



LB8620M

Low-voltage/Low-saturation Bidirectional Motor Driver

Overview

The LB8620M is a low-voltage, low-saturation, two motor driver with a bidirectional braking function that provides constant-voltage regulated output for bidirectional operation.

The design of the LB8620M is ideal for video equipment, cameras, and other portable equipment.

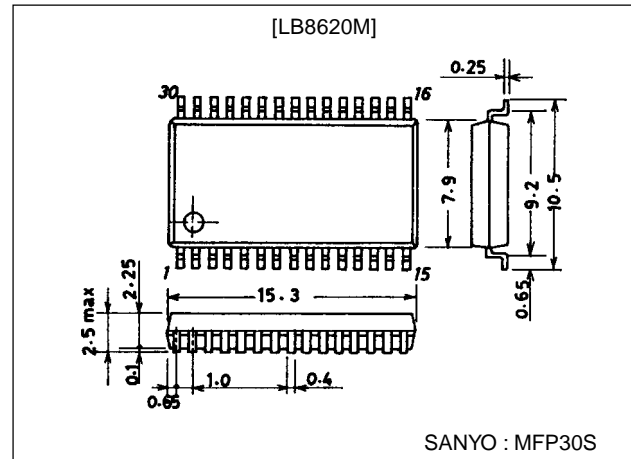
Features

- Wide operating voltage range : 4.5V to 7V.
: 3.0V to 7V (unregulated).
- Low saturation voltage.
 $V_{sat}=1V$ at $I_O=1A$ (typ).
- Consumes almost no current in standby mode.
(0.1 μ A or less).
- Brake function built in.
- Permits setting of bidirectional constant-voltage regulated value. Four independently adjustable.
- Spark killer diodes built in.

Package Dimensions

unit:mm

3073A-MFP30S



Specifications

Absolute Maximum Ratings at $T_a = 25^\circ C$

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|--------------|------------|-------------|------------|
| Maximum supply voltage | V_{CC} max | | 8 | V |
| Output current | I_m max | | 1.5 | A |
| Applied input voltage | V_{IN} | | -0.3 to +8 | V |
| Allowable power dissipation | P_d max | | 1.0 | W |
| Operating temperature | T_{opr} | | -20 to +80 | $^\circ C$ |
| Storage temperature | T_{stg} | | -40 to +125 | $^\circ C$ |

Allowable Operating Conditions at $T_a = 25^\circ C$

| Parameter | Symbol | Conditions | Ratings | Unit |
|--------------------------|----------|-------------------------|-----------------|------|
| Supply voltage | V_{CC} | () : unregulated value | (3.0)4.5 to 7.0 | V |
| Input high-level voltage | V_{IH} | | 2.0 to 7.0 | V |
| Input low-level voltage | V_{IL} | | -0.3 to +0.3 | V |

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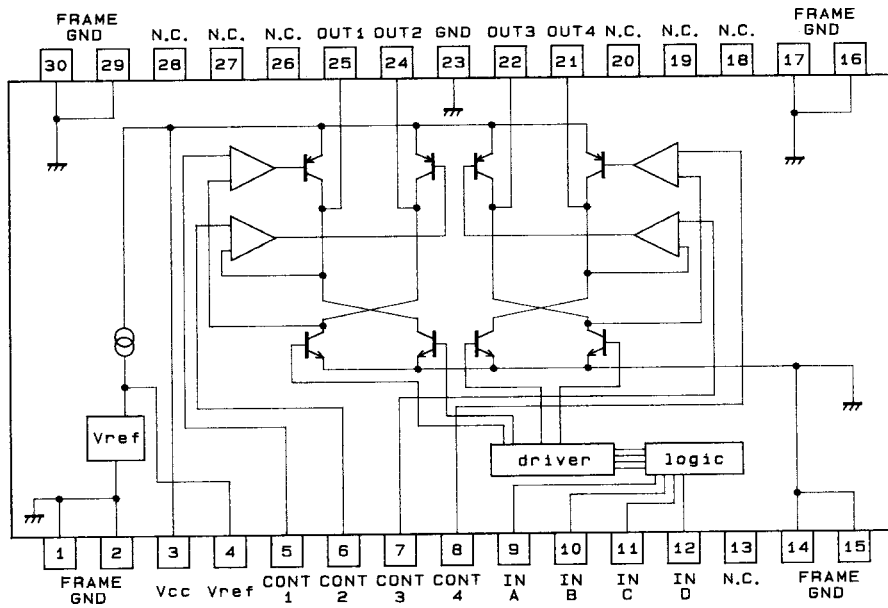
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

LB8620M

Electrical Characteristics at Ta = 25°C

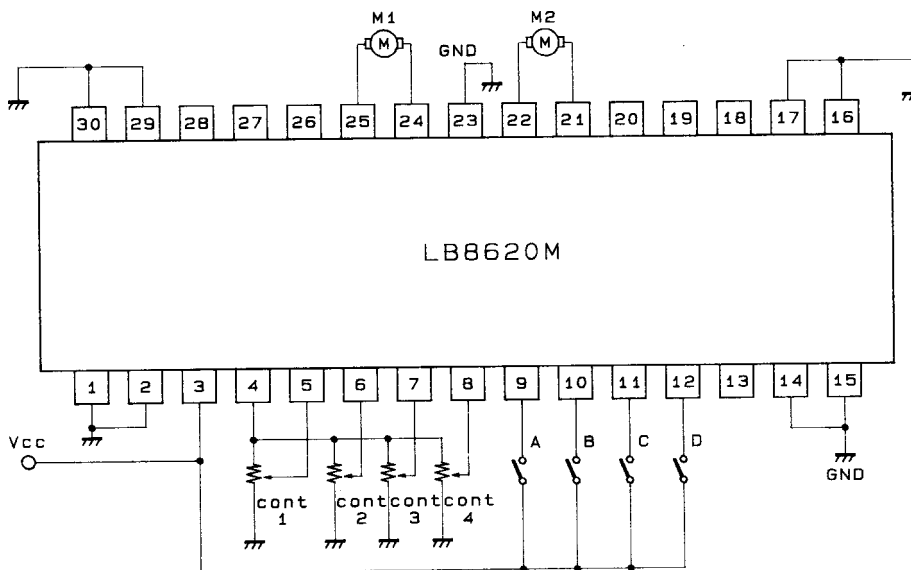
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|--|--|---------|--------|------|---------|
| | | | min | typ | max | |
| Supply current | I_{CC0} | During standby | | 0.5 | 10 | μA |
| | I_{CC1} | During bidirectional operation OUT1 to OUT4 open | | 45 | | mA |
| | I_{CC2} | During braking OUT1 to OUT4 open | | 75 | | mA |
| Output saturation voltage | V_{sat1} | $I_O=200mA$ | | 0.2 | 0.3 | V |
| | V_{sat2} | $I_O=500mA$ | | 0.5 | 0.75 | V |
| | V_{sat3} | $I_O=1000mA$ | | 1.0 | 1.5 | V |
| Reference voltage | V_{ref} | $I_{ref}=1mA$ | 3.1 | 3.3 | 3.5 | V |
| Output voltage voltage characteristics | $\frac{\Delta V_O}{V_O} / \Delta V_{CC}$ | $V_O=4V, V_{CC}=4.5 \text{ to } 7V, I_O=100mA$ | | 0.5 | | %/V |
| Output voltage current characteristics | $\frac{\Delta V_O}{V_O} / \Delta I_{CC}$ | $V_O=4V, V_{CC}=6V, I_O=30 \text{ to } 500mA$ | | -0.005 | | %/mA |

Equivalent Circuit Block Diagram and Pin Assignment



A00463

Test Circuit



A00462

Truth Table

| Input | | | | Mode | Remarks |
|-------|---|---|---|------------|-----------------------|
| A | B | C | D | | |
| L | H | L | L | M1 Forward | constant-voltage |
| L | H | H | L | M1 Forward | high-speed |
| H | L | L | L | M1 Reverse | constant-voltage |
| H | L | H | L | M1 Reverse | high-speed |
| H | H | - | L | M1 Brake | |
| L | H | L | H | M2 Forward | constant-voltage |
| L | H | H | H | M2 Forward | high-speed |
| H | L | L | H | M2 Reverse | constant-voltage |
| H | L | H | H | M2 Reverse | high-speed |
| H | H | - | H | M2 Brake | |
| L | L | - | L | OFF | $I_{CC} \leq 10\mu A$ |

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