

- Structure                      Silicon Monolithic Integrated Circuit
- Product series                7ch Power Driver for CD-ROM,DVD-ROM
- Type                            **BD7956FS**
- Function                        - The spindle driver and the SLED driver can highly effective drive with PWM drive system.  
                                       - The actuator driver and the loading driver are liner BTL drive system and are achieving a low noise power.

○Absolute maximum ratings

| Parameter                                    | Symbol   | Limits  | Unit |
|--|--|---------|------|
| POWER MOS power supply voltage               | SPVM1,2,<br>SLRNF1,2   | 15 #1   | V    |
| Preblock/BTL powerblock power supply voltage | V <sub>cc</sub> , SPVM_S,<br>SLV <sub>DD</sub> , AV <sub>M</sub> | 15      | V    |
| PWM control block power supply voltage       | DV <sub>cc</sub>   | 7       | V    |
| Power dissipation                            | P <sub>d</sub>   | 2.6 #2  | W    |
| Operating temperature range                  | T <sub>opr</sub>   | -20~75  | °C   |
| Storage temperature                          | T <sub>stg</sub>   | -55~150 | °C   |
| Joint part temperature                       | T <sub>jmax</sub>  | 150     | °C   |

#1 POWER MOS output terminals (11, 13, 16, 37~40pin) is contained.  
 #2 PCB (70mm×70mm×1.6mm,occupied copper foil is less than 25.7%,glass epoxy standard board) mounting.  
 Reduce power by 20.8mW for each degree above 25°C.

○Recommended operating conditions(T<sub>a</sub>=-20~+70°C)

(Set the power supply voltage taking allowable dissipation into considering)

| Parameter   | Symbol   | MIN             | TYP                 | MAX             | Unit |
|---|--|-----------------|---------------------|-----------------|------|
| Spindle driver powerblock Power supply voltage            | SPVM1,2  | —               | V <sub>cc#3</sub>   | —               | V    |
| Sled motor driver powerblock Power supply voltage         | SLRNF1,2                                       | —               | SLV <sub>DD#3</sub> | —               | V    |
| Preblock / Loading driver powerblock Power supply voltage | SPVM_S,<br>SLV <sub>DD</sub> , V <sub>cc</sub> | AV <sub>M</sub> | 12                  | 14              | V    |
| Actuator driver powerblock Power supply voltage           | AV <sub>M</sub>                                | 4.3             | 5.0                 | V <sub>cc</sub> | V    |
| PWM control block power supply voltage                    | DV <sub>cc</sub>                               | 4.3             | 5.0                 | 6.0             | V    |
| Spindle driver output current                             | I <sub>osp</sub>                               | —               | 1.2                 | 2.5#4           | A    |
| Actuator/sled motor/loading motor driver output current   | I <sub>oo</sub>                                | —               | 0.5                 | 0.8             | A    |

#3 Set the same supply voltage to SPVM\_S and SPVM1,2, to SLV<sub>DD</sub> and SLRNF1,2.  
 #4 The current is guaranteed 3.0A in case of the current is turned on/off in a duty-ratio of less than 1/10 with a maximum on-time of 5msec

This product described in this specification isn't judged whether it applies to COCOM regulations. Please confirm in case of export.  
 This product isn't designed for protection against radioactive rays.

Application example

The application circuit is recommended for use. Make sure to confirm the adequacy of the characteristics.  
 When using the circuit with changes to the external circuit constants, make sure to leave an adequate margin for external components including static and transitional characteristics as well as dispersion of the IC.  
 Note that ROHM cannot provide adequate confirmation of patents.

The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys).  
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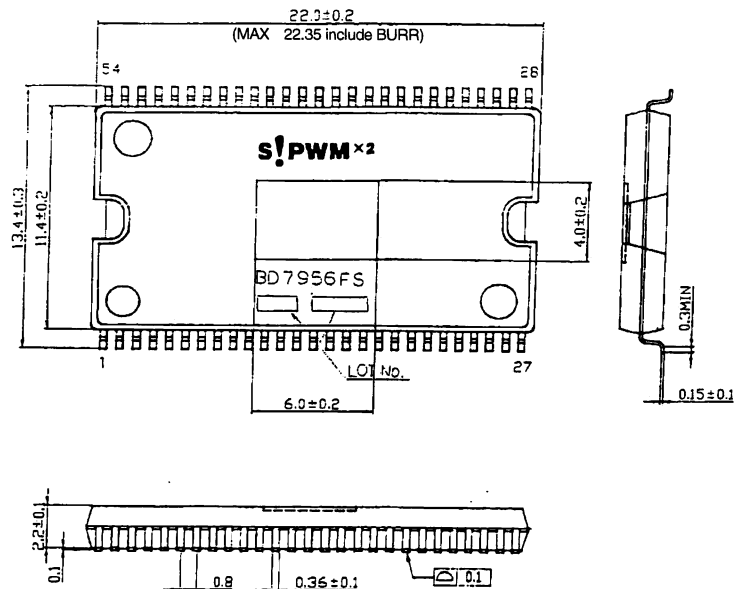
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○Electrical characteristics

(Unless otherwise noted, Ta=25°C, Vcc=SPVM\_S=SLVDD=12V, DVcc=AVM=5V, VC=1.65V, SPRNF=0.22Ω, SLRNF=0.5Ω, RL=8Ω, RLSP=2Ω)

| Parameter             |                                     | Symbol | MIN. | TYP. | MAX. | Unit | Condition         |
|-----------------------|-------------------------------------|--------|------|------|------|------|-------------------|
| Circuit current       | Quiescent current1                  | IQ1    | —    | 12   | 20   | mA   | Vcc (Loading OFF) |
|                       | Quiescent current2                  | IQ2    | —    | 5    | 9    | mA   | Vcc (Loading ON)  |
|                       | Quiescent current3                  | IQ3    | —    | 4    | 8.5  | mA   | DVcc              |
|                       | Standby-on current1                 | IST1   | —    | —    | 0.4  | mA   | Vcc               |
|                       | Standby-on current2                 | IST2   | —    | —    | 0.1  | mA   | DVcc              |
| Sled driver block     | Input dead zone (one side)          | VDZSL  | 5    | 30   | 55   | mV   |                   |
|                       | Input output gain                   | gmSL   | 1.0  | 1.3  | 1.6  | A/V  | SLRNF=0.5Ω        |
|                       | Output On resistor (top and bottom) | RONSL  | —    | 2.6  | 3.7  | Ω    | IL=500mA          |
|                       | Output limit current                | ILIMSL | 0.84 | 1.0  | 1.16 | A    | SLRNF=0.5Ω        |
|                       | PWM frequency                       | fosc   | —    | 100  | —    | kHz  |                   |
| Spindle driver block  | Input dead zone (one side)          | VDZSP  | 0    | 10   | 40   | mV   |                   |
|                       | Input output gain                   | gmSP   | 1.24 | 1.54 | 1.84 | A/V  | SPRNF=0.22Ω       |
|                       | Output On resistor (top and bottom) | RONSP  | —    | 0.8  | 1.4  | Ω    | IL=500mA          |
|                       | Output limit current                | ILIMSP | 1.2  | 1.5  | 1.8  | A    | SPRNF=0.22Ω       |
|                       | PWM frequency                       | fosc   | —    | 100  | —    | kHz  |                   |
| Actuator driver block | Output offset voltage               | VOFFT  | -50  | 0    | 50   | mV   |                   |
|                       | Output saturation voltage           | VOFT   | —    | 0.9  | 1.6  | V    | IL=500mA          |
|                       | Voltage gain                        | GVFT   | 16.0 | 17.5 | 19.0 | dB   |                   |
| Loading driver block  | Output offset voltage               | VOFLD  | -50  | 0    | 50   | mV   |                   |
|                       | Output saturation voltage           | VOLD   | —    | 1.55 | 2.2  | V    | IL=500mA          |
|                       | Voltage gain                        | GVLD   | 16.0 | 17.5 | 19.0 | dB   |                   |
| Others                | VC drop-muting                      | VMVC   | 0.4  | 0.7  | 1.0  | V    |                   |
|                       | Vcc drop-muting                     | VMVcc  | 3.4  | 3.8  | 4.2  | V    |                   |

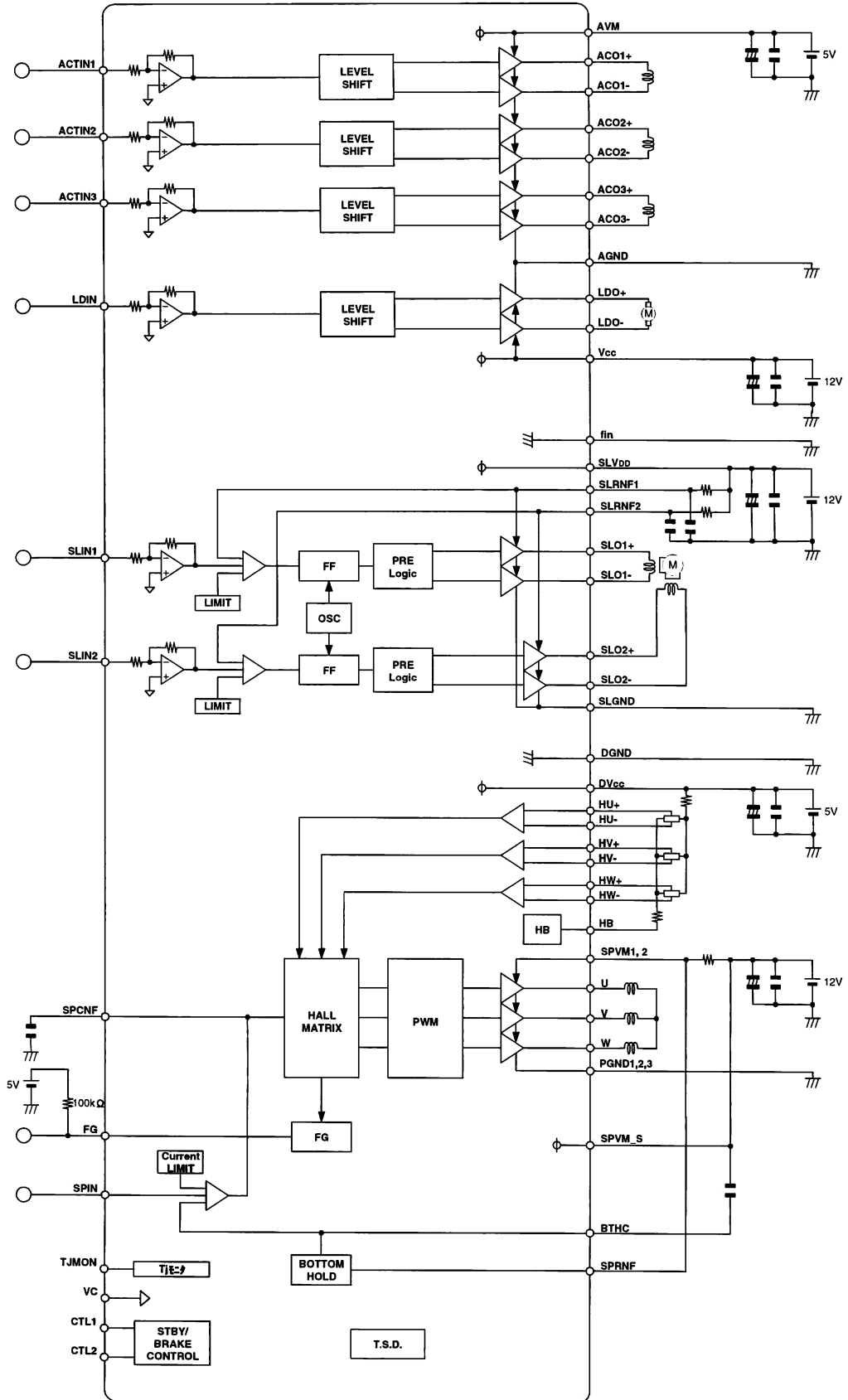
○Package outlines



(UNIT : mm)

Figure No. ; B1196

○Block diagram / Application circuit



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