<sub>CC</sub>1/2=5V, POWV<sub>CC</sub>=5V)

| Parameter                        | Symbol          | Min.  | Typ. | Max.  | Unit | Conditions    |
|----------------------------------|-----------------|-------|------|-------|------|---------------|
| Current consumption at no signal | I <sub>CC</sub> | —     | 1.2  | 24    | mA   | No load       |
| < Variable DC/DC converter >     |                 |       |      |       |      |               |
| EI pin threshold voltage         | VEITH           | 0.980 | 1.00 | 1.020 | V    |               |
| DSW pin ON resistance H          | RDSWONH         | —     | 0.42 | 0.87  | Ω    | IL=500mA      |
| DSW pin ON resistance L          | RDSWONL         | —     | 0.30 | 0.60  | Ω    | IL=-500mA     |
| DSW pin oscollation frequency    | fDSW            | 210   | 310  | 410   | kHz  | OSC_R=22kΩ    |
| < Reset block >                  |                 |       |      |       |      |               |
| Vcc reset ON voltage             | VRSTON          | 3.52  | 3.70 | 3.88  | V    | sweep down    |
| Vcc reset hysteresis width       | VRSTHYS         | 50    | 80   | 110   | mV   |               |
| Vcc reset delay time             | VRSTT           | 30    | 50   | 70    | msec | RESET τ=0.1μF |
| ATAPI reset ON voltage           | VATPON          | 1.25  | 1.40 | 1.55  | V    | sweep down    |
| ATAPI reset hysteresis width     | VATPHYS         | 40    | 60   | 90    | mV   |               |

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

## ●Application Circuit

